Negative coordination

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Jovana Gajić

aus Novi Sad

Abstract

Some languages make use of special forms for coordination markers in negative environments, known as negative coordination ('Nina will neither sing nor dance'). This dissertation explores negative coordination in English and in BCMS (Bosnian / Croatian / Montenegrin / Serbian). The primary goal is to account for the logically strong interpretation ('it is not the case that Nina will sing and it is not the case that Nina will dance') of sentences with *neither...nor*, *ni...ni*, and *niti...niti*. The secondary goal is to relate these constructions, in which two coordination markers are present, to the ones where only a single *neither/nor*, *ni* or *niti* appears as an additive particle.

Negative coordination constructions concern two major topics in formal semantics and syntax/semantics interface – negation and (binary) connectives. This perspective occupies a central place in the empirical description offered in the first half of the thesis, as well as in the theoretical discussion of the analyses proposed. Chapters 3, 4, 5 and 6 focus on the negative aspect of the construction, whereas Chapters 7, 8, 9 and 10 deal with the connective underlying negative coordination.

In Chapters 3 and 4, it is shown that paired negative coordination markers have a wider distribution than combinations of a single marker with a plain connective or with sentential negation only. Chapter 5 shows that constructions with single markers can also materialize as independent sentences, in which case an additive particle use is invoked. English and BCMS diverge in the interaction of negative coordination with other negative or polarity sensitive expressions, as revealed in Chapter 6. Nonetheless, *neither*, *nor*, *ni*, and *niti* conform to the general system of negation in their corresponding languages, since *neither* and *nor* are found to be inherently negative, whereas *ni* and *niti* are not.

The empirical investigation is narrowed to constructions with iterated coordination markers further on in Chapters 7, 8 and 9, where the logico-semantic nature of the connective component is determined. Using diagnostics with a third scope-taking expression, it is shown that negative coordination in both languages is underlyingly disjunctive. After dismissing an approach in terms of plural denotations and homogeneity, scopal ordering between disjunction and negation is discussed in Chapter 10. An LF with a disjunction scoping over negation is adopted for *neither...nor*, despite absence of alternative question readings and ignorance inferences with negative coordination in both languages. However, such an LF does not reflect the strong readings of negative coordination constructions, which are stable. On the other hand, *ni...ni* and *niti...niti* correspond to disjunctions in the scope of negation, which is directly compatible with their interpretation.

The starting point for the analyses in the second half of the thesis is thus that both

ni...ni and *niti...niti* in BCMS are underlyingly semantically non-negative disjunctions, which need to stay in the scope of a negative operator. This is implemented in Chapter 11 through a syntactic agreement mechanism between the coordination markers *ni* and *niti* and a c-commanding silent negative operator (Zeijlstra, 2004). It is further argued that this is not an option for *neither...nor*, which is why Across-The-Board movement of negative operators at LF is briefly considered. The form-meaning mismatch in English is given a better-motivated account in Chapter 12, where exhaustification of disjunct alternatives is used to strengthen the interpretation, in two versions – recursive Innocent Exclusion (Fox, 2007) and Innocent Exclusion followed by Innocent Inclusion of alternatives (Bar-Lev and Fox, 2017). This prompts ample discussion of issues which arise in the derivation of alternatives for negative coordination in English and its exhaustification in different environments. As the problems are not satisfactorily resolved, Chapter 13 offers an alternative approach, this time employing focus alternatives of the disjuncts to stipulate presuppositions on *neither* and *nor*, which not only brings about the strong meaning of negative coordination, but also accounts for their use as single additive particles. Chapters 14 and 15 reproduce strengthening by exhaustification and by presuppositions, respectively, for negative coordinations in BCMS, where it is vacuous, showing that the latter rather than the former can provide a useful add-on to the analysis with syntactic agreement from Chapter 11.

Zusammenfassung

Manche Sprachen markieren Koordination in negativen Kontexten durch spezielle Formen, die im Folgenden als negative Koordination bezeichnet werden ('Nina will neither sing nor dance', 'Nina wird weder singen noch tanzen'). Diese Dissertation befasst sich mit negativer Koordination im Englischen und im BKMS (Bosnischen / Kroatischen / Montenegrinischen / Serbischen). Das Hauptziel der Arbeit ist, die logisch starke Interpretation ('Es ist nicht der Fall, dass sie singen wird und es ist nicht der Fall, dass sie tanzen wird') von Sätzen mit *neither...nor*, *ni...ni* und *niti...niti* abzuleiten. Ein weiteres, sekundäres Ziel ist, diese Konstruktionen, in denen die Koordinationsstruktur zwei Marker enthält, zu Strukturen in Beziehung zu setzen, in denen *neither/nor*, *ni* oder *niti* nur einmal vorkommt und als additive Partikel interpretiert wird.

Negative Koordinationsstrukturen vereinen zwei grundlegende Themen der formalen Semantik und der Syntax-Semantik-Schnittstelle – Negation und (binäre) Konnektive. Sowohl die empirische Beschreibung in der ersten Hälfte der Arbeit als auch die theoretische Diskussion der vorgeschlagenen Analysen orientieren sich an dieser Perspektive. Während der Schwerpunkt in den Kapiteln 3, 4, 5 und 6 auf der negativen Bedeutungskomponente der Konstruktion liegt, beschäftigen sich die Kapitel 7, 8, 9 und 10 mit dem Konnektiv, das der negativen Koordination zugrunde liegt.

In den Kapiteln 3 und 4 wird gezeigt, dass die zweifach markierten negativen Koordinationen eine weniger eingeschränkte Distribution haben als Kombinationen eines einzelnen Markers mit einem gewöhnlichen Konnektiv oder einer Satznegation. Kapitel 5 zeigt, dass Konstruktionen mit einem einzelnen Marker auch als unabhängige Sätze auftreten können. In diesem Fall wird der Marker als additive Partikel gebraucht. Das Englische und das BKMS unterscheiden sich bezüglich der Interaktion der negativen Koordination mit anderen Negationsausdrücken und Polaritätselementen, wie in Kapitel 6 nachgewiesen wird. Da sich *neither* und *nor* als inhärent negativ erweisen, *ni* und *niti* aber nicht, stehen *neither*, *nor*, *ni* und *niti* allerdings alle im Einklang mit der allgemeinen Funktionsweise der Negation in ihrer jeweiligen Sprache.

In den Kapiteln 7, 8 und 9 konzentriert sich die empirische Untersuchung darauf, die logisch-semantischen Eigenschaften der Konnektive in den Konstruktionen mit Wiederholung des Markers zu bestimmen. Mithilfe von Beispielen, in denen die negative Koordination mit einem weiteren skopustragenden Ausdruck interagiert, wird gezeigt, dass negative Koordinationen in beiden Sprachen eine disjunktive Grundbedeutung haben. Nachdem ein alternativer, auf semantischer Pluralität und Homogenität basierender Ansatz ausgeschlossen wird, befasst sich Kapitel 10 mit dem Skopus der Disjunktion relativ zur Negation. Für

neither...nor wird eine LF angenommen, in der die Negation im Skopus der Disjunktion steht, obwohl negative Koordinationsstrukturen in beiden Sprachen weder eine Interpretation als Alternativenfrage noch Ignoranzimplikaturen aufweisen. Eine solche LF bildet die stabile, logisch starke Lesart negativer Koordinationsstrukturen allerdings nicht ab. Die Strukturen mit *ni...ni* und *niti...niti* entsprechen hingegen Disjunktionen im Skopus einer Negation, was ohne weiteres mit der Lesart dieser Konstruktionen vereinbar ist.

Der Ausgangspunkt für die Analysen in der zweiten Hälfte der Arbeit ist daher, dass sowohl *ni...ni* als auch *niti...niti* im BKMS Disjunktionen mit einer nicht-negierten Grundbedeutung sind, die im Skopus eines Negationsoperators bleiben müssen. Das wird in Kapitel 11 über eine syntaktische Kongruenzbeziehung zwischen den Koordinationsmarkern *ni* und *niti* und einem phonetisch leeren Negationsoperator implementiert, der diese Marker c-kommandieren muss (Zeijlstra, 2004). Weiters wird argumentiert, dass diese Option für *neither...nor* nicht verfügbar ist. Daher wird kurz die Möglichkeit einer 'Across-The-Board'-Bewegung der negativen Operatoren auf LF betrachtet.

Eine besser motivierte Erklärung für die scheinbare Inkongruenz zwischen Form und Bedeutung im Englischen wird in Kapitel 12 gegeben. Um die Interpretation zu verstärken, wird ein Exhaustivitätsoperator verwendet, wobei die Alternativen durch die einzelnen Disjunkte gegeben sind. Es werden zwei Versionen dieser Analyse diskutiert – rekursive 'Innocent Exclusion' (Fox, 2007) und ein Ansatz, in dem zunächst 'Innocent Inclusion' und dann 'Innocent Exclusion' angewandt wird (Bar-Lev and Fox, 2017). Davon ausgehend werden die Schwierigkeiten diskutiert, die bei der Herleitung der Alternativen für negative Koordinationen im Englischen und bei der Exhaustivierung in unterschiedlichen Kontexten auftreten. Da diese Probleme nicht zufriedenstellend gelöst werden konnten, wird in Kapitel 13 eine Alternative vorgeschlagen: Auf Basis der Fokusalternativen der Disjunkte werden Präsuppositionen für *neither* und *nor* angenommen, aus denen nicht nur die starke Interpretation negativer Koordinationsstrukturen, sondern auch der Gebrauch von *neither* und *nor* als additive Partikel abgeleitet werden kann. In den Kapiteln 14 und 15 wird untersucht, ob die beiden Analyseansätze für das Englische – Exhaustivierung und Präsuppositionen – auch auf negative Koordinationsstrukturen im BKMS anwendbar sind. Dabei zeigt sich, dass der letztere Ansatz sinnvoll mit der syntaktischen Kongruenzanalyse aus Kapitel 11 kombiniert werden kann, der erstere aber nicht.

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Well, this was a great plan, but it didn't really work. So here I (actually) am, writing this in the very last possible moment, abandoning the urge to thank everyone in the best possible (and customized) way, while at the same time entertaining the readership. But one thing that is really important for me to say at this point is the following: throughout these past years, I have been surrounded by individuals who are uncomparably smarter, much more hard-working, and greatly kinder than I am. My biggest regret is that I was mostly unable to exploit this more and better, for purposes of my research in linguistics. But this is entirely my fault.

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All errors are my own.

Slavic antithesis

Ženidba Milića barjaktara

[...]

„Oj punice, đevojačka majko!

Ili si je od zlata salila?

Ili si je od srebra skovala?

Ili si je od sunca otela?

Ili ti je Bog od srca dao?"

Zaplaka se đevojačka majka,

A kroz suze tužno govorila:

„Mio zete, Milić-barjaktare!

Niti sam je od zlata salila,

Niti sam je od srebra skovala,

Niti sam je od sunca otela,

Veće mi je Bog od srca dao:

[...]

The wedding of Milić the flag-bearer (Serb epic poetry)

[...]

"O Whitethroat, the mother of the maiden

Is it gold you have cast her out of?

Or you have forged her out of silver?

Or is it the sun you have stolen her from?

Or did God give her from his heart to you?"

Mother of the maiden started crying,

Furthermore in tears she uttered sadly:

Son in law, Milić the flag-bearer!

Neither have I cast her out of gold,

Nor have I forged her out of silver,

Nor is it the sun I have stolen her from,

God gave her to me from his heart instead:[1]

[...]

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[1]Deseterac (decasyllabic verse) not implemented successfully throughout, so spare your gusle...

Contents

IV Analyses   223

11 Covert negation
or covert movement of negation   223

12 Alternatives and exhaustification
approach: English   237

0.1   A note on the names of the languages

English is understood as Standard English. The data have been verified with native speaker informants who are British, American and Canadian nationals. That the English language analyzed here belongs to the Standard also patterns with the consultants' intuition that negative coordination constructions, and especially the *neither...nor* form, represent a higher (more formal) register. Standard English is one of the few languages (dialects) which exhibit double negation readings and research presented in this study will mostly be understood inside that environment.

As for BCMS, Bosnian / Croatian / Montenegrin / Serbian, I gathered most of the data using my own native speaker intuitions, which means that they mostly correspond to the Serbian variety. I have observed some extent of variation in the use of negative coordination markers among varieties of BCMS, but this will not be a subject of study here. Nonetheless, most of the data was verified with other native speakers, of different varieties. BCMS is a poly-centric language, further comprising many dialects. Other names for the language are in use, but they mostly correspond to political delimitations. I refer the reader to the *Declaration on the Common Language*.[2]

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[2]https://jezicinacionalizmi.com/deklaracija/
https://en.wikipedia.org/wiki/Declaration_on_the_Common_Language

0.2   Symbols & Abbreviations

WORD stress

LF Logical Form

1 first person

2 second person

3 third person

ACC accusative

ADV adverb(ial)

AUX auxiliary

COMP complementizer

COND conditional

COP copula

DAT dative

DECL declarative

DEF definite

DEM demonstrative

DET determiner

DP Determiner Phrase, nominal phrase

F feminine

FOC focus

FUT future

GEN genitive

IMP imperative

INDF indefinite

INF infinitive

INS instrumental

IPFV imperfective

IRR irrealis

LOC locative

M masculine

N neuter

NEG verbal marker of negation

NOM nominative

PASS passive

PFV perfective

PL plural

POSS possessive

PRED predicative

PRF perfect

PRS present

PROG progressive

PROH prohibitive

PST past

PTCP participle

Q question particle/marker

RECP reciprocal

REFL reflexive

REL relative

SG singular

Part I

Introduction

There are different ways to connect two negative statements. They can be conjoined (1a), or a disjunction of two positive constituents can be negated (1b).

(1)   a. Brenda hasn't read the book and she hasn't seen the film.

        b. Brenda hasn't read the book or seen the film.[3]

The two have equivalent interpretations, and in that they seemingly correspond to one of De Morgan's equivalences (Hurley, 2015), which states that the conjunction of two negations is logically equivalent to the negation of a disjunction (2).

(2) $\neg p \wedge \neg q \Leftrightarrow \neg(p \vee q)$

But (1) doesn't exhaust all the possibilities for expressing this meaning. So-called negative coordination, as exemplified with English *neither...nor* in (3), also gets an interpretation which corresponds to (2).

(3)   Brenda has neither read the book nor seen the film.

Furthermore, there are other constructions (4) that receive the same kind of interpretation (2) and that seem related to negative coordination.

(4)   a. Brenda hasn't read the book, nor has she seen the film.

        b. Brenda will never read the book, nor has she seen the film.

        c. Brenda hasn't read the book, and neither will she.

        d. Brenda will never read the book. Neither has she seen the film.

BCMS makes use of two markers for expressing negative coordination, *ni* and *niti*, as in (5). The interpretations of both sentences correspond to (2).

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[3]This holds for sentences uttered with a neutral intonation, i.e. without special stress on the connective *or*.

(5) a. *Lea ni-je   ni pročitala knjigu ni videla film.*
    Lea NEG-AUX ni read   book ni seen film
    'Lea has neither read the book nor seen the film.'

  b. *Niti je   Lea pročitala knjigu, niti će   pogledati film.*
    niti AUX Lea read   book   niti will see   film
    'Lea has neither read the book nor will she see the film.'

Other options for expressing the same meaning are also available, as in (6).

(6) a. *Lea ni-je   pročitala knjigu, ni videla film.*
    Lea NEG-AUX read   book   ni seen film
    'Lea hasn't read the book, nor has she seen the film.'

  b. *Lea ni-je   pročitala knjigu, niti je   videla film.*
    Lea NEG-AUX read   book   niti AUX seen film
    'Lea hasn't read the book, nor has she seen the film.'

  c. *Lea ni-je   pročitala knjigu. Niti će   pogledati film.*
    Lea NEG-AUX read   book   niti will see   film
    'Lea hasn't read the book. Neither will she see the film.'

Negative coordination presents an interesting ground for linguistic research, both empirically and theoretically, as it combines coordinative structures with negation, and relates them to (negative) additive constructions (4d, 6c). It is thus found in the intersection of various subfields of linguistics – syntax, semantics, pragmatics, as well as prosody.

Negative coordination has not received a lot of attention in the literature so far, especially from a cross-linguistic perspective. To the extent that it has, the questions raised range from the syntactic status of negative coordination markers (Hendriks (2004) and Den Dikken (2006) for English), via their relationship with negation and polarity (de Swart (2001a), Doetjes (2005), Mouret (2007) and Dagnac (2016) for French), as well as their underlying logico-semantic make-up (Wurmbrand (2008) for English *nor*; González (2014), González and Demirdache (2014) and González (2015) for French; Paperno (2014) and Tiskin (2017) for Russian), to the relation they maintain with focus particles such as *only*, *either*, or *too*, as in Hendriks (2004) for English, and in Szabolcsi (2018a,b) for Hungarian. Other languages whose negative coordinations have been discussed in the formal linguistics literature are Spanish (Herburger, 1999; Aranovich, 2006) and Turkish (Şener and Işsever, 2003; Jeretič, 2018).

This dissertation will primarily focus on the interpretation of constructions with *neither...nor*, *ni...ni*, or *niti...niti*, and different ways of deriving it. The overarching question is:

- what is the underlying structure of negative coordinations in English and in BCMS, with all its meaning components?

Before getting there, an inventory of data featuring the said markers is to be presented, and their interaction with polarity, as well as the link to additivity will be examined.

Chapter 1

Research questions

Three questions are to be addressed, each reflecting one part of this thesis, and concerning both English and BCMS.

1. What is the range of structural possibilities for expressing the meaning of negative coordination and which syntactic categories can participate in it?　▶ Part II

2. What is the semantic status of the coordination markers and which LFs correspond to sentences with negative coordination?　▶ Part III

3. What theoretical approach caters best to the empirical situation and how far can a unification of the analyses with (negative) additives reach?　▶ Part IV

The above issues will be made more explicit in the following three sections of this chapter (Chapter 1). In Chapter 2, I will provide an overview of some literature on negative coordination and related phenomena in English and in BCMS.

1.1   Negative coordination and beyond: the data

The goal of Part II will be to make an inventory of the syntactic strategies which yield the semantic interpretation of 'negative coordination', as repeated in (7) below:

(7)　a.　Brenda does not sing and she does not dance.　$\neg p \wedge \neg q$

　　　b.　Brenda does not sing or dance.　$\neg(p \vee q)$

The languages studied are English and BCMS. Now, two configurations are usually taken into account in the discussion of negative coordination: one with multiple coordination markers α and β (8a), where α and β can be equivalent in form, and one with a single marker β (8b).

(8) a. (...) α (...) XP β XP

b. (...) NEG XP β XP

In English, α and β do in fact take a different form, as *neither* attaches to the initial member of coordination, whereas *nor* introduces the final coordinand[1], and the two cannot be inversed (9a). When a single marker is employed, as in the examples in (9b), negation must be overtly expressed in some form in the preceding context (*not*, *never*).

(9) a. * Brenda would nor sing neither dance.

b. i. Brenda would *(not) sing, nor would Jenny dance.

ii. Brenda would *(never) sing. Neither would Jenny dance.

In BCMS, α and β have the same form inside one coordination, but there are two markers available for such constructions, namely *ni* and *niti*. Both markers can be attached to each member of the coordination (10a), or else a single marker can co-occur with sentential negation marked on the finite verb (*ne*), as in (10b).

(10) a. *Lea ne bi   ni(ti) pevala ni(ti) igrala.*
          Lea NEG would ni(ti) sung   ni(ti) danced
          'Lea would neither sing nor dance.'

b. *Lea ne bi   pevala{,/.} Ni(ti bi)   igrala.*
    Lea NEG would sung   ni(ti would) danced
    'Lea wouldn't sing, nor would she dance.'

The ultimate question is whether the initial and the final marker deserve a parallel syntactic and semantic treatment, but also to which extent the two languages converge in their expression of negative coordination. A prerequisite for addressing these questions is a thorough investigation of the variety of structural positions in which the four markers (*neither*, *nor*, *ni*, and *niti*) can be found. Furthermore, since we are dealing with negative interpretations here, it should be explored whether these coordination markers pattern with other expressions in the system of negation of the given language, bearing in mind that such expressions can be semantically negative or (only) morphosyntactically marked

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[1]I adopt the term 'coordinand' from Haspelmath (2007: 50). It is used to name 'units that are combined in a coordinate construction'. I employ it here as a descriptive term, mostly to avoid the cumbersome 'member of coordination'.

for negation. The reason why this matters is that (Standard) English and BCMS stand on the opposite sides of the cross-linguistic landscape of negation, since Standard English (11a) is a double negation (DN) language and BCMS (11b) is a strict negative concord (NC) language.

(11) a. i. Nobody likes Jenny.
             ⤳ It is not the case that there is some person who likes Jenny.

          ii. Nobody doesn't like Jenny.   ⤳ Everybody likes Jenny.

          iii. Nobody likes nobody.   ⤳ Everybody likes somebody.

      b. *Ni-ko   *(ne) voli   ni-koga.*
          NEG-who.NOM NEG   likes NEG-who.ACC
          'Nobody likes anybody'

Neg-words[2] in BCMS, like *niko* in (11b) are not grammatical if no verbal marker of negation (*ne*) is present in the same clause, and this requirement holds regardless of their structural position. Moreover, double negation readings are not attested, as the English translation in (11b) shows. The situation is exactly the opposite in Standard English (11a). For this reason, it is normally assumed that negative indefinites, or neg-words, are only morphosyn-tactically negative in a NC language such as BCMS, whereas they are inherently negative in a DN language such as Standard English (Zeijlstra, 2004, 2011). This invites for an empirical comparison in the domain of negative coordination.

Part II of the present dissertation, titled 'Negative coordination and beyond: the data', is thus mainly descriptive and it focuses on two issues:

- the contextual distribution of *neither*, *nor*, *ni*, and *niti*, with syntactic restrictions that affect negative coordination and related constructions,

- the expression of negation and interaction of negative coordination with items that are sensitive to polarity.[3]

Part II is divided into four chapters.

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[2]Neg-word is a widely adopted term for negative indefinites in NC languages (which is why they are now often called Negative Concord Items – NCIs), i.e. those negative indefinites that are usually not considered as semantically negative. The term itself originates as 'n-word' in Laka (1990).

[3]Polarity sensitive items are natural language expressions whose distribution is restricted to certain environments – roughly, downward monotonic in the case of Negative Polarity Items (NPIs), modal(ized) in the case of Free Choice Items (FCIs), and outside of the scope of negation in the case of Positive Polarity Items (PPIs). The most famous representatives are English *any* (NPI and FCI) and *some* (PPI). See Ladusaw (1997); Giannakidou (2011); Zeijlstra (2013); Penka (2015, 2020) for an overview, and Chierchia (2013) for a recent unified analysis of these phenomena.

What are the empirical possibilities with *neither...nor*, *ni...ni*, and *niti...niti*?
Chapter 3 exhibits structures in which coordination markers appear more than once. This represents the core data dealt with in the subsequent Parts of the thesis. The goal of the Chapter is to explore the distribution of *neither...nor*, *ni...ni* and *niti...niti*. For this reason, sections are organized around different structural positions of the markers at surface. The final section is concerned with the (im)possibility of coordinations in which *neither / ni / niti* attaches to an initial coordinand and a plain connective such as *or* or *and* to the final one. The Chapter shows that negative coordination markers in both languages productively occur in different positions in a clause, and with constituents of different sizes and syntactic categories. Nonetheless, matrix clausal coordination is fully well-formed only with *niti...niti*. Moreover, *ni* and *niti* turn out to be in competition for the majority of contexts, which is why iteration of the *niti*-marker with non-clausal constituents is marked. Throughout the sections, it will be shown that such coordinations are not limited to two members. Furthermore, the comparison will also reveal that, while the position of *neither* and *niti* is not fixed to the left edge of the initial coordinand, *ni* has to be attached directly to the phrase it associates with. Finally, attention is given to the issue of the status of the coordination markers with respect to negation, where observations made speak in favor of semantic negativity for *neither* and *nor*, but vacuity for *ni* and *niti*.

What are the empirical possibilities in absence of an initial marker? Chapter 4 proceeds in the same way as the survey in Chapter 3, but this time examining sentences with single occurrences of the coordination markers and negation overtly marked on a finite verb. The sections looking at subjects, objects, non-arguments, verbal predicates, and clauses reveal that this kind of construction is less productive, especially in English, where only fully realized clausal constituents are good after *nor*. This raises the issue of whether such constructions should be treated as coordinations in the first place, or at least, whether this is warranted in both English and BCMS, given the specificities of the markers regarding negativity and their morphosyntax. Even more so since these constructions share all the features with their counterparts in the form of independent sentences, studied in the following Chapter.

What other roles can *neither*, *nor*, *ni*, and *niti* take? Chapter 5 will explore other contexts in which the use of the four studied markers is attested in English and in BCMS. The most relevant for the present study are additive uses of these particles, which are tightly related to the subject of the preceding Chapter. In both cases a single marker associates with a phrase, and a requirement for a negative proposition in the preceding

context is imposed. Association is used as a purely descriptive term in this Chapter, but it will subsequently lead to the use of focus semantics in Part IV. The first section of the Chapter shows that each of the four particles can be employed as an additive focus particle for negative contexts, just like sentence-final *either* in English. The second section briefly reviews the extension of such use to effects which involve some sort of scalar ordering of the host with respect to its contextual alternatives. Finally, the third section looks at the quantificational use of *(n)either*, as well as *ni* in combination with *wh*-expressions or the numeral 'one'. The latter are known as neg-words, i.e. negative indefinites of a NC language.

How does negative coordination interact with other polarity-affecting and polarity-sensitive expressions? Chapter 6 is interested in the way negative coordination is integrated in the system of negation of the given language and, more generally, polarity. This is why the first section overviews data in which negative indefinites are present in sentences with negative coordination. Surprisingly, neg-words are not really acceptable inside constituents introduced by *ni* or by *niti*. The second section shows that weak Negative Polarity Items (NPIs) are also marked inside *ni...ni* coordination, but fully grammatical inside *niti*-constituents. The third section deals with Positive Polarity Items (PPIs), which turn out to scope above the negations of *neither...nor*, but not those associated with *niti...niti*. Patterning of negative coordination with negative indefinites is verified in the fourth section, through fragment answers to polar questions with disjunction, where presupposition denial seems to be required.

As shown in (11a-i) with the negative indefinite *nobody*, in double negation languages negation is induced in absence of a verbal marker of negation, or a negative adverb. In strict NC languages, on the other hand, the presence of a verbal marker of negation is obligatory whenever a neg-word appears in the clause, shown in (11b) with *ne* and *niko* respectively. As Part II will demonstrate, this is reproduced in the morphosyntactic behavior of the negative coordination markers.

1.2   Semantic status of negative coordination

The discussion in Part III turns from the 'negative' to the 'coordination' component of negative coordination. The aim is to determine the semantico-logic nature of the connective which underlies negative coordination. Two assumptions are made as an initial working hypothesis – the connective is (i) Boolean, and (ii) null, i.e. present in the structure but not as part of any of the coordination markers, as sketched in (12).

(12) a. Brenda [neither sings] [{∨/∧} [nor dances]]

    b. Lea ne bi [ni(ti) pevala] [{∨/∧} [ni(ti) igrala]].

      'Lea would neither sing nor dance'

Cross-linguistically, the meaning expressed by negative coordination (12) corresponds to the logically stronger of the two de Morgan's equivalences – the one which states that a conjunction which scopes over negations is equivalent to a disjunction in the scope of negation (13).

(13) $\neg p \wedge \neg q \ \Leftrightarrow \ \neg(p \vee q)$

    a. 'It is not the case the she sings and it is not the case that she dances'

    b. 'It is not the case that she sings or dances'

So far no language has been attested with special forms for negative coordination which would yield an interpretation corresponding to the weaker of the two de Morgan's equivalences[4], by which a disjunction of two negative statements is equivalent to the negation of a conjunction (14).

(14) $\neg p \vee \neg q \ \Leftrightarrow \ \neg(p \wedge q)$

    a. 'It is not the case the she sings or it is not the case that she dances'

    b. 'It is not the case that she both sings and dances'

The general question is whether natural languages resist creating special forms for the meaning in (14) across the board or whether such configurations are, in fact, possible, but the strong interpretation (13) ultimately results from further factors.

Now, the fact that the meaning which is attested with negative coordination in English and BCMS can correspond to two configurations (13), i.e. two different binary connectives, raises the issue of which of the two represents empirical reality. Since negation is another factor involved, and given that it scopally interacts with connectives such as conjunction and disjunction, the underlying structure for negative coordination may be different in the two languages. Part III thus answers the question whether negative coordination is underlyingly a wide scope conjunction above negation or a narrow scope disjunction below negation. It is divided into four chapters.

What diagnostics can be applied in order to tease apart the two interpretations?
Chapter 7 discusses the unattested weak meaning (14), which is entailed by the strong one (13), and it further details the problem of the ambiguity in (13). In order to disentangle

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[4]It might be important to point out that not many languages make use of special forms (markers) for negative coordination to start with.

the two versions of the interpretation – the conjunction- from the disjunction-based one – a test which introduces a third scope-taking expression is elaborated. This diagnostic follows, on the one hand, Shimoyama (2011) and employs quantificational adverbs to check whether interpretations with the widest scope of conjunction can be attested independently from their stronger counterparts. On the other hand, the version of the diagnostic which employs necessity modals is inspired by Penka (2011) and it checks whether interpretations where the connective has to be a disjunction with the lowest scope are available.

Are *neither...nor*, *ni...ni*, and *niti...niti* underlyingly conjunctive? Chapter 8 implements the diagnostic in which a quantificational adverb is supposed to take intermediate scope between a hypothetical conjunction and negation and show that negative coordination is unambiguously conjunctive. Nonetheless, these interpretations do not seem to be available independently from the ambiguous counterparts which entail them, in either English or BCMS. This means that there is no evidence that negative coordination is underlyingly conjunctive in either of the two languages.

Are *neither...nor*, *ni...ni*, and *niti...niti* underlyingly disjunctive? Chapter 9 implements the diagnostic in which necessity modals and intensional verbs are supposed to take intermediate scope between negation and a hypothetical disjunction, thus showing that negative coordination is unambiguously disjunctive. Crucially, such interpretations are in fact available, and their entailed counterparts, which are ambiguous, do not seem to be attested independently in either English or BCMS. This provides evidence that negative coordination is underlyingly disjunctive in both languages.

What are the corollaries of the disjunctive nature of negative coordination? Chapter 10 first contextualizes the findings from this Part, by addressing certain points made in the previous literature. The second section will discuss the possibility of giving negative coordination a denotation modeled after plurality, where the interaction of negative coordination with modals could be attributed to a Homogeneity inference, i.e. the 'all or nothing' interpretations attested with plain conjunctions and plurals. Reasons are given for why this is not to be pursued, the major one being incompatibility of negatively coordinated subjects with collective predicates. The third section will discuss the absence of alternative question readings, as well as ignorance inferences with negative coordination, which seems to confirm an underlying structure where the disjunction is in the scope of negation. However, as argued in the fourth section, this will be adopted only for *ni...ni* and *niti...niti*, but not for *neither...nor*. This means that there is a form-meaning mismatch

in English which needs to be resolved. Two different mechanisms for achieving this are elaborated in the following Part.

1.3   Agreement, exhaustification, presuppositions

Part IV will offer three different accounts for negative coordination in English and in BCMS, focusing entirely on structures with multiple markers. As established in the preceding Part, they are underlyingly disjunctions in both languages, but only in English do the coordination markers contribute a negative operator each. This leaves us with the configuration in (15a) for English, and the one in (15b) for BCMS.

(15)   a. $\neg p \vee \neg q$

b. $\neg(p \vee q)$

The questions to address are thus as follows.

1. How should the attested strong meaning for negative coordination in the two languages be modeled?

2. Can the additive focus particle use of the markers inform the analysis in any way?

Chapters are organized around the type of mechanism employed to obtain or maintain the strong interpretation (as the one in (15b)):

- syntactic agreement for BCMS and LF-movement for English in Chapter 11,

- exhaustification of alternatives for English in Chapter 12 and for BCMS in Chapter 14,

- focus-based presuppositions for the coordination markers in English in Chapter 13 and in BCMS in Chapter 15.

How can a structure corresponding to (15b) be derived syntactically in both languages? Chapter 11 will propose a syntactic agreement mechanism to ensure a structure corresponding to (15b) for *ni...ni*, as well as for *niti...niti*. The source of wide scope negation is a null semantic operator which c-commands the coordination, i.e. disjunction, and checks off the uninterpretable features for negation present on the coordination markers. This embeds *ni* and *niti* in the system of strict NC in BCMS, thus capitalizing on the semantic non-negativity of these markers and the morphological kinship with neg-words in the language. A different approach will be proposed for English, where *neither* and *nor*

are inherently negative – to achieve the LF in (15b) starting from (15a), covert Across-the-Board movement of the negative operators is stipulated. They fusion into one negative operator which then outscopes the disjunction. This would be a good way to account for the split scope readings with modals from Part III, nonetheless, the lack of theoretical support for such a mechanism does not permit its adoption.

How can a structure corresponding to (15a) be enriched so as to convey the meaning corresponding to (15b)? Chapter 12 will offer an account for *neither...nor* in which its LF is a disjunction scoping over negation (15a), but an obligatory null operator inserted at the root of the whole structure strengthens the meaning by adding implicatures to the assertion. Variations on the theme of this approach will be presented, including recursive exhaustification and the one which combines innocent exclusion with innocent inclusion of alternatives. Either way, the success of the procedure is dependent on the set of alternatives which can be derived from the prejacent, and it will be argued at length that the structural approach to alternatives provides only the two negative disjuncts as formal alternatives. However, given that the approach is conceived as obligatory strengthening, readings which arise in DE environments are not predicted. Although a number of reasons for this is considered, a fully satisfactory account is yet to be found.

How else can a structure corresponding to (15a) be enriched so as to convey the meaning corresponding to (15b)? Chapter 13 will explore a different way to enrich the meaning of *neither...nor*, in order to get the interpretation of a conjunction over negation starting from an LF with a disjunction over negation. The idea is that the wide scope disjunction is only the assertive component of negative coordination. But if the lexical entries of the markers *neither* and *nor* are equipped with presuppositions which invoke focus alternatives, the strong meaning ensues whenever the sentence is defined. To avoid the resulting redundancy, the presuppositions will be further modified into material conditionals. Crucially, the same lexical entries are applicable to the single uses of both *neither* and *nor*, i.e. outside of coordination, as additive focus particles.

How can a structure corresponding to (15b) be enriched so as to derive un-grammaticality in non-negative contexts? Chapter 14 is the counterpart of Chapter 12 that treats negative coordination in BCMS. The discussion here will be reversed, since an account is needed not for strengthening a disjunction, but for explaining why a disjunction is ungrammatical outside the scope of negation. Since contradiction is designated as the source of ungrammaticality, all formally derived alternatives must be supplied to

the silent exhaustification operator. This creates an undesirable mismatch with respect to obligatory exhaustification in English, where alternatives are innocently excludable (or includable, for that matter). Furthermore, complications arise also for the extension of the approach whose purpose is to ensure that not just any DE environment suffices to avoid contradiction, and that overtly marked sentential negation is needed. Given that the whole mechanism relies on syntactic agreement, it will become clear that it does not provide a simpler way to account for *ni...ni* and *niti...niti* than what was proposed in Chapter 11, so further motivation would be needed for an exhaustification approach to be adopted in BCMS.

How can a structure corresponding to (15b) be enriched so as to unify negative coordination and negative additives? Chapter 15 will show that a unification of the syntactic agreement approach from Chapter 11 with presuppositions inspired by the additive uses of *ni* and *niti* captures the most of BCMS negative coordination, as well as focus particles. This is needed because the coordination markers in BCMS are not inherently negative, so the account proposed for English in Chapter 13 cannot give the right result in BCMS on its own, and a syntactic agreement mechanism ensures the presence of negation in the assertive component.

Before proceeding to the survey of the data involving negative coordination in English and BCMS in Part II, a nonexhaustive overview of the literature is provided in Chapter 2.

Chapter 2

Literature overview

This chapter introduces some of the major observations and the theoretical discussion found in the literature on negative coordination and related phenomena in English and in BCMS. The relevant works will be presented in their order of appearance: English negative coordination represented through the work of Horn (1989), Szabolcsi and Haddican (2004), Hendriks (2004), Den Dikken (2006), Wurmbrand (2008), and its BCMS counterpart with

Arsenijević (2011). Nonetheless, it is important to point out that most of the discussion in the previous literature does not directly target the research questions of this dissertation, as their scope is usually broader and dealing principally with issues that are not the main concern of this thesis. The following summaries thus only provide some background for the research presented here, although certain claims will indeed be addressed in Parts II and III. Unless stated otherwise, all examples and definitions given in this chapter are from the respective articles referenced in the section titles.

2.1 Horn (1989)

In one of the chapters of his book *A Natural History of Negation* (1989), Horn discusses quantification and the negative counterparts of quantifiers. After reaffirming an old observation that a negated universal quantifier simply never gets lexically realized, he extends this to connectives. More concretely, it had been established that one corner of the Square of Opposition (16) is missing for quantificational expressions:

(16)
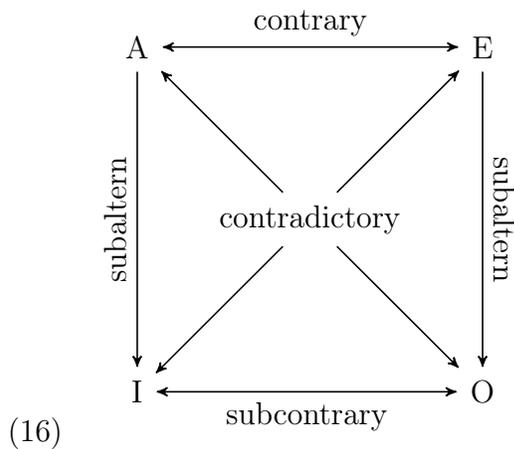
(17)

	A	all/everybody	always	both
	I	some/somebody	sometimes	one
	E	no/nobody	never	neither
	O	*nall/*neverybody	*nalways	*noth

Horn reports that both him in his thesis (Horn, 1972) and Zwicky (1973) have detected independently that 'correlative conjunctions' and 'binary connectives' also fall into this generalization, i.e. there are certain forms that are logically possible but remain empirically unattested:

	correlative conjunctions	*binary connectives*
	both...and	and
(18)	either...or	or
	neither...nor	nor
	*noth...nand	*nand

In Horn's representations, *neither...nor* stands for '[both...and] ¬' (where *nor* has to be '¬'), whereas the non-existent *noth...nand* is configured as '[either...or] ¬' (*nand* would then be '¬ and' or 'or ¬')[1]. The absence of certain realizations is not a quirk of the English language, but a cross-linguistically stable pattern, as Horn contends.

Horn identifies Old English (and Old Norse) *nē* (Jespersen, 1917), as in (20a), and German *noch* (20b), as the only true lexicalizations of the negative conjunction as a binary connective, the two being historically related to *nor* (19, 20c).

(19)   p *nor* q = p ∧ ¬ q

(20)   a. sūð nē nōrð = 'neither south nor north'   (Beowulf, 10th century)

   b. in Wasser noch in Luft = 'neither in the water nor in the air' (C.M. Wieland's *Oberon*, 1780)

   c. Ida stood nor spoke = 'Ida stood and she did not speak' (Lord Alfred Tennyson's *The Princess*, 1847)

These data show that connectives with the meaning 'and not', but without a negative presupposition, i.e. a requirement on the preceding context, used to exist (at least in literary works). They somehow acquired the restriction to formally or pragmatically negative preceeding contexts, so that they correspond to 'and also not...' or 'and not...either' in their contemporary versions (21).

(21)   He is #rich / rather poor, nor is he exactly handsome.

Along with this, a predecessor of *neither...nor* is already present in Beowulf (cited from Coombs (1976)):

(22)   nē lēof nē lāð = 'neither dear nor loathsome'.

But special morphosyntactic forms for the 'not p or not q' interpretation are simply not realized. Here is the full paradigm:

(23)   a.   i. Lee can't come or (else) Kim can't.

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[1]Horn (1989: 254) writes *nand = and¬ / ¬or* in Table 83, but I assume that this is a typographical mistake.

    ii. Lee can't come *nand can Kim.

    iii. Lee can't come *or noth can Kim.

    iv. *Noth Lee nand Kim can come.

  b. i. Lee can't come and Kim can't either.

    ii. Lee can't come nor can Kim.

    iii. Lee can't come and neither can Kim.

    iv. Neither Lee nor Kim can come.

Horn concludes that the non-negative connective *or* (24a), as well as its stronger scalemate *(both...)and* (24b), are available for expressing the weak meaning of 'not p or not q'.

(24)   a. Ida didn't stand or didn't speak.

     b. Ida did not both stand and speak.

Although making use of English data, Horn's discussion of negative coordination pertains to this phenomenon on a more global, cross-linguistic level, exposing the collision between classical propositional logic and empirical facts of natural language(s). Crucially, we see that different expressions can compete for equivalent interpretations. The article presented in Section 2.2 investigates further the division of labor between 'plain' binary connectives and negative coordination.

2.2 Szabolcsi and Haddican (2004)

This article is mainly exploring the interaction of conjunction with sentential negation and a cross-linguistic split that can be observed, according to the authors. Starting from a simple example with sentential negation (*didn't*) and the conjunction *and* in English (25), sharp differences in the interpretation are identified with respect to the Hungarian counterpart of the sentence (26). Whereas English supports the 'not both' reading (25), by which Mary could have taken one of the two subjects, the Hungarian example is incompatible with such an interpretation and only the so-called 'neither' reading is available (26a).

(25)   *Mary didn't take hockey and algebra.*

    a. ✓ 'Mary didn't take hockey or didn't take algebra.' $(\neg p) \vee (\neg q)$

      = 'Mary didn't take both hockey and algebra.'[2] $\neg(p \wedge q)$

(26)   *Mari nem járt hokira és algebrára.*
      Mari not went hockey-to and algebra-to

---

[2]I.e. she could have taken one of the two, for instance, she could have taken algebra.

a. ✓ 'Mari didn't take hockey and didn't take algebra.' $(\neg p) \wedge (\neg q)$

b. # 'Mari didn't take hockey or didn't take algebra.' $(\neg p) \vee (\neg q)$

The contrast extends to the behavior of disjunctions in the two languages. English *or* under negation yields the 'neither' reading (27), whereas Hungarian *vagy* yields the 'not both' reading (28a).

(27) *Mary didn't take hockey or algebra.*
    ✓ 'Mari didn't take hockey and didn't take algebra.' $(\neg p) \wedge (\neg q)$

(28) *Mari nem járt hokira   vagy algebrára.*
    Mari not   went hockey-to or   algebra-to

a. ✓ 'Mari didn't take hockey or didn't take algebra.' $(\neg p) \vee (\neg q)$

b. # 'Mari didn't take hockey and didn't take algebra.' $(\neg p) \wedge (\neg q)$

English disjunction and conjunction thus seem to be able to scope below a c-commanding negation and obey the de Morgan's laws (29), whereas Hungarian counterparts either must scope above the c-commanding negation or fail to obey the de Morgan's laws.

(29)   a. $\neg(p \wedge q) \Leftrightarrow \neg p \vee \neg q$

      b. $\neg(p \vee q) \Leftrightarrow \neg p \wedge \neg q$

The explanation for the differences in the interpretation of English and Hungarian disjunctions, for Szabolcsi and Haddican, relies on the observation from Szabolcsi (2002) that the latter is a Positive Polarity Item - an expression which cannot be interpreted in the scope of negation (Szabolcsi, 2004), but can be 'rescued' when embedded under negation which is, in turn, inside an environment that licenses NPIs, such as an antecedent of a conditional, as in (30).

(30) *Ha nem látod Katit   vagy Marit, véged.*
    if   not see   Kati_ACC or   Mari_ACC doomed
    'If you don't see Kati or Mari, you are doomed.'   ✓ not >or

The same cannot be said about the Hungarian conjunction *és*, since it does not scope below negation even when embedded inside a rescuing environment (31).

(31) *Ha nem látod Katit   és   Marit, véged*
    if   not see   Kati_ACC and Mari_ACC doomed

a. Literally: 'If you don't see Kati and Mari, you are doomed.'

b. ✓ 'If you don't see Kati and you don't see Mari, you are doomed.'

c. # 'If you don't see both Kati and Mari, you are doomed.'

Szabolcsi and Haddican (2004) report that Russian, Serbo-Croatian, Italian, and Japanese pattern with Hungarian, whereas German patterns with English, when it comes to the interpretation of their respective conjunctions and disjunctions under sentential negation. In view of this cross-linguistic contrast, but focusing attention on Hungarian and English, the article first nuances its initial claims and then accounts for them making use of the observation that the conjunctions in question are conjunctions of definites.

The role of stress   The 'neither' reading is, in fact, possible in English with *not...and*, at least for some speakers, but only if *and* is unstressed (32b).

(32)   *Mary didn't take hockey and algebra.*
   a.   ✓ 'Mary didn't take hockey or didn't take algebra.' $(\neg p)\vee(\neg q)$
   b. $\boxed{\checkmark}$ 'Mary didn't take hockey and didn't take algebra.' $(\neg p)\wedge(\neg q)$

Now, Szabolcsi and Haddican (2004) adopt the general strategy for deriving different interpretations of *and* from a single Boolean source (Hoeksema (1988), Winter (2001)), in order to account for the pattern in (32). For Winter (2001), names, definites and their conjunctions are generalized quantifiers, and as such they have a unique minimal element. This means that the conjunction *John and Mary* denotes the set of all sets that are supersets of {j,m}, and the set {j,m} will turn out to be its unique minimal element. Additional silent morphemes, such as ER and MIN, are then in charge of retrieving the plurality of John and Mary:

(33)   [ER [MIN [John and Mary]]]

The minimization operator MIN returns the unique minimal set {{j,m}} and the existential raising ER imposes the requirement for this set to have an element in common with the VP-denotation, as shown in (34).

(34)   [[ER [MIN [John and Mary]]]]([[met]]) = 1 iff ∃x [x∈{{j,m}} ∧ x met]

This can derive the correct truth conditions for the non-Boolean uses of the conjunction which are compatible with collective predicates, for example *to meet* (35).

(35)   John and Mary met.

For the sentence in (35) to be true, there needs to exist a non-singleton set of individuals that met each other. As Szabolcsi and Haddican (2004) claim, stressed *and* is ungrammatical in collective predication ((36), cf. Haslinger and Schmitt (2017)).

(36)   *Mary AND Sue solved the problem together, so they should share the prize.

Therefore they propose that the stressed *and* in English is a Boolean connective which cannot undergo the type-shifting operations (namely, Winter (2001)'s MIN) necessary for realizing non-Boolean construals, such as (35). In this way, *John AND Mary* denotes a generalized quantifier similar to *both John and Mary* (or similar to *every*, for that matter), which cannot scope over negation from a VP-internal position:

(37)   a.   *Mary hasn't taken hockey AND algebra.*   *AND >not

       b.   *Mary hasn't taken both hockey and algebra.*   *both >not

       c.   *Mary hasn't taken every course.*   *every >not

The hypothesis that stressed *and* is a strictly Boolean connective is corroborated by the emergence of a scalar implicature (38), which shows that the disjucntion *or* is its scalar alternative.

(38)   *Mary hasn't taken hockey AND algebra.*
       ⤳ It is not the case that Mary hasn't taken hockey or algebra.

The sentence with stressed *and* implicates that the stronger alternative (namely, that Mary has not taken either hockey or algebra, i.e. that she has taken neither of the two) is false, so she must have taken one of the two. Szabolcsi and Haddican (2004) thus identify stress on English *and* as responsible for removing one of the operators in charge of transforming conjunctions of definites into plural denotations. The reason why the same effect is not observed in Hungarian is that this language generally allows only "metalinguistic focus" on connectives, i.e. the Hungarian counterpart *és* can be stressed only with the purpose of correcting some previous statement, as illustrated by the contrast between (39) and (40).

(39)   **Mari (csak) spanyolul beszél, Kati viszont spanyolul ÉS   japánul   (beszél).*
       Mari only   Spanish   speaks Kati however Spanish   AND Japanese speaks
       Intended: 'Mary speaks (only) Spanish, but Kate speaks Spanish AND Japanese.'

(40)   a.   *Úgy tudom, hogy Mari elmehet Londonba és   Párizsba.*
            so   know-I that Mari go-may London-to and Paris-to
            'My understanding is that Mari is allowed to go to London and Paris.'

       b.   *Rosszul tudod.   Mari nem Londonba ÉS   Párizsba, hanem Londonba*
            wrongly know-you Mari not London-to AND Paris-to   but   London-to
            VAGY Párizsba mehet
            OR   Paris-to go-may
            'Wrong. It is not London AND Paris, but London OR Paris where Mary is allowed to go.'

The authors thus estimate that all languages have a Boolean 'and' that operates over quantifiers, predicates, sentences, etc., and may in principle scope above or below negation.

They assume that, in the case of names and definites, stress on the connective prevents the realization of non-Boolean denotations, so they maintain a quantificational, Boolean interpretation. Languages that do not allow non-metalinguistic stress on connectives lack such a Boolean, 'not both' reading with definite conjunctions.

Pluralities and homogeneity Hungarian definite conjunctions interact with negation in the same way that both Hungarian (41) and English (42) definite plurals do.

(41) *Nem látta a   lányokat.*
      not   saw the girlsACC
      'He didn't see the girls.'   *not all the girls, ✓none of the girls

(42) *He didn't see the girls.*   *not all the girls, ✓none of the girls

VP-internal plurals are notorious for their ability to yield 'neither' readings, as shown above. But they are also known for the collective readings that they support, as shown for English in (43). English and Hungarian conjunctions display the same property.

(43) {The girls / Kate and Mary} solved the problem together, so they should share the prize.

For this reason, the interpretation of definite plurals had been analyzed as denoting pluralities, i.e. sets or individual sums (Link 1983, Landman 2000). The same was proposed for the conjunctions of definites (Hoeksema 1983, Hoeksema 1988). A homogeneity presupposition accompanying distributive predication is invoked for situations where such pluralities get in contact with negation (41, 42). Beck (2001) defines this homogeneity presupposition as in (44).

(44) Homogeneity:

   a. *P(A) = 1 iff ∀x [x∈A → P(x)]

   b. *P(A) = 0 iff ∀x [x∈A → ¬P(x)]

   c. undefined otherwise.

In this definition, *A* denotes a plurality and *P* a pluralized, i.e. distributive one-place predicate.[3] Hungarian-type languages exhibit homogeneity effects with definite plurals and definite conjunctions straightforwardly. There is thus no reason to assume that there are Boolean conjunctions taking scope over the negation which actually c-commands the 'and' at surface structure. Instead, the default 'neither' reading in Hungarian is the result of pluralities being subject to the homogeneity presupposition under distributive predication

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[3]There is a version of the definition also for pluralized, i.e. cumulative two-place relations **P.

38

within the scope of negation. It is then intriguing that this reading is not that readily available in English. Native speakers prefer *or* or *nor* to unstressed *and* (45).

(45)   Mary didn't take hockey {??and / or /nor} algebra.   'neither'

But the 'neither'-reading in English is possible with *and* under certain circumstances: with topicalized conjunctions (46a), with subject conjunctions (46b), with exhaustive lists (46c), with stereotypical pairs (46d).

(46)   a. Hockey and algebra, Mary didn't take.

     b. The president and the janitor didn't sign the petition.

     c. Of the courses on the list, Mary didn't take hockey and algebra.

     d. Mary didn't take math and physics.

Topicalized conjunctions (46a) and subject conjunctions (46b) speak against the assumption that definite conjunctions fall within the scope of negation, irrespective of their syntactic position and based only on the fact that they denote pluralities. Szabolcsi and Haddican (2004) take the stance that conjunctions in (46a) and (46b) in fact scope above negation. Similarly, in (46c), although the conjunction is VP-internal, they argue that it scopes above negation, as the sentence answers an implicit or explicit negative question 'Which of the courses Mary didn't take?'. Only the example in (46d) remains unexplained so far. It is an example in which the conjunction pairs together concepts that are stereotypically related, or "packaged". In this case it is possible to talk about English definite conjunctions being interpreted as pluralities, and exhibiting the homogeneity presupposition. The "packaging" effect can also be induced by the context, for the example with 'hockey and algebra', which is not a stereotypical pair. Such a conjunction can be interpreted as a plurality if hockey and algebra individually were among the offered courses of which the student had to pick five and fit them into their schedule. Furthermore, corpus data (a Google search for 'don't *** and') seems to confirm the existence of the 'neither'-reading in English:

(47)   a. We don't have dancing girls and corporate boxes, but [...]

     b. Features, Ease of Use, Stability, Speed, 'doesn't work on Mac and Linux'

     c. EU won't divulge passengers' race and religion

The authors also observe that many of the examples extracted from the corpus express complaints or failed expectations. This relates to the above examples with prototypical or contextually formed pairs, as well as topicalized conjunctions and exhaustive lists, as they all seem to invoke a certain requirement, or expectation, that both conjuncts should hold. The exact source of this "expectation" is discussed in the remainder of the paper.

The source of the "expectation"   The attention is further drawn to a contrast between a sentence with *and* (48a) and a sentence with (*neither...*)*nor* (48b).

(48) a. You haven't taken hockey **and** algebra.

  b. You have taken neither hockey **nor** algebra.

  c. You haven't taken hockey **or** algebra.

Whereas in (48a) both hockey and algebra are expected to be taken, in (48b) there is no such expectation - in fact, the two options are discourse salient and under discussion, so *neither...nor* checks them off one by one. As for the sentence with the disjunction *or*, it doesn't display either of these effects, and it is the most neutral version. The contrast between the expectation and the lack thereof remains even when *and* (49a) and *or* (49b), respectively, are embedded in an NPI-licensing context.

(49) a. I regret that I didn't take hockey and algebra.

  b. I regret that I didn't take hockey or algebra.

(49a) conveys that the speaker didn't take either of the two, and that it would have been good if both of them had been taken. (49b) conveys that, again, the speaker didn't take either of the two, but that it would have been good if at least one of them had been taken.[4] Two questions arise from here: (i) why is the 'neither' reading most natural in cases where there is a contextual expectation for the predicate to hold of both conjuncts and (ii) what explains the cross-linguistic variability of such restrictions (English vs. Hungarian)? Szabolcsi and Haddican (2004) explore several options, finally settling for a competition account where *and* is an unmarked form. Construals like *not...and*, *not...or*, *neither...nor* are true under the same conditions. But it could be assumed that *or* and *neither...nor* in addition have an independence condition associated with them, based on the requirement posited by Stalnaker (1975) and Zimmermann (2000) that one disjunct must not entail the other:[5]

(50) a. #John doesn't live in Los Angeles or in California.

  b. #John doesn't live in California or in Los Angeles.

Szabolcsi and Haddican (2004) roughly define independence as the following:

(51) The propositions p and q are independent$_C$ if there is no expectation$_C$ that both p and q be true.

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[4]Hungarian conjunction *è* and disjunction *vagy* convey the same (lack of) expectation effect as their English counterparts, in this environment. *Neither...nor* in the complement of 'regret' is not discussed, but it is supposed to pattern with the disjunction (49b), as there should be no expectation.

[5]This requirement is also known as the Hurford's constraint (Hurford, 1974), although the authors do not make reference to it explicitly.

This is not a logical independence, but an independence with respect to some contextually given set of practical considerations C.

(52) a. You haven't taken hockey **or** algebra.

     b. You have taken neither hockey **nor** algebra.

     c. You haven't taken hockey **and** algebra.

The three sentences in (52) have the same truth conditions: they are true only if (53) holds.

(53) $\neg P(X)$ and $\neg P(Y)$ where X=*hockey*, Y=*algebra*, P=*taken*

The sentence with the disjunction *or* (52a) implicates that $P(X)$ and $P(Y)$ are independent$_C$. The example with *neither...nor* (52b) implicates the same thing, but in addition also that X and Y are discourse salient. The sentence with the conjunction (52c) is only subject to the homogeneity presupposition and doesn't have any of these other implicatures. In this way, the use of *not...and* can convey 'expected both' without this being encoded in its meaning, but as a result of competition with the other two construals. If the speaker didn't say (52a) or (52b), it must be that taking both hockey and algebra was expected. This reasoning would also predict why negated conjunctions are much more neutral in Hungarian on the 'neither'-reading. In this language, the disjunction, as a PPI, is absent as a competitor to the conjunction, i.e. they don't compete for the expression of 'neither'. The only competitor is the Hungarian counterpart of *neither...nor – se...se –* which also requires discourse salience, absent with conjunctions and disjunctions. This is why negated *ès* naturally yields the 'neither' reading, lacking the requirement for the conjuncts to be discourse salient, which is present with *se...se* ('neither...nor'). Nonetheless, the 'expected both' interpretation of negated conjunctions comes out very clearly for the Hungarian example in (54), as well as for its English counterpart, through the following contrast between *and* (54) and *neither...nor* (55). In a context where someone is supposed to fill out a bilingual visa application form (available in both English and Spanish), (54) is infelicitous in both languages, whereas (55) is completely appropriate.

(54) # *Ez a fickó nem tud angolul és spanyolul, így nem tudja kitölteni a*
       this the guy not knows English and Spanish so not can out-fill$_{INF}$ the
     kérdôívet.
     form$_{ACC}$
     # 'This guy doesn't know English **and** Spanish, so he cannot fill out the form.'

(55) *Ez a fickó nem tud se angolul se spanyolul, így nem tudja kitölteni a*
     this the guy not knows nor English nor Spanish so not can out-fill$_{INF}$ the

41

kérdôívet.
form~ACC~

'This guy knows **neither** English **nor** Spanish, so he cannot fill out the form.'

And/És doesn't fit well into this context because it suggests that knowledge of both languages is required, whereas *neither...nor/se...se* indicates that English and Spanish were considered one by one, as they are the salient options in this discourse situation.

Furthermore, the competition account is not backed by cross-linguistic evidence. Namely, both Hebrew and Bulgarian fall in between Hungarian and English: in Hebrew and in Bulgarian disjunctions do not exhibit PPI behavior, but their negated conjunctions still have the 'neither'-readings as default. This casts doubt on the validity of the competition account, which relies heavily on the assumption that the Hungarian disjunction *vagy* is a PPI, whereas English *or* isn't, so the latter constitutes an alternative to the conjunction *and* when negated, but the former doesn't.

For alternative approaches to negated *and*, see Magri (2014) and Gajić (2019). Szabolcsi and Haddican (2004) focus on negated definite conjunctions in English as opposed to Hungarian. They do not discuss cases with *not...nor*, but introduce *neither...nor* as the straightforward competitor to the negated conjunction and negated disjunction in English. The truth conditions being the same in the three cases, the authors invoke an additional independence constraint for *neither...nor* (modelled after that for disjunction) and, on top of that, claim that the members of the coordination must be discourse salient, or under discussion.

2.3   Hendriks (2004)

Hendriks (2004) analyzes the syntactic and semantic behavior of *either*, *both* and *neither* in coordinate structures, defending the view that these elements are not conjunctions and that they should be understood as focus particles, since they resemble the latter in their distribution, their interaction with sentential negation and their contribution to the interpretation of the sentence.

The reason why these three elements are analyzed together is that, when they occur in coordinate structures, they immediately precede the first conjunct, whence the name "initial coordination". Nonetheless, they can be displaced, which is impossible for simple coordinators such as *or*, *and*, *nor*, as shown below.

(56)   a.   Jane either ate [the rice] or [the beans].

        b.   [Jane either ate the rice] or [she ate the beans].

(57) a. Mary is both [going to school] and [holding down a job].

   b. [Mary is both going to the wedding] and [she is attending the reception afterwards]. (Larson, 1985)

(58) a. It was his custom, indeed, to speak calmly of his approaching dissolution, as of a matter neither to be [avoided] nor [regretted]. (Edgar Allan Poe, *Selected Works*)

   b. [The gale had neither abated in the least], nor [were there any signs of its abating]. (Edgar Allan Poe, *Selected Works*)

This constitutes the first argument that *either*, *both* and *neither* cannot be analyzed as conjunctions. The second argument comes from another contrast with respect to *or*, *and*, *nor* - namely, *either*, *both* and *neither* must attach to maximal projections, i.e. they cannot attach to lexical heads such as N, A, P (Neijt, 1979):[6]

(59) a. either a small bus or a small car

   b. *a small either bus or car

   c. a small bus or car

(60) a. both a small bus and a small car

   b. *a small both bus and car

   c. a small bus and car

(61) a. neither a small bus nor a small car

   b. *a small neither bus nor car

   c. ??? a small bus nor car.

The same property is exhibited by focus particles, such as the exceptive *only*:

(62) a. *a small only bus

   b. only a small bus.

Focus particles attach to a single constituent and activate a set of alternatives that are of the same form as the host assertion, whereas *either*, *both* and *neither* participate in coordinate structures with an obligatory *or*, *and*, *nor* counterpart, respectively. A further parallel between *either* (63), *both* (64) and *neither* (65) on the one side, and the focus particle *only* (66) on the other side, comes from the fact that they are all sensitive to the presence of stress on certain constituents.

(63) a. Either JANE will eat the rice or JOHN will eat the rice.

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[6]However, the examples in (60c) and (61c) were not provided by Hendriks. Their well-formedness and interpretation inside a sentence are questionable.

b. *Jane will either eat the rice or John will eat the rice.

(64) a. Jane will eat both the RICE and the BEANS.

b. *Jane will eat both the rice and John.

(65) a. Neither will Jane eat the rice nor John.

b. *Jane neither will eat the rice nor John.

(66) a. Only Jane will eat the rice.

b. *Jane will only eat the rice.

Hendriks concludes that *either*, *both* and *neither* must c-command the element in the first conjunct bearing the contrastive stress.

Either Hendriks (2003) analyzed *either* as a marker of contrastive focus. Developing the parallel with *only*, she notes that scopal ambiguities have been observed for both particles, and that they only arise when they are placed in front of nominal, but not in front of verbal phrases, as shown in (67) for *only*.

(67) *They were $\langle only \rangle_1$ advised to learn $\langle only \rangle_2$ Spanish.*

a. Reading 1: 'they were advised not to learn any language other than Spanish'.

b. Reading 2: 'they were not advised to learn any language other than Spanish'.

The $\langle only \rangle_1$ position allows for Reading 2 only. On the other hand, $\langle only \rangle_2$ renders the sentence ambiguous (Taglicht 1984). This had been attributed to the scopal properties of the elements that *only* attaches to, such as the nominal itself (Rooth, 1985; Krifka, 1992). In parallel, when *either* (68) is attached directly to the coordinated structure (as $\langle either \rangle_2$), it yields ambiguity, as opposed to when it is positioned in front of the VP (as $\langle either \rangle_1$), where for most speakers it only allows Reading 2.

(68) *They were $\langle either \rangle_1$ advised to learn $\langle either \rangle_2$ Spanish or German.*

a. Reading 1: 'they were advised to learn Spanish or to learn German'.

b. Reading 2: 'they were advised to learn Spanish or they were advised to learn German'.

Hendriks makes the assumption that *either* is also a focus particle, as it blocks Reading 1 when it is placed in front of the matrix verb (as $\langle either \rangle_1$), thus allowing only the wide scope reading of the disjunction *or* (Reading 2). This motivates defining the semantic contribution of *either* on a par with the semantics of *only*, which is dependent on focus association and the alternatives that focus introduces (Rooth, 1985). The contribution of

the focus particle *either* would then be that it excludes all alternatives introduced by focus as possible values for the open proposition, and leaves only the two values introduced by the two conjuncts, for example *the rice* and *the beans* in (69).

(69)   Jane ate either the RICE or the BEANS.

The truth condition obtained in (69) is that 'for all things such that Jane ate them and such that they are in the set of contextually relevant objects, it holds that these things are members of the set that only contains the rice and the beans'. The role of *or* is thus to introduce the domain where the second value must be found. This focus particle behavior of *either* goes hand in hand with the claim in Zimmermann (2000) that its function is to explicitly mark exhaustivity. Another feature discussed is exclusiveness (Simons, 2001), which would make exactly one of the disjuncts true, and as such it is not captured by Hendriks' proposal for *either*. Even though exclusiveness is normally posited for *either...or* coordinations, Hendriks follows an approach in which it is not part of the semantic contribution of a construction with *either...or*, but results from inferences of the Gricean type (McCawley, 1981).

Both   Scopal ambiguities which arise with *either* are not observed for *both* placed directly on the coordinated constituent (70).

(70)   They were forbidden to take both a soup and a dessert.

Allegedly, the interpretation in which 'they were forbidden to take a soup and they were forbidden to take a dessert' is unavailable this time, although *both* is attached directly to the first conjunct. This is in line with the prediction that Hendriks makes - if *both* is a focus particle and does not take scope by itself, this outcome is expected, since the conjunction itself cannot take wide scope here (Rooth and Partee, 1982)[7]. *Both* does not seem to include or exclude alternative values for the focused phrase, so comparison with *only* is not helpful here. Hendriks thus relates *both* to *too* and *also* in order to sketch its meaning contribution. For these two additive focus particles to work, alternative values for the focused phrase can be implicit and derived from the context or, else, one alternative value can be explicitly given in coordinate structures – this is the value that is introduced

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[7]That conjunction can take only low scope is hard to determine, but it can be exemplified with the lack of equivalence between the two examples below (i.e. the absence of a de dicto reading for the first sentence).

(1)   a. Bill hopes that someone will hire a maid and a cook.
       b. Bill hopes that someone will hire a maid and hopes that someone will hire a cook.

by the other conjunct. *Both* has to be coupled with a coordinate structure, and the alternative value for the focused phrase *both* is attached to will always be explicitly given by the second conjunct. Its interpretation is thus influenced by focus, giving rise to a conventional implicature that there is something else that they were forbidden to take, which is not *a soup*, so the implicature is already contained in the assertion expressed by the sentence. Another feature of *both* is that the collective reading, which is available with coordinate structures with bare *and* (71a), becomes unavailable once *both* is there (71b).

(71)   a.   John and Mary met.

       b.   *Both John and Mary met.

Collective readings occur with plurals (72a), whereas coordinate structures which express a disjunction are incompatible with collective predicates and they only have distributive readings, so this was not an issue with *either…or*. Quantificational *both* allows for collective readings (72b), which distinguishes it from *both…and* (Schwarzschild, 1996), i.e. there is a difference between a quantificational and a focus particle use of *both*.

(72)   a.   The students met.

       b.   Both students met.

If *both* is indeed a focus particle, no new assumptions need to be made, a distributive reading automatically follows from Rooth's account of focus particles. Furthermore, coordinate structures with other focus particles show a purely distributive behavior, as in (73).

(73)   The Americans and ⟨also⟩ the Russians ⟨too⟩ fought each other.

Due to the presence of additive *also* or *too* in (73), no interpretation is possible according to which the Americans fought the Russians.

Neither   When looking closer at the negative particle, together with the above-mentioned similarities with *either* and *both*, Hendriks also notes that clausal coordination reveals some important syntactic differences. Namely, *neither* (the same as *nor*) triggers the inversion of the subject and the auxiliary, whereas no such effect arises with *either* or *both*:

(74)   a.   The gale had neither abated in the least, <u>nor were</u> there any signs of its abating.

       b.   <u>Neither will JANE</u> eat the rice nor JOHN.

       c.   <u>Either JANE will</u> eat the rice or JOHN will eat the rice.

Hendriks speculates that this difference is due to the negative feature of *neither*, which is absent with the other two particles. Furthermore, whereas *either* can attach to an IP,

neither cannot, but it may occur in a higher position, in the Spec,CP, as the inversion facts show (74b). As for the scope, *neither* (75) shows the same effects as *either*.

(75)　a.　*They were neither [advised to learn Spanish nor German].*

　　　b.　*They were advised to learn neither [Spanish nor German].*

　　　c.　i.　Reading 1: they were advised not to learn Spanish and not to learn German.

　　　　　ii.　Reading 2: they were not advised to learn Spanish and they were not advised to learn German.

The sentence in (75a) only has Reading 2, whereas (75b) is ambiguous between Reading 1 and Reading 2. Hendriks concludes that *neither* is not a scope-bearing expression itself, but gets wide scope through the ambiguity of the (implicitly underlying) disjunction. On the other hand, the behavoir of *neither* with respect to focus is not exactly the same as that of *either* - the former cannot be removed without changing the truth conditions (76a-i), i.e. yielding ungrammaticality because *nor* is left without a negative first conjunct. In the case of *either*, the sentence with the particle (76b-i) entails the one with bare *or* (76b-ii).

(76)　a.　i.　Jane ate *(neither) the rice nor the beans.

　　　　　ii.　Jane didn't eat the rice nor the beans.[8]

　　　b.　i.　Jane ate either the rice or the beans.

　　　　　ii.　Jane ate the rice or the beans.

A negative implication is often enough to satisfy the requirements of *nor* (77). This suggests that the requirement of negation in the first conjunct is not a semantic requirement but rather a presupposition introduced by *nor*.

(77)　The instant that I left 'the devil's seat', however, the circular rift vanished; nor could I get a glimpse of it afterwards.

This shows that the presupposition can be met in different ways: by the element *neither*, but also by an overt sentential or phrasal negation or, else, a negative implication, as in (77). Apart from this negative presupposition, the interaction of *neither* with focus is similar to the interaction of *either* with focus. The former is the complement of the latter – it excludes the values introduced by the conjuncts as possible values in the open proposition (78).

(78)　$\forall x$ [eat'(j,x) & C(x) $\rightarrow$ x$\notin${r,b}]　　　　　　　　where j=*Jane*, r=*rice*, b=*beans*

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[8]However, this example is, at best, degraded.

The set of entities that are excluded by *neither* in (76a-i) is the complement of the set of entities excluded by *either* (76b-i). In the example in (76a-i) the assertion expresses that of all the things eaten by Jane, the rice and the beans are excluded. Finally, Hendriks' account of *either*, *both* and *neither* as focus particles is in line with the analysis presented in Johannessen (1993, 1998, 2005), where initial coordination markers are argued to be (correlative) adverbs cross-linguistically.

2.4   Den Dikken (2006)

Another article which focuses mostly on English *either* is Den Dikken's (2006) "*Either*-float and the syntax of co-*or*-dination". Technical innovations resulting from this work, notably the abstract functional head J(unction), contributed to the development of new approaches to coordination. The main findings of the paper are that *either* is a phrase which does not move, but that its negative counterpart, *neither*, undergoes phrasal movement, as well as *(n)or*. The latter must front to the initial position of the second disjunct, if not base-generated there, due to a feature-checking requirement with the head J. In the following I present details of Den Dikken's account of coordination and its interaction with focus.

Two puzzles arose in the preceding literature about *either* and its syntactic distribution. One is the so-called "*either* too high" (Larson, 1985; Schwarz, 1999), as exemplified in (79b, 79c), or L-*either*, as Den Dikken dubs it. The example in (79a) represents the non-controversial case, where both *either* and *or* are directly preceding members of the pair of contrastive foci (*rice*, *beans*).

(79) a. John ate either rice or beans.

  b. John either ate rice or beans.   L-*either*

  c. Either John ate rice or beans.   L-*either*

L-*either* is found detached from the contrastive focus constituent it associates with (*rice* in the above examples), i.e. instead of immediately preceding the contrastive focus, it is "floating" somewhere higher in the structure. The other puzzle is the "*either* too low", much less studied in the preceding literature. Den Dikken calls it R-*either* and this is the kind of structure where *either* is found somewhere inside the first disjunct (80b), although this could not have been derived via ellipsis from the clausal coordination in (80a), as nothing has been deleted.

(80) a. Either John ate rice or he ate beans.

b. John either ate rice or he ate beans.   R-*either*

Den Dikken (2006) refutes the movement (Larson, 1985; Munn, 1993) and the ellipsis (Schwarz, 1999) approaches to the syntactic distribution of *either*. In the former, *either* would originate on the contrastive focus (*rice*), but could move higher in the structure (81). In the latter, *either...or* can coordinate different kinds and sizes of phrases, as shown in (82); when coordinating VPs and IPs, some elements in the string can be deleted under a semantic identity condition.

(81)   ⟨Either$_i$⟩ John ⟨either$_i$⟩ ate ⟨either$_i$⟩ [rice or beans]

(82)   a. John ate either [[$_{NP}$ rice] or [$_{NP}$ beans]]

       b. John either [[$_{VP}$ ate rice] or [$_{VP}$ ~~ate~~ beans]]

       c. Either [[$_{IP}$ John ate rice] or [$_{IP}$ ~~John ate~~ beans]]

But neither the movement nor the ellipsis approach can handle the R-*either* (80b) in an appropriate way, since there is nothing that can be elided, whereas the movement would have to proceed rightward / downward. Furthermore, the movement approach predicts that *either* should behave like *whether*, which is subject to wh-movement, however, this is not the case (Han and Romero, 2004b), as exemplified in (83).

(83)   a. ??Either this pissed Bill or Sue off.

       b. Whether this pissed Bill or Sue off is unclear.

The role of contrastive focus in the distribution of *either* had been invoked in the previous literature (Lipták, 2001; Hendriks, 2004). Den Dikken (2006) argues against Hendriks (2004) in that *either* is syntactically equivalent to *only*, noting that their distributions do not fully overlap. In some cases, *only* is more restricted than *either...or*, for example, when attaching to a (non-quantificational) complement of a preposition:

(84)   a. %John spoke to only Bill.

       b. *To only Bill have they spoken the truth.

(85)   a. John spoke to either Bill or Sue.

       b. To either Bill or Sue, I will give a copy of my book.

In other cases, the distribution of *only* is broader than that of *either*. Such is the situation where *only* surfaces to the right of the focused constituent:

(86)   a. John read CHAPTER 3 only.

       b. *John read CHAPTER 3 either or CHAPTER 4.

Also, when associated to a focus inside an embedded CP, *only* can occur in the matrix clause (87a), whereas this is not the case with *either* (87b).

(87) a. John ⟨only⟩ said that he would ⟨only⟩ read ⟨only⟩ CHAPTER 3 (not Chapter 4 as well).

b. John ⟨??either⟩ said that he would ⟨either⟩ read ⟨either⟩ CHAPTER 3 or CHAPTER 4.

The example with *only* is unsurprising given that focus movement can proceed successive-cyclically through Spec,CP (É.Kiss, 2000). Den Dikken (2006) acknowledges that the syntactic distribution of *either* is tied to focus, although it is not associated to focus in the same way as *only*. He doesn't discuss the exact interpretation that an *either...or* construction gets, except for invoking Lipták (2001)'s exclusive focus and Hendriks (2004)'s exhaustivity of contrastive foci. It is further noted that the interpretive focus matters, and not necessarily the placement of the pitch accent, as well as that *either* is only sensitive to the contrastive focus and not to the information focus. Arguing against Hendriks (2004), he points out that the requirement for *either* to c-command the contrastive focus is not fully adequate, because of examples such as (88a) and (88b).

(88) a. ⟨Either⟩ JOHN ⟨*either⟩ will ⟨*either⟩ read ⟨*either⟩ CHAPTER 3 or MARY CHAPTER 4.

b. ⟨??Either⟩ he ⟨??either⟩ wanted ⟨either⟩ for you ⟨either⟩ to ⟨either⟩ eat ⟨either⟩ RICE or BEANS.

In (88a), the 2nd, the 3rd and the 4th indicated position for *either* c-command contrastive focus (*Chapter 3*), but they are ruled out. This is due to the requirement for *either* to c-command both associated contrastive foci (*John* and *Chapter 3*). In (88b) *either* c-commands the associated contrastive focus, but from the matrix clause, and it is degraded. Furthermore, there are also cases where *either* does not c-command focus at all (89b), given that now the focus is in the matrix clause, on the verb *denied*.

(89) a. Q: Did John say that he had either FRIED it or BAKED it?

b. A: No! John DENIED that he had either fried it or baked it.

As opposed to what had been previously observed, it seems that *either* in (89b) is insensitive to the locus of the contrastive focus, and requires only to be placed on the first disjunct.

The distribution of *either* is described by Den Dikken as being "in construction with" (i) the first disjunct, thus attaching to it, or (ii) the first contrastive focus. In the latter case *either* is attaching to the contrastive focus itself or to a phrasal node on the Θ-path

projected from the first contrastive focus. Den Dikken opted for the notion of Θ-path in order to ensure the best empirical coverage.[9] For this to work, the crucial assumption is that somehow the I head manages to Θ-govern its VP complement. It then follows that the IP is Θ-linked to the VP and constitutes a Θ-path with the object inside it. Θ-paths can even be projected from constituents that are syntactically adjuncts: whenever these constituents are predicated of the constituent to which they are adjoined, they are Θ-linked to their hosts. Crucially, the Θ-path does not comprise the CP, as shown in (90), with the nodes on the Θ-path given in bold.

(90)   He said [$_{CP}$ that [**$_{IP}$** he I=would [**$_{VP}$** eat [$_{JP}$ [RICE] [J [or [BEANS]]]]]]]

This kind of generalization is supposed to capture the distribution of *either*. For an example with a biclausal structure (91), this yields the (im)possible positions of *either* as given in angled brackets.

(91)   ⟨??Either⟩ he ⟨??either⟩ said ⟨%either⟩ that ⟨either⟩ he ⟨either⟩ would ⟨either⟩ eat ⟨either⟩ RICE or BEANS.

In this example, *either* is allowed to occur anywhere between the embedded complementizer and the contrastively focused object RICE. Den Dikken (2006) assumes that speakers who can attach *either* to the embedded CP (marked by %) represent these sentences as CP-coordinations, with ellipsis in the second disjunct (92). He corroborates this with the fact that the same group of speakers also accepts A2 (93b-ii) in answer to the question in (93a).

(92)   [**$_{IP}$** He I [**$_{VP}$** said [$_{JP}$ [either [$_{CP}$ that he would eat RICE] [J [or [$_{CP}$ ~~that he'd eat BEANS~~]]]]]]]

(93)   a.   Q: Did he say that he would eat RICE or BEANS?
       b.   i.   A1: BEANS.
            ii. A2: That he would eat beans.

In the example in (92) *either* is placed directly on the first disjunct, although the first disjunct is neither the contrastive focus nor on the Θ-path. This conforms to the generalization that den Dikken formulated for the distribution of *either*. It is also supposed to explain the insensitivity of *either* to the locus of the contrastive focus with *deny* from (89b).

(94)   a.   A′: No! ⟨*Either⟩ John ⟨*either⟩ DENIED that he had fried it or baked it.

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[9]Θ-path is defined as (Den Dikken, 2006: 708): "A sequence of nodes such that each node is Θ-linked to the next higher node on the main projection line. α is Θ-linked to β iff α or its head assigns a Θ-role to β or receives a Θ-role from β."

b. A″: No! John DENIED ⟨*either⟩ that ⟨*either⟩ he ⟨*either⟩ had fried it or....

What fulfills the requirement in such complicated cases is the simple attaching of *either* directly to the first disjunct. Furthermore, Larson (1985)'s observation that negation blocks L-*either* is accounted for by assuming that negation breaks the Θ-path.

(95) a. (?)John didn't eat either RICE or BEANS.

   b. ??John either didn't eat RICE or BEANS.

   c. ??Either John didn't eat RICE or BEANS.

Larson (1985) reports the example in (95a) as degraded, but den Dikken doesn't find confirmation for this from (his set of) native speakers. As for (95b) and (95c), the placement of *either* to the left of negation is ruled out because it is no longer on the same Θ-path as the contrastively focused direct object. Importantly, when the disjunction is at the level of IP, as in (96a, 96b, 96c) the grammaticality judgements are the mirror image of those with the disjunction at the level of direct objects (95a, 95b, 95c).

(96) a. *John didn't eat either RICE or he didn't eat BEANS.

   b. John either didn't eat RICE or he didn't eat BEANS.

   c. Either John didn't eat RICE or he didn't eat BEANS.

In (96c) *either* is placed directly on the first disjunct and the result is grammatical. For (96b), Den Dikken assumes that the contrastive focus is the NegP itself, so *either* is licitly placed. (96a) shows that *either* cannot be embedded inside the first disjunct if negation is also present. However, Den Dikken doesn't attribute this to rightward movement of *either*, which would be interrupted by negation, but suggests that the movement of *or* from its base position to the initial position of the second disjunct is to blame instead, as it pushes some sort of a parallelism with *either*. In other words, *or* and *either* must be base-generated in the same position in their corresponding disjuncts. In (96a) their base positions are on the contrastive foci (*rice* for *either* and *beans* for *or*). This is not a problem for *either*, as it stays in its base position, so no conflict arises with respect to negation. However, *or* has to move to the left edge of the IP that constitutes the second disjunct and ends up blocked by negation.

(97) ... or$_i$ [$_{IP}$ he did**n't** eat [$_{DP}$ ⟨or$_i$⟩ [$_{DP}$ BEANS]]]

Furthermore, *either* and *or* are claimed to be phrasal categories on the basis of their distribution, as well as familiar diagnostics. The placement of *either* on the first disjunct, on the contrastive focus or along the Θ-path projected from the contrastive focus indicates its phrasal status. For example, it cannot be placed to the immediate left of the subject

of a small (98a) or an ECM-infinitival (99a) clause, unless this subject is the contrastive focus (98b, 99b).

(98) a. John considers ⟨*either⟩ the president ⟨either⟩ a FOOL or a GENIUS.

   b. John considers ⟨either⟩ the PRESIDENT ⟨*either⟩ a fool or his WIFE.

(99) a. John wants ⟨*either⟩ Mary ⟨either⟩ to ⟨either⟩ eat ⟨either⟩ RICE or BEANS.

   b. John wants ⟨either⟩ MARY to eat rice or SUE.

This works on a par with adverbials, which cannot be adjoined to a complement small or ECM clause (Stowell, 1981):

(100) a. John ⟨secretly⟩ considers ⟨*secretly⟩ the president to be a fool.

   b. John ⟨passionately⟩ wants ⟨*passionately⟩ Mary to eat rice.

It is thus the contrastive focus of the subject that "saves" *either* in the position that is normally illicit for adjuncts. Although phrasal, *either* doesn't move; it is base-generated on the first disjunct, on the contrastive focus, or somewhere on the Θ-path projected from the contrastive focus. However, not all native speakers accept *either* in positions along the Θ-path, detached from the focused element.

Whether does not exhibit such problems. Even the speakers who don't like L-*either*, accept its [+wh] counterpart when it "runs away" from the contrastive focus:

(101) a. I would like to know whether John will read CHAPTER 3 or CHAPTER 4.

   b. I would like to know whether John will READ chapter 3 or TEAR it UP.

   c. I would like to know whether John WILL read chapter 3 or he WON'T.

   d. I would like to know whether JOHN will read chapter 3 or MARY.

   e. I would like to know whether JOHN will read CHAPTER 3 or MARY CHAPTER 4.

The impossibility of attaching *either* to yes/no questions (102a) is also explained along these lines - it cannot occupy the positions in the CP that are reserved for the null interrogative operator[10] or the finite element. Moreover, the same effects seem to confirm null operator movement to Spec,CP even in embedded polar interrogatives with *if* (102b).

(102) a. ⟨*Either⟩ did ⟨*either⟩ you ⟨either⟩ eat ⟨either⟩ RICE or BEANS?

   b. I wonder if (*either) Mary went SWIMMING or DANCING.

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[10]Early Modern English did, in fact, have an overt realization of this operator for matrix questions, namely *whether*.

Neither, *nor* and "negative inversion" fall into the discussion of phrasal movement, but this time the trigger is not the [wh] feature, as with *whether*. Den Dikken (2006) gives the following examples from Culicover (1999):

(103)   Mary neither spends her vacations at the seashore nor does she go to the mountains.

(104)   ?Neither does Mary spend her vacations at the seashore nor does she go to the mountains.

(105)   *Neither Mary spends her vacations at the seashore nor she goes to the mountains.

Neither is surfacing in positions restricted to phrases - some Specifier which lies outside of the IP in (104). From this higher Specifier it can trigger negative inversion, i.e. the finite element obligatorily moving to the second position in the sentence. The same set of examples points to the fact that *nor* must be phrasal as well, and that it must undergo movement, since negative inversion can also be observed in the second coordinand. Den Dikken (2006) invokes the case of German, where the counterpart of *either* (*entweder* in (106a)) triggers inversion (amounting to the verb-second word order, V2), whereas the counterpart of *or* does not (*oder* in (106a)). The counterparts of both *neither* and *nor* trigger negative inversion (*weder* and *noch* in (106b)).

(106)   a. *Entweder kocht Hans heute, oder Maria ruft den Pizzaservice.*
            either   cooks Hans today or   Maria calls the Pizzaservice
            'Either Hans cooks today or Maria calls the pizza service.'

        b. *Weder kocht Hans heute, noch ruft Maria den Pizzaservice.*
            neither cooks Hans today nor   calls Maria the Pizzaservice
            'Neither will Hans cook today nor will Maria call the pizza service.'

The conclusion drawn is that the V2 effect depends on whether the disjunction particle is negative or not (in German, as well as in English, i.e. *noch* and *nor* trigger it, but *oder* and *or* do not). This would mean that English is not the only Germanic language that displays negative inversion, since German does so as well. The inversion phenomena used to be independent from negation in the previous stages of development of a number of Indo-European languages (Old and Middle English, Old Norse, Old, Middle and Early Modern High German, Middle and Early Modern Dutch, Old French), since there the non-negative conjunctions and disjunctions could trigger inversion. The absence of inversion with *either* is not dicussed, although it offers an interesting contrast with respect to the German counterpart *entweder*, which does trigger V2. *Neither* is thus the [+NEG] counterpart of *either*, whereas *nor* is the [+NEG] counterpart of *or*, and their negative features trigger the subject-auxiliary inversion. *Neither* and *nor* (as well as German *noch*), together with

whether, could not be base-generated outside of the IP, since this would prevent their association with the contrastive focus. Therefore, they must have moved into the positions on the left periferies of their corresponding clauses.

Finally, the proposal for the syntactic representation of coordinate structures results from the effort directed towards explaining why *or* has to move and take the initial position in the second disjunct. If both *either* and *or* are phrases, the question arises as to what heads the whole coordinative construction. Den Dikken (2006) proposes a binary-branching structure projected by a functional head J ("junction"), as in (107).

(107)   a.   ⟨(n)either⟩ (...) [$_{\mathbf{JP}}$ [$_{XP}$ (...) ⟨(n)either⟩ ...] [**J** [$_{YP}$ (n)or ...]]]

       b.   [$_{CP}$ whether$_1$ (...) ⟨whether$_1$⟩ (...) [$_{\mathbf{JP}}$ ⟨whether$_1$⟩ [$_{XP}$ ...] [**J** [$_{YP}$ or ...]]]]]

The J functional head is null, at least as far as English is concerned, and it is neutral with respect to the disjunction/conjunction and negation status. *(N)or* is thus not a lexicalisation of J, but it is part of the second member of coordination. Being phrasal, and occupying the corresponding positions, *(n)or* cannot raise up to J via head movement. Instead, the J-head establishes an agreement relationship with *(n)or* and this is what triggers its obligatory movement to the left edge of the phase which constitutes the second disjunct, unless already base-generated there.

As for the learnability of coordinative constructions which comprise a null Junction head in English, Den Dikken (2006) assumes that it relies on the evidence gathered from the negative coordination *neither...nor*, as such structures display negative inversion, i.e. the second position finite elements. This clearly reveals to the learner that *nor* originates inside the second coordinand. In contrast, *neither* does not have to be placed at the left edge of the first member of coordination, and this signals the presence of a structural trigger for the surface position of *nor* - the feature checking with a silent head. The learner further generalizes the phrasal movement over to *or*.

2.5   Wurmbrand (2008)

Wurmbrand's 2008 squib represents the only discussion of the interpretation of structures with *nor* in English. The central issue addressed is that of the underlying logico-semantic nature of *nor*. Starting with a paradox which would occur if *nor* was analyzed as a disjunction in the scope of negation, as first observed by Lechner (2000) for German, Wurmbrand reaches the conclusion that the problem does not occur if this marker is understood as an inherently negative conjunction. Nonetheless, this squib only deals with *nor* in constructions where the source of negation in the first coordinand is the verbal negative marker

n't (108b), or a negative quantifier such as *never* (108c), which means that it does not investigate the nature of *neither*, as well as *nor*, inside *neither...nor* coordinations (108a).

Negative coordination, or "bivalent coordination", the name which Wurmbrand adopts from Lechner, in English concerns cases such as those in (108), where the *nor*-connective can then be analysed either as a disjunction in the scope of a negation (109a) or as a conjunction taking scope over negation (109b), the two being logically equivalent.

(108)   a. Leo ate neither the rice nor the carrots.

          b. Leo didn't eat the rice nor did he eat the carrots.

          c. Leo has never eaten rice nor has he eaten carrots.

(109)   a. $\neg[\text{eat(l,r)} \vee \text{eat(l,c)}]$
            'It is not the case that Leo ate the rice or that he ate the carrots.'

          b. $[\neg\text{eat(l,r)}] \wedge [\neg\text{eat(l,c)}]$
            'It is not the case that Leo ate the rice and it is not the case that he ate the carrots.'

Three arguments are presented against a disjunction analysis of *nor* (109a) and in favor of one based on conjunction with independent negative operators in each conjunct (109b).

The first argument comes from the observation that a negative element can occur somewhere inside the first member of the coordination (*n't/never* in (110a)), but NPI subjects (*any toddler*) are still illicit there (110b).

(110)   a. Leo hasn't ever/has never been to Canada, nor has Julia met the queen.

          b. *Any toddler has never been to Canada, nor has Leo met the queen.

This would be unexpected if *nor* was a disjunction, since in that case negation must take scope over the whole coordination (111), i.e. both disjuncts would entirely be in its scope. For Wurmbrand, a *nor*-disjunction would thus be in sharp conflict with the datum in (110b), as the LF in (111) should allow for the licensing of the NPI *any toddler*.

(111)   NEG [[$_A$ any toddler been to Canada] OR [$_B$ Leo met the queen]]

This argument can be circumvented by assuming that NPI licensing takes place at some different level, i.e. at surface (112) instead of at LF.

(112)   * [$_A$ any toddler NEG been to Canada] OR [$_B$ Leo NEG met the queen]

Across-the-board neg-raising would then have to follow, in order to derive the right scope of negation (111) from (112).

The second argument is constructed through examples where *nor* can introduce an independent sentence (113). In this case the same problem of representation at LF occurs

- *nor* cannot be a disjunction in the scope of negation if it doesn't even belong in the same sentence as the negative element.[11]

(113) He was one of those people who can't relax. Nor did he have many friends.

This is something that a plain disjunction (*or*) cannot achieve – to stay inside the scope of a negation present in a previous sentence, as shown in (114), where the two sentences cannot be interpreted as 'he was one of those people who can't relax and (also) he did not have many friends', which is roughly what we get with (113).

(114) He was one of those people who can't relax. Or he had many friends.

The third argument is Wurmbrand's strongest evidence for a wide scope conjunction analysis of *nor*. The following data illustrate it.

(115) *Someone didn't talk to the king, nor did {they / anyone} call the queen.*
       (In the first coordinand: $\exists > \neg$; *$\neg > \exists$)

(116) *Everyone didn't talk to the king, nor did {they / anyone / John} call the queen.*
       (In the first coordinand: $\forall > \neg$; $\neg > \forall$)

What matters here is that the existential and the universal quantifiers can scope over negation in the first member of a *nor*-coordination, as shown in (115) and (116) respectively. This would be impossible with a disjunction and wide scope negation because, on some readings, negation would have to scope below the subject of the first coordinand. Moreover, following Ruys (1992) and Fox (1995), and assuming that quantifier raising could happen after across-the-board raising of the negative operator yields a prediction that is not borne out, namely that the quantifier can bind a variable in the other disjunct:

(117) a. everyone$_i$ [NEG [[⟨everyone⟩$_i$ ⟨NEG⟩ talk to the king] or [he$_i$ meet the queen]]]
       b. i. *Everyone$_i$ didn't talk to the king nor did he$_i$ meet the queen.*
           ii. *Every politician$_i$ didn't lie nor did his$_i$ secretary accept a bribe.*

Whereas the first argument could be resolved by assuming that NPI-licensing must take place at surface structure (Ladusaw, 1979), but the across-the-board NEG-raising out of the disjunction takes place only at LF, and whereas the second argument could be dismissed by accepting that *nor* is sometimes not a disjunction (when introducing an independent sentence), Wurmbrand takes this third point as decisive evidence that English *nor* is underlyingly a wide scope conjunction that keeps the negative operators in its scope.

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[11]This argument comes from (Huddleston and Pullum, 2002).

Wurmbrand's proposal is thus the following: *nor* is a syntactically and semantically complex connective, made up of the coordinator AND, a focus particle (similar to *also* or *either*) and negation (118).

(118)

```
                          XP
           _____|_____
          |           |                     |
          A          AND             _____|_____
       ___|___                      |                 |
      |       |                  FOC+NEG              B
    ...(NEG)...                 ____|____
                               |         |
                         ALSO/EITHER     NEG
```
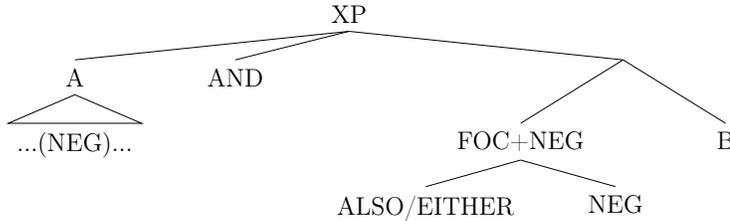
(119)   a. *Leo has never seen any beavers, nor has Julia met the queen.*

b. [Leo NEG ever seen any beavers] AND ALSO [NEG Julia met the queen]

The 'also' (or 'either') component encodes the necessity for a negative first conjunct, or preceding context, which is a general requirement of clauses introduced by *nor*. A well-known property of focus particles is that they introduce presuppositions (Karttunen and Peters, 1979). Etymology potentially supports this, since *nor* could in fact contain the particle *either* (*nor* supposedly originates from *nother* which is an old version of *neither*). In view of this, *nor* could be just a different PF realization of 'and also not' or 'and not either' (although Wurmbrand concedes that there could be minor differences in the nature of the presuppositions). An additional argument comes from the subject-auxiliary inversion.[12] If *nor* (or German *noch*) was a simple coordinator without the focus particle component, this effect would be puzzling, since it does not occur with the plain disjunction *or* (or with German *oder*, for that matter):

(120)   a. Neither will Jane eat the rice nor will John (eat the rice).

b. Either Jane will eat the rice or John will eat the rice.   (Hendriks, 2004)

The question is to which extent the analysis of *nor* as a negative conjunction bearing a presupposition extends to data in which it is coupled with *neither*.

2.6   Arsenijević (2011)

The only work on negative coordination in BCMS is Arsenijević's (2011) "Serbo-Croatian coordinative conjunctions at the syntax-semantics interface", where five connectives are discussed, among which *ni*. Capitalizing on the apparent morphological kinship between the conjunction *i* and the disjunction *ili*, as well as the negative coordination marker *ni*,

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[12]Interestingly, Wurmbrand discusses mostly German to make this point

Arsenijević proposes to derive *ni* and *ili* from *i*. The latter is analyzed as an additive conjunction which forms a plural denotation out of the conjuncts, and inherits their semantic type. An example with object nominals is reproduced in (121).

(121) a. *Jovan je   video Mariju i   Petra.*
           Jovan AUX seen Marija and Petar
           'Jovan saw Marija and Petar.'

     b. ∃e, x. saw(e, J, x) & x=M⊕P

The conjunction 'A *i* B' is thus understood as a plurality that gets its scope once the existential binds the event variable (121b). *Ni* consists of such an additive connective *i* and a morpheme *n-* which is a negative concord marker. This makes the conjunction *i* an indefinite of sorts, and *ni* a negative indefinite. It is further argued that members of a *ni-*coordination bear focus and, since negation is a focus-sensitive operator, this relation has to be marked, whence *n-*. Due to this interaction between negation and focus, Arsenijević assumes that *ni* can only be found on clausal projections, whereas *i* is more primitive, i.e. without any information-structural constraints, so it can coordinate any phrase. Both coordinators can be iterated, which is traditionally referred to as "contrastive coordination", and both can participate in coordinations with more than two members (122). Moreover, both are clitic-like and bear no stress by default.

Now, as Arsenijević reports, both *i* and *ni* can be found in negative sentences, where conjunction is ambiguous between two readings (122a), unlike negative coordination (122b).

(122) a. *Marija nije   pojela supu, sendvič i   kolač.*
           Marija NEG-AUX eaten soup sandwich and cake
         i. 'It is not the case that Marija ate the soup, the sandwich and the cake.'

         ii. 'The things Marija didn't eat are the soup, the sandwich and the cake.'

     b. *Marija nije   pojela supu, sendvič   ni kolač.*
           Marija NEG-AUX eaten soup sandwich ni cake
           'Marija ate neither the soup, nor the sandwich, nor the cake.'

In (122b) the three coordinands are foci, and what (122b) has in common with (122a) under the interpretation in (122a-ii), is the presence of a topical or backgrounded set in the discourse, answering the questions in (123).

(123) a. Which items, of all the items served, did Marija not eat?

     b. Who didn't eat all the items served, and what did each of them not eat?

Marija then becomes a (contrastive) topic in the sentences of the minimal pair in (122). In the case of *ni* (122b), the topical set corresponding to (123) is identical to the referent set

of the constituent formed by the *ni*-coordination, but the latter does not refer to the former – it exhaustively forms a new indefinite subset instead. With *i* in (122a), and particularly if the conjuncts are stressed, the reading in (122a-ii) comes about, but the set denoted by the coordination is now a proper subset of the topical set provided by (123). Without this special intonation, the sentence in (122a) is likely to have an interpretation in (122a-i), where the whole constituent made by coordination is backgrounded, thus behaving like a definite expression. As a discourse referent under negation, it will make the sentence in (122a) true even in scenarios where Marija did eat, for example, the soup, but not the sandwich and the cake. Such an account for *i* diverges from the one made for English *and* in Szabolcsi and Haddican (2004). Moreover, the example in (122a) shows that ambiguity with negated conjunctions is in fact present in BCMS, contrary to the claims made in Szabolcsi and Haddican (2004).

2.7 Outlook

This Chapter provided an overview of the literature on negative coordination, as well as related constructions, in English and in BCMS. Most of the relevant work so far lumped the structures with multiple negative coordination markers together with the ones where a single marker is present. Furthermore, negative coordination has mostly been discussed in comparison to disjunctions and conjunctions, plain or correlative, in presence or in absence of negation.

The present study will focus exlusively on negative coordination in the two languages, paying attention also to their additive particle counterparts. The structures in which multiple coordination markers are present will be given a central place within the different Analyses in Part IV. Further investigation of (negated) conjunction and disjunction, although presenting an interesting and highly relevant topic, falls outside the scope of the present dissertation.[13]

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[13]But see Gajić (2019) for an account of the ambiguity with negated *and* in English.

Part II

Negative coordination and beyond: the data

This part contributes the descriptive component of the dissertation, through parallel case studies of negative coordination and related additive constructions in English and in BCMS.

Chapter 3 offers a systematic investigation of coordinative structures with markers attached to each involved constituent. Sections correspond to different structural positions of the coordinated constituents at surface. Each time *neither...nor* is discussed first (English), followed by *ni...ni* and *niti...niti* (BCMS). The final section is concerned with coordinations in which one of these markers is combined with a "plain" coordinator (conjunction or disjunction). Chapter 4 explores constructions in which only a single marker is used; sections are thus organized around the structural position and categorial status of the constituent introduced by *nor*, *ni* or *niti*. Chapter 5 overviews other roles of the markers involved in negative coordination (*neither*, *nor*, *ni* and *niti*), as well as some of their morphological kins. The main focus is put on their use as additive particles. Finally, Chapter 6 deals with the place negative coordination occupies in the system of negation and polarity in the two languages. It reviews the interaction of negative coordination with negative indefinites, with Negative Polarity Items, with Positive Polarity Items, and it finally tries to test for possible parallels by looking at fragment answers.

Chapter 3

Neither...nor, ni...ni, niti...niti

Negative coordination that is marked by the combination of two markers of different form – *neither* and *nor* – is often discussed in the context of other complex coordinations, such as *either...or* (124a) and *both...and* (124b) in English. These are traditionally known as "correlative conjunctions", Lechner (2000) labels them "bivalent coordination" and Haspelmath (2007) calls them "emphatic coordination".

(124)   a. Katie either wrote a book or published a paper.

        b. Katie both wrote a book and published a paper.

Negative coordination markers can be found in different positions in a sentence. Nonetheless, *neither* always associates with the initial coordinand, whereas *nor* is always attached to the final coordinand (125a, 126a). Furthermore, the constant in English is that the *nor* marker must stay fixed on the final coordinand, regardless of the form and category of the constituent it attaches to (125b). *Neither*, on the other hand, can appear in positions which seem to be detached from the coordinand it introduces (Den Dikken, 2006; Hendriks, 2004), see (126b).

(125)   a. Brenda neither wrote a squib nor published a paper.

        b.   i. * Brenda neither wrote nor a squib published a paper.

            ii. * Brenda neither wrote a squib publish nor a paper.

(126)   a. Brenda wrote neither a squib nor a paper.

        b.   i. Brenda neither wrote a squib nor a paper.

            ii. ? Neither did Brenda write a squib nor a paper.

In BCMS, markers are of the same form for initial and for final coordinands – *ni...ni* and *niti...niti*. Attention attracted to *ni* in the literature so far is due to its morphological similarity to plain conjunction in BCMS *i*, as well as the disjunction *ili*. Arsenijević (2011) discusses *ni* mostly in this context, observing among other things that *i* (127a), *ili* (127b) and *ni* (127c) in BCMS can be iterated.

(127)   a. *Sofija voli (i) mleko i   jogurt.*
        Sofija likes and milk   and yoghurt

        'Sofija likes (both) milk and yoghurt'

        b. *Sofija voli (ili) mleko ili jogurt.*
        Sofija likes or   milk   or yoghurt

        'Sofija likes (either) milk or yoghurt'

        c. *Sofija ne   voli (ni) mleko ni jogurt.*
        Sofija NEG likes ni   milk   ni yoghurt

        'Sofija likes neither milk nor yoghurt'

However, regardless of the number of *ni* markers present in a clause and their position, the verbal marker of negation *ne* must be present in the same clause, or else ungrammaticality ensues (128a, 128b).

(128)   a. * *Sofija voli (ni) mleko ni jogurt.*
           Sofija likes ni   milk   ni yoghurt
        Intended: 'Sofija likes neither milk nor yoghurt'

        b. * *Ni Sofija ni Lea vole mleko.*
           ni Sofija ni Lea like milk
        Intended: 'Neither Sofija nor Lea like milk'

It is not surprising, then, that the position of the coordination markers is more fixed than in English, as this is plausibly due to the requirement for the verb to be overtly negated. Structures in which the initial *ni* appears higher than the coordinand it associates with are ruled out: in (129a) *ni* intervenes between the clitic-like negative verbal marker and the finite verb to which *ne* must attach, in (129b) *ni* is above *ne*.

(129)   a. * *Sofija ne   ni voli mleko ni jogurt.*
           Sofija NEG ni likes milk   ni yoghurt
        Intended: 'Sofija likes neither milk nor yoghurt'

        b. * *Sofija ni ne   voli mleko ni jogurt.*
           Sofija ni NEG likes milk   ni yoghurt
        Intended: 'Sofija likes neither milk nor yoghurt'

The other negative coordinator, *niti*, is not discussed in any formal work on BCMS. Like *ni*, it can be iterated on every coordinand, but it does not require an overtly negated verb (130). However, *niti* is compatible with a negated verb under a single negation reading, provided that the negative verbal marker is outside of the constituent introduced by *niti* (131).

(130) *Niti je   (Marko) napisao članak, niti će   smisliti priču.*
  niti AUX Marko   written article niti will invent story
  'Neither has Marko written the article, nor will he invent a story'

(131) a. *(Marko) ne   piše   članak, niti smišlja priču.*
     Marko   NEG writes article niti invents story
     'Marko isn't writing the article, nor is he inventing a story'

  b. *Ne   tvrdim (niti) da   Ina piše   članak, niti da   ga smišlja.*
     NEG claim   niti   that Ina writes article niti that it invents
     'I don't claim that Ina is writing the article or that she is formulating it'

We now turn to a systematic comparison between English and BCMS. Along with studying different structural positions and grammatical functions of the constituents that can be coordinated by *neither...nor*, *ni...ni* and *niti...niti*, attention will also be paid to their syntactic category. Each section will first deal with English data, and then with BCMS.

3.1   Subjects

English   One of the most common uses of *neither...nor* in English is with subjects, as shown in the set of examples below.

(132) a. Neither Ryan nor his son mentioned anything about the letter.

  b. Neither Croatia nor Austria played in the final last year.

  c. Neither you nor I would approve this.

  d. But still, neither pigs nor dogs produced any food by their own labour; and there were very many of them, and their appetites were always good.

<div align="right">George Orwell's Animal Farm</div>

Negative coordination of subjects is also possible with modals, control, and raising verbs, such as *can* (133a), *want* (133b), and *seem* (133c), respectively.

(133) a. Neither Katie nor Jenny can skate.

  b. Neither his son nor his daughter want to go to university.

  c. Neither science nor art seem to have received sufficient funding from this year's budget.

The markers have to attach directly to the coordinated DPs, as no other attachment site is available. Neither of the markers can be left out without spoiling the grammaticality of the sentence (134).

(134)   a. * You nor I would approve this.

          b. * Neither you(,) I would approve this.

The presence of *neither* and *nor* in the sentence conveys negation (135), and insertion of another negative element in the same clause should yield readings of double negation (136) in Standard English.

(135)   a. Neither Croatia nor Austria played in the final this year.

          b. 'It is not the case that Croatia or Austria played in the final this year'

(136)   a. Neither Croatia nor Austria didn't play in the final this year.

          b. 'Both Croatia and Austria played in the final this year'

Singular verbal agreement is prescribed for *neither...nor* subjects (137a), but plural is also accepted among speakers (137b).[1]

(137)   a. Neither Ryan nor George is attending the party.

          b. Neither Ryan nor George are attending the party.

Unexpected plural agreement could be accounted for with a version of the Agree operation which is sensitive to differences between semantically motivated agreement and morphologically motivated one (Smith, 2017). We might also wonder what this tells us about the underlying structure for negative coordination, as the singular agreement should follow from a disjunctive nature of the connective, whereas a conjunction could be compatible with both agreements, taken at face value.

    Although *neither...nor* is often seen as a type of coordination limited to two members,[2] coordination of more than two subjects is, in fact, possible (138a), but *nor* should be the iterated marker (138b).

(138)   a. % Neither the President, the Government, the Assembly, nor the Ministry of Defense supported the proposal.

          b. % Neither the President, nor the Government, nor the Assembly, nor the Ministry of Defense supported the proposal.

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[1]This partly contrasts with *either...or* disjunctions, where only singular agreement is possible.

(1)   Either Ryan or George is/*are attending the party.

[2]This parallels the behavior of the pronoun and determiner *neither*, which is normally restricted to a set of two individuals.

(1)   Neither (of the boys) is going to the party.

Such requirement for *neither* is certainly due to a competition with the pronoun and determiner *none*.

Not all speakers accept coordinations of more than two elements. One of the reasons is a prescriptive injunction that coordinands shouldn't be multiplied further, the same as with *either...or* (Sag et al., 1985). Even in the case of (138b), without appropriate intonational breaks the sentence is somewhat degraded.

The generalization which can be made from the investigation of subjects coordinated by *neither...nor* is that DPs[3] constitute natural candidates for this kind of construction.

BCMS Of the two iterated negative coordination markers, only one is fully acceptable with subject nominals – *ni* (139a, 139c, 139e). The use of *niti* is marginal here (139b, 139d, 139f). As will become clear below (143b), this degradedness is not due to the presence of the verbal marker of negation *ne*.

(139) a. *Ni Natalija ni Hrvoje ne   vole   mleko.*
        ni Natalija ni Hrvoje NEG like.3PL milk
        'Neither Natalija nor Hrvoje like milk'

     b. *?? Niti Natalija niti Hrvoje ne   vole   mleko.*
        niti Natalija niti Hrvoje NEG like.3PL milk
        'Neither Natalija nor Hrvoje like milk'

     c. *Ni on ni ja ne   znamo   odgovor.*
        ni he ni I NEG know.1PL answer
        'Neither he nor I know the answer'

     d. *?? Niti on niti ja ne   znamo   odgovor.*
        niti he niti I NEG know.1PL answer
        'Neither he nor I know the answer'

     e. *Ni pas ni mačke ne   vole   krompir.*
        ni dog ni cats   NEG like.3PL potato
        'Neither the/a dog nor (the) cats like potatoes'

     f. *??? Niti pas niti mačke ne   vole   krompir.*
        niti dog niti cats   NEG like.3PL potato
        'Neither the/a dog nor (the) cats like potatoes'

Ni-coordinated subjects can also occur with modal (140a) and control (140b) verbs in BCMS [4].

(140) a. *Ni Lea ni Sofija ne   mogu   {ići   / da idu}   u bioskop.*
        ni Lea ni Sofija NEG can.PL go.INF   FIN go.3PL in cinema

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[3]I will accept the view in which all nominal phrases are headed by a functional category D (Abney, 1987), even when no determiner is overtly expressed. When a D head projects its categorial feature, the resulting phrase is a DP.

[4]Subject raising constructions are not very productive in BCMS, in general.

'Neither Lea nor Sofija can go to the cinema'

b. *Ni njegov sin ni njegova ćerka   nisu   {želeli / pokušali}*
   ni his   son ni his   daughter NEG-AUX.3PL want   try.PTCP.PL
   {studirati / da studiraju}.
   study.INF   FIN study.3PL

   'Neither his son nor his daughter wanted/tried to study'

The verb gets plural agreement (141a), although singular is marginally possible (141b).

(141)   a. *Ni Lea ni Gea nisu   radile   tamo.*
        ni Lea ni Gea NEG-AUX.3PL work.PTCP-PL.F there

        'Neither Lea nor Gea worked there'

        b. *% Ni Lea ni Gea nije   radila   tamo.*
           ni Lea ni Gea NEG-AUX.3SG work.PTCP-SG.F there

           'Neither Lea nor Gea worked there'

Ni-markers have to attach directly to the nominal phrases that represent coordinated subjects, and no other position is available for them. Neither of the markers can be dropped (142a, 142b), not even when the subjects are dislocated to the end of the sentence (142c), i.e. when they are removed from the sentence-initial position from which they supposedly c-command the negative verbal marker.

(142)   a. * *Lea ni Gea nisu   radile   u toj banci.*
           Lea ni Gea NEG-AUX.3PL work.PTCP-PL.F in that bank

           Intended: 'Neither Lea nor Gea worked in that bank'

        b. * *Ni Lea(,) Gea nisu   radile   u toj banci.*
           ni Lea   Gea NEG-AUX.3PL work.PTCP-PL.F in that bank

           Intended: 'Neither Lea nor Gea worked in that bank'

        c. *?? U toj   banci nisu   radile   Lea ni Gea.*
           in that bank NEG-AUX.3PL work.PTCP-PL.F Lea ni Gea

           Intended: 'Neither Lea nor Gea worked in that bank'

The interpretation that sentences with *ni*-coordinated subjects, like (139a) or (141a), receive, is that of a single negation (143a). To the extent that sentences with *niti*-coordinated subjects are interpretable, they also get NC readings only. Leaving out the negative verbal marker causes ungrammaticality with *ni*, and it doesn't improve the degradedness which occurs with the other marker, *niti* (143b).

(143)   a. *Ni Natalija ni Hrvoje ne   vole   mleko.*
        ni Natalija ni Hrvoje NEG like.3PL milk

        'It is not the case that Natalija or Hrvoje like milk'

        ⇔ 'Natalija doesn't like milk and Hrvoje doesn't like milk'

b. * *Ni(ti) Natalija ni(ti) Hrvoje vole   mleko.*
   ni(ti) Natalija ni(ti) Hrvoje like.3PL milk

   Intended: 'Neither Natalija nor Hrvoje like milk'

The number of nominals that can be coordinated using *ni* is not limited (144a). When the coordination marker is not iterated, as in (144b), the structure can be remedied either by considering the intermediate *ni*-markers as unpronounced, or by assuming that the first three coordinands (*the President, the Government, the Assembly*) form a group referent which is contrasted to the last coordinand (*the Ministry of Defense*).

(144)   a. *Ni Natalija ni Hrvoje ni Lea ni ja ne   volimo   mleko.*
           ni Natalija ni Hrvoje ni Lea ni I NEG like.1PL milk

           'Neither Natalija nor Hrvoje nor Lea nor I like milk'

       b. *?? Ni predsednik, Vlada,   Parlament, ni Ministarstvo odbrane*
           ni president   government assembly   ni ministry   defense
           nisu   podržali   predlog.
           NEG-AUX.3PL support.PTCP-PL.M proposal

           'Neither the President, the Government, the Assembly, nor the Ministry of Defense supported the proposal'

To conclude, subject nominals are acceptable in negative coordination in both English and BCMS. The major difference ensues from the interaction with other negative elements in the same clause, since the presence of a negative adverb or verbal marker is not needed and triggers double negation readings in English, but is required for syntactic well-formedness in BCMS.

3.2   Objects

English   Other argument positions also allow for negative coordination with *neither...nor*. Some examples with objects are given in (145).

(145)   a.   i. Nick likes neither apples nor oranges.

           ii. He managed to persuade neither his mother nor his father.

       b.   i. Jenny sent e-mails to neither Katie nor (?to) Andy.

           ii. Jenny sent e-mails neither to Katie nor ?*(to) Andy.

           iii. ?* Jenny sent neither her nor him e-mails.

Negative coordination works with both direct and indirect objects, where, in the latter case, it can coordinate below the preposition (145b-i) or above it (145b-ii). Nonetheless,

when indirect objects are not PPs with Goal thematic roles, but Recipients stuck higher in the Θ-hierarchy, *neither...nor* coordination results in ungrammaticality (145b-iii).

Object positions allow for different placement of the *neither* marker (146).

(146)   a. You have taken <u>neither</u> hockey nor algebra.   (Szabolcsi and Haddican, 2004)

         b. You have <u>neither</u> taken hockey nor algebra.

         c. ?? You <u>neither</u> have taken hockey nor algebra.

         d. ? <u>Neither</u> have you taken hockey nor algebra.

Coordination of more than two objects is possible, with (147a) or without (147b) repeating *nor* (Sag et al., 1985).

(147)   a. Katie visited neither Rio, nor Montevideo, nor Santiago.

         b. Rigid enforcement of antique decorum will help neither language, literature, nor literati.   (James Sledd, Merriam-Webster online)

Dropping neither *neither* nor *nor* is allowed:

(148)   a. * Katie visited Rio nor Montevideo.

         b. * Katie visited neither Rio(,) Montevideo.

Just like with subjects, sentential negation is induced when objects are coordinated by *neither...nor.* The difference this time is that the first negative element (*neither*) can occur comparably late in the linear order of the sentence. A question remains as to whether this has any implications for the processing of such sentences and whether there are contextual requirements that enable this. If another negative element occurs in the clause, such as the verbal marker *not*, a double negation interpretation is triggered in Standard English, and the sentence is degraded. Nonetheless, some native speakers report that single negation interpretations are sometimes available, especially if the presence of *neither* is somehow 'neglected'. Another factor here is that double negation requires characteristic intonation and discourse conditions, and if such intonation is absent, the DN reading is not the most salient one, which causes degradedness. Important to note is that speakers' judgments do not always converge for such examples, and there is inter-speaker variation.

(149)   a. ?? Brenda does not believe neither in God nor in Satan.

         b. NC: 'It is not the case that Brenda believes in God or in Satan'

         c. DN: 'Brenda believes either in God or in Satan'

(150)   a. ? Nobody likes neither cocoa nor vanilla.

         b. NC: 'It is not the case that there is someone who likes cocoa or vanilla'

c. DN: 'Everybody likes either cocoa or vanilla'

Crucially, whatever the situation with DN and NC readings, objects coordinated by *neither...nor* unambiguosly deliver negation to the sentence in absence of any other negative element, thus patterning with coordinated subjects.

BCMS   Nominals in object position can be coordinated by *ni*, be it as direct (151) or as indirect (152) objects. It is possible to place the coordinated objects in different positions in the clause, as shown for coordinated Recipient pronouns in (152a). Object PPs can also be coordinated by *ni* (152b).

(151)   a. *Marko nije   polagao   ni Sintaksu   ni Semantiku.*
Marko NEG-AUX take.PTCP ni syntax.ACC ni semantics.ACC

'Marko has taken neither syntax nor semantics'

b. *Natalija ne   voli ni kafu   ni čaj.*
Natalija NEG likes ni coffee.ACC ni tea.ACC

'She likes neither coffee nor tea'

c. *Nije   uspeo   da nagovori ni svoju majku   ni svog oca.*
NEG-AUX managed to persuade ni own   mother ni own father

'He managed to persuade neither his mother nor his father'

(152)   a. *{Ni njemu   ni njoj}   nije   {ni njemu   ni njoj}   slala*
ni   him.DAT ni her.DAT NEG-AUX.3SG ni   him.DAT ni her.DAT send.PTCP
{ni njemu   ni njoj}   mejlove   {ni njemu   ni njoj}.
ni   him.DAT ni her.DAT e-mails.ACC ni   him.DAT ni her.DAT

'?*She sent neither her nor him e-mails'

b. *Nismo   pričali   ni o   budućnosti ni o   prošlosti.*
NEG-AUX.1PL talk.PTCP-PL ni about future.LOC ni about past.LOC

'We talked neither about the future nor about the past'

Niti is mostly degraded as a coordinator for nominal or prepositional objects.[5]

(153)   a. *?? Marko nije   polagao   niti Sintaksu   niti Semantiku.*
Marko NEG-AUX take.PTCP niti syntax.ACC niti semantics.ACC

'Marko has taken neither syntax nor semantics'

b. *?? Natalija ne   voli niti kafu   niti čaj.*
Natalija NEG likes niti coffee.ACC niti tea.ACC

'Natalija likes neither coffee nor tea'

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[5]Degradedness of *niti* in this position, as well as in some other positions, is subject to regional variation.

(154) *?? {niti njemu   niti njoj}   nije   {niti njemu   niti njoj}   slala*
      niti him.DAT niti her.DAT NEG-AUX niti him.DAT niti her.DAT send.PTCP

      {niti njemu   niti njoj}   mejlove   {niti njemu   niti njoj}.
      niti him.DAT niti her.DAT e-mails.ACC niti him.DAT niti her.DAT

      '?*She sent neither him nor her e-mails'

(155) *?? Nismo   pričali   niti o   budućnosti niti o   prošlosti.*
      NEG-AUX.1PL talk.PTCP niti about future.LOC niti about past.LOC

      'We talked neither about the future nor about the past'

Unlike in English, the position of all the occurrences of *ni*-markers (initial, intermediate, if present, or final) are fixed to the constituent they associate with, and they cannot be found in any other position. This is illustrated for the initial marker in (156), but the same holds for the final *ni*[6].

(156) * *{Ni} Marko {ni} nije   {ni} polagao Sintaksu ni Semantiku.*
      ni   Marko ni   NEG-AUX ni   taken   Syntax   ni Semantics

      Intended: 'Marko has taken neither Syntax nor Semantics'

However, in the case of *niti*, there is a position away from the object which can remedy the degradedness of sentences in (154) and (155). This is the sentence-initial position, as in (157).

(157) a. *Niti je   Marko polagao   Sintaksu   niti Semantiku.*
        niti AUX.3SG Marko take.PTCP Syntax.ACC niti Semantics.ACC

        'Marko has neither taken syntax nor semantics'

     b. *Niti smo   pričali   o   budućnosti niti o   prošlosti.*
        niti AUX.1PL talk.PTCP about future.ACC niti about past.ACC

        'We neither talked about the future nor about the past'

Importantly, the verbal negative marker is absent in this case. This is relevant because the negative marker needs to be present in the clause with both *ni*- and *niti*-coordinated objects in BCMS (158), when the markers are directly attached to the constituents they introduce.

(158) * *Ovaj kandidat zna   ni(ti) engleski ni(ti) španski.*
      this   candidate knows ni(ti) English ni(ti) Spanish

      Intended: 'This candidate knows neither English nor Spanish'

Thanks to this, as well as the object position of the coordination, the initial *ni*-marker is not required. Now, the question is whether examples in (159a) and (159b) result from the

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[6]The two markers being of the same form, it would be difficult to show which one is which, once displaced.

same derivations as the ones where *ni* is iterated, with the difference that the initial *ni* is unpronounced here, or whether these minimal pairs represent different constructions.

(159) a. *Ovaj kandidat ne   zna   engleski ni španski.*
this   candidate NEG knows English ni Spanish
'This candidate knows neither English nor Spanish'

b. *Nismo   pričali   o   budućnosti ni o   prošlosti.*
NEG-AUX.1PL talk.PTCP about future.LOC ni about past.LOC
'We talked neither about the future nor about the past'

In the first case, the presence of the negative verbal marker would allow for the omission of the initial *ni*, as the verbal marker could indicate the scope of negation, and the exact structural position of the coordinands could be inferred from the attachment site of the final *ni* – if it is attached to the second object, then the unexpressed *ni* has to be on the first object. In the second case, examples such as (159a) and (159b) would represent a different kind of structure, parallel to NEG...*nor* constructions in English without *neither*. Crucially, the truth conditions remain the same. But with this kind of construction even sentences with *niti* are grammatical (160a, 160b). The constituent introduced by *niti* in cases like (160) is often better if demarcated from the initial (part of the) clause with a small intonational break.

(160) a. *Ovaj kandidat ne   zna   engleski, niti španski.*
this   candidate NEG knows English   niti Spanish
'This candidate knows neither English nor Spanish'

b. *Nismo   pričali   o   budućnosti, niti o   prošlosti.*
NEG-AUX.1PL talk.PTCP about future.LOC niti about past.LOC
'We talked neither about the future nor about the past'

There can be more than two coordinands introduced by *ni* and *niti*, with or without iteration of the marker, but both producing an effect of enumeration.

(161) a. *Marko nije   polagao (ni) Sintaksu   (ni) Semantiku   (ni)*
Marko NEG-AUX.3SG taken   ni   Syntax.ACC ni   Semantics.ACC ni
Pragmatiku   ni Fonologiju.
Pragmatics.ACC ni Phonology.ACC
'Marko has taken neither Syntax, (nor) Semantics, (nor) Pragmatics, nor Phonology'

b. *Marko nije   polagao (??niti) Sintaksu,   (niti) Semantiku,*
Marko NEG-AUX.3SG taken   niti   Syntax.ACC niti   Semantics.ACC
(niti) Pragmatiku,   niti Fonologiju.
niti   Pragmatics.ACC niti Phonology.ACC

'Marko has taken neither Syntax, (nor) Semantics, (nor) Pragmatics, nor Phonology'

Finally, clauses with *ni*-coordinated objects and the obligatorily present negative verbal marker yield interpretations of a single logical negation (162a). To the extent that they can be interpreted, the same examples with *niti* also can only get single negation readings (162b).

(162)   a. *Marko nije   polagao ni Sintaksu   ni Semantiku.*
        Marko NEG-AUX.3SG taken   ni Syntax.ACC ni Semantics.ACC
        'It is not the case that Marko has taken Syntax or Semantics'
        ⇔ 'Marko didn't take Syntax and he didn't take Semantics'

        b. *?? Marko nije   polagao niti Sintaksu   niti Semantiku.*
        Marko NEG-AUX.3SG taken   niti Syntax.ACC niti Semantics.ACC
        'It is not the case that Marko has taken Syntax or Semantics'
        ⇔ 'Marko didn't take Syntax and he didn't take Semantics'

Thus, argument nominals of different kinds and in different positions are well-formed inside negative coordination in both English and BCMS, with the difference that in the latter an overt verbal marker of negation is required for grammaticality and to yield sentential negation (except with sentence-initial *niti*). The next section investigates adjunct positions, as well as different kinds of syntactic phrases that can be negatively coordinated in the two languages.

3.3   Non-arguments

English   *Neither…nor* can also coordinate constituents which are not arguments, as exemplified with adjuncts in (163).

(163)   a. Jenny worked neither diligently nor with enthusiasm.
        ⇒ Jenny worked.

        b. Katie went to school neither in Rome nor in Paris.
        ⇒ Katie went to school.

        c. Katie came to the party neither with Jenny nor with Malcolm.
        ⇒ Katie came to the party.

        d. I can find my keys neither in the kitchen nor in the living room.
        ⇒ I can't find my keys in the kitchen or in the living room.

Negative coordination of adjuncts usually does not induce negation of the whole predicate, as shown through entailment relations. However, the example in (163d) does seem to convey sentential negation.

Coordination of predicates (164) and small clauses (165) is also available.

(164)   a. He is neither as young nor as fit as the others.

         b. After the abortion bill, Alabama is neither nice nor rational.

(165)   a. She saw herself as neither wife nor mother.

         b. They named him neither Pedro nor Pablo.

Negative coordination of adjuncts works best in the sentence-final position. Other placements of adverbials either invoke additional focus effects, as with fronting in (166), or yield ungrammaticality (167).

(166)   a. Neither yesterday nor the day before did Jenny submit her thesis.

         b. Neither with Jenny nor with Malcolm did Katie come to the party.

(167)   a. * Jenny neither often nor rarely goes to the cinema.

         b.   i. * Katie neither gladly nor proudly announced her appointment.

             ii. ?? Katie will neither gladly nor proudly announce her appointment.

It is possible to place one of the two markers, *neither*, into some higher position (168).

(168)   a. ? Neither did Jenny work diligently nor with enthusiasm.

         b. Jenny neither worked diligently nor with enthusiasm.

Again, if another negative element is inserted, double negation interpretations emerge, although single negation readings are marginally possible. Nonetheless, these structures are degraded to a smaller or bigger extent.

(169)   a. ??? Jenny didn't work neither diligently nor with enthusiasm.

              i. 'Jenny worked either diligently or with enthusiasm'

             ii. 'It is not the case that Jenny worked diligently or with enthusiasm'

         b. ? Jenny never worked neither diligently nor with enthusiasm.

              i. 'Jenny sometimes worked diligently or with enthusiasm'

             ii. 'It is not the case that Jenny ever worked diligently or with enthusiasm'

         c. ? Nobody worked neither diligently nor with enthusiasm.

              i. 'Everybody worked either diligently or with enthusiasm'

ii. 'It is not the case that there is somebody who worked diligently or with enthusiasm'

So far, the flexibility of *neither...nor* has allowed coordination of different argument and non-argument constituents. This includes several syntactic categories, from nominal phrases (DPs), to prepositional phrases (PPs), adjectives (APs), adverbs (AdvPs). *Neither* and *nor* are thus not limited to coordination of nominals.

BCMS Negative coordination of adjuncts is possible, but again, it is much more acceptable with the *ni* than with the *niti* markers, as shown in the minimal pairs below.

(170) a. *Sofija nije   radila   ni marljivo   ni poletno.*
       Sofija NEG-AUX.3SG worked ni diligently ni zestfully

       'Sofija didn't work diligently or zestfully'

   b. *?? Sofija nije   radila   niti marljivo   niti poletno.*
       Sofija NEG-AUX.3SG worked niti diligently niti zestfully

       'Sofija didn't work diligently or zestfully'

(171) a. *Sofija nije   išla   u školu   ni u Rimu ni u Parizu.*
       Sofija NEG-AUX.3SG gone in school ni in Rome ni in Paris

       'Sofija didn't go to school in Rome or in Paris'

   b. *?? Sofija nije   išla   u školu   niti u Rimu niti u Parizu.*
       Sofija NEG-AUX.3SG gone in school niti in Rome niti in Paris

       'Sofija didn't go to school in Rome or in Paris'

(172) a. *Sofija nije   došla na žurku ni sa   Leom ni sa   Inom.*
       Sofija NEG-AUX.3SG come on party ni with Lea   ni with Ina

       'Sofija didn't come to the party with Lea or with Ina'

   b. *?? Sofija nije   došla na žurku niti sa   Leom niti sa   Inom.*
       Sofija NEG-AUX.3SG come on party niti with Lea   niti with Ina

       'Sofija didn't come to the party with Lea or with Ina'

(173) a. *Ne   mogu   naći ključeve ni u kuhinji ni u dnevnoj sobi.*
       NEG can.1SG find keys   ni in kitchen ni in living   room

       'I cannot find the keys in the kitchen or in the living room'

   b. *?? Ne   mogu   naći ključeve niti u kuhinji niti u dnevnoj sobi.*
       NEG can.1SG find keys   niti in kitchen niti in living   room

       'I can't find the keys in the kitchen or in the living room'

Just like with argument nominals, negative coordination of adverbials in BCMS requires the presence of a negative verbal marker, in its absence the sentence becomes fully ungrammatical with either of the two markers (174).

(174)   *Sofija je   došla na žurku ni(ti) sa   Leom ni(ti) sa   Inom.*
          Sofija AUX.3SG come on party ni(ti) with Lea   ni(ti) with Ina

          Intended: 'Sofija came to the party neither with Lea nor with Ina'

Negative coordination of predicates and small clauses is also available in BCMS, as shown in (175a) and (175b) respectively.

(175)   a.   *Ovogodišnji budžet nije   ni(?ti) pravedan ni(ti) razuman.*
            this-year's   budget NEG-AUX.3SG ni(ti)   just   ni(ti) reasonable

            'This year's budget is neither just nor reasonable'

     b.   *Nije   sebe   videla ni(?ti) kao suprugu ni(ti) kao majku.*
            NEG-AUX.3SG REFL seen   ni(ti)   as   wife   ni(ti) as   mother

            'She saw herself neither as wife nor as mother'

The rule that *ni* and *niti* markers have to be attached to the constituents they are coordinating stays in place in the case of adverbials. But such coordination can be placed in different positions in a sentence (176).

(176)   a.   {Ni marljivo ni poletno} Sofija {ni marljivo ni poletno} nije {ni marljivo ni poletno} radila.

          'Sofija didn't work diligently or zestfully'

     b.   {ni u Rimu ni u Parizu} Sofija {ni u Rimu ni u Parizu} nije {ni u Rimu ni u Parizu} išla {ni u Rimu ni u Parizu} u školu.

          'Sofija didn't go to school in Rome or in Paris'

     c.   {Ni sa Leom ni sa Markom} Sofija {ni sa Leom ni sa Markom} nije {ni sa Leom ni sa Markom} došla {ni sa Leom ni sa Markom} na žurku.

          'Sofija didn't come to the party with Lea or with Marko'

These different positions normally bring in some additional information structural load. Unlike in English, where negative coordinations of adverbials do not convey sentential negation, in BCMS negation of the predicate is always possible due to the presence of the negative marker on the verb. Nonetheless, in most of the cases, inferences which are compatible with positive entailments of the sentence can arise. For example, in (176/170a) an inference that Sofija, in fact, worked, can be triggered and this seems to be independent from the position of the *ni*-coordination of adjuncts. Thus the two options which exist in the *ni*-coordination of adverbials are (i) a single negation reading or (ii) a positive interpretation with constituent negation of the modifiers.

     This section presented evidence that, just like in English, negative coordination of categories other than nominals is also possible in BCMS, with examples of AdvPs PPs,

and predicative APs. In the next section, I will focus on full verb phrases and their negative coordination in English and BCMS.

3.4   Verbal predicates

English   *Neither...nor* can serve to coordinate verb-headed phrases in English (VPs or vPs). Such verb phrases can be of different sizes, i.e. comprising internal arguments (177b), or not (177a). In the case of transitive verbs, if the object is the same in the two coordinands, it does not have to be overtly expressed in the first one (177c).

(177)   a. He would neither smile nor wink.

       b. He has neither read the book nor seen the film.

       c. He has neither read nor signed the contract.

Furthermore, binding of such a shared object is possible, as shown by the presence of reflexives in (178).

(178)   a. Nick neither praised (himself) nor criticized himself.

       b. I neither praised (myself) nor criticized myself.

Double negation arises if another negative element is added to the clause, but negative concord is also possible:

(179)   Nobody neither read the paper nor saw the talk.

       a. 'Everybody either read the paper or saw the talk'

       b. 'It is not the case that there is someone who read the paper or saw the talk'

Different positions for *neither* are barely possible (180), as there are not many slots left above a VP or a vP.

(180)   a.   i. ? Neither would he smile nor wink.

          ii. ??? He neither would smile nor wink.

       b.   i. ? Neither has he read the book nor seen the film.

          ii. ??? He neither has read the book nor seen the film.

A question which arises with these forms of coordination is whether the subject is actually base-generated inside the constituents introduced by *neither* and *nor*, and moved Accross-the-Board (ATB), as in (181).

(181) $[_{TP}$ he$_i$ would $[_{JP}$ [neither ~~he~~$_i$ smile] [J [nor ~~he~~$_i$ wink]]]]

The next section examines negative coordination of even bigger constituents – finite clauses. But before that, I turn to the *ni(ti)*-coordination of verb phrases.

BCMS   Negative coordination of verb phrases in BCMS is available, and it even yields relatively acceptable results with *niti*. Due to competition between *ni...ni* and *niti...niti*, the former is preferred for VP-coordination with markers expressed on each coordinand. The examples given below comprise coordination of verb phrases below the negatively marked auxiliary where verbs can have internal arguments (182b), or not (182a), as well as the case where the object is not expressed in the fist coordinand (182c).

(182)   a.   i. *Sofija nije   ni pevala   ni igrala.*
              Sofija NEG-AUX.3SG ni sing.PTCP ni dance.PTCP
              'Sofija neither sang nor danced'

        ii. *? Sofija nije   niti pevala   niti igrala.*
              Sofija NEG-AUX.3SG niti sing.PTCP niti dance.PTCP
              'Sofija neither sang nor danced'

        b.   i. *Lea nije   ni pojela   sendvič   ni popila   jogurt.*
              Lea NEG-AUX.3SG ni eat.PTCP sandwich ni dri.PTCPnk yogurt
              'Lea didn't eat the sandwich or drink the yogurt'

        ii. *? Lea nije   niti pojela   sendvič   niti popila   jogurt.*
              Lea NEG-AUX.3SG niti eat.PTCP sandwich niti drink.PTCP yogurt
              'Lea didn't eat the sandwich or drink the yogurt'

        c.   i. *Sofija neće   ni sašiti   ni kupiti   haljinu.*
              Sofija NEG-will ni sew.INF ni buy.INF dress.ACC
              'Sofija will neither sew nor buy a/the dress'

        ii. *? Sofija neće   niti sašiti   niti kupiti   haljinu.*
              Sofija NEG-will niti sew.INF niti buy.INF dress.ACC
              'Sofija will neither sew nor buy a/the dress'

The coordination markers have to be attached to verb-headed constituents that they are coordinating, and the coordination cannot be dislocated. Both the coordination of v/VPs with *ni* and the one with *niti* yield only NC readings. Crucially, the negative verbal marker must be present in both cases, as the ungrammaticality of (183) shows.

(183)   * *Lea je   ni(ti) pevala   ni(ti) igrala.*
           Lea AUX.3SG ni(ti) sing.PTCP ni(ti) dance.PTCP
        Intended: 'Lea neither sang nor danced;

As for the position of the verbal marker of negation, when there is no auxiliary present in the clause, we might wonder whether there are other possible positions for the negative

marker. Placing the negative marker on the finite verbs inside the coordinands is possible with *ni*, but leaving it outside the *ni*-coordination is not possible (184b), since there is no finite verb for it to attach to.

(184)   a. *? Lea ni ne peva ni ne igra.*
              Lea ni NEG sings ni NEG dances

              'Lea neither sings nor dances'

      b. ** Lea ne   ni peva (ne) ni igra.*
              Lea NEG ni sings NEG ni dances

              Intended: "Lea neither sings nor dances"

As for *niti*, the verbal marker need not be there in this case (185a), whereas its presence (185b) degrades the structure and induces double negation readings.

(185)   a. *Lea (*ne) niti peva niti igra.*
              Lea NEG   niti sings niti dances

              'Lea neither sings nor dances'

      b. *? Lea niti ne peva niti ne igra.*
              Lea niti NEG sings niti NEG dances

              'Lea neither does not sing nor does she not dance'

It seems like such coordinations in sentences where no auxiliary is present do not constitute vP/VP-coordination (184a, 185a, 185b), but clausal coordinations where the subject has been ATB-moved.

3.5   Clauses

This section is dedicated to negative coordination of finite clauses. I first discuss clauses with no overt complementizer in English ('TPs'), then matrix clauses with complementizers ('Non-embedded CPs'), and finally, negative coordination of embedded clauses ('Embedded CPs'). I then repeat the same order for BCMS.

3.5.1   English

3.5.1.1   TPs

It is not easy to determine which negative coordinations have TPs[7] as their constituent parts. In principle, if the coordinated constituent comprises at least a finite element of its

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[7]TPs are Tense Phrases, also known as IPs or FinPs (Inflectional/Finiteness Phrases) in alternative nomenclatures.

own, it is safe to assume that we are dealing with TP-coordination. But just how much of the remaining structure has to be spelled-out? One possibility would be to have the subject shared between the two coordinands. In that case, Across-the-Board movement from the two coordinated clauses to a higher position could be available. The data below show that, in *neither...nor* coordinations where only the finite element (auxiliary) differs in the two clauses, minimally the subject has to be reconstructed with a pronoun in the second member of coordination (186a). Although identical to the content of the first coordinand, the whole remaining structure can also be spelled out in the second coordinand (186b). Keeping only the finite element (*will* in this case) in the *nor*-clause yields ungrammaticality (186c). The word order enforced in the clause displays subject-auxiliary inversion, as the sentence without it becomes ungrammatical (186d). Not moving the shared subject outside of the coordination works (186e), but only with subject-auxiliary inversion in both members of the coordination. Still, such sentences are found to be degraded by most speakers. Finally, an arguably Right-Node-Raising structure, as in (186f), is well-formed.

(186)   a. ? Jeff neither has made a remark about the data nor will he.

b. Jeff neither has made a remark about the data nor will he make a remark about the data.

c. * Jeff neither has made a remark about the data nor will.

d. * Jeff neither has made a remark about the data nor he will.

e. ? Neither has Jeff made a remark about the data nor will he (make a remark about the data).

f. Jeff neither has nor will make a remark about the data.

When the two clauses have different subjects, moving out only one does not give a well-formed result (187a). Again, both the subject and the finite element must be expresssed in the *nor*-introduced clause and subject-auxiliary inversion must take place, as shown in (187b) for its absence in both coordinands and in (187c) for its absence only from the first coordinand[8]. When subject-auxiliary inversion does take place, a certain degree of degradedness can still remain due to the situation in the first coordinand, i.e. the *neither*+FIN combination which many speakers do not find fully grammatical (187d). At the same time, the *nor*+FIN combination is completely grammatical and, moreover, required. The finite element in the coordinated clauses can differ (187d).

(187)   a. ??? Jeff has neither made a remark about the data, nor has Jackie.

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[8]If strong focus is on the subjects *Jeff* and *Jackie*, the structure can be accepted without the inversion after *neither*.

b. * Neither Jeff has made a remark about the data, nor Jackie has.

c. ??? Neither Jeff has made a remark about the data, nor has Jackie.

d. ? Neither has Jeff made a remark about the data, nor has/will Jackie.

The same effects obtain when no ellipsis takes place and with different VP content (188a). If *neither* is placed in any other position, to avoid the movement of the finite element, it would be too low to successfully coordinate the two clauses (187a, 188b).[9]

(188)   a. ? Neither has Jeff made a remark about the data, nor has Jackie asked questions.

b. ?? Jeff has neither made a remark about the data, nor has Jackie asked questions.

The importance of moving the finite element into a position right below a negative coordination marker (subject-auxiliary inversion) is also indicated by the obligatory insertion of the *do*-support in structures which contain no finite element in the form of an auxiliary (189).

(189)   ? Neither did Jeff make a remark about the data, nor did Jackie (ask questions).

However, the difference between *neither* and *nor* with respect to the possibility of being followed by a finite element remains a puzzling fact. In other words, why does *nor* yield fully grammatical structures when introducing entire clauses, whereas *neither* doing the same causes mild degradedness? Moreover, why does the position immediately below the negative coordination marker have to be filled with a finite element? It might be relevant to note at this point that *either...or* disjunctive markers do not display inversion with clausal coordinands (Den Dikken, 2006).

(190)   Either Jeff made a remark about the data, or Jackie {did / asked questions}.

Next, we turn to the ever-present issue of double negation. With clausal structures and negative indefinites or markers present inside, the double negation reading seems to be the primary one. A potentially important observation can be made about the emergence of existential readings for the negative quantifiers in subject position (191b), in which universal interpretations for the quantifier (191c) would otherwise be predicted (191d).

(191)   ? Neither will nobody fail the exam, nor will Brenda celebrate.

a. ??? 'Nobody will fail the exam, and Brenda won't celebrate'

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[9]Wurmbrand (2008: 512, fn.1) notes that "(...) some speakers do not allow CP/IP coordination, with *neither* embedded in the first conjunct (...)".

    b. 'Somebody will fail the exam, and Brenda won't celebrate'

    c. * 'Everybody will fail the exam, and Brenda won't celebrate'

    d. Nobody won't fail the exam. = 'Everybody will fail the exam'

(192) ? Neither did Ryan invite nobody, nor did George socialize.

    a. 'Ryan invited somebody, and George did not socialize'

    b. ??? 'Ryan invited nobody, and George did not socialize'

(193) Neither has Jenny not commented on the data, nor has Katie not written her report.

    a. 'Jenny has commented on the data and Katie has written her report'

    b. * 'Jenny hasn't commented on the data and Katie hasn't written her report'

In the next subsection, I investigate the (im)possibility of *neither...nor* coordination of matrix clauses with overt or covert complementizers.

3.5.1.2 Non-embedded CPs

If non-embedded declarative sentences are analyzed as TPs and therefore *neither...nor* coordinations as TP-coordinations, then coordinations of CPs[10] should concern interrogatives and imperatives. But neither polar nor wh-questions are possible with *neither...nor*, in various configurations exemplified in (194)[11].

(194) a. i. * Neither did Katie arrive nor did Jenny call?

       ii. ? Did neither Katie arrive nor Jenny call?

    b. i. * Neither who called nor what happened?

       ii. * Who neither called nor what happened?

      iii. * Who neither called what nor happened?

      iv. Who neither came nor called?

To the extent that it is acceptable, the case in (194a-ii) would, in fact, represent a single polar question with a negative coordination inside it, and not a negative coordination of two polar questions, the reason being that it can be answered with a single 'yes' or 'no', and similar for the wh-question in (194b-iv).

    As for imperatives, they give a rather odd result (195).

(195) (?) Neither drink nor smoke!

_____

[10]Complementizer Phrases.
[11](194a-i) could potentially work as an echo question.

In any of these cases, the negations present with *neither* and *nor* cannot outscope the illocutionary/ speech act operators. The negation they induce can only be interpreted inside the propositions that the illocutionary operators take, but even this does not seem to give entirely well-formed sentences.

3.5.1.3 Embedded CPs

The situation is rather different when *neither* and *nor* are coordinating clauses seemingly embedded under different predicates, as shown for *know* (196a), *believe* (196b), *wonder* (196c), and *claim* (196d).

(196)   a.   i. (?) Ryan knows neither whether Rob came nor whether Tim called.

             ii. (?) Ryan knows neither that Rob came nor that Tim called.

            iii. (?) Ryan knows neither who came nor what happened.

    b.   i. (?) Ryan believes neither that Rob came nor that Tim called.

             ii. * Ryan believes neither whether Rob came nor whether Tim called.

            iii. * Ryan believes neither who came nor what happened.

    c.   i. (?) Ryan wonders neither whether Rob came nor whether Tim called.

             ii. (?) Ryan wonders neither who came nor what happened.

    d. (?) Ryan claimed neither that Rob came nor that Tim called.

Neither...nor coordination of embedded CPs is mainly governed by the general properties of the matrix predicate and the possibilities that they have with respect to selecting different kinds of complements. Nonetheless, examples with such embedding are somewhat degraded. Putting this aside for a moment, what these examples show is that the negative coordination markers *neither* and *nor* do not occupy the position of the Head in the CP-layer, or else they would not co-occur with complementizers such as *that*. Dropping the complementizer yields ungrammaticality (197). But they do not occupy the Specifier position of the (same) CP, either, since they can co-occur with wh-expressions.

(197)   a. * Ryan {knows/believes/claims} neither Rob came nor Tim called.

    b. * Ryan wondered neither Rob came nor Tim called.

Furthermore, what the sentences in (196) have in common is that they are not interpreted with negations inside the embedded clauses, as paraphrased in (198a-i) and in (198b-i). The only possible readings are the ones where the matrix verb is in the scope of a negation, as in (198a-ii) and (198b-ii).

(198)   a. (?) Ryan {knows/believes/claimed} neither that Rob came nor that Tim called.

ii. i. # 'Ryan {knows/believes/claimed} that Rob did not come and that Tim did not call'

ii. 'It is not the case that Ryan {knows/believes/claimed} that Rob came or that Tim called'

b. (?) Ryan wonders neither who came nor what happened.   (196c-ii)

i. # 'Ryan wonders who did not come and what did not happen'

ii. 'It is not the case that Ryan wonders who came or what happened'

It looks like the reason why embedded clauses in (198a) and (198b) cannot be interpreted as negative is that *neither* and *nor* occupy positions above the wh-expressions or complementizers, i.e. the negative coordination markers stay outside of their CP-layer and thus the clausal domain. The only remaining predicate that can then be negated is the matrix one, whence the interpretations in (198a-ii) and (198b-ii). This is exactly the opposite of neg-raising (Fillmore, 1963; Bartsch, 1973), where an overtly negated matrix predicate allows for a negative reading of the embedded clause, as in (199a). However, neg-raising is restricted to only certain predicates – it works with *believe* (199a), but not with *claim* (199b), for example.

(199)   a. Ryan doesn't believe that Rob came. ⤳ 'Ryan believes that Rob did not come'

      b. Ryan doesn't claim that Rob came. /⤳ 'Ryan claims that Rob did not come'

It is unclear what the exact mechanism that brings about the negative interpretations of matrix predicates with negative coordination of embedded CPs (196) could be. Now, if *neither* and *nor* are placed below the complementizer, the result are the data below.

(200)   a.   i. (?) Ryan knows that neither Rob came nor Tim called.

         ii. % Ryan knows that neither did Rob come nor did Tim call.

      b. (?) Ryan knows whether neither Rob came nor (*whether) Tim called.

      c. * Ryan knows who neither came nor what happened.

      d. Ryan knows who neither came nor called.

(201)   a. % Ryan believes that neither {did} Rob arrive{d} nor {did} Tim call{ed}.

      b. * Ryan believes who neither came nor what happened.

      c. * Ryan believes who neither came nor called.

(202)   a. (?) Ryan wonders whether neither (*did) Rob arrived nor (*whether) (*did) Tim called.

      b. * Ryan wonders who neither came nor what happened.

c. Ryan wonders who neither came nor called.

(203) a. % Ryan claimed that neither {did} Rob arrive{d} nor {did} Tim call{ed}.

  b. * Ryan claimed who neither came nor called.

With these configurations negation is interpreted inside the coordinated clauses, and not above the matrix verb. This shows that when negative coordination is below a complementizer, its negation(s) cannot affect the main predicate. The non-rogative matrix predicates take one proposition as their argument, and this proposition is the intersection of two sets of worlds: for the example in (201a), one set of worlds would contain all those where Rob did not arrive and the other set would consist of all those worlds where Tim did not call.

 Now, in the examples so far, none of the matrix verbs was overtly negated. What happens when the matrix predicate is overtly negated while embedding negative coordination?

(204) a. ?? Jeff doesn't believe neither that humans have been to the Moon nor that the Earth is round.

  b. ?? Jeff didn't say neither that he is tired nor that he misses Brenda.

  c. ??? Jeff didn't wonder neither what happened nor who called.

Again, there is inter-speaker variation, where some interpret all overtly negative elements as inherently negative (205a), whereas others adopt a NC-style single negation interpretation (205b).

(205) For the example in (204b):

  a. 'Jeff said that he is tired or that he misses Brenda'

  b. 'It is not the case that Jeff said that he is tired or that he misses Brenda'

Examples in (206) show *neither...nor* coordination below the CP-layer with overt negation in the matrix.

(206) a. ? Jeff doesn't believe that neither have humans been to the Moon nor is the Earth round.

  b. ? Jeff didn't wonder who neither showed up nor called.

The above sentences are clearly understood as contrasting a previous statement. In fact, the whole embedded coordination sounds like some sort of quotation which is being denied. And since negation is overtly present both above and below the complementizer or the wh-expression, it cannot be interpreted only once, as shown in (207).

(207) For the example in (206a):

a. 'John believes that (either) humans have been to the Moon or the Earth is round'

b. # 'It is not the case that John believes that humans have been to the Moon or that the Earth is round'

This subsection thus leaves us with three major issues: (i) why is matrix clausal coordination with entirely distinct material in the two coordinands and the *neither*+FIN adjacency degraded (208a), (ii) why is embedded negative coordination and negative coordination of embedded CPs usually not fully well-formed and (iii) how does the matrix verb end up in the scope of negation when *neither...nor* coordinates embedded CPs (208b)?

(208) a. ? Neither has Peter understood the theorem, nor could Maria follow the proof.
Wurmbrand (2008)

b. ? Ryan {knows/believes/claimed} neither that Rob came nor that Tim called.

The next subsection will reveal that these issues do not affect negative coordination in BCMS.

3.5.2 BCMS

3.5.2.1 TPs

Of the two negative coordination markers in BCMS, only one allows fully well-formed clausal coordinations. Namely, *ni...ni* coordinations of clauses are mostly degraded (209a), whereas *niti...niti* is most natural as a coordination of clauses (209b). Perception of clausal *ni...ni* coordination may be subject to inter-speaker variation, and examples such as (209a) could improve in certain contexts. Nonetheless, the preference for *niti* markers in clausal coordination (209b) is uncontestable.

(209) a. *?? Ni Sofija ne jede sir, ni Lea ne pije jogurt.*
ni Sofija NEG eats cheese ni Lea NEG drinks yoghurt

'?Neither does Sofija eat cheese, nor does Lea drink yoghurt'

b. *Niti Sofija jede sir, niti Lea pije jogurt.*
niti Sofija eats cheese niti Lea drinks yoghurt

'?Neither does Sofija eat cheese, nor does Lea drink yoghurt'

Crucially, in the well-formed structure with *niti* in (209b) no verbal marker of negation is present. Removing the verbal marker *ne* from inside the *ni*-coordinands (209a) would yield ungrammaticality (210).

(210) * *Ni Sofija jede sir,   ni Lea pije   jogurt.*
       ni Sofija eats cheese ni Lea drinks yoghurt

       Intended: '?Neither does Sofija eat cheese, nor does Lea drink yoghurt'

The above examples represent cases where the two coordinands are maximally different. Let us now examine possibilities for different positions of the coordination and its markers. With *ni...ni* in (211a) the two coordinands are minimally different (tense), but the structure is not a well-formed coordination, regardless of whether deletion takes place or not. On the other hand, the structure with *niti* is grammatical and the identical material in the second coordinand can be ellided, but doesn't have to (211b). It is also possible to pick up the object from the first coordinand using a clitic pronoun (*ih*) in the second (211b).

(211)   a. *??? Maja ni ne   piše   knjige ni neće   (pisati knjige).*
           Maja ni NEG writes books ni NEG-will write   books

           'Maja neither writes books nor will she (write books)'

        b. *Maja niti piše   knjige niti će   ({ih} pisati {knjige}).*
           Maja niti writes books niti will them write books

           'Maja neither writes books nor will she (write {them/books})'

In (211b), the subject is supposedly moved out of the coordination and, unlike in English, it should not be reconstructed in the second coordinand, as BCMS is a pro-drop language. Now, when there is no auxiliary, the finite lexical (212b) or modal (212c) verb can, but does not have to be placed immediately following *niti*.

(212)   a. * *Ni Lea ne   piše   knjige ni neće   (pisati knjige).*
           ni Lea NEG writes books ni NEG-will write   books

           '?Neither does Lea write books nor will she (write books)'

        b. *Niti {Lea} piše   {Lea} knjige, niti će   (pisati knjige).*
           niti Lea   writes Lea   books niti will write   books

           '?Neither does Lea write books nor will she (write books)'

        c. *Niti {Lea} mora   {Lea} {igrati/da igra}   niti želi   ({igrati/ da igra).*
           niti Lea   has-to Lea   dance/to   dance niti wants dance/   to dance

           '?Neither does Lea have to dance nor does she want to (dance)'

If there is a clitic auxiliary present, it must immediately follow *niti* in both clauses, as shown in (213b), where non-inversion with the overt subject in the first coordinand would result in ungrammaticality.

(213)   a. *??? Ni nije   Lea pisala knjige ni neće   (pisati knjige).*
              ni NEG-AUX Lea written books ni NEG-will write   books

              '?Neither did Lea write books nor will she (write books)'

87

b. *Niti *{Lea} je   {Lea} pisala   knjige niti će   (pisati knjige).*
   niti Lea   AUX Lea   written books niti will write   books
   '?Neither did Lea write books nor will she (write books)'

When the two clauses have different subjects, clausal structures with *ni* are, again, ill-formed. This goes for sentences where the subject has been moved out of the coordination together with the negated auxiliary or alone (214a), as well as for structures where both subjects are inside the *ni*-introduced coordinands, regardless of subject-auxiliary inversion (214b).

(214)   a. ** Ina {ni} nije   {ni} pisala   knjige, ni {Lea} (nije)   {Lea}.*
           Ina ni   NEG-AUX ni   written books ni Lea   NEG-AUX Lea
           '?*Ina has neither written books, nor has Lea'

        b. ** Ni nije   Ina pisala   knjige, ni {nije/neće}   Lea.*
           ni NEG-AUX Ina written books   ni NEG-AUX/-will Lea
           '?Neither has Ina written books, nor {has/will} Lea'

Surprisingly, the sentence in (215a) is acceptable. Direct attachement of both *ni*-markers to the subject nominals could be the cause, being reminiscent of subject-coordination. This points to the fact that, with the right structure and maximal identity between the two coordinands, even *ni*-coordination can be clausal. Similarly, structures with gapping seem to improve *ni...ni* coordination, as shown in (215b). Nonetheless, depending on the analysis of gapping, such a structure does not have to involve clausal coordination.

(215)   a. *Ni Ina nije   pisala   knjige, ni Lea nije.*
           ni Ina NEG-AUX written books   ni Lea NEG-AUX
           '?Neither has Ina written books, nor {has/will} Lea'

        b. *? Ni Ina nije   pisala   knjige, ni Lea članke.*
           ni Ina NEG-AUX written books   ni Lea articles
           '?Neither did Ina write books, nor did Lea write articles'

As for *niti*-coordination, it is ungrammatical if the two coordinands have different subjects, but the one from the first coordinand is moved out together with the auxiliary (216a)[12]. The structures improve when only the subject is outside the coordination (216b), with obligatory second position for the auxiliaries.

(216)   a. *??? Ina je   niti pisala   knjige, niti {Lea} je   {Lea} (pisala knjige).*
           Ina AUX niti written books   niti Lea   AUX Lea   written books
           '?Ina has neither written books, nor has Lea (written books)'

---

[12]But the example is comparably better *with* subject-auxiliary inversion in the second coordinand.

b. *? Ina niti je   pisala   knjige, niti *{Lea} je   {Lea} (pisala knjige).*
   Ina niti AUX written books niti Lea   AUX Lea   written books

   '?Ina has neither written books, nor has Lea (written books)'

When both subjects are inside the *niti*-introduced clauses, the structures are not well-formed if there is no subject-auxiliary inversion in both coordinands (217a, 217b). Finally, clausal coordination with *niti* is fully well-formed when subject-auxiliary inversion takes place inside both coordinands, as in (217c).

(217) a. *?? Niti Ina je   pisala   knjige, niti je   Lea (pisala knjige).*
          niti Ina AUX written books niti AUX Lea written books

       '?Neither Ina has written books, nor has Lea (written books)'

   b. ** Niti Ina je   pisala   knjige, niti Lea je   (pisala knjige).*
      niti Ina AUX written books niti Lea AUX written books

      '*Neither Ina has written books, nor Lea has (written books)'

   c. *Niti je   Ina pisala   knjige, niti {je/će}   Lea (pisa{la/ti} knjige).*
      niti AUX Ina written books niti AUX/will Lea writ{t}e{n} books

      '?Neither did Ina write books, nor {did/will} Lea (write books)'

The same effects obtain with maximally different content in the two coordinands (218) – *ni...ni* does not work well as clausal coordination, whereas *niti...niti* does. What is significant to note about the severely degraded structure with *ni...ni* in (218a), is that it is worse with the negated auxiliaries immediately following the *ni*-markers, than without such movement.

(218) a. *??? Ni {Ina} nije   {Ina} pisala   knjige, ni {Lea} {nije   /ne*
          ni Ina   NEG-AUX Ina   written books ni Lea   NEG-AUX /NEG
      bi}   {Lea} čitala radove.
      would Lea   read   articles

      '?Neither did Ina write books, nor {did/would} Lea read articles'

   b. *Niti je   Ina pisala   knjige, niti {je/bi}   Lea čitala radove.*
      niti AUX Ina written books niti AUX/would Lea read   articles

      '?Neither did Ina write books, nor {did/would} Lea read articles'

Unlike English, BCMS does not resort to *do*-support in questions, with negation, or with negative focus fronting. It is then not surprising that, when no auxiliary is present in a clause introduced by *niti*, the ordering of the subject and the finite lexical verb is relatively free. Importantly, no degradedness ensues from the *niti*+FIN combination in the first coordinand and fully clausal coordinations are thus possible in BCMS with *niti*-markers. This points to the possibility that it is the nature of the marker, in particular English

neither, that somehow prevents the full clausal structure with the finite element to be spelled out following it.

Staying with *niti*-coordination, let us examine the available interpretations. Crucially, all of the above examples involving *niti...niti* coordination of clauses were without any other morpho-syntactically or semantically negative elements, yet interpretations with one negation per clause arise unambiguously, as shown in (219a, 220a). Taken at face value, this strongly points to the possibility that the *niti*-markers are inherently negative and that they negate the clause they introduce. Furthermore, when a negative verbal marker is present inside the coordination, degradedness ensues, but crucially, the interpretations are those of double negation, as in (219b, 220b). This parallels the state of affairs with *neither...nor* in English – the clauses they introduce become negative, and if another negative element is added to the clause, double negation arises.

(219)   a. *Niti je   Ina pisala   knjige, niti je   Lea čitala radove.*
           niti AUX Ina written books niti AUX Lea read   articles
           'It is not the case that Ina wrote books, and it is not the case that Lea read articles'

        b. *Niti ??{nije}   Ina {nije}   pisala   knjige, niti ??{nije}   Lea {nije}*
           niti NEG-AUX Ina NEG-AUX written books niti NEG-AUX Lea NEG-AUX
           (čitala radove).
           read   articles
           'It is not the case that Ina did not write books, and it is not the case that Lea did not (read articles)'

(220)   a. *Niti Sofija jede sir,   niti Lea pije   jogurt.*
           niti Sofija eats cheese niti Lea drinks yoghurt
           'It is not the case that Sofija eats cheese, and it is not the case that Lea drinks yoghurt'

        b. *? Niti Sofija ne   jede sir,   niti Lea ne   pije   jogurt.*
            niti Sofija NEG eats cheese niti Lea NEG drinks yoghurt
           'It is not the case that Sofija does not eat cheese, and it is not the case that Lea soes not drink yoghurt'

This is very interesting because double negation readings are normally not attested in BCMS. At the same time, double negation interpretations do not surprise too much once it is revealed that clausal *niti...niti* coordination functions without the presence of any other negation-marking element. This, in fact, is the only expression in BCMS that occurs exclusively in negative clauses, but that does not require the presence of the verbal marker of negation *ne / ni*-(AUX). The fact that double negation readings arise when negative

verbal markers are inserted inside the *niti*-coordinands, indicates the possibility that *niti*-markers do not even participate in the system of strict NC in BCMS. These effects will be contrasted with some other empirical findings about *niti...niti* coordination in the coming subsections and I will discuss the consequences on the theoretical analysis in Part IV.

The discussion of matrix clausal coordination in this subsection is blurred by the different levels of degradedness of predominantly structures with *ni...ni*, and the difficulty in evaluating the data. What is certain, though, is that *niti* is preferred for clausal coordination and, in turn, requires clitic elements to occupy the second position, immediately following it. The situation with *ni* is harder to judge, since most of the clausal structures are degraded or ungrammatical anyway, and different possibilities in the word order therefore do not provide much relief. However, it seems that *ni* is usually incompatible with a negated auxiliary (*nije* for past tense, *neće* for future) immediately following it. In some sense, *ni* is FIN-phobic, whereas *niti* is FIN-philiac. *Ni* blocks movement of the auxiliary into a position right below, whereas *niti* triggers it. But it may well be the case that the presence of another morho-syntactic marker of negation on the finite element (the verbal marker of negation **ni**je, **ne**će) is what prevents its movement to a position right below *ni*, as no such obstacle exists in the case of *niti* (there is simply no other negative marker present, so none on the auxiliary).

We might then say that *ni* and *niti* are ideally in complementary distribution. Next, we turn to matrix coordination of CPs.

3.5.2.2 Non-embedded CPs

Negative coordination in polar questions is possible both with *ni...ni* and with *niti...niti*, although degraded, as shown in (221) and (222), where the position of the coordination markers varies with respect to the (non-)negated auxiliary or the interrogative cluster (*da li*). To the extent that they are acceptable, these examples represent a single polar question with a negative coordination inside it, and not a negative coordination of two polar questions, the reason being that it can be answered with a single 'yes' or 'no'. Basically, all the examples in (221) and (222) mean the same thing – 'is it the case that it is not the case that Ina arrived or that Lea called'. Moreover, the examples in (221a) and (222a) are felicitous only as echo questions.

(221)   a. *?? Ni Ina nije   stigla   ni Lea nije   zvala?*
             ni Ina NEG-AUX arrived ni Lea NEG-AUX called

         '*Neither did Ina arrive nor did Lea call?'

       b. *? Da li ni Ina nije   stigla   ni Lea nije   zvala?*
             C   Q ni Ina NEG-AUX arrived ni Lea NEG-AUX called

'?Did neither Ina arrive nor Jenny call?'

(222) a. *?? Niti je   Ina stigla   niti je   Lea zvala?*
           niti AUX Ina arrived niti AUX Lea called

       '*Neither did Ina arrive nor did Lea call?'

       b. *? Da li je   niti Ina stigla   niti Lea zvala?*
           C   Q AUX niti Ina arrived niti Lea called

       '?Did neither Ina arrive nor Jenny call?'

As for wh-questions, negative coordination is possible only inside the question, i.e. below a single wh-expression:

(223) a. * *Ni ko   nije   došao ni šta   nije   završeno?*
           ni who.NOM NEG-AUX arrived ni what.ACC NEG-AUX finished

       '*Neither who called nor what did happen?'

       b. * *Ko   ni nije   došao {šta}   ni {šta}   nije   završeno?*
           who.NOM ni NEG-AUX arrived what.ACC ni what.ACC NEG-AUX finished

       '*Who neither called {what} nor {what} happened?'

       c. *Ko   ?{ni} nije   {ni} došao ?{ni} nije   {ni} zvao?*
           who.NOM ni   NEG-AUX ni   arrived ni   NEG-AUX ni   called

       'Who neither came nor called?'

(224) a. * *Niti {je} ko   {je} došao niti {je} šta   {je} završeno?*
           niti AUX who.NOM AUX arrived niti AUX what.ACC AUX finished

       '*Neither who called nor what did happen?'

       b. * *Ko   niti je došao {šta}   niti {šta}   je završeno?*
           who.NOM niti AUX arrived what.ACC niti what.ACC AUX finished

       '*Who neither called {what} nor {what} happened?'

       c. *Ko   {niti} je   ?{niti} došao {niti} je   ?{niti} zvao?*
           who.NOM niti   AUX niti   arrived niti   AUX niti   called

       'Who neither came nor called?'

Again, the acceptable cases in (223c) and (224c) do not seem to represent typical wh-questions and require contextual support.

    As for imperatives, *niti...niti* coordination gives a better-formed result, as shown in the contrast between (225a) and (225b).

(225) a. *? Ni ne   puši   ni ne   pij!*
           ni NEG smoke.IMP ni NEG drink.IMP

       '?Neither smoke nor drink!'

b. *Niti puši   niti pij!*
   niti smoke.IMP niti drink.IMP
   '?Neither smoke nor drink!'

As in English, negation cannot outscope the illocutionary/ speech act operators, but is simply realized inside the propositions that the illocutionary operators take. Negative coordination of matrix CPs thus seems to work on a par in English and in BCMS.

3.5.2.3 Embedded CPs

I now turn to negative coordination of embedded clauses in BCMS, comparing *ni...ni* and *niti...niti*, first without overt negation in the matrix clause, i.e. without the presence of a negative verbal marker on the embedding verb. Building on the empirical findings of the previous sections, the above examples contain verbal negative markers inside the *ni*-coordinated clauses, but not inside those coordinated by *niti*. This is because it has been observed that, in the case of the former, presence of a verbal marker of negation is necessary, and in the case of the latter, presence of a verbal marker of negation inside the coordinated clauses is not required and only yields double negation readings.

(226) a. i. * *Lea zna   ni da (li) Ina ne   pliva ni da (li) Maja ne   skija.*
               Lea knows ni C Q   Ina NEG swims ni C Q   Maja NEG skis

               'Lea knows neither that/whether Ina swims nor that/whether Maja skis'

       ii. * *Lea zna   niti da (li) Ina pliva niti da (li) Maja skija.*
               Lea knows niti C Q   Ina swims niti C Q   Maja skis

               'Lea knows neither that/whether Ina swims nor that/whether Maja skis'

    b. i. * *Lea zna   ni ko   nije   autor ni šta   nije   napisano.*
               Lea knows ni who NEG-is author ni what NEG-is written

               'Lea knows neither who the author is nor what is written'

       ii. *(?) Lea zna   niti ko   je autor   niti šta   je napisano.*
               Lea knows niti who is author niti what is written

               'Lea knows neither who the author is nor what is written'

(227) a. i. * *Lea veruje   ni da Ina ne   pliva ni da Maja ne   skija.*
               Lea believes ni C Ina NEG swims ni C Maja NEG skis

               'Lea believes neither that Ina swims nor that Maja skis'

       ii. * *Lea veruje   niti da Ina pliva   niti da Maja skija.*
               Lea believes niti C Ina swims niti C Maja skis

               'Lea believes neither that Ina swims nor that Maja skis'

It can be observed that neither *ni...ni* nor *niti...niti* can coordinate CPs when there is no overt negation in the matrix predicate. The crucial difference is that, with *ni...ni*, there is another overt marker of negation, the one on the verb inside the coordinated clauses, however, the coordination markers and the verbal markers do not seem to belong in the same syntactic domain. Namely, one marker of negation is above (*ni*) and the other below (*ne/ni*-AUX) the complemetizer. But this is not the case with *niti...niti* – there, no other marker of negation is present. Ungrammaticality can, to a certain extent, be circumvent if the whole coordination represents contrastive negation, as in (228), with a continuation introduced by the particle *nego*[13], typically used for this kind of correction and functioning only with a negative clause preceding it.

(228)　*(?) Lea je　rekla niti da Ina pliva　niti da Maja skija, nego da obe　igraju*
　　　　　Lea AUX said　niti C　Ina swims niti C　Maja skis　but　C　both play
　　　　tenis.
　　　　tennis
　　　　'Lea said neither that Ina swims nor that Maja skis, but that they both play tennis'

What creates confusion with *ni...ni* in the examples in (226) and (227) is the presence of markers of negation inside two clausal domains, as the coordinating marker is attached to the CP-layer. The effect is almost that of double negation readings. Nonetheless, if we leave out the negative verbal marker from inside the coordinated clauses, ungrammaticality remains (229).

(229)　a.　* *Lea je　rekla ni da Ina pliva　ni da Maja skija.*
　　　　　　　Lea AUX said　ni C　Ina swims ni C　Maja skis
　　　　　　'Lea said neither that Ina swims nor that Maja skis'

　　　　b.　* *Lea je　rekla ni ko　je　autor　ni šta　je　napisano.*
　　　　　　　Lea AUX said　ni who AUX author ni what AUX written
　　　　　　'Lea said neither who the author was nor what was written'

At any rate, we have to accept the observation that *ni...ni* coordination is never fully acceptable/felicitous with negative verbal markers inside the coordinated clauses. But we know that *ni...ni* is grammatical in presence of a verbal marker of negation outside the clause it coordinates, as illustrated in the sections on coordinated nominals, adverbials, verbal predicates, etc. We also know by now that *niti...niti* occurs in negative constructions in absence of a verbal marker of negation, as shown in the section on matrix clausal coordination, but that it can appear under overt negative markers, as shown with verbal predicates. What happens when there is overt negation on the matrix verb?

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[13]Another particle, *već*, can also be used here.

(230)　a.　i.　*Lea ne　zna　ni da (li) Ina pliva　ni da (li) Maja skija.*
　　　　　　Lea NEG knows ni C Q　Ina swims ni C Q　Maja skis

　　　　　　'Lea knows neither that/whether Ina swims nor that/whether Maja skis'

　　　　ii.　*Lea ne　zna　niti da (li) Ina pliva　niti da (li) Maja skija.*
　　　　　　Lea NEG knows niti C Q　Ina swims niti C Q　Maja skis

　　　　　　'Lea knows neither thta/whether Ina swims nor that/whether Maja skis'

　　b.　i.　*Lea ne　zna　ni ko　je autor　ni šta　je napisano.*
　　　　　　Lea NEG knows ni who is author ni what is written

　　　　　　'Lea knows neither who the author is nor what is written'

　　　　ii.　*Lea ne　zna　niti ko　je autor　niti šta　je napisano.*
　　　　　　Lea NEG knows niti who is author niti what is written

　　　　　　'Lea knows neither who the author is nor what is written'

(231)　a.　i.　*Lea ne　veruje　ni da Ina pliva　ni da Maja skija.*
　　　　　　Lea NEG believes ni C Ina swims ni C Maja skis

　　　　　　'Lea believes neither that Ina swims nor that Maja skis'

　　　　ii.　*Lea ne　veruje　niti da Ina pliva　niti da Maja skija.*
　　　　　　Lea NEG believes niti C Ina swims niti C Maja skis

　　　　　　'Lea believes neither that Ina swims nor that Maja skis'

Thus with negation overtly expressed in the matrix clause, embedded CP-coordinations become grammatical both with *ni...ni* and with *niti...niti*. Notice that the negative verbal marker is not present inside the coordinated clauses. If it is inserted, negation gets interpreted both in the matrix and on the embedded clauses, as shown in (232). But this means that *ni* or *niti* does not contribute a negation of its own.

(232)　*Lea ne　zna　ni(ti) da Ina ne　pliva　ni(ti) da Maja ne　skija.*
　　　　Lea NEG knows ni(ti) C Ina NEG swims ni(ti) C Maja NEG skis
　　　　'Lea does not know that Ina does not swim or that Maja does not ski'

Crucially, in these configurations, where the matrix verb is overtly negated, *ni* and *niti* are equalized, and they become interchangeable. Moreover, neither of the coordination markers sits in the position of the Head in the CP-layer, or else they would not co-occur with complementizers such as BCMS *da* ('that'). Dropping the complementizer yields clear ungrammaticality. But they do not occupy the Specifier position of the CP, either, since they can co-occur with wh-expressions.

(233)　a.　* *Lea ne　{zna/veruje/kaže}　ni Ina pliva　ni Maja skija.*
　　　　　Lea NEG knows/believes/says ni Ina swims ni Maja skis

　　　　　'*Lea {knows/believes/says} neither Ina swims nor Maja skis'

95

b.   * *Lea ne {zna/veruje/kaže}*   *niti Ina pliva*   *niti Maja skija.*
    Lea NEG knows/believes/says niti Ina swims niti Maja skis

    '*Lea {knows/believes/says} neither Ina swims nor Maja skis'

We see that negative coordination of embedded CPs is possible in BCMS, but it requires overt negation of the matrix predicate. Now, if the negative coordination markers are placed below the CP-layer, the result are the data below. Again, I first show examples with no overt negation in the main clause.

(234)   a.   i.   *(?) Lea zna*   *da (li) ni Ina nije*   *poslala rad*   *ni Marko nije*
               Lea knows C   Q   ni Ina NEG-AUX sent   article ni Marko NEG-AUX
               napisao recenziju.
               written review

               'Lea knows that/whether neither Ina sent the article nor Marko wrote the review'

         ii.   *(?) Lea zna*   *da niti je*   *Ina poslala rad*   *niti je*   *Marko napisao*
               Lea knows C   niti AUX Ina sent   article niti AUX Marko written
               recenziju.
               review

               'Lea knows that neither did Ina send the article nor did Marko write the review'

         iii.   *? Lea zna*   *da li je*   *niti Ina poslala rad*   *niti Marko napisao*
               Lea knows C   Q AUX niti Ina sent   article niti Marko written
               recenziju.
               review

               'Lea knows whether neither Ina sent the article nor Marko wrote the review'

   b.   i.   *?? Lea zna*   *ko*   *ni nije*   *poslao rad*   *ni nije*   *napisao*
               Lea knows who ni NEG-AUX sent   article ni NEG-AUX written
               recenziju.
               review

               'Lea knows who neither sent the article nor wrote the review'

         ii.   *? Lea zna*   *ko*   *niti je*   *poslao rad*   *niti je*   *napisao recenziju.*
               Lea knows who niti AUX sent   article niti AUX written review

               'Lea knows who neither sent the article nor wrote the review'

(235)   a.   *(?) Lea veruje*   *da ni Ina ne*   *pliva*   *ni Maja ne*   *skija.*
          Lea believes C   ni Ina NEG swims ni Maja NEG skis

          'Lea believes that neither Ina swims nor Maja skis'

   b.   *(?) Lea veruje*   *da niti Ina pliva*   *niti Maja skija.*
          Lea believes C   niti Ina swims niti Maja skis

'Lea believes that neither Ina swims nor Maja skis'

With *niti...niti* coordination, raising of the finite clitic to a position below *niti* seems to be necessary even with coordination inside an embedded clause (234a-ii). In these configurations negation is interpreted at the level of the coordinated clauses, and not on the matrix, just like in its English counterparts. This shows that whenever it is possible to place negative coordination under a complementizer, the main predicate cannot be negated from the embedded coordination, as the CP layer clearly constitutes a boundary. This is the case in both English and BCMS. Degradedness of such embedded negative coordinations is likely due to difficulties in processing, since the complement of a single verb is a rather massive constituent, itself comprising a multiclausal structure. Roughly, negative coordinations embedded under a single complementizer get an interpretation reminiscent to that of a quotation, i.e. something preexisting in the discourse.

Next, I check the effects obtained when overt negation is present on the matrix verb. Double negation readings across clauses are expected, as now there are overt negative markers present in both domains – above and below the complementizer. This prediction is borne out, as the data below show.

(236) a. i. *? Lea ne   zna   da (li) ni Ina nije   poslala rad   ni Marko*
              Lea NEG knows C Q   ni Ina NEG-AUX sent   article ni Marko
              nije   napisao recenziju.
              NEG-AUX written review

              'Lea doesn't know that/whether neither Ina sent the article nor Marko wrote the review'

      ii. *? Lea ne   zna   da (??li) niti je   Ina poslala rad   niti je   Marko*
              Lea NEG knows C Q   niti AUX Ina sent   article niti AUX Marko
              napisao recenziju.
              written review

              'Lea doesn't know that neither did Ina send the article nor did Marko write the review'

   b. i. *? Lea ne   zna   koga   ni Maja nije   pohvalila ni Ina nije*
              Lea NEG knows who.ACC ni Maja NEG-AUX praised   ni Ina NEG-AUX
              iskritikovala.
              criticized

              'Lea doesn't know who(m) neither Maja praised nor Ina criticized'

      ii. *? Lea ne   zna   ko   niti je   poslao rad   niti je   napisao*
              Lea NEG knows who.NOM niti AUX sent   article niti AUX written
              recenziju.
              review

'Lea doesn't know who neither sent the article nor wrote the review'

(237) a. *? Lea ne   veruje   da ni Ina ne   pliva   ni Maja ne   skija.*
Lea NEG believes C ni Ina NEG swims ni Maja NEG skis

'Lea doesn't believe that neither Ina swims nor Maja skis'

b. *? Lea ne   veruje   da niti Ina pliva   niti Maja skija.*
Lea NEG believes C niti Ina swims niti Maja skis

'Lea doesn't believe that neither Ina swims nor Maja skis'

The issue of embedded negative coordination in both English and BCMS is not straightforward, as judgments are too often subtle and degradedness is sometimes due to pure syntax, sometimes to processing, and sometimes to pragmatic constraints. Embedded coordination seems to be even more dependent on the preceding discourse or context, creating some sort of an 'echo' effect, as if it was an answer to an alternative question with the same verb under polarity as the matrix predicate in the 'responses'. Furthermore, important differences are caused by the presence of negation in different clausal domains and the meanings which ensue from this, i.e. single or multiple negations. Therefore, embedding phenomena, especially in BCMS, will constitute a relevant showcase for the analyses in Part IV.

Before getting to an empirical description of constructions with a single marker realized on the final clause or constituent, which is the topic of Chapter (4), I will briefly discuss (im)possible combinations of negative coordinators with plain connectives.

3.6   *Neither* and *ni, niti* with plain connectives

3.6.1   *Neither...or/but/and*

The *Oxford English Dictionary* (OED) lists the combination with the disjunction *or* as one of the uses of the 'adverb' or 'conjunction' *neither*. The most recent example cited is from 1997 (238).

(238)   Some brave transsexuals..have rejected the medicalised script that has been written out for them, insisting that they are neither one thing or the other.

[Independent, 23rd April 1997, Suppl. 2/2]

It is further noted there that "Numerous grammarians from the mid 18th century onwards criticize the use of *or* rather than *nor* as ungrammatical and improper". However, examples of *neither...or* constructions can be found even in contemporary literary works, such as J. K. Rowling's *Harry Potter* (239).

(239)   a. (However,) this mirror will give us neither knowledge or truth.

b. Neither Neville or Hermione showed the slightest interest in what lay underneath the dog and the trapdoor.

What can be noted, though, is that the above examples represent coordinations of nominals in different positions (predication (238), objects (239a), subjects (239b)). The two markers cannot be combined into a coordination of full clauses (240).

(240) a. ? Jackie (has) neither read the paper or submitted the review.

b. * Neither did Jackie read the paper or did Brenda submit the review.

It thus looks like *neither* is able to negate the whole coordination, even when no other negative marker is present (238, 239), since the readings that such sentences get are clearly negative.

(241) a. For (239a): 'it is not the case that this mirror will give us knowledge or truth'

b. For (239b): 'it is not the case that Neville or Hermione showed interest in what lay underneath the dog and the trapdoor'

At the same time, this is not possible when *neither* and *or* are introducing clausal constituents (240). These findings are hard to reconcile with an ellipsis-based analysis for *neither...nor* coordination, where each marker would introduce a full clause, parts of which later undergo deletion. If this is a general strategy for negative coordination in English, then why does *neither* seem to take scope over the disjunction in examples like (238, 239), but not in (240) or in constructions with *nor*? Else, sentences with *neither...or* exemplified here could deserve a special treatment, as an exceptional, somewhat idiosyncratic or archaic construction.

Combinations with other connectives, such as *and* and *but* are noted as obsolete by OED, and their most recent examples date form the 17th century:

(242) a. He that chuses a just weight does neither find himself the weaker.., and reaches the length he aim'd at.   [A. Marvell, *Rehearsal Transpros'd* II, 1673]

b. That neither thou, but especially I, am not made my self this example.

[J. Bunyan, *Pilgrim's Progress*]

It is not clear what kind of interpretation should be given to such examples. I tried to construct some of my own, and the only one that could potentially work is the clausal one in (243a-ii), where the coordination would actually be a conjunction of non-negative clauses, and as such it would form a constituent to which *neither* is attached. Nonetheless, this would necessitate presence of another negative sentence in the preceding context.

(243) a. i. * Neither Jenny submitted an article and Katie wrote a review.

ii. ?# Neither did Jenny submit an article and Katie wrote a review.

    b. * George neither submitted an article and wrote a review.

    c. * Jackie likes neither coffee and tea.

    d. * Neither Jenny and Katie like coffee.

The situation is parallel with *but* - only the multiclausal structure involving subject-auxiliary inversion in (244a-ii) could potentially be interpreted as an example of *neither* as a negative additive focus particle.

(244)   a.   i. * Neither Jenny submitted an article but Katie wrote a review.

           ii. ?# Neither did Jenny submit an article but Katie wrote a review.

    b. * George neither submitted an article but wrote a review.

    c. * Jackie likes neither coffee but tea.

    d. * Neither Jenny but Katie like coffee.

Thus only the disjunction *or* seems to be able to participate in negative coordination in English, whereas other connectives, such as *and* and *but* yield ungrammatical structures or those whose interpretation signals that we are no longer dealing with overt coordination.

3.6.2 *Ni/niti...ili/i/a/ali*

Of the two negative coordination markers in BCMS, *ni* and *niti*, neither can form coordinations with the disjunction *ili* (245). Nonetheless, it is possible to interpret the sentences in (245), but with an additive particle meaning for *ni* and *niti* (with the exception of clause-introducing *niti* in (245d)), as will be related in section 5.1.

(245)   a. */# *Lea ne   voli ni kafu ili čaj.*
            Lea NEG likes ni coffee or tea

      'Lea likes neither coffee or tea'

    b. */# *Ni Lea ili Ina ne   vole kafu.*
            ni Lea or Ina NEG like coffee

      'Neither Lea or Ina like coffee'

    c. */# *Marko nije   ni(ti) igrao ili pevao.*
            Marko NEG-AUX ni(ti) danced or sung

      'Marko neither danced or sang'

    d. * *Niti je   Ina igrala ili je Maja pevala.*
          niti AUX Ina danced or AUX Maja sung

      '*Neither did Ina dance or did Maja sing"'

The difference with respect to English comes from the fact that in BCMS sentential negation is also marked on the finite verb, at least in the case of *ni*, so the initial negative coordination marker marks the scope of the coordinated constituent. The disjunction *ili* can, in other circumstances, appear in the scope of negation, but in this case, the initial *ni*-marker would simply introduce a coordination that eventually does not take place. In other words, the initial *ni* cannot function without the final one as a coordinative construction. As for the example in (245d), it is parallel to the situation in English, as there is no verbal marker of negation present anywhere in the structure. However, this again seems to suggest that the initial *niti* can only form a coordination with another clause marked by *niti* and not some other coordination marker.

A similar effect is obtained in an attempt at establishing coordination of clauses between *niti* and the conjunction *i* (246) – one coordinand ends up being negative whereas the other coordinand remains positive.

(246) * *Niti je   Ina igrala   i   Maja je   pevala.*
       niti AUX Ina danced and Maja AUX sung
       '*Neither did Ina dance and Maja sang'

When smaller, non-clausal constituents are coordinated, as in (247a), (247b), and (247c), proper coordination cannot be established, but there is a way out: under the condition that there is another negative sentence present in the preceding discourse, which could serve as a potential antecedent, the conjunction of VPs in (247a), or those of object (247b) or subject nominals (247c), could be taken separately and interpreted as pluralities. The marker *ni(ti)* then attaches to the conjunction as a whole in a way an additive focus particle would attach to a focused constituent.

(247) a. # *Marko nije   ni(ti) igrao   i   pevao.*
           Marko NEG-AUX niti   danced and sung
           'Marko neither danced nor sang'

       b. # *Lea ne   voli ni kafu   i   čaj.*
           Lea NEG likes ni coffee and tea
           'Lea likes neither coffee nor tea'

       c. # *Ni Lea i   Ina ne   vole kafu.*
           ni Lea and Ina NEG like coffee
           'Neither Lea nor Ina like coffee'

The negative antecedent is necessary to fullfil the anaphoric requirement, i.e. presupposition of the focus particle, as exemplified with the grammatical and felicitous version of (247c) in (248).

(248) *Maja ne   pije   kafu. Ni Lea i   Ina ne   vole kafu.*
       Maja NEG drinks coffee ni Lea and Ina NEG like coffee

       'Maja does not drink coffee. Neither do Lea and Ina like coffee'

Furthermore, there are two connectives which roughly cover the uses of coordinating *but* in English – *a* and *ali*. Both have syntactic and pragmatic restrictions (Arsenijević, 2011), and it looks like their requirements cannot be met in coordination with *ni* or *niti* (249a, 249b).

(249) a. * *Ina nije   ni(ti) predala   rad,   a   napisala recenziju.*
           Ina NEG-AUX niti   submitted article but written   review

           '*Ina neither submitted an article but wrote a review'

       b. * *Niti je   Ina predala   rad,   ali je   napisala recenziju.*
           niti AUX Ina submitted article but AUX written   review

           '*Neither did Ina submit an article but (she) wrote a review'

We thus see that establishing negative or any other coordination between *ni* or *niti* and non-negative connectives is not an available strategy in BCMS. Nonetheless, it is interesting that *ni* and *niti* can still be interpreted as additive particles, wherever syntactically and pragmatically plausible. The issue of the additive focus particle use of *ni* and *niti* will be addressed in section 5.1. There is still one relevant observation to report about, in connection with different combinations of coordination markers. It is presented in the following section and it pertains only to BCMS negative coordinations.

3.6.3   *ni...niti* and *niti...ni* coordinations

Given that BCMS makes use of two negative coordination strategies with two different markers, a valid question arises as to whether these two can be combined into a well-formed coordination. This is indeed possible. Sentences in (250) exemplify the pattern with *ni* as the initial marker and *niti* as the final one (*ni...niti*).

(250) a. *Ni članovi   Vlade,   niti (sam) Premijer ne   podržavaju takvu odluku.*
           ni members government niti sole   PM   NEG support   such decision

           'Neither members of the Government, nor the PM (himself) supports such a decision'

       b. *Natalija nije   ni pevačica, ni voditeljka, niti novinarka.*
           Natalija NEG-AUX ni singer   ni presenter niti journalist

           'Natalija is neither a singer, nor a TV-presenter, nor/let alone a journalist'

       c. *Hrvoje neće   ni pevati, ni igrati, niti {jesti / bi   željeo}.*
           Hrvoje NEG-will ni sing   ni dance niti eat   / would wanted

102

'Hrvoje will neither sing, nor dance, nor {eat / would he want to}"

The motivation for such combined negative coordinations often comes from an additional dimension which is then ascribed to the meaning of *niti*. Namely, as there would be no difference in the truth conditions if *niti* were replaced with *ni* in the examples in (250), the contribution of *niti* is then turned into a mildly scalar one, i.e. the alternative represented by the constituent which it introduces is contrasted to the ones introduced by *ni* on a likelihood, or some other scale. The overall goal of such mixed coordinations can thus be understood as highlighting a contrast between members of the coordination introduced by *ni* on one side, and by *niti* on the other.

The reverse pattern, with *niti* as the initial marker and *ni* as the final (*niti...ni*), is harder to construct. This is due to the syntactic differences between the two markers – namely, as the coordination would have to be non-clausal because of *ni*, but *niti* is degraded when appearing as an initial marker on non-clausal constituents, it is hard to find a configuration where this could work. In (251), I give two examples from online media[14].

(251) a. *(...) nema   srednjeg puta kojim   bi   išli oportunisti, koji se   ne*
            NEG-has middle   way on-which would go opportunists who REFL NEG
           žele   zamjerati niti jednima ni   drugima.
           want displease niti ones   niti others

           'There is no middle way which the opportunists could take, (those) who do not want to run foul of the ones nor of the others'

       b. *Nema   u nas, niti je,   rekoh, ikad vele bilo, ni talentirane pameti   ni*
           NEG-has in us   niti AUX said   ever say was ni talented   intelligence ni
           pametnog   talenta.
           intelligent talent

           'In our 'hood/part of the world, there is no talented intelligence nor (is there) intelligent talent, (as) I said, nor has there ever been (either of the two), as they say'

The latter example (251b) might represent a *niti...ni* pattern only by its linear order, as the *ni...ni* coordination is made of arguments to the sentence-initial negative existential construction *nema*. In addition, it constitutes an example of non-cannonical embedding under the verb 'to say', via the inserted *rekoh* (1SG aorist of *reći*). The whole complex

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[14]Both   were   produced   by   speakers   from   Croatia: (251a)   on http://www.novilist.hr:8090/layout/set/print/Vijesti/Hrvatska/GOVOR-KOJI-JE-UZBURKAO-DUHOVE-Kako-je-sisacka-gradonacelnica-oprala-Bandica-i-neoustase; and (251b) by Boris Dežulović on https://www.portalnovosti.com/ko-to-tamo-peva-1

sentence is a coordination of a negative clause (with the negative existential *nema*) and a clause introduced by *niti*, see the transformation of the sentence in (252).

(252)   *Rekoh da   u nas nema   ni talentirane pameti   ni pametnog talenta, niti*
        said   that in us NEG-has ni talented   intelligence ni intelligent talent   niti
        (ih)   je   ikad bilo.
        them AUX ever was
        'I said that there is no talented intelligence or intelligent talent in our 'hood, nor were there ever any'

This brings us to our next matter for discussion, which are constructions with a single negative coordination marker, of the kind NEG...*nor* and NEG...*ni(ti)*. A systematic descriptive overview of such constructions in English and BCMS is presented in the next Chapter.

Chapter 4

Sentential negation and *nor, ni / niti*

In this Chapter I look at constructions which involve some other form of overt negation, such as a verbal marker of negation, and a constituent introduced by a dedicated negative coordination marker (253).

(253)   a. George will not discuss the chapter, nor will Brenda read the acknowledgments.

        b. *Stevan neće   komentarisati poglavlje, niti će   Dušan videti*
            Stevan NEG-will comment   chapter   niti will Dušan see
            zahvalnicu.
            acknowledgment
            'Stevan won't comment the chapter, nor will Dušan see the acknowledgments'

It is possible to multiply the constituents with negation, in which case two different strategies are available: iterating the negative coordination marker as well (254a-i, 254b-i), or expressing it only on the final constituent (254a-ii, 254b-ii).

(254) a. i. George won't discuss the chapter, nor will Brenda read the acknowledgments, nor would Tim let them.

        ii. George won't discuss the chapter, Brenda won't read the acknowledgments, nor would Tim let them.

    b. i. *Stevan neće   komentarisati poglavlje, ni Dušan zahvalnicu,   ni*
        Stevan NEG-will comment   chapter   ni Dušan acknowledgment ni
        Hrvoje naslov.
        Hrvoje title

        'Stevan won't comment the chapter, nor (will) Dušan (comment) the acknowledgment, nor (will) Hrvoje (comment) the title'

      ii. *Stevan nije   završio prvo poglavlje, nema   vremena da piše*
        Stevan NEG-AUX finish   first chapter   NEG-has time   to write
        zahvalnicu,   niti zna   kad će predati tezu.
        acknowledgment niti knows when will submit thesis

        'Stevan didn't finish the first chapter, he doesn't have time to write the acknowledgments, nor does he know when he will submit the thesis'

The choice between these two strategies seems to depend on the material in the coordinands, the contrast between them, and the pragmatic nuances to be conveyed.

A long-standing issue in the literature is whether negative coordination constructions where each coordinand is introduced with a coordination marker can be analyzed on a par with constructions where only the final constituent bears a negative coordination marker. The reason is that the latter could be shown to display distinct properties and thus to deserve different treatment, as has already been proposed for some languages (for example, French in de Swart (2001a) and González (2014)). As for English, Wurmbrand (2008) discussed constructions with only the final marker expressed and offered an analysis for *nor* based on its use in such NEG...*nor* configurations.

In the following sections I bring a systematic overview of different structural positions, grammatical functions and types of phrases introduced by a single negative coordination marker. They will be discussed in terms of negative coordination in this Chapter, but the possibility that they are not coordinative structures at all is left open.

4.1 Subjects

English   Subject nominals cannot be coordinated in this manner, given that they necessarily involve coordination of DPs sitting above the finite verb and the sentential negation marker. It is thus theoretically impossible to arrange them in the linear order that we

are trying to test here, in matrix clauses (255a). *Nor* on the final coordinand is also ungrammatical with subjects of a finite embedded clause with negation in the matrix clause (255b), as well as with *there*-constructions (255c).

(255)   a.   * Didn't {Jenny nor Katie} write a paper {Jenny nor Katie}.

       b.   * Ryan didn't say that Jenny nor Katie wrote a paper.

       c.   * There {isn't/aren't} milk nor sugar in the kitchen cupboard.

BCMS   The same problem arises in BCMS with pre-verbal subjects, as they cannot be coordinated in a way that would allow the verbal marker of negation to precede them. Dropping the initial coordination marker and having a negative marker on the finite verb is not an option for either *ni* (256a) or *niti* (256b), although the latter is acceptable to some speakers, with adequate intonation (whence the commas).

(256)   a.   * *Lea ni Ina nisu*   *položile ispit.*
           Lea ni Ina NEG-AUX passed exam

         '*Lea nor Ina passed the exam'

       b.   */? *Lea, niti Ina, nisu*   *položile ispit.*
             Lea niti Ina NEG-AUX passed exam

         '*Lea nor Ina passed the exam'

Post-verbal subjects are generally possible in BCMS. However, this structural position, which allows the negated verb to precede coordinated subjects, still does not make coordination with only the final marker, *ni* or *niti*, fully grammatical (257).

(257)   a.   ??? *Nisu*   *položile ispit*   *Lea ni Ina.*
             NEG-AUX passed exam Lea ni Ina

         Lit. Didn't pass the exam Lea nor Ina

       b.   ? *Nisu*   *položile ispit*   *Lea niti Ina.*
             NEG-AUX passed exam Lea niti Ina

         Lit. Didn't pass the exam Lea nor Ina

We thus see that negative coordination of subjects is not possible if only the final coordinand marker is overtly present, in either English or in BCMS, and irrespectively of the structural position of these nominals.

4.2   Objects

English   It was shown in section 3.2 that coordination of nominals in object position by *neither...nor* yields well-formed structures. However, structures where *nor* introduces the

final coordinand, but *neither* is absent and replaced by a verbal marker of negation *n't* or the negative adverb *not*, are degraded. Object control constructions with *nor* are also marked without special prosody (258g).

(258)   a. * Jeff doesn't like coffee nor tea.

   b. * Ryan is not interested in math nor physics.

   c. * George doesn't use MacOS nor Windows.

   d. * Ryan didn't pet the cat nor the dog.

   e. ? George didn't manage to persuade his mother nor his father.

   f. ? Jeff didn't send e-mails to Ryan nor to George.

   g. ? Ryan didn't convince Jenny nor Katie to write a paper.

This means that negative coordination cannot be established with two (or more) objects, of which the first one appears to belong in a negative clause, and the final one is directly introduced by *nor*. What it suggests is that constituents introduced by *nor* need to be clausal, and that, for some reason, TP-ellipsis is not available. Nonetheless, it is important to point out that an intonational pause before *nor* improves grammaticality. Such a prosodic boundary normally separates linguistic units in speech, and it will matter for our analysis what exactly these units consist of.

BCMS   When there are multiple object nominals in a negative sentence, it is possible to introduce only the final one using *ni* or, even better, *niti*.

(259)   a. *Natalija ne   voli kafu   {(?)ni/niti} čaj.*
Natalija NEG likes coffee ni/niti   tea

'Natalija likes neither coffee nor tea'

   b. *Hrvoje nije   zainteresovan za matematiku {ni/niti} za fiziku.*
Hrvoje NEG-AUX interested   for math   ni/niti   for physics

'Hrvoje is neither interested in math nor in physics'

   c. *Stevan ne   koristi MacOS {(?)ni/niti} Windows.*
Stevan NEG uses   MacOS ni/niti   Windows

'Stevan neither uses MacOS nor Windows'

   d. *Dušan nije   uspeo   da nagovori svoju majku   {ni/niti} svog oca.*
Dušan NEG-AUX managed to persuade own   mother ni/niti   own father

'Dušan didn't manage to persuade his mother nor his father'

   e. *Natalija nije   slala mejlove Stevanu {(?)ni/niti} Hrvoju.*
Natalija NEG-AUX sent e-mails Stevan ni/niti   Hrvoje

'Natalija didn't send e-mails to Stevan nor to Hrvoje'

There is often a preference for *niti* in constructions such as the ones in (259). For both markers, prosodic patterns play a role and can make them more, or less, acceptable. In fact, an intonational break and stress on the coordination marker seems to be needed in these cases. Furthermore, in BCMS the truth conditions do not change when the initial marker is supposedly removed from these object-coordinations, since sentential negation is ensured through the presence of a verbal marker of negation, earlier in the linear order. This probably explains the preference for iterating the marker *ni*, as symmetry is required between the coordinands, so that both are overtly marked as contrastive and belonging to a *ni*-coordination. In the case of *niti*, the situation drastically changes with respect to the data with the iterated *niti*-marker, which was degraded with objects. This is harder to explain, unless it is seen on a par with the situation in English, where an intonational pause allows for final *nor* in absence of *neither*.

4.3   Non-arguments

English   The final *nor* without *neither*, but with a verbal marker of negation in the clause, is not fully acceptable with adjuncts, as shown in (260).

(260)   a. ??? Jackie didn't speak slowly nor clearly.

   b. ?? Brenda won't attend university in Paris nor in Rome.

Again, intonational breaks before *nor* can improve grammaticality.

BCMS   Here, too, adjuncts behave in a similar manner to objects. Both markers are possible on the final coordinand, but *niti* is often preferred. Prosody matters, again: with the right intonational break, *ni* is fully natural, but if it is, together with the nominal it introduces, part of the same intonation unit, the sentence is not as felicitous.

(261)   a. *Sofija nije   govorila sporo {?ni/niti} jasno.*
         Sofija NEG-AUX spoken   slowly ni/niti   clearly
         'Sofija neither spoke slowly nor clearly'

   b. *Lea neće   ići na univerzitet u Parizu {?ni/niti} u Rimu.*
      Lea NEG-will go on university in Paris   ni/niti   in Rome
      'Lea will neither attend university in Paris nor in Rome'

It should be noted that judgments are very subtle and nuanced.

4.4 Verbal predicates

English The situation with NEG...*nor* doesn't get much better with vPs and VPs, as these structures are also degraded.

(262) a. * Jeff didn't eat the pizza nor dr**a**nk the beer.

  b. ?? Jeff didn't eat the pizza nor dr**i**nk the beer.

(262) illustrates how non-finite forms of both verbs in the coordinands, and below the finite *do* to which the negative marker attaches, render the structure somewhat more acceptable, but still degraded for most speakers. The same as before, a prosodic boundary rescues these examples.

BCMS *Ni* and *niti* finally become fully interchangeable when they are introducing the final vP or VP-constituent (263). Sentential negation has to be overtly marked on the finite verb (*ni-*, *ne-*), otherwise the sentences would be ungrammatical.

(263) a. *Lea nije   pojela sendvič   {ni/niti} popila jogurt.*
            Lea NEG-AUX eaten sandwich ni/niti   drunk yogurt
            'Lea didn't eat a sandwich or drink yogurt'

  b. *Sofija nije   pevala {ni/niti} igrala   (na svadbi).*
            Sofija NEG-AUX sung   ni/niti   danced on wedding
            'Sofija neither sang nor danced at the wedding'

  c. *Sofija neće   sašiti {ni/niti} kupiti haljinu.*
            Sofija NEG-will sew   ni/niti   buy   dress
            'Sofija will neither sew nor buy a/the dress'

When there is no auxiliary present in the sentence, and the verbal marker of negation *ne* precedes the finite lexical verb only in the first coordinand, the structure with *ni* is ungrammatical (264a), unlike the one with *niti* (264b).

(264) a. * *Sofija ne   prati   politiku ni glasa na izborima.*
               Sofija NEG follows politics ni votes on elections
            Intended: 'Sofija doesn't follow politics, nor does she vote in the elections'

  b. *Sofija ne   prati   politiku niti glasa na izborima.*
            Sofija NEG follows politics niti votes on elections
            'Sofija doesn't follow politics, nor does she vote in the election'

If the negative verbal marker is inserted in the constituent introduced by *ni*, the sentence improves (265a), but is still degraded, probably due to competition with the fully well-formed (264b).

(265)   a. *?? Sofija ne   prati   politiku ni ne   glasa na izborima.*
            Sofija NEG follows politics ni NEG votes on elections

        'Sofija doesn't follow politics, nor does she vote in the elections'

   b. *?# Sofija ne   prati   politiku niti ne   glasa na izborima.*
       Sofija NEG follows politics niti NEG votes on elections

       'Sofija doesn't follow politics, nor does she not vote in the election'

More generally, it can be observed that *ni* does not support a negative verbal marker inside the constituent it introduces. This is indicative of the size and the type of phrases that *ni* can attach to – in this particular case, we can conclude that a constituent hosting a negative verbal marker is no longer a vP (especially because BCMS is a subject pro-drop language). In the case of *niti*, the presence of a negative verbal marker in the constituent introduced by *niti* yields a double negation reading, but only for that coordinand. However, this creates confusion, since the symmetry between the members of the coordination is now gone (the initial one is negative, whereas the final one is rendered positive). Probably triggered by this processing cost, it seems to be also possible to interpret the final coordinand with one negation only. A 'free-floating' negative verbal marker cannot occupy any position above the coordination from which it would successfully mark the scope of negation over both vPs (264a) because it has to cliticize to a finite verb. But this means that *ne* belongs in the first vP together with its finite verb (264b). When the negative verbal marker attaches to an auxiliary (263), a position above the vP-coordination is provided for it (T) from which it can outscope both vPs. Finally, as mentioned before, there exists a possible take on the above structures in which they do not consist of coordinations at all, but some other kind of structure.

4.5   Clauses

4.5.1   English

4.5.1.1   TPs

NEG...*nor* is grammatical with full clauses featuring an overt subject and a finite verb in both coordinands (266). The subject can be the same in the two clauses (266a), or different (266b, 266c). The same goes for the finite verb (266b vs. 266c). Subject-auxiliary inversion is obligatory after *nor* (266c vs. 266d). *Nor* is ungrammatical if there is no negation in

110

the first clause (266e)[1].

(266) a. Katie didn't write the review, nor did she read the paper.

b. Katie didn't read the paper, nor did Jenny write the review.

c. Katie didn't read the paper, nor will Jenny write the review.

d. * Katie didn't read the paper, nor Jenny {did/will} write the review.

e. * Katie read the paper, nor {did/will} {she/Jenny} write the review.

This is the kind of structure that Wurmbrand (2008) focused on in her squib. One of her arguments for a conjunction component inside *nor* relied on the observation that it can introduce an independent sentence, which makes impossible for a disjunction of the two clauses to be in the scope of a single negative operator, but it is not entirely clear why the examples in (266) should be dissociated from their counterparts with two independent sentences (267). After all, the difference is only in the length of the intonation pause, resulting in a comma or a full stop in writing, something that is hard to delimit clearly. The truth conditions in the two cases are the same – both clauses/sentences are interpreted negatively. Again, subject-auxiliary inversion is obligatory (267d) and the preceding sentence must be negative (267e).

(267) a. Katie didn't write the review. Nor did she read the paper.

b. Katie didn't read the paper. Nor did Jenny write the review.

c. Katie didn't read the paper. Nor will Jenny write the review.

d. Katie didn't read the paper. * Nor Jenny {did/will} write the review.

e. # Katie read the paper. Nor {did/will} {she/Jenny} write the review.

Certainty that in both cases (266, 267) we are dealing with full clauses is thus confirmed by the presence of one negation per clause, regardless of whether we are dealing with independent sentences or not. Could it be that 'true' coordination consists of *neither...nor* sequences, and the examples discussed in this section deserve a different analysis? Moreover, it looks like nothing really forbids *neither* to appear in the configurations of the kind in (266), although *nor* is the designated marker for 'final coordinands'.

(268) a. Katie didn't write the review, neither did she read the paper.

b. Katie didn't read the paper, neither did Jenny write the review.

c. Katie didn't read the paper, neither will Jenny write the review.

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[1]It matters to say that the situation with this negative requirement is a bit more nuanced, I will come back to this later.

This is certainly facilitated by the common use of *neither* in independent sentences which have a negative antecedent, like the ones in (267), where the 'intial' and the 'final' marker are virtually interchangeable, as will be discussed in section 5.1.

With *nor*, the two clauses or sentences can also have some material in common, so that different kinds of deletion can take place. Subject pro-drop is not available in English, which probably explains the degradedness of (269a). A vP can be ellided under identity with the one in the initial clause (269b), but the finite element has to be pronounced between *nor* and the subject of the final clause. Gapping of the verb also seems to be possible to a certain extent (269c).

(269)   a.   ? Jeff didn't write the review, nor read the paper.
             ? Jeff didn't write the review. Nor read the paper.
        b.   Jeff didn't read the paper, nor did Ryan.
             Jeff didn't read the paper. Nor did Ryan.
        c.   ? Jeff didn't read the paper, nor Ryan the review.
             * Jeff didn't read the paper. Nor Ryan the review.

Of these three, the vP-ellipsis (269b) is best reproduced in independent sentences, whereas gapping is unavailable in this constellation (269c). Let us now examine NEG...*nor* constructions with clauses that are more than TPs.

4.5.1.2   Non-embedded CPs

Among non-declarative clauses, which certainly consist of a CP layer, NEG...*nor* constructions are the most incompatible with wh-questions (270), regardless of the presence of negation and the order of elements in the *nor*-clause. Even NEG...*nor* inside a wh-question (270d) is highly degraded.

(270)   a.   * Who read the paper nor what was claimed?
        b.   * Who didn't read the paper nor what was claimed?
        c.   * Who didn't read the paper nor was what claimed?
        d.   ?? Who didn't read the paper nor wrote the review?

With polar questions, the presence of negation in the first coordinand can be realized through two possible positions – high negation (271b) or low negation (271c).

(271)   a.   * Did you read the paper nor did you/Jenny write the review?
        b.   * Didn't you read the paper nor did you/Jenny write the review?
        c.   ??? Did you not read the paper nor did Jenny write the review?

High negation represents the fusion of the negative verbal marker with the sentence-initial auxiliary or *do*-support, the latter being characteristic of polar questions, and it invokes positive epistemic bias towards the proposition in the complement (Romero and Han (2004); Sudo (2013); i.a.). It must then be the different syntactic position of the negation in the two coordinated polar questions, together with the semantics ensuing from it, that prohibits well-formedness of the NEG...*nor* polar questions in (271b). A polar question with low negation does not induce such epistemic bias, but the structure still sounds odd. The culprit should probably be sought in different interaction of polarity and question semantics, negation and (verum) focus. At the same time, it is not really surprising that NEG...*nor* cannot serve to coordinate full-fledged questions, as this would likely involve coordination above polar question operators, but also their negation. Again, of all the coordinated CPs, imperatives seem to work best with NEG...*nor*:

(272) ? Don't drink nor smoke!

However, even imperatives are not entirely well-formed. Moreover, the interpretation is such that it is clear that there is no negation of the imperative Speech act.

4.5.1.3 Embedded CPs

Nor can introduce the final of multiple clauses embedded under different matrix predicates, when the latter are negated, as exemplified in (273).

(273) a. Ryan doesn't believe that Katie drinks nor that Jenny smokes.
       b. Ryan doesn't know that Katie drinks nor that Jenny smokes.
       c. Ryan didn't claim that Katie drinks nor that Jenny smokes.
       d. Ryan doesn't wonder whether Katie drinks nor whether Jenny smokes.
       e. Ryan doesn't wonder who drinks nor who smokes.

The interpretation seems to involve narrow scope of the whole coordination below the negated matrix predicate, or, alternatively, wide scope of the coordination, with ellipsis of the matrix predicate:

(274) Ryan doesn't know that Katie drinks nor that Jenny smokes.
       a. 'Ryan doesn't know that Katie drinks or that Jenny smokes'
              ⇔
       b. 'Ryan doesn't know that Katie drinks and he doesn't know that Jenny smokes'

Embedding the whole NEG...*nor* structure in a position below the complementizer does not give well-formed results (275).

113

(275)   a. * Ryan believes that Katie doesn't drink nor does Jenny smoke.

    b. * Ryan knows that Katie doesn't drink nor does Jenny smoke.

    c. * Ryan claims that Katie doesn't drink nor does Jenny smoke.

    d. * Ryan wonders whether Katie doesn't drink nor does Jenny smoke.

    e. * Ryan wonders who doesn't drink nor who smokes.

This seems to suggest that *nor* and whatever it introduces cannot be in the complement of a verb when *neither* is not there to mark the scope of the whole coordination. If we are dealing with coordination at all, that is.

4.5.2   BCMS

4.5.2.1   TPs

BCMS makes use of two markers for negative coordination, *ni* and *niti*, and unsurprisingly, one fares better when introducing declarative matrix clauses. As observed before with *ni...ni* coordinations, the *ni*-marker is not successful in coordinating full clauses. For single *ni* this is exemplified in (276a). The whole structure significantly improves when the *ni*-marker and the negated auxiliary are not adjacent (276b). Similar effects can be observed when no auxiliary is present (276c).

(276)   a. *??? Ina nije   napisala recenziju, ni nije   pročitala članak.*
            Ina NEG-AUX written   review   ni NEG-AUX read   paper

        'Ina didn't write the review, nor did she read the paper'

    b. *? Ina nije   pročitala članak, ni Lea {nije   / ne   bi}   napisala*
            Ina NEG-AUX read   paper   ni Lea NEG-AUX   NEG would written
            recenziju.
            review

        'Ina didn't read the paper, nor {did/would} Lea write the review'

    c. *?? Ina ne   piše   članke, ni (Lea) ne   čita   recenzije.*
            Ina NEG writes papers ni Lea   NEG reads reviews

        'Ina doesn't write papers, nor does she/Lea read reviews'

In the case of (276b), or any other example in which the negated auxiliary is not immediately following *ni*, the acceptability increases with the prolongation of the prosodic pause before *ni*. Absence of the verbal marker of negation in the clause introduced by *ni* results in ungrammaticality (277a), and so does its absence from the initial clause (277b).

(277) a. * *Ina nije*   *pročitala članak, ni {Lea} {je / bi}*   *{Lea} napisala*
           Ina NEG-AUX read   paper ni Lea   AUX   would Lea   written
           recenziju.
           review

           Intended: 'Ina didn't read the paper, nor did Lea write the review'

       b. * *Ina je*   *pročitala članak, ni Lea nije*   *napisala recenziju.*
           Ina AUX read   paper   ni Lea NEG-AUX written   review

           '*Ina read the paper, nor did Lea write the review'

Just like in English, these constructions can be related to examples where *ni* is found in an independent sentence (278).

(278) a. *Ina nije*   *napisala recenziju. ??? Ni nije*   *pročitala članak.*
           Ina NEG-AUX written   review   ni NEG-AUX read   paper
           'Ina didn't write the review. Nor did she read the paper'

       b. *Ina nije*   *napisala recenziju. Nije*   *ni pročitala članak.*
           Ina NEG-AUX written   review   NEG-AUX ni read   paper
           'Ina didn't write the review. Nor did she read the paper'

       c. *Ina nije*   *pročitala članak. Ni {Lea} nije*   **{Lea} (napisala*
           Ina NEG-AUX read   paper   ni Lea   NEG-AUX Lea   written
           recenziju).
           review

           'Ina didn't read the paper. Nor did Lea (write the review)'

       d. *Ina nije*   *pročitala članak. * Ni {Lea} je*   *{Lea} (napisala recenziju).*
           Ina NEG-AUX read   paper   ni Lea   AUX Lea   written   review

           Lit. 'Ina didn't read the paper. Nor did Lea (write the review)'

       e. *Ina je*   *pročitala članak. # Ni Lea nije*   *(napisala recenziju).*
           Ina AUX read   paper   ni Lea NEG-AUX written   review

           'Ina read the paper. # Nor did Lea (write the review)'

Such independent sentences can be uttered by the same speaker or by different speakers, in a dialogue. Furthermore, if *ni* is behaving as a focus particle in the examples in (278), that explains why it needs to attach to something other than the negated auxiliary. As an additive focus particle, it would have two requirements: to attach to a focused constituent and to have an appropriate (in this case, negative) antecedent sentence present in the preceding discourse. It looks like *ni* has to be attached directly to its associate and that association at a distance is not available for this particle. When the subject is the same in the two clauses (278a, 278b), *ni* is attached lower, to the VP, which is the focused constituent this time (278b). Needless to say, absence of the negative verbal marker from

the sentence with *ni* causes ungrammaticality (278d), as well as the absence of negation from the initial sentence (278e). Now, all this can be related to the structures in (276), which were initially understood as coordinations, but they need not be. This is corroborated by the prosodic pause before *ni* which increases their acceptability. In other words, what makes them different from the examples with independent sentences in (278) is only the length of the prosodic break.

The other coordination marker, *niti*, would be preferred in sentences of the kind in (276), as it is fully grammatical in all of the configurations (279).

(279) a. *Ina nije   napisala recenziju, niti {je / bi}   (Lea) pročitala članak.*
        Ina NEG-AUX written   review   niti AUX   would Lea   read   paper
        'Ina didn't write the review, nor {did/would} {she/Lea} read the paper'

  b. ** Ina nije   pročitala članak, niti Lea je   napisala recenziju.*
        Ina NEG-AUX read   paper   niti Lea AUX written   review
        '*Ina didn't read the paper, nor Lea wrote the review'

  c. *Ina nije   pročitala članak, niti *{Lea} će   {Lea} (napisati recenziju).*
        Ina NEG-AUX read   paper   niti Lea   will Lea   write   review
        'Ina didn't read the paper, nor will Lea write the review'

  d. *Ina ne   piše   članke, niti (Lea) čita   recenzije.*
        Ina NEG writes papers niti Lea   reads reviews
        'Ina doesn't write papers, nor does {she/Lea} read reviews'

Niti can thus introduce a clause, following another negative clause. All the examples in (279) show that the clause introduced by *niti* is interpreted negatively although no verbal marker of negation is present on the auxiliary, seemingly paralleling the behavior of English *nor*. The subject can be the same in the two clauses or different (279a, 279d). When an auxiliary is present in the clause introduced by *niti*, it has to follow the marker, and violation of this results in ungrammaticality (279b). This is valid for other auxiliaries, such as future tense *će* in (279c). Finite lexical verbs do not (need to) move to the second position (279d). Furthermore, when a verbal marker of negation appears in the clause introduced by *niti*, as in (280a), thereby degraded sentence can only be interpreted with double negation in the second clause. But this in turn disrupts the symmetry with the first clause, which remains negative. As expected, when the first clause is without negation, introducing the second one by *niti* results in ungrammaticality (280b).

(280) a. *??# Ina nije   pročitala članak, niti {Lea} nije   {Lea} napisala*
            Ina NEG-AUX read   paper   niti Lea   NEG-AUX Lea   written
        recenziju.
        review

116

'Ina didn't read the paper, nor did Lea not write the review'

b. * *Ina je   pročitala članak, niti je   Lea napisala recenziju.*
   Ina AUX read   paper   niti AUX Lea written review

   '*Ina read the paper, nor did Lea write the review'

Finally, just like *ni*, *niti* can serve for introducing an independent sentence (281), which can be uttered by the same or by a different speaker.

(281) a. *Ina nije   napisala recenziju. Niti *{(Lea)} je   {(Lea)} pročitala članak.*
   Ina NEG-AUX written review   niti Lea   AUX Lea   read   paper

   'Ina didn't write the review. Nor did {she/Lea} read the paper'

b. *Ina ne   piše   članke. Niti (Lea) čita   recenzije.*
   Ina NEG writes papers niti Lea   reads reviews

   'Ina doesn't write papers. Nor does {she/Lea} read reviews'

The same facts obtain with sentence-initial *niti* as previously discussed for the data in (279), with the only difference now being the intonation break. Moreover, the parallel with English *nor* is striking. Crucially, as opposed to *ni*, *niti* does not attach directly to its focused asssociate, but remains sentence- or clause-initial. In the examples in (281) *niti* supposedly acts as an additive focus particle: it requires a negative antecedent sentence, as shown by the infelicity of (282b), and it finds a focused associate in its host.

(282) a. *Ina nije   pročitala članak. ??# Niti {Lea} nije   {Lea} napisala*
   Ina NEG-AUX read   paper   niti Lea   NEG-AUX Lea   written
   recenziju.
   review

   'Ina didn't read the paper. Nor did Lea not write the review'

b. *Ina je   pročitala članak. # Niti je   Lea napisala recenziju.*
   Ina AUX read   paper   niti AUX Lea written review

   'Ina read the paper. # Nor did Lea write the review'

What about cases where the two clauses are not maximally different but have some material in common? It was shown already that subject pro-drop is available but leaves a clash between *ni* and the negated auxiliary (276a). If the latter is dropped, too, due to identity with the preceding clause, we are left with a structure that probably no longer repsresents a clause (283a). As for *niti*, the non-negated auxiliary can be kept, but it doesn't have to (283b).

(283) a. *Ina nije   napisala recenziju, ni (???ne bi)   pročitala članak.*
   Ina NEG-AUX written review   ni NEG   would read   paper

   'Ina didn't write the review, nor did she read the paper'

117

b. *Ina nije   napisala recenziju, niti ({je/bi})   pročitala članak.*
   Ina NEG-AUX written review   niti AUX/would read   paper
   'Ina didn't write the review, nor did she read the paper'

When the VPs are identical in the two clauses, the one in the clause introduced by *ni* can be ellided, but without a full intonation break the example again is not fully well-formed (284a). Again, the structure with *niti* (284b) sounds more natural.

(284) a. *? Ina nije   pročitala članak, ni Lea nije.*
           Ina NEG-AUX read   paper   ni Lea NEG-AUX
       'Ina didn't read the paper, nor did Lea'

       b. *Ina nije   pročitala članak, niti je   Lea.*
          Ina NEG-AUX read   paper   niti AUX Lea
       'Ina didn't read the paper, nor did Lea'

The same facts seem to obtain with gapping (285). Notice that keeping the finite auxiliary in the position right after *niti* is possible (285b).

(285) a. *? Ina nije   pročitala članak, ni Lea recenziju.*
           Ina NEG-AUX read   paper   ni Lea review
       'Ina didn't read the paper, nor Lea the review'

       b. *Ina nije   pročitala članak, niti (je) Lea recenziju.*
          Ina NEG-AUX read   paper   niti AUX Lea review
       'Ina didn't read the paper, nor Lea the review'

All of the above shows that a certain contrast can be observed between *niti* and *ni* – the former fares better at introducing clauses, and in addition they have different structural requirements and different interaction with other negatively marked elements. Crucially, both particles can introduce an independent sentence. I now turn to *ni(ti)* coordination of clauses bigger than TPs.

4.5.2.2   Non-embedded CPs

Wh-questions cannot be coordinated using *ni* or *niti*, regardless of the presence or absence of other forms of negation and their position with respect to finite verbs (286a, 286b). *Niti*-coordination inside a wh-question seems to be possible (286d), unlike *ni*-coor (286c).

(286) a. ** Ko (ni)je   glasao ni šta   nije   diskutovano?*
           who NEG-AUX voted ni what NEG-AUX discussed
       '*Who (didn't) vote(d) nor what was discussed?'

b. * *Ko (ni)je glasao niti {je} šta {je} diskutovano?*
who NEG-AUX voted niti AUX what AUX discussed

'*Who (didn't) vote(d) nor what was discussed?'

c. *??? Ko nije glasao ni nije vodio debatu?*
who NEG-AUX voted ni NEG-AUX lead debate

'??? Who didn't vote nor lead the debate?'

d. *Ko nije glasao niti je vodio debatu?*
who NEG-AUX voted niti AUX lead debate

'??? Who didn't vote nor lead the debate?'

Of the many ways to form a negative polar question in BCMS, two are tested for possibilities of *ni(ti)*-coordination. The *da li* strategy (287) does not really allow for actual coordination of polar questions, as the *ni-* or *niti*-clause remains embedded inside one polar question ('Is it the case that you did not bring apples and that Ina did not buy juice?'). The 'bare' strategy in (288) is hard to probe for this, but the option of one polar question with negative coordination inside seems to be possible, although with an echo-like effect. Both strategies would correspond to English low-negation polar question, thus no positive epistemic bias occurs.

(287) a. *Da li nisi doneo jabuke ni *{da li} Ina ??{da li} nije kupila*
C Q NEG-AUX brought apples ni C Q Ina C Q NEG-AUX bought
sok?
juice

'Did you not bring apples nor did Ina buy juice?'

b. *Da li nisi doneo jabuke niti *{da li je} Ina *{da li je} kupila*
C Q NEG-AUX brought apples niti C Q AUX Ina C Q AUX bought
sok?
juice

'Did you not bring apples nor did Ina buy juice?'

(288) a. *Nisi doneo jabuke ni Ina nije kupila sok?*
NEG-AUX brought apples ni Ina NEG-AUX bought juice

'Did you not bring apples nor did Ina buy juice?'

b. *Nisi doneo jabuke niti je Ina kupila sok?*
NEG-AUX brought apples niti AUX Ina bought juice

'Did you not bring apples nor did Ina buy juice?'

Again, among different ways of expressing imperatives, the ones in (289) are appropriate for checking possibilities of coordination. Although such sentences seem to be well-formed, their interpretation reveals that *ni* and *niti* are not coordinating imperative speech acts here, as the latter remain outside of the scope of negation.

119

(289) a. *Ne pij   ni ne   puši!*
           NEG drink.IMP ni NEG smoke.IMP

           '?Don't drink nor smoke!'

       b. *Ne pij   niti puši!*
           NEG drink.IMP niti smoke.IMP

           '?Don't drink nor smoke!'

I will now explore negated embedded clauses coupled with *ni* and *niti*.

4.5.2.3   Embedded CPs

Both *ni* and *niti* can introduce a second embedded clause, under different matrix predicates (290) when these are negated.

(290) a. *Ina ne   veruje da Maja pije   ni(ti) da   Anja puši.*
           Ina NEG believes that Maja drinks ni(ti) that Anja smokes

           'Ina doesn't believe that Maja drinks nor that Anja smokes'

       b. *Ina ne   zna   da Maja pije   ni(ti) da   Anja puši.*
           Ina NEG knows that Maja drinks ni(ti) that Anja smokes

           'Ina doesn't know that Maja drinks nor that Anja smokes'

       c. *Ina nije   rekla da Maja pije   ni(ti) da   Anja puši.*
           Ina NEG-AUX said that Maja drinks ni(ti) that Anja smokes

           'Ina didn't say that Maja drinks nor that Anja smokes'

       d. *Ina se   ne   pita da li Maja pije   ni(ti) da li Anja puši.*
           Ina REFL NEG asks C Q Maja drinks ni(ti) C Q Anja smokes

           'Ina doesn't wonder whether Maja drinks nor whether that Anja smokes'

       e. *Ina se   ne   pita ko   pije   ni(ti) ko   puši.*
           Ina REFL NEG asks who drinks ni(ti) who smokes

           'Ina doesn't wonder who drinks nor who smokes'

Just like in English, the interpretation seems to involve narrow scope of the whole coordination below the negated matrix predicate, or, alternatively, wide scope of the coordination, with ellipsis of the matrix predicate. For the example in (290b):

(291)   for (290b)

        a. 'Ina doesn't know that Maja drinks or that Anja smokes'

            ⇔

        b. 'Ina doesn't know that Maja drinks and she doesn't know that Anja smokes'

Embedding the whole NEG...*ni(ti)* structure in a position below the complementizer *da* yields degraded sentences (275). The judgments are subtle, though.

120

(292) a. *?? Ina veruje da   Maja ne   pije   ni Anja ne   puši.*
          Ina believes that Maja NEG drinks ni Anja NEG smokes

          'Ina believes that Maja doesn't drink and Anja doesn't smoke'

     b. *?? Ina veruje da   Maja ne   pije   niti Anja puši.*
          Ina believes that Maja NEG drinks niti Anja smokes

          'Ina believes that Maja doesn't drink and Anja doesn't smoke'

     c. *?? Ina zna   da   Maja ne   pije   ni Anja ne   puši.*
          Ina knows that Maja NEG drinks ni Anja NEG smokes

          'Ina knows that Maja doesn't drink and Anja doesn't smoke'

     d. *?? Ina zna   da   Maja ne   pije   niti Anja puši.*
          Ina knows that Maja NEG drinks niti Anja smokes

          'Ina knows that Maja doesn't drink and Anja doesn't smoke'

     e. *?? Ina je   rekla da   Maja ne   pije   ni Anja ne   puši.*
          Ina AUX said that Maja NEG drinks ni Anja NEG smokes

          'Ina said that Maja doesn't drink and Anja doesn't smoke'

     f. *?? Ina je   rekla da   Maja ne   pije   niti Anja puši.*
          Ina AUX said that Maja NEG drinks niti Anja smokes

          'Ina said that Maja doesn't drink and Anja doesn't smoke'

     g. *??? Ina se   pita da li Maja ne   pije   ni Anja ne   puši.*
          Ina REFL asks C Q Maja NEG drinks ni Anja NEG smokes

          '*Ina wonders whether Maja doesn't drink nor does Anja smoke'

     h. *??? Ina se   pita da li Maja ne   pije   niti Anja puši.*
          Ina REFL asks C Q Maja NEG drinks niti Anja smokes

          '*Ina wonders whether Maja doesn't drink nor does Anja smoke'

Observations about embedded clauses with single *ni* and *niti* presented in this section are somewhat surprising. On the one hand, why are both markers fine with embedded clauses when negation is on the matrix verb (290)? One might expect *ni* to be unacceptable here, as there is no negation above it while it introduces a clause. On the other hand, why is *niti* quite bad when embedded under a complementizer, even though a negative clause precedes it in the coordination (292)? Again, all these questions are valid if we are dealing with actual coordinations.

Results from Chapters 3 and 4 show that configurations with multiple negative coordination markers represent more stable and productive constructions, even though full matrix clausal coordination is problematic both for *neither...nor* and for *ni...ni*. Configurations with a single marker inside complex sentences with sentential negation pattern rather with

their counterparts with the same single markers inside simple independent sentences, by their prosody, syntax and contextual requirements. These counterparts are known as additive particle constructions, and this is the main topic of the following chapter.

Chapter 5

Neither, *nor*, *ni* and *niti* in other roles

Negative coordination markers in both English and BCMS can be used outside of coordinative structures, as already pointed out in subsections 4.5.1.1 and 4.5.2.1. This normally entails that each one of them can appear alone in an independent sentence, i.e. without an overt contrasted constituent present inside the same structure, to which another coordination marker would be attached. In doing this, negative coordination markers take the roles of additive focus particles, such as *also* and sentence final *too* in English (293).

(293)   Nick enjoys playing the guitar. He {also} enjoys singing {too}.

'Additive' in their name refers to the presence of a contextual antecedent (293), and 'focus' reflects the requirement for this antecedent to be a member of the set of focus alternatives to the sentence that hosts the particle. To properly generate such a set, the additive focus particle must associate with a focused element inside its host sentence. In the case at hand (293), the associate of *also* and *too* is [*singing*]. Some additive particles go further and adopt a scalar component, if the set of focus alternatives becomes ordered on some relevant scale. The conjunction marker *i* in BCMS (294a) provides examples of this (Progovac, 1994; Arsenijević, 2011). In (294b) the second sentence can be interpreted in two ways, depending on the contextual input: as an additive focus particle, where the second sentence asserts that Ina likes dancing, in addition to something else, or as a scalar focus particle, where the same second sentence can bring about an extra meaning component signalling that Ina's love of dancing is less likely or unexpected.

(294)   a. *Ina voli (i)   da peva i   da igra.*
           Ina likes and to sing and to dance
           'Ina likes (both) singing and dancing'

122

b. *Ina voli da peva. Voli i   da igra.*
Ina likes to sing   likes also to dance
'Ina likes singing. She also/even likes dancing'

Furthermore, the same particle *i* is usually assumed to participate in the formation of weak NPIs in BCMS, as mentioned before, the class of *i*-wh/one items, exemplified with *i-ko* in (295).

(295) *Ako iko   voli da igra,   slavlje će   uspeti.*
if   any-who likes to dances party will be-successful
'If anyone likes singing, the party will be successful'

These facts from BCMS seem to be more than a pure accident, as such recycling of one particle for multiple grammatical roles represents a cross-linguistically recurrent pattern (Gil, 2011). This has inspired research into so-called 'multi-functional' particles, which aims at systematizing different grammatical roles, such as additive, scalar, polarity, quantificational, and identifying their common denominator (Mitrović, 2014; Mitrović and Sauerland, 2014; Szabolcsi, 2015).

This chapter explores uses of *neither*, *nor*, *ni*, and *niti* outside of coordination. The main focus is on their additive use (section 5.1), as it directly feeds the presuppositional account in Chapters 13 and 15. Their roles as scalar focus particles (section 5.2) and quantificational or polarity sensitive indefinite elements (section 5.3) will only be briefly reviewed for expository purposes, as a unified analysis of all the different functions of these particles falls outside of the scope of this dissertation.

5.1   Additive focus particles

The use of the same items as coordination markers and as additive focus particles is an expected grammatical pattern if the two constructions are understood as having the same function, which is to (co)relate two (or more) contrasted constituents. The difference between the two constructions then boils down to whether focus associates are members of coordinative structures or whether they reside in independent sentences. In both cases, the elements that are brought into connection form focus alternatives to each other. As there is no overt contrasted element present in sentences with additive focus particles, the requirement for an active focus alternative, which must be different from the host sentence, is normally enforced through a presupposition, with the goal of not leaving the focus association of the additive particle idle.

5.1.1 Negative additives in English

Both *neither* and *nor* can be employed as additive focus particles (296).

(296)   a. Nick didn't sing. Neither did he dance.

   b. Nick didn't sing. Nor did he dance.

In this role the two markers are virtually interchangeable, which means that the asymmetry observed inside coordinative structures, where *neither* must attach to the initial and *nor* must attach to the final coordinand, disappears once they are used alone, in independent sentences. Even when employed in isolation, each of the particles contributes negation to the sentence to which it is attached. Furthermore, both particles have a fixed sentence-initial position, from which they trigger subject-auxiliary inversion or insertion of the *do*-support. This makes *neither* and *nor* the mirror image of the additive focus particle *either*, their non-negative sentence-final counterpart. The common denominator of these three particles is that they each bear an anaphoric requirement for a negative sentence to be available as an antecedent in the precedeng discourse.

5.1.1.1   *neither* p / *nor* p

When used as a negative additive, *neither* occurs sentence-initially. This is shown in (297), where each of the *neither*-sentences is preceded by a sentence with a different form of negation: plain sentential negative verbal marker *n't*, preposed negative adverb *never*, negative quantifier *nobody*. Furthermore, the sentence with *neither* minimally contains the particle itself, a finite verb and the focus associate (in square brackets).

(297)   a. Nick didn't sing. Neither did he [dance].

   b. Never before has Rob written a poem. Neither has [Jeff].

   c. Nobody complained. Neither [could Katie see any problem].

Unlike the degraded clausal *neither...nor* coordination where most speakers have an issue with negative inversion after *neither* (298), we see in (297) that *neither* being followed by a finite verb, in itself, is not a source of syntactic degradedness and moreover, it is required.

(298)   ?/?? Neither will Nick sing, nor did {he/Rob} dance.

Neither is fixed in the sentence-initial, likely Spec.CP position, and it cannot be attached directly to its associate, placed sentence-finally, or appear in any other position (299).

(299)   a. Nick didn't sing. * He {neither} danced {neither}.

   b. Never before has Rob written a poem. * {Neither} Jeff {neither} has {neither}.

c. Nobody complained. * Katie {neither} could {neither} see {neither} any problem {neither}.

The only time *neither* appears as a sentence-final adverb is with deletion of all the material except its (DP) associate, as in (300). However, this seems to be available only with first person pronouns and/or in an informal register.

(300)   Never before has Rob written a poem. %{Me / ??Jeff} neither.

This is likely a remnant of a previous life of *neither*, where it was used following another instance of sentential negation in the same clause, in NC constructions, before *either* replaced it (Rullmann, 2004).

Nor can only be used sentence-initially, as shown with the grammatical examples in (301), which are entirely parallel to the examples with *neither* from (299).

(301)   a. Nick didn't sing. Nor did he [dance].

b. Never before has Rob written a poem. Nor has [Jeff].

c. Nobody complained. Nor [could Katie see any problem].

Ill-formed configurations in (302) exemplify the strictly sentence-initial position of the additive particle *nor*.

(302)   a. Nick didn't sing. * He {nor} danced {nor}.

b. Never before has Rob written a poem. * {Nor} {Jeff/me} {nor} (has) {nor}.

c. Nobody complained. * Katie {nor} could {nor} see {nor} any problem {nor}.

This is less surprising if two things are taken into account: (i) inside coordinative structures, *neither* does not always have to be attached at the left edge of its coordinand, whereas *nor* strictly has to (Den Dikken, 2006), and (ii) *nor* must attach to a full clausal constituent and be immediately followed by a finite verb in constructions from which *neither* is absent (Chapter 4).

Crucially, both *neither* and *nor* negate the sentence in which they appear. This means that, for example (297a) and (301a) convey the interpretation 'it is not the case that Nick danced'. Moreover, in both cases an anaphoric requirement is enforced, by which there must be an adequate antecedent present in the preceding discourse or otherwise accommodable. Such an antecedent sentence is of the same, negative polarity, in its form or through an inference, as in (303b-i). If no such antecedent is available, the host anaphor with *neither* or with *nor* cannot be used felicitously (303a, 303b-ii).

(303)   a.   i. Nick sang. # {Neither/Nor} did he dance.

    ii. Rob writes poems all the time. # {Neither/Nor} does Jeff.

    iii. {Jeff/everybody} complained. # {Neither/Nor} could Katie see any problem.

b. i. It was very cold inside the house. {Neither/Nor} did we manage to find food.

    ii. The house was nice and warm. # {Neither/Nor} did we manage to find food.

How should this requirement for a negative antecedent be formulated and in which component of the meaning of these negative additives should such a condition be placed? Is it part of the at-issue meaning, i.e. what is being asserted, or is it a prerequisite common ground, i.e. a presupposition? If it is the latter, it should display the kind of behavior typical of presuppositions, which is projection out of different embedded contexts. The most common test employs negation, so the part of the meaning which this truth operator cannot affect is considered to be the presuppositional component, a precondition on the realization of the assertive component. However, negation might not be a good test environment, given its presence in the additive particle itself. But there are other diagnostics: the part of the meaning which survives embedding inside an antecedent of a conditional or in a polar question is arguably presuppositional. Yet (304a) exemplifies a failed attempt of embedding *neither* or *nor* inside an antecedent of a conditional, and (304b) the same for a yes/no question.

(304) a. * If {neither/nor} {did} Jenny complain{ed}, our team is successful.

     b. * Did {neither/nor} Jenny complain?

It is thus not possible to verify the projective behavior of *neither* and *nor* by means of these diagnostics, since they appear to resist embedding in the first place. There are other ways of probing into the presence of a particular meaning component that should be already present in the common ground, as a mutually held belief among participants in a given context. The 'wait a minute' test could provide this (von Fintel, 2004), as it constitutes an explicit objection of the addressee to the assumption of the speaker about the common ground. But, as (305) shows, in absence of an explicit contextual antecedent, the discourse seems incoherent. However, if an antecedent were present, B's exclamation would not make sense.

(305) ?#

    a. A: {Neither/Nor} did [Jenny] complain.

b. B: Wait a minute! {I didn't know that somebody else didn't complain!?! / I didn't know that other things went well!?!}

Furthermore, the data in (304) indicate that these two negative additive focus particles are limited to matrix contexts. That they indeed represent instances of root phenomena is visible already from the obligatory second position finite verb, and it can be further confirmed by the unacceptability of either of the two particles initiating a clause embedded under whichever verb in the matrix (306), regardless of the exact locus of realization for the finite feature bundle.

(306)   Katie didn't have any objections.
        * Jeff {knows/believes/claims} that {neither/nor} {did} Jenny complain{ed}.

This makes for an interesting finding – both *neither* and *nor* behave like additive focus particles, in that they bear a strong anaphoric requirement, but they are restricted to matrix environments, so it is not easy to determine which component of their meaning imposes such a requirement. Interestingly, both particles can be combined with connectives, but only with the conjunctive ones (307a, 307b). Neither of the particles can follow a disjunction, even if an adequate antecedent is provided in the first disjunct.

(307)   a. Katie didn't complain, and {neither/nor} did Jenny.
        b. Katie didn't complain, but {neither/nor} did Jenny (leave a mess).
        c. * Katie didn't complain, or {neither/nor} did Jenny (leave a mess).

Such combinations of conjunctions and negative additive particles can also introduce an independent sentence. What (307a, 307b) show is that coordination of matrix clauses allows the presence of additive *neither/nor*, whereas in (306, 304a) we saw that subordination for them is not available. Furthermore, what (307a, 307b) seem to indicate is that, once dissociated from a negative coordination structure, the particles *neither* and *nor* do not bear a connective component, at least not one with a semantically visible effect, which casts doubt on the claim that *nor* is an inherently negative conjunction (Wurmbrand, 2008). In other words, what looks like a wide scope conjunctive interpretation for negative coordination constructions, might actually arise as an indirect consequence of an interplay of different semantic factors. Finally, it is curious enough that both the initial and the final negative coordination marker in English double as additive focus particles, despite the difference in their form, and especially if one should bear a connective component for the purpose of coordinative constructions. The puzzle of the overpopulated domain for additive focus particles in English extends to their non-negative cousin *either*, and this is why we briefly turn our attention to it.

5.1.1.2 ¬p, *either*

Either is a non-negative counterpart of *neither* and *nor* additive particles. This is exemplified in (308), where *either* is grammatical only in sentences with sentential negation (308a), overtly marked on the finite verb or with a negative quantificational determiner, but it is ungrammatical in their positive counterparts (308b).

(308) a. { #(Katie didn't dance.) / (# Katie danced.) }

      i. Jenny didn't dance, either.

      ii. She didn't sing, either.

      iii. No student danced, either.

    b. { Katie didn't dance. / Katie danced. }

      i. * Jenny danced, either.

      ii. * She sang, either.

      iii. * Every student danced, either.

This means that *either* cannot be inherently negative, i.e. it does not bear a semantic negative operator, unlike *neither* and *nor*. On the contrary, it displays polarity sensitivity, as it is restricted to, mostly, negative environments (details about the distribution of the focus particle *either* can be found in Rullmann (2003)). What (308a) also shows is that *either* appears postposed, and no inversion effects take place. Nonetheless, certain prosodic effects ensue, that is, stress on *either* is needed, which seems to be the case in general with additive particles which follow their associate (Krifka, 1999a). (309) shows that additive focus particle *either* is indeed strictly sentence-final, and not even placing it below negation yields a grammatical result.

(309) Katie didn't dance. * {Either} Jenny {either} didn't {either} dance.

Like *neither* and *nor*, a sentence with *either* requires a contextual antecedent of the right polarity, otherwise the host sentence is infelicitous (310). Again, a detailed characterization of the polarity of the antecedent can be found in Rullmann (2003).

(310) Katie danced.

    a. # Jenny didn't dance, either.

    b. # She didn't sing, either.

    c. # No student danced, either.

The discussion about the source of such a requirement initiated for *neither* and *nor* thus transfers over to *either*. Interestingly, the latter is acceptable inside an antecedent of

a conditional (311a) and inside an interrogative (311b). Moreover, its presence clearly suggests that someone other than Jenny did not complain.

(311)   a. If Jenny didn't complain either, our team is successful.

         b. Did Jenny not complain either?

Even the 'wait a minute' test seems better applicable with *either* (312), than it was the case with *neither* and *nor*.

(312)   a. A: Jenny didn't complain, either.

         b. B: Wait a minute! I didn't know that somebody else didn't complain!?!

Now, there are various relevant accounts for the source of this anaphoric requirement (Nathan, 1999; Rullmann, 2003; Ahn, 2015; Szabolcsi, 2017). In Chapters 13 and 15 the presuppositional nature and focus sensitivity attributed to *either* will be exploited in the analysis of negative coordination, following mostly Rullmann's account. As for *either*, we can further observe that it is acceptable in embedded clauses (313), and does not constitute a root phenomenon, which makes for another contrast with respect to *neither* and *nor*.

(313)   Katie didn't complain.
         Jeff {knows/believes/claims} that Jenny didn't complain, either.

On the other hand, it is combinable with conjunctions (314a), but not with the plain disjunction (314b), just like *neither* and *nor*. In fact, in (314a) the presence of *either* is required (Krifka, 1999a).

(314)   a. Katie didn't complain, {and/but} Jenny didn't complain, either.

         b. # Katie didn't complain, or Jenny didn't complain, either.

As for the unacceptable example in (314b) it is, in fact, possible to accommodate it so that it conveys the interpretation that Jenny only complained if Katie did. Moreover, the same example with *or* is interesting because diachronic data show a possible pathway of emergence for this polarity sensitive additive focus particle *either*, as described in Rullmann (2004). Namely, it appears that the crucial stage of its development consisted of the postposition of the initial disjunct marker *either* in coordinative structures. This tendency persisted at least between the 17th and the 19th century, and it was restricted to disjunctions embedded in the same environments as those that licensed NPIs (315a), but these eventually shrank to the disjunction in the scope of negation (315b).

(315)   a. If John had said so, or William either, I could believe it.   O.E.D.

         b. We're not going to LA, or to New York, either.   Rullmann (2004)

As Rullmann (2004) speculates, this shrinking of the set of licensers for additive *either*, likely has to do with its blending with additive *neither*, which used to be postposed, as well, but disappeared together with NC in English. What this shows is that the link between the disjunction *either...or*, which is not distributionally restricted (316), and the polarity sensitive additive focus particle *either* should not be neglected, although a unified synchronic analysis has not been provided so far.

(316)   Katie either sang or danced.

Finally, although this confirms the usually assumed morphological kinship between *either* and *neither*, this does not mean that *nor* is directly related to *or*. There is no real diachronic evidence for such a claim, and moreover, its additive focus particle behavior shows that it patterns with *neither* and *either*. But what is then the difference, if any, between the two negative and the one non-negative version of the additive? Are they always interchangeable, modulo the inherent negativity?

5.1.1.3   Comparison: broad vs. narrow focus?

Without trying to fully answer the question from the end of the previous section, let us make a reassesment of the facts presented in the subsection on *neither* and *nor* and the one on *either*. Here is a list of properties the three particles share:

1. their host sentence is negative,

2. they associate with a focused constituent,

3. they require a contextual antecedent of the same polarity as the host,

4. they occur in clausal structures with conjunctive connectives.

The last point yields an interesting pattern once VP-ellipsis takes place (317).

(317)   a.   i.   Tim moved to Rio, and so {did} Rob {*did}.
             ii. Tim moved to Rio, and {*did} Rob {did}, too.
         b.   i.   Tim didn't move to Rio, and {neither/nor} {did} Rob {*did}.
             ii. Tim didn't move to Rio, and {*didn't} Rob {didn't}, either.

The two minimal pairs reveal that *neither* and *nor* (317b-i) pattern with the pro-form *so* in the the positive elliptical counterpart (317a-i), even in the syntactic effects they trigger (*do*-support). On the other hand, *either* (317b-ii) patterns with its positive additive counterpart *too* (317a-ii), and the *do*-support is necessary also due to the overt realization

of negation, expressed on a finite verb. Furthermore, *neither* and *nor* differ from *either* in that:

1. only the former are inherently negative, the latter is dependent on the presence of an external negation,

2. the former are fixed to the sentence-initial position, whereas the latter must be sentence-final,

3. the former are bound to matrix contexts, whereas the latter is embeddable.

The question then remains as to whether *neither* and *nor* represent merely a fusion of *either* and its negative licensor, with certain syntactic effects as a result, or further semantic and pragmatic distinctions are at work. It looks like the kind, or rather the size of focused associate they take is not always the same, in the sense that *neither/nor* has a broader spectrum of possibilities. This is exemplified in (318), where the broad focus brought in by the question licenses the discourse consisting of a negative antecedent sentence and the sentence hosting *neither* or *nor*.

(318)   What happened at the meeting?
   a. Nobody complained. {Neither/Nor} [could Katie find any mistakes in the report].
   b. Nobody complained. ?# [Katie couldn't find any mistakes in the report], either.

On the other hand, it looks like *either* cannot generate a set of alternatives broad enough to include the antecedent sentence which does not share any of the morphosyntactic material with the associate associate of *either* (318b). Or, rather, *either* cannot associate with the entire proposition. Therefore, in addition to not having a negative operator as part of its lexical entry, *either* is limited to narrow focus constructions, as opposed to *neither* and *nor*.

5.1.2   Negative additives in BCMS

There are two negative coordination markers in BCMS, and both can appear in independent sentences as additive focus particles. Unlike *neither* and *nor* in English, which constitute the initial and the final marker of the same coordinative structure, *ni* and *niti* participate in distinct coordinations, and these syntactic differences carry over to their use as additives. Nonetheless, both particles introduce a requirement for a contextually salient alternative of the right polarity.

5.1.2.1   *ni* [α]

As an additive, *ni* appears as a single particle in independent sentences, i.e. in absence of a second *ni*. Unlike *neither* and *nor*, or *either* for that matter, *ni* is always attached to its focused associate, strictly preceding it. In (319a), this is exemplified with a subject DP being the focus associate, and in (319b) with the VP.

(319)   *Ina nije   igrala.*
     Ina NEG-AUX danced

     'Ina didn't dance'

    a.   *{(Nije)}   ni [Maja] {(nije)}   (igrala).*
       NEG-AUX ni Maja   NEG-AUX danced

       '{Neither/Nor} did Maja' / 'Maja didn't (dance), either'

    b.   *{(Nije)}   (Ina) ni [pevala] {(nije)}.*
       NEG-AUX Ina   ni sung   NEG-AUX

       '{Neither/Nor} did she sing' / 'She didn't sing, either'

As shown in (320), *ni* cannot be attached anywhere else. Moreover, from this position it does not trigger any syntactic reflexes, such as inversion.

(320)   a.   *{*Ni} {nije}   ni [Maja] {*ni} {nije}   {*ni} (igrala) {*ni}.*
       ni   NEG-AUX ni Maja   ni   NEG-AUX ni   danced ni

       '{Neither/Nor} did Maja' / 'Maja didn't (dance), either'

    b.   *{*Ni} {(nije)}   {*ni} (Ina) ni [pevala] {*ni} {(nije)}   {*ni}.*
       ni   NEG-AUX ni   Ina   ni sung   ni   NEG-AUX ni

       '{Neither/Nor} did she sing' / 'She didn't dance, either'

Furthermore, what can be observed in (319a, 319b) is that minimally the *ni* particle and its associate phrase should be present in the fragment, but other material could be spelled out, as well. When the finite verb (in the case at hand auxiliary) is overtly present, the negative verbal marker must be attached to it. This makes for a clear parallel between the use of *ni* in coordination and as an additive particle – in both cases sentential negation must be overtly marked on the verb (if the verb is there). It also indicates that *ni* does not carry a semantic negative operator when acting as an additive focus particle, unlike *neither* and *nor*, but that it has to be in the scope of a covert negative operator, whose presence is always overtly marked on a finite verb. In absence of an overt finite verb, the *ni* particle is able to trigger the presence of its licensor, a covert negative operator (Zeijlstra, 2004), which seems to represent a valid replacement for the fragment answer test, attempted in section 6.5. *Ni* thus does behave like neg-words in BCMS.

The short discourse in two versions in (319a, 319b) also demonstrates the anaphoric requirement triggered by *ni*, as the presence of negation in the host sentence is not sufficient, and a negative antecedent sentence must be available, in addition. (321) shows that a non-negative antecedent makes a sentence with additive focus particle *ni* infelicitous, regardless of what its associate phrase is.

(321) *Ina je   igrala.*
       Ina AUX danced

       'Ina danced'

   a. *# {(Nije)}   ni [Maja] {(nije)}   (igrala).*
          NEG-AUX ni Maja   NEG-AUX danced

       'Maja didn't (dance), either'

   b. *# {(Nije)}   (Ina) ni [pevala] {(nije)}.*
          NEG-AUX Ina   ni sung   NEG-AUX

       'She didn't sing, either'

Again, the question of the nature of this requirement poses itself. The data in (322) show that *ni* behaves like English *either*: when inside an antecedent of a conditional (322a), or in a polar question (322b), it still signals that somebody else did not dance (322a), or that the (pro-drop) subject did not do something else, in addition to not dancing (322b).

(322) a. *Ako ni Maja nije   igrala, slavlje je   bilo dosadno.*
           if   ni Maja NEG-AUX danced party AUX been boring

           'If Maja didn't dance either, the party was boring'

       b. *Je   l' nije   ni igrala?*
           AUX Q NEG-AUX ni danced.SG.F

           'Did she not dance, either?'

This projective behavior is a signature of semantic presuppositions, which will be exploited in the approach in Chapter 15. Moreover, additive *ni* can be embedded inside virtually any environment (323), as long as the clause it appears in is negative. However, note that this time *ni* cannot invoke negation on its own, since the presence of an overtly negated auxiliary is required in (323).

(323) *Ina nije   igrala. Maja {zna/veruje/tvrdi}   da   ni Lea *(nije)   (igrala).*
       Ina NEG-AUX danced Maja knows/believes/claims that ni Lea NEG-AUX danced

       'Ina didn't dance. Maja {knows/believes/claims} that Lea didn't dance, either'

In addition to this, *ni* often combines with conjunctive connectives (324a), just as *neither/nor* and *either* do. When coupled with disjunction (324b), only the accommodated

interpretation, by which Lea only danced if Ina did, is available, parallel to the one in English.

(324)   a. *Ina nije   igrala, {i/a/ali/pa/te} ni Lea nije.*
        Ina NEG-AUX danced and/but/so   ni Lea NEG-AUX

        'Ina didn't dance, {and/but/so} Lea didn't dance, either'

        b. *# Ina nije   igrala, ili ni Lea nije.*
        Ina NEG-AUX danced or ni Lea NEG-AUX

        'Ina didn't dance, or Lea didn't dance, either'

Finally, it is important to say that, even though negative coordination of full clauses is degraded with *ni*, there does not seem to be such a problem when *ni* is used as an additive (325a). The same example (325a) also shows that *ni* in fact can host a negative verbal marker (*ne*) inside the constituent it introduces, unlike what we have seen in coordination. However, once there is no shared material between the antecedent and the host sentence of *ni*, the latter gets marked (325b).

(325)   a. *Ina ne   voli kafu. Ni Maja (ne voli) čaj.*
        Ina NEG likes coffee ni Maja NEG likes tea

        'Ina doesn't like coffee. {Neither/Nor} does Maja like tea'

        b. *Niko   nije   igrao. ? Ni Lea nije   obukla haljinu.*
        NEG-who NEG-AUX danced   ni Lea NEG-AUX worn   dress

        'Nobody danced. {Neither/Nor} did Lea wear a dress'

The preferred version for the second sentence in (325b) is with *niti*, as it has become clear by now that this particle is specialized for propositional constituents.

5.1.2.2   *niti* p

The data in (326) show how *niti* can be employed as an additive focus particle. In (326a) its associate has the broadest, propositional, focus, yet no degradedness ensues, just like with *neither* and *nor*. In (326b), a double focus construction with *niti* is exemplified, whereas in (326c) *niti* is attached to a narrow focus associate, a subject DP.

(326)   a. *Niko   nije   igrao. Niti *(je) Lea obukla haljinu.*
        NEG-who NEG-AUX danced niti AUX Lea worn   dress

        'Nobody danced. {Neither/Nor} did Lea wear a dress'

        b. *Ina ne   voli kafu. Niti Maja ?*(voli) čaj.*
        Ina NEG likes coffee niti Maja likes   tea

        'Ina doesn't like coffee. {Neither/Nor} does Maja like tea'

c. *Ina nije   igrala. Niti ??(je) Maja.*
   Ina ɴᴇɢ-ᴀᴜx dance niti ᴀᴜx   Maja
   'Ina didn't dance. {Neither/Nor} did Maja.'

In all the three cases, the finite verb should ideally be overtly expressed, but no negative verbal marker is attached to it. However, this does not mean that *niti* is inherently negative like *neither* and *nor*, since we have seen evidence from embedding that this is not the case. The data in (326) thus constitute a special version of the fragment answer test – they demonstrate the capacity of *niti* to invoke the presence of a covert negative operator as its licensor. This negative operator then also provides the negative interpretation to *niti*'s host clause. Furthermore, examples in (326) show that *niti* keeps its sentence-initial position when used as an additive, unlike *ni* which attaches directly to its associate. Even when *niti* associates with a sentence-final object (327a), it remains sentence-initial. Nonetheless, it should be noted that, in some regional varieties, *niti* can occupy positions that are normally reserved for *ni* (327b). Moreover, once *niti* attaches directly to its associate phrase, the marker of sentential negation (*ne* in (327b)) must be overtly expressed on the verb!

(327)   Ina ne voli kafu. 'Ina doesn't like coffee'

   a. *Niti voli čaj.*
      niti likes tea

      '{Neither/Nor} does she like tea'

   b. *% Ne   voli niti čaj.*
         ɴᴇɢ likes niti tea

      'She doesn't like tea, either'

We see that, if *niti* is allowed not to appear in its designated sentence-initial position, then negation must be marked on the finite verb, as is standardly the case with neg-words in a strict NC language.[1] What the data so far show is that *niti* can appear in the same clause with a verbal marker of sentential negation without giving rise to double negation readings, but only if it is attached to its associate, like *ni* would be. Conversely, *niti* invokes the presence of a negative operator in absence of a verbal negative marker when it is detached from its associate (or parts thereof, cf. (326b)) and placed sentence-initially,

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[1]This would also be the case if *niti*'s associate was a subject, as in (1).

(1)   *Ina ne   voli kafu. % Niti Maja ?(ne voli) (kafu).*
      Ina ɴᴇɢ likes coffee   niti Maja ɴᴇɢ likes coffee

      'Ina doesn't like coffee. {Neither/Nor} does Maja like coffee'

This confirms that *niti* fits into the system of strict NC in BCMS, as there is no preverbal-postverbal asymmetry when it comes to the presence of the verbal marker of negation, which is normally observed for neg-words in non-strict NC languages.

with obligatory second position clitics (for example, auxiliary *je* in (326a)). Again, a clear parallel with *niti* in coordinative structures is made.

As shown in (326), the independent sentences introduced by *niti* are preceded by negative sentences, which makes them felicitous. If these are replaced with non-negative counterparts, *niti*-sentences become infelicitous (328), just as the ones with *neither*, *nor*, *either*, and *ni* would.

(328)   a. *{Svi/neki} su   igrali. # Niti je   Lea obukla haljinu.*
             all/some   AUX danced   niti AUX Lea worn   dress
             '{Everybody/some} danced. {Neither/Nor} did Lea wear a dress'

       b. *Ina voli kafu. # Niti Maja voli čaj.*
             Ina likes coffee   niti Maja likes tea
             'Ina likes coffee. {Neither/Nor} does Maja like tea'

       c. *Ina je   igrala. # Niti je   Maja.*
             Ina AUX dance   niti AUX Maja
             'Ina danced. {Neither/Nor} did Maja.'

To probe for the source of this anaphoric requirement, we try embedding in an antecedent of a conditional (329a) and a polar question (329b). The pattern now diverges... Namely, if *niti* is employed like *ni* and attached to its associate, the sentences in (329) maintain the inference that another negative sentence is contextually salient.

(329)   a. *% Ako niti Maja nije   igrala, slavlje je   bilo dosadno.*
             if   niti Maja NEG-AUX danced party AUX been boring
             'If Maja didn't dance either, the party was boring'

       b. *% Je   l' nije   niti igrala?*
             AUX Q NEG-AUX niti danced
             'Did she not dance, either?'

But *niti* cannot be employed inside such environments and kept in its typical sentence-initial position (330), as the latter clearly requires a matrix context.

(330)   a. ** Ako niti je   Maja igrala, slavlje je   bilo dosadno.*
             if   niti AUX Maja danced party AUX been boring
             Intended: 'If Maja didn't dance either, the party was boring'

       b. ** Je   l' niti je   igrala?*
             AUX Q niti AUX danced
             Intended: 'Did she not dance, either?'

This root phenomena behavior is also replicated in different embedded clauses (331).

(331) *Ina nije   igrala. * Maja {zna/veruje/tvrdi}   da   niti je   Lea (igrala).*
       Ina NEG-AUX danced   Maja knows/believes/claims that niti AUX Lea danced
       'Ina didn't dance. Maja {knows/believes/claims} that Lea didn't dance, either'

Surprisingly, *niti* is not combinable with conjunctive connectives (332a), nor is it combinable with disjunctive ones (332b).

(332) a. *??? Ina nije   igrala, {i/a/ali/pa/te} niti je   Lea.*
          Ina NEG-AUX danced and/but/so   niti AUX Lea

          'Ina didn't dance, {and/but/so} neither did Lea dance'

      b. ** Ina nije   igrala, ili niti je   Lea.*
          Ina NEG-AUX danced or niti AUX Lea

          'Ina didn't dance, or neither did Lea'

The reason for this incompatibility is unclear, especially given that we by now know that *neither* and *nor* are grammatical in this context. *Niti* patterns with additive *neither* and *nor* in everything except for the inherent negativity of the latter, which means that the mismatch in structures like (332a) could have to do with the locus of the negative operator. Another domain where the English and the BCMS particles show different behavior is in their scalar use, to which I now briefly turn.

5.2   Scalar focus particles

Additive focus particles associate with a focused phrase to generate a set of alternatives. The details of this mechanism will be introduced in Part IV, for the time being it suffices to say that the set of focus alternatives supplied for the additive use is unordered. Now, once the set of alternatives becomes ordered on a relevant scale, usually taken to relate to likelihood, the focus particle in question starts behaving as a scalar, for example *even* in (333).

(333) a. Even [Nick] danced.

      b. Nick danced $\prec$ Andy danced $\prec$ Jeff danced

A sentence in which *even* associates with a focused constituent, the subject *Nick* in the case at hand (333a), can be uttered felicitously only if the truth of the host sentence is less likely than that of any of its focus alternatives (333b). In certain cases, a linguistic expression is ambiguous between an interpretation limited to the additive use, and the one that is (in addition) scalar. This section answers the question of which of the negative additive particles examined in this chapter double as scalar focus particles.

English Of the three additives examined in English, none seems to be able to convey the scalar interpretation (334).

(334) a. i. Neither did [Nick] dance.

ii. Nor did [Nick] dance.

iii. [Nick] didn't dance, either.

b. i. # Even [Nick] didn't dance.
Nick not dancing ≺ Andy not dancing ≺ Jeff not dancing

ii. # Not even [Nick] danced.
Jeff danced ≺ Andy danced ≺ Nick danced

This means that sentences where *neither*, *nor* and *either* associate with the subject nominal (334a) cannot receive a scalar, *even*-like interpretation from (334b). In other words, the sentences in (334a) never convey the meaning that Nick was the least likely not to dance, or that he was the most likely to dance, which amounts to the same.

BCMS Matters are different with *ni*. As shown in (335) this particle can adopt the scalar interpretation (335a), once the alternatives supplied to it are ordered on a (likelihood) scale (335b).

(335) a. *Ni [Lea] nije igrala.*
ni Lea NEG-AUX danced
'Not even Lea danced'

b. *Čak ni [Lea] nije igrala.*
even ni Lea NEG-AUX danced
'Even Lea didn't dance'
Natalija not dancing ≺ Sofija not dancing ≺ Lea not dancing

In this, bare *ni* takes over the meaning contribution of its combination with another particle, *čak* ('even'), so (335a) and (335b) roughly have the same meaning. Now, in the case of *niti* (336), a difference again emerges between its sentence-initial use (336a), in which it patterns with *neither* and *nor* in not giving rise to a scalar, *even*-like interpretation, and the regionally/ idiosyncratically acceptable use where *niti* patterns with *ni* (336b) and can convey the scalar meaning, with the ordering of the corresponding alternatives.

(336) a. *Niti je [Lea] igrala.*
niti AUX Lea danced
'Neither did [Lea] dance'
'Even Lea didn't dance'

b. *% Niti Lea nije   igrala.*
   niti Lea NEG-AUX danced

  'Even Lea didn't dance'

  Natalija not dancing ≺ Sofija not dancing ≺ Lea not dancing

This indicates that the scalar interpretation can only result from the focus particle directly attaching to its associate phrase, whereas the additive one does not impose such a constraint. As pointed out before, determining what mechanism allows the switch from additive to scalar meaning, and whether the latter necessarily subsumes the former, although an interesting issue, is beyond the scope of this dissertation and will have to be left for future research. As one last thing in this section, note that *niti* most often combines with the numeral 'one' to trigger the scalar interpretation, thanks to the scale being already provided by its associate, with the interpretation amounting to 'not even one' (337a). In this it matches the class of NPIs dubbed 'minimizers' (Krifka, 1995), such as 'to lift a finger' or 'a red cent' in English. Interestingly, the other particle, *ni*, has further grammaticalized its alliance with 'one', thus creating the determiner *nijedan* (337b), strict NC counterpart of English *no*. Nonetheless, it is still possible to employ *ni* as a scalar particle which combines with 'one' and gives an interpretation equivalent to the one with *niti* in (337a).

(337) a. *(%) Lea nije   uradila niti jedan zadatak.*
           Lea NEG-AUX done   niti one   exercise

        'Lea didn't do a single exercise'

  b. *Lea nije   uradila {nijedan / ni jedan} zadatak.*
       Lea NEG-AUX done   NEG-one ni one   exercise

       'Lea didn't do {any / a single} exercise'

In this case, a combination of a focus particle with the lowest numeral inevitably generated scalar interpretations, but later on created a novel grammatical form, a neg-word determiner which is usually devoid of any scalar component. In the next section, I turn to expressions of the kind of *nijedan*, that is, to one more role in which the negative coordination markers of the two languages can be identified, at least by their form, and this is quantification.

5.3 Quantificational expressions and Polarity Sensitive Items

Of the three particles reviewed in section 5.1 as negative additives in English, two double as quantifiers: *neither* as a negative quantifier over individuals and *either* as a distributionally restricted indefinite. In BCMS, *ni* combines with *wh*-expressions or the lowest numeral 'one' to form the class of neg-words, strict NPIs which are only acceptable with local sentential negation. *Niti* does not form a grammaticalized, full-blown paradigm for indefinites.

English The negative coordination marker which attaches to initial members of coordination in English, *neither*, doubles as a negative indefinite. As such, it can be employed pronominally (338a), or as a determiner (338b, 338c). In the latter case, it either combines with a singular noun (338b) or with a plural partitive (338c).

(338) a. Neither passed the exam.
  b. Neither student passed the exam.
  c. Neither of the students passed the exam.

In this quantificational role, *neither* is equivalent to *no* and *none*, except that it bears a duality presupposition which requires the restrictor of the quantifier to have a cardinality equal to two (Barwise and Cooper, 1981). However, it looks like a more elaborate lexical entry should be provided here, in order to capture its definite-like, anaphoric contribution. *Either* also doubles as a quantificational expression, bearing the same duality presupposition (Schwarzschild, 1996), but it is distributionally restricted – it cannot appear in a positive episodic sentence (339a). Quantificational *either* turns out to be polarity sensitive, as it is acceptable in the same contexts as the *any*-series, for example in the scope of sentential negation (339b), or in the antecedent of a conditional (339c).

(339) a. * Either ((of the) student(s)) passed the exam.
  b. Andy didn't meet either ((of the) student(s)).
  c. If Andy met either ((of the) student(s)), he will be happy.

The parallel with *any* goes further, in that *either* behaves not only like an NPI, but also like a FCI (Rullmann, 2004). This is exemplified in (340a) with a possibility modal, and in (340b) with an imperative.

(340) a. Either ((of the) student(s)) can pass the exam.

b. Call either ((of the) student(s))!

Gast (2013) analyses the pronominal/determiner *either* as a dual form of *any*, but notes that, unlike the latter, the former invariably carries lexical stress, which makes it inherently contrastive. Moreover, he observes that *any* can be used with both given and new domains, but that *either* requires a domain that is under discussion, which confirms the intuition that *neither* and *either* DPs are closer to definites than to indefinites. Whether and how the quantificational *either* can be given a unified analysis with the additive focus particle *either* and with the initial disjunct marker *either* is an interesting question which ought to be answered in future reasearch (but see Higginbotham (1991) for the latter). What is relevant for the current study of negative coordination is that the final coordinand marker *nor* does not have a role in quantification over individual variables. This makes for an interesting, and potentially telling divergence between the two particles which, as we have seen so far, pattern in their other uses.

BCMS   It is no news by now that the marker *ni* can be identified as the prefix which combines with *wh*-expressions or the numeral 'one' to form the class of neg-words in BCMS.

(341)   a. *{Niko   / nijedan   student} nije   položio ispit.*
            NEG-who   NEG-one student NEG-AUX passed exam

        '{Nobody/No student} passed the exam'

       b. *Ispit nije   položio {niko   / nijedan   student}.*
            exam NEG-AUX passed NEG-who   NEG-one student

        '{Nobody/No student} passed the exam'

       c. * *Lea ne   veruje da   je   {niko   / nijedan   student} položio ispit.*
             Lea NEG believes that AUX NEG-who   NEG-one student passed exam

        Intended: 'Lea doesn't believe that anyone passed the exam'

Neg-words require the presence of the verbal negative marker in the same clause, regardless of whether they are preverbal (341a) or postverbal (341b) in a strict NC language like BCMS. If a negative marker is attached to the matrix verb and a neg-word is in the embedded clause (341c), the result is ungrammatical. With non-local negation, neg-words are replaced by their weak NPI counterparts, marked by the prefix *i* (342a). However, such expressions are banned from appearing under local negation (342b), known as the Bagel problem (Pereltsvaig, 2006), which most likely results from competition with the *ni*-neg-words. The *i*- weak NPIs are grammatical in other environments in which NPIs can be found (342c).

(342)   a. *Lea ne veruje da je iko   / ijedan student položio.*
             Lea NEG believes that AUX any-who   any-one student passed

         'Lea doesn't believe that {anyone/any student} passed'

      b. ** Lea nije   pozvala ikoga.*
             Lea NEG-AUX invited any-who

         Intended: 'Lea didn't invite anyone'

      c. *Ako je   Lea srela {ikoga   / ijednog studenta}, biće   srećna.*
             if   AUX Lea met any-one   any-one student   will-be happy

         'If Lea met {anyone/any student}, she will be happy'

Again, a unified analysis for neg-words and *ni...ni* coordination is not the subject of this thesis. Nonetheless, given that an existential analysis has been proposed for neg-words in BCMS, by which they have to take narrow scope with respect to negation (Gajić, 2016a), a clear parallel will be drawn between these negative indefinites and negative coordination in BCMS with the findings in Part III.

Chapter 6

Negative coordination in the system of negation and polarity

This chapter is mainly concerned with the interaction of $neither...nor$ and *ni(ti)...ni(ti)* coordinations with elements which induce negation or with those which participate in NC (section 6.1). Attention will also be focused on the interaction of negative coordination with Negative Polarity Items (section 6.2), as well as with Positive Polarity Items (section 6.3). Finally, the place of negative coordination inside such a system, between negative quantification, NC and polarity sensitivity, will be explored through its behavior in fragment answers (section 6.5).

6.1 Interaction with negative indefinites

This section features data where negative quantifiers in English and neg-words in BCMS appear in sentences with negative coordination markers attached to each coordinand: *neither...nor* and *ni(ti)...ni(ti)* constructions (subsection 6.1.1). Further on, I explore data with only one negative coordination marker present in a structure with negative quantifiers or neg-words (subsection 6.1.2).

6.1.1 Negative indefinites and iterated coordination markers

English Negative quantifiers such as *nobody* (343a), *no student* (343b), *never* (343c), *nothing* (343d) can occur in the same sentence as *neither...nor*-coordination, as shown in (343a–343d). (343e) exemplifies bi-clausal structures with negative coordination of embedded clauses. What relates all the examples in (343) is that the negative quantifier is outside of the coordination. At least one reading of the sentences in (343) is DN. To illustrate, in (343a) this yields 'Everybody will either smoke or drink'. In other words, both *nobody* and the negative coordination contribute negative operators. A NC reading seems easier to get when the quantifier is an adverbial (343c). As for the biclausal structures, in (343e) the quantifier *no student* contributes negation to the matrix clause, whereas two coordinated clauses are below the complementizer and both negative.

(343) a. Nobody will neither smoke nor drink.

b. No student passed neither Syntax nor Semantics.

c. Brenda never visited neither Rome nor London.

d. Neither Ryan nor George heard nothing.

e. No student knows that Jeff neither sang nor danced.

When negative quantifiers appear inside the coordinated constituents, sentence processing becomes (even) harder. Crucially, the only readings available for the sentences in (344) are the DN ones: for example, (344a) gets interpreted as 'Jenny has invited somebody or brought something'. In general, such examples sound like cases of metalinguistic negation – they deny the adequacy of a previously uttered assertion which, in this case, already contained some negative elements.

(344) a. Jenny has neither invited nobody nor brought nothing.

b. Katie neither never calls nor rarely visits.

c. ? Neither did no student pass the exam, nor did the professor upload no materials.

The present section showed that sentences with negative quantifiers and negative coordination display the same kinds of effects as sentences with multiple negative quantifiers: DN readings, since negation is interpreted multiple times, and sporadic availability of NC, where the entire clause yields an interpretation with a single logical negation. The latter is more generally observable in non-standard varieties of English.

BCMS As a strict NC language, BCMS does not allow its neg-words (the class of *ni*-wh items) to appear in clauses where no overt marker of negation is present on the verb. In this they pattern with *ni*-coordination, which is also ungrammatical in absence of a negated verb. Moreover, in both cases only single negation readings are available. These facts remain in sentences where neg-words occupy positions outside of the *ni...ni*-coordination, as shown in (345). Such structures incur a slight processing cost, particularly sensible with 'no student' in (345b), but overall, they unambiguously yield interpretations with only one semantic negation, as indicated in the English translations with the presence of a plain disjunction.

(345) a. *Niko   neće   ni pušiti ni piti.*
          NEG-who NEG-will ni smoke ni drink
          'Nobody will smoke or drink'

       b. *Nijedan student nije   položio ni Sintaksu ni Semantiku.*
          NEG-one student NEG-AUX passed ni Syntax   ni Semantics
          'No student passed Syntax or Semantics'

       c. *Ina nikad   nije   posetila ni Rim   ni London.*
          Ina NEG-when NEG-AUX visited ni Rome ni London
          'Ina never visited Rome or London'

       d. *Ni Sofija ni Lea nisu   videle ništa.*
          ni Sofija ni Lea NEG-AUX seen   NEG-thing
          'Neither Sofija nor Lea saw anything'

As shown so far, with *niti...niti* it is only possible to test clausal coordination successfully. In the sentences with non-finite and finite embedded clauses in (346), the *niti* markers belong to the matrix clause, together with the subject neg-word, and only a single negation is interpreted, as reflected in the English translation again.

(346) a. *Niko   nije   želeo niti da igra   niti da peva.*
          NEG-WHO NEG-AUX wanted niti to dances niti to sings
          'Nobody wanted to sing or to dance'

144

b. *Nijedan student ne zna niti da Ina puši niti da Maja pije.*
NEG-one student NEG knows niti that Ina smokes niti that Maja drinks

'No student knows that Ina smokes or that Maja drinks'

(346) is reminiscent of similar cases presented in the general strategies of negative coordination of embedded clauses (Chapter 3), where it is shown that a sentence with a negative marker in the matrix and *niti*-coordination of full CPs yields single negation readings. In other words, in structures where *niti* is above the complementizer and the matrix verb is overtly negated, there is only one semantic negation. The embedded clauses are not interpreted negatively (whence *or* in the English translation). The semantic contribution of *niti* looks vacuous here, as far as negation is concerned.

When neg-words appear inside a *ni*-coordination, the structures end up degraded (347), as noted already by Arsenijević (2011: fn.6, p.189). Nonetheless, the effect cannot be simply the result of some morphophonological ban on adjacent identical syllables, since the structure is marginal even when such conditions do not hold (347c).

(347) a. *?? Ni ti, ni niko drugi ne zna istinu o ovome.*
ni you ni NEG-who other NEG knows truth about this

'Neither you nor anyone else knows the truth about this'

b. *?? Tamara neće videti ni {nikoga / nijednog druga} ni {ništa /*
Tamara NEG-will see ni NEG-who / NEG-one friend ni NEG-what /
nijedan grad}.
NEG-one city

'Tamara will see neither anybody/any friend nor anything/any city'

c. *?? Lea nije ni kritikovala Marka, ni hvalila {ništa / nijednu*
Lea NEG-AUX ni criticized Marko ni praised NEG-what / NEG-one
studentkinju}.
student

'Lea neither criticized Marko nor praised anything/any student'

This degradedness is unexpected, given that the neg-words in the above examples (347) are predicted to be in the scope of a negative operator and there are no obvious reasons to believe that a clausal boundary exists in such cases. However, it is possible that even inside a single clausal domain an element interevenes and prevents successful licensing of neg-words inside constituents coordinated by *ni*. It then has to be determined what this element could possibly be, given that multiple *ni*-indefinites inside one clause are grammatical. What could it be in the coordination marker *ni* that disrupts licensing of an indefinite bearing a morphosyntactic marker of the same form, *ni*-? An explanation will be provided in section 10.4.2. Alternatively, the coordination marker *ni*, just as its

clausal counterpart *niti*, could be understood as a clausal boundary, or some sort of a phase, thus cutting off anything inside the constituent it introduces from licensing outside of the coordination.

Now, when neg-words are placed inside $niti...niti$ coordination, the sentences are simply ungrammatical. The question is why this would be the case, as it is already clear by now that such structures provide a negative environment even though a verbal marker of negation is absent from the coordinated clauses. One would then expect neg-words to be acceptable in (348a) and (348b), but this is not the case.

(348)   a.   * *Natalija niti nikoga   kritikuje niti ništa   hvali.*
             Natalija niti NEG-who criticizes niti NEG-what praises
             'Natalija neither criticizes nobody nor praises nothing'

   b.   * *Niti je   nijedan   student položio ispit, niti je   profesor   dostavio*
             niti AUX NEG-one student passed exam niti AUX professor provided
             nikakve   materijale.
             NEG-what-like materials
             'Neither did no student pass the exam, nor did the professor upload no materials'

If the clauses introduced by *niti* feature both a neg-word and a negative verbal marker, they are still not fully grammatical, yet both clauses are interpreted with double negation (349). This effect is surprising given that double negation readings have not been attested in BCMS at all.

(349)   a.   ? *Niti nije   nikoga   slušao,   niti nije   ništa   shvatio.*
             niti NEG-AUX NEG-who listened-to niti NEG-AUX NEG-what understood
             'Neither did he listen to nobody nor did he understand nothing'
             = 'He listened to somebody and he understood something'

   b.   ? *Niti nijedan   student nije   položio ispit, niti profesor nije*
             niti NEG-one student NEG-AUX passed exam niti professor NEG-AUX
             dostavio nikakve   materijale.
             provided NEG-what-like materials
             'Neither did no student pass the exam, nor did the professor provide no materials'
             = 'Some student or other passed the exam and the professor provided some materials'

The empirical findings presented in this section can be summarized as follows:

1. neg-words outside of the coordination: both *ni* and *niti* behave like other participants in negative concord, and clausal domains in which they co-occur with other NC

elements, namely the negative verbal marker and neg-words, yield single negation interpretations;

2. neg-words inside the coordination: degradedness ensues for both *ni-* and *niti*-coordination, unless a negative verbal marker is added in the case of the latter, which results in double negation readings.

The picture in BCMS is thus not so simple, as this pattern does not fit neatly into the system of strict NC. In the next subsection I briefly explore the cases when negative quantifiers or neg-words appear in a constituent which is not marked for coordination but precedes one.

6.1.2 Negative indefinites and single coordination markers

The kind of construction examined in this subsection is usually considered as negative coordination where, instead of 'iterated' coordination markers, only a single one is overtly present, but always on the final negated constituent. Just like for NEG...*nor/ni(ti)* in Chapter 4, whether analyzing the data discussed in this subsection as coordinative structures is warranted at all will be addressed in the closing section of Part II (6.6). I now discuss sentences with negative quantifiers for English, and with sentential negation and neg-words for BCMS, appearing in the initial negative clause.

English In biclausal sentences, where the second clause is introduced by *nor*, negative quantifiers can occupy different (non-)argumental positions in the initial clause, as exemplified in (350). In each case the negative quantifier contributes negation to the initial clause, and the marker *nor* contributes negation to the final one.[1] This is illustrated by the paraphrase for the interpretation of (350a) for example: 'It is not the case that someone (or other) read Othello and it is not the case that Brenda will see Hamlet'.

(350)   a. Nobody/no student read Othello, nor will Brenda see Hamlet.

b. Jenny brought nothing, nor did she offer any help.

c. Nothing was as expected, nor could he determine what made a difference.

d. Rob has never been in Chile, nor has he tried pisco.

These interpretations, stable across examples of the kind in (350), prompted Wurmbrand (2008) to analyze *nor* as an inherently negative wide scope conjunction. However, a closer look reveals that sentences featuring a negative quantifier and *nor* are only grammatical

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[1]There can be more than two clauses involved.

with full clausal coordination, whereas structures without an entirely spelled-out IP after *nor* are degraded, as exemplified in (351).

(351)   a. ??? Nobody/no student smokes nor drinks.

           b. ??? Nothing impressed Rob nor Nick.

           c. ??? Brenda read no papers nor textbooks.

           d. ??? Nobody/no student ate the pizza nor drank the beer.

This casts some doubt on an approach which treats any structure with *nor* as a coordination, since it looks like *neither* is not simply interchangeable with other inherently negative expressions. Moreover, it is not the presence of negative quantifiers in (351) that forces the constituent introduced by *nor* to be a full clause, since it is shown in Chapter 4 that this is the case whenever *nor* is not coupled with *neither*. In other words, *nor* need not always be related to an actual connective. Movement of the negative quantifier and the position to which it would (ATB-)move should not be the cause of this disruption either, given that even negative preposing, to a position arguably parallel to that of *nor*, does not license a non-clausal constituent following *nor* (352).

(352)   a. Never before had Jenny bought the Guardian nor had Tim listened to Radio 4.

           b. ??? Never before had Jenny bought the Guardian nor the Independent.

Finally, the negative quantifier from the first clause can be overtly recovered in the one introduced by *nor*, but only by its NPI counterpart (353).

(353)   Nobody watched that film, nor did anybody recommend it.

To summarize, the state of affairs with negative quantifiers as sources of negation in the initial clause does not differ from that observed with negative verbal markers *not/n't* in Chapter 4 – only full clauses are allowed to follow *nor*.

BCMS   In this strict NC language neg-words are only grammatical when a verbal marker of negation is present in the same clause, and this holds in complex structures with a single negative coordination marker, as well. *Niti* has been identified as a marker which attaches to clausal structures, so it can naturally introduce a negative clause which is preceded by one featuring a neg-word. This is shown with the examples in (354), where the final clauses could spell out more or less material, depending on what is shared with the initial ones.

(354)   a. *Niko   nije   pročitao Otelo, niti će   {Lea gledati Hamleta / Lea}.*
              NEG-who NEG-AUX read   Othello niti will Lea watch Hamlet / Lea
              'Nobody read Othello, nor will {Lea watch Hamlet / Lea}'

b. *Ina nije   donela   ništa,   niti je   {ponudila pomoć / Maja}.*
   Ina NEG-AUX brought NEG-what niti AUX offered   help   / Maja

   'Ina brought nothing, nor did {she offer help / Maja}'

c. *Lea nikad   nije   bila u Čileu, niti je   {probala pisko / Sofija}.*
   Lea NEG-when NEG-AUX been in Chile niti AUX tried   pisco / Sofija

   'Lea has never been in Chile, nor has {she tried pisco / Sofija}'

On the other hand, *ni* does not combine well with finite IPs, so the above data is, to a large extent, not reproducible with this marker, as shown in (355). Crucially, this has nothing to do with the presence of neg-words in the initial clause, it only has to do with the incapacity of *ni* to introduce a clause with an overt finite verb, which certainly results from competition between *ni* and *niti*. Moreover, once a finite verb is present below *ni*, a negative verbal marker must be included, as well.

(355) a. *Niko   nije   pročitao Otelo, ni {??Lea neće   gledati Hamleta /*
    NEG-who NEG-AUX read   Othello ni Lea   NEG-will watch Hamlet /
    ?Lea neće}.
    Lea   NEG-will

    'Nobody read Othello, nor will {Lea watch Hamlet / Lea}'

b. *Ina nije   donela   ništa,   ni {*nije   ponudila pomoć / ?Maja*
    Ina NEG-AUX brought NEG-what ni NEG-AUX offered   help   / Maja
    nije}.
    NEG-AUX

    'Ina brought nothing, nor did {she offer help / Maja}'

c. *Lea nikad   nije   bila u Čileu, ni {*nije   probala pisko / ?Sofija*
    Lea NEG-when NEG-AUX been in Chile ni NEG-AUX tried   pisco / Sofija
    nije}.
    NEG-AUX

    'Lea has never been in Chile, nor has {she tried pisco / Sofija}'

The above sentences (355) largely improve their grammaticality when prosodic breaks are inserted before *ni*, which indicates that we are dealing with a focus particle use of *ni*, like the one in simple independent sentences with negative antecedents in the preceding discourse.[2] The sentences also become grammatical once there is no finite element in the constituent introduced by *ni*, as shown in (356).

(356) a. *Niko   nije   pročitao Otelo, ni Hamleta.*
    NEG-who NEG-AUX read   Othello ni Hamlet

    'Nobody read Othello, nor did they read Hamlet'

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[2]In writing, this effect amounts to replacing the comma with a full stop.

b. *Ina nije   donela   ništa,   ni ponudila pomoć.*
Ina NEG-AUX brought NEG-what ni offered   help

'Ina brought nothing, nor (did she) offer help'

c. *Lea nikad   nije   bila u Čileu, ni probala pisko.*
Lea NEG-when NEG-AUX been in Chile ni tried   pisco

'Lea has never been in Chile, nor (has she) tried pisco'

The neg-word can even be shared between the two clauses, in the sense that it can interpretatively occupy the same argument position in the initial clause and in the one introduced by *ni* or *niti* (357).[3]

(357) a. *Niko   nije   pročitao Otelo, ni(ti) gledao   Hamleta.*
NEG-who NEG-AUX read   Othello ni(ti) watched Hamlet

'Nobody read Othello, nor did they watch Hamlet'

b. *Nijedan student nije   položio Sintaksu, ni(ti) slušao   Semantiku.*
NEG-one student NEG-AUX passed Syntax   ni(ti) attended Semantics

'No student passed Syntax, nor will they attend Semantics'

c. *Ina nije   donela   ništa,   ni(ti) odnela.*
Ina NEG-AUX brought NEG-what ni(ti) taken

'Ina brought nothing, nor did she take something away'

Finally, (358) shows a subject indefinite in both negated clauses, but the one in the final, *niti*-clause has to be an *i*-NPI instead of a *ni*-neg-word.

(358) *Niko   nije   pogledao taj film, niti ga   je   (*n)iko   preporučio.*
NEG-who NEG-AUX watched this film niti him.CL AUX (*n)i-who recommended

'Nobody watched that film, nor did anybody recommend it'

Nonetheless, it has been observed already in the previous subsection (6.1.1) that neg-words in BCMS are not 'welcome' inside negative coordination. The next subsection presents data which show that in this environment negative indefinites are replaced by NPIs in both English and BCMS.

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[3]If the neg-word is the subject of both clauses, like *niko* and *nijedan student* in (1), the finite element ideally should not be spelled out in the *niti*-clause.

(1) *{Niko   / Nijedan student} nije   pročitao Otelo, niti (???je) gledao   Hamleta.*
NEG-who / NEG-one student NEG-AUX read   Othello niti AUX   watched Hamlet

'{Nobody / No student} read Othello, nor did they watch Hamlet'

6.2 Interaction with NPIs

The group of NPIs in English is rather heterogeneous, the *any* class of expressions being its best-known representatives. In BCMS weak NPIs are marked by the *i-* morpheme, which then combines with *wh*-expressions and 'one'. Moreover, they are in complementary distribution with neg-words, which means that *i*-NPIs are grammatical under non-local negation and in DE environments, but ungrammatical with local (clausemate) negation. The common denominator for NPIs in the two languages is that they are distributionally restricted to, roughly, positions inside DE environments. For this reason it makes sense to limit the investigation only to positions inside negative coordination.

English *Any*-NPIs are grammatical inside *neither...nor*-coordination – as one of the coordinated subjects (359a), as an object in a sentence with coordinated subjects (359b), as coordinated objects (359c)[4], or inside one of the coordinated VPs (359d), but also inside clausal coordination in subject and in object position in (359e), to the extent that the latter is grammatical for the majority of native speakers.

(359)   a. Neither you nor anyone else knows the truth about this.

      b. Neither Ryan nor George heard {anything / any rumors}.

      c. ??? Nick visited neither any Dutch city nor any Swiss mountain.

      d. Jenny has neither invited anybody nor brought anything.

      e. (?) Neither did any student pass the exam, nor did the professor upload any materials.

This state of affairs is mostly unsurprising, given that items from the *any*-class, like other (weak) NPIs in English are grammatical both with local and with non-local negation, so it would be expected that they are either way licensed inside *neither...nor* coordination.

BCMS As pointed out already, weak NPIs in BCMS are marked by the prefix *i-* and they are not grammatical with local negation, unlike their neg-word counterparts, marked by *ni-*. Now, data where *i*-NPIs are found inside *ni*-coordination is not easy to judge. Such sentences are not fully acceptable (360), and overall leave an impression that they are not significantly better than their minimal pairs with *ni*-neg-words.

(360)   a. *? Ni ti, ni iko   drugi ne   zna istinu o   ovome.*
         ni you ni any-who other NEG knows truth about this

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[4]Although this is surprisingly degraded.

'Neither you nor anyone else knows the truth about this'

b. *? Lea nije   ni kritikovala Marka, ni hvalila {išta   / ijednu*
    Lea NEG-AUX ni criticized   Marko ni praised any-what / any-one
studentkinju}.
student

'Lea neither criticized Marko nor praised anything/any student'

c. *? Ina nije   ni pozvala ikoga   ni donela   išta.*
    Ina NEG-AUX ni invited any-who ni brought any-what

'Ina neither invited anybody nor brought anything'

d. *? Tamara neće   videti ni {ikoga   / ijednog druga} ni {išta   /*
    Tamara NEG-will seen   ni any-who / any-one friend ni any-what /
ijedan   grad}.
any-one city

'Tamara will see neither anybody/any friend nor anything/any city'

The reason that sentences with *i*-NPIs inside *ni*-coordination are marginal probably has to do with competition with *niti*-coordination which happily hosts these items, as shown in (361). Together with the findings of the previous section (§ 6.1), this points to the possibility that constituents to which *ni* markers attach are not of sufficient size to host polarity sensitive expressions, i.e. strong or weak NPIs (the *ni*- or the *i*-class in BCMS, respectively).

(361) a. *Niti je   ikoga   slušao,   niti je   išta   shvatio.*
    niti AUX any-who listened-to niti AUX any-what understood

'He neither listened to anybody nor understood anything'

b. *Natalija niti ikad   zove niti redovno   posećuje.*
Natalija niti any-when calls niti regularly visits

'Natalija would neither ever call nor regularly visit'

c. *Niti je   ijedan student položio ispit, niti je   profesor dostavio*
niti AUX any-one student passed exam niti AUX professor provided
ikakve   materijale.
any-what-like materials

'(?)Neither did any student pass the exam, nor did the professor upload any materials'

More generally, *niti* coordinates constituents larger than VPs, which allows successful licensing of NPIs, since hosting NPIs and neg-words in non-clausal constituents seems to pose problem in BCMS. It is thus possible to make the following generalization: when polarity sensitive items occur outside of a negative coordination in BCMS, they are neg-words

(which corresponds to strong/strict NPIs), but when they occur inside coordinated constituents, they are weak NPIs and fully acceptable only inside *niti*-coordination. Moreover, the data of the kind in (361) reveal that negation in the case of *niti...niti* is not clausemate with the material inside the coordinated clauses, otherwise *ni*-wh neg-words, and not *i*-wh weak NPIs, would be licensed when occuring inside the members of these coordinations. This comes as somewhat a surprise; if *niti* is a negative coordination marker, then why does it not induce local negation in the clauses it coordinates? That no negative operator is present inside any of the members of a *niti...niti* coordination is further corroborated by the behavior of PPIs, which is the topic of the next section.

6.3   Interaction with PPIs

Unlike NPIs, which need to be interpreted in the scope of a DE operator, roughly, PPIs cannot be interpreted in the scope of such an operator (Szabolcsi, 2004, 2002). Although the class of PPIs is quite heterogenous cross-linguistically, existential quantifiers such as *some* in English (362a-i) and *neki* in BCMS (362a-ii) fall under the label of weak PPIs, as they only cannot be interpreted in the immediate scope of an anti-additive operator, such as clausemate negation in (362a), but can take narrow scope in a DE environment (362b).

(362)   a. ∃>¬; *¬>∃

   i. Nick didn't read {some book / something}.

   ii. *Lea nije   pročitala {nešto   / neku knjigu}.*
       Lea NEG-AUX read   something / some book
       'Lea didn't read something/some book'

   b. ∃>¬; ¬>∃

   i. Every student who read {some book / something}, passed.

   ii. *Svaki student koji je   pročitao {nešto   / neku   knjigu} položio je.*
       every student who AUX read   something   soome book   passed AUX
       'Every student sho read {some book / something}, passed'

Crucially, when negation is not local (363), narrow scope of the existential is available in both languages (Progovac, 1994).

(363)   ∃>¬; ¬>∃

   a. Rob didn't claim that Nick read {some book / something}.

   b. *Ina ne   tvrdi   da   je   Lea pročitala {nešto   / neku knjigu}.*
       Ina NEG claims that AUX Lea read   something / some book
       'Ina doesn't claim that Lea read something/some book'

Negative coordination constructions involve negation in one way or another in both English and BCMS, which confronts us to the question of its interaction with PPIs. The next two subsections examine scopal interaction between the aforementioned existential quantifiers and negative coordination.

English Data (364) with PPIs appearing inside negative coordination in English is inconclusive. Such sentences are found degraded by most speakers and hard to judge, likely due to competition with the *any* series, in addition to the full clausal coordination being marginal in itself (364c, 364d, 364e).

(364) a. ??Neither Ryan nor George read {some book / something}.

  b. ??Rob neither listened to somebody nor understood something.

  c. ??Neither did Rob praise some friend nor did Nick criticize some enemy.

  d. ??Neither did Rob bring something nor did he invite someone.

  e. ??Neither did some student pass the exam nor will the professor teach the course again.

Some speakers only get the wide scope of the existentials like *some book*, *somebody*, or *something* inside the coordination, as would be expected for PPIs. For the example in (364b) this would yield: 'there is some person Jenny did not listen to and there is some thing Jenny did not understand'. However, there are also speakers who interpret the existential in the scope of negation, for example with (364b): 'it is not the case that Jenny listened to some (or other) person and it is not the case that she understood some (or other) thing'. The latter group, as well as speakers who outright reject sentences like the ones in (364), seem to converge with the observation made in Francis (2017: fn.7, p.217) that constructions with negative inversion, i.e. preposing of a negative adverbial, do not allow for the wide scope of the PPI existential (365).

(365) ?* Never has someone in my department seen the ocean.   ?*∃>¬

The acceptance of PPIs in the scope of negation with $neither...nor$, as well as general reserves with respect to such structures, point to speakers' hesitation with respect to the locus of the negative operator(s) with negative coordination. Could it be that the structurally high position of negation, observable with clausal coordination such as (364e), is perceived by some speakers as clause-external and thus not detrimental to PPIs? Alternatively, some other mechanism attested with PPIs which manage to be interpreted in the scope of negation could be at work, such as shielding by an intervening element (Baker,

1970; Szabolcsi, 2004; Homer, 2012), or a metalinguistic effect. The latter would be plausible for negative coordination of embedded CPs (366), where negation takes scope above the matrix verb anyway.

(366)   Nick claimed neither that Brenda brought something nor that she invited someone.

One (or more) of these options would also be needed to explain the interaction of negative coordination and PPIs in BCMS.

BCMS   A PPI existential like *neko* ('somebody') or *neka knjiga* ('some book') is not entirely well-formed as an object in a sentence with *ni*-coordination of subjects (367). If accepted, it is only interpreted as scoping over negation: 'there is some thing / some book for which it is not the case that Sofija or Lea read it'.

(367)   *? Ni Sofija ni Lea nisu   pročitale {nešto   / neku knjigu}.*
        ni Sofija ni Lea NEG-AUX read   something / some book
        'Neither Sofija nor Lea read {something/some book}'

This is behavior expected for PPIs – when they are local with negation, they need to outscope it. With *niti*-coordination, however, this does not happen. As shown in (368), PPIs found inside *niti...niti* coordinations get interpreted in the scope of negation, for example (368a): 'it is not the case that he listened to some person (or other), and it is not the case that he understood some thing (or other)'.

(368)   ¬>∃

        a. *Niti je   nekoga   slušao,   niti je   nešto   shvatio.*
           niti AUX some-who listened-to niti AUX some-what understood
           'He neither listened to anybody nor understood anything'

        b. *Niti je   profesor dostavio neki udžbenik, niti je   neki student položio*
           niti AUX professor provided some textbook niti AUX some student passed
           ispit.
           exam
           '(?)Neither did the professor upload any textbook, nor did any student pass the exam'

Nonetheless, already with the final coordinand in (368b) things get trickier, as it seems harder for this subject PPI to stay in the scope of negation. Even for the other example (368a), wide scope of the existential seems to be marginally available. Such state of affairs is replicated with *niti...niti* coordination of embedded CPs (369), where negation is overtly present on the matrix verb.

(369) a. *Ina ne tvrdi niti da je nekoga slušao, niti da je nešto*
Ina NEG claims niti that AUX some-who listened-to niti that AUX some-what
shvatio.
understood

'Ina claims neither that he listened to anybody nor that he understood any-thing'

b. *Ina ne tvrdi niti da je profesor dostavio neki udžbenik, niti da*
Ine NEG claims niti that AUX professor provided some textbook niti that
je neki student položio ispit.
AUX some student passed exam

'Ina claims neither that the professor uploaded any textbook, nor that any student passed the exam'

Certainly, data with different kinds of polarity sensitive indefinites appearing in negative coordination deserve more scrutiny in both English and BCMS, as the situation does not seem to be clear-cut, at this first glance. Nonetheless, it indicates that negation which comes with negative coordination potentially has some different characteristics than regular sentential negation.

6.4 Interim summary

The goal of this entire chapter (Chapter 6) is to determine which place negative coordination occupies in the system of negation and polarity and whether it can be treated on a par with other negative or negatively marked elements in a given language – negative quantifiers in English and neg-words in BCMS.

English *Neither* and *nor* induce double negation readings in presence of negative quantifiers, just like multiple negative quantifiers inside one clause induce double negation, in Standard English. The same happens when *neither...nor* is appears two times in the same clause – (370) is difficult to process, but the only available reading seems to be that 'both Jenny and Katie like either coffee or tea'.

(370) Neither Jenny nor Katie like neither coffee nor tea.

On the other hand, NPIs appearing in the scope of negative coordination expressed by *neither...nor* give rise to grammatical single negation sentences. These two observations taken together mean that the analysis for the semantics of *neither...nor* should take into account the parallel with negative indefinites in English. In other words, *neither* and *nor* could be seen as the counterparts of negative quantifiers in the coordination system. The supposed

presence of a connective component in the construction (to be explored in Part III), then fills in the spot of the operators normally assumed for negative indefinites. Nonetheless, this raises questions whether a proper quantificational approach to *neither...nor* could be modeled and what kind of objects such quantifiers would quantify over. Another pressing issue is to determine the scope of negation in these constructions, since the connective component either takes narrow or wide scope with respect to negation. This important question will be addressed in Part III.

BCMS   Coordination marker *ni* could be regarded as a neg-word. First, its form corresponds to the morpheme used to build canonical neg-words in BCMS. Second, *ni...ni* coordination requires the presence of a negative marker on the finite verb of the clause in which it appears. Third, when neg-words occur in the same clause, the negative verbal marker is still required and the readings those of single negation. Even when two *ni...ni* coordinations are present in the same clause, as in (371) with a coordination of subjects and a coordination of VPs, the structure is grammatical and negation interpreted only once.

(371)   *Ni Sofija ni Lea nisu   ni pevale   ni igrale.*
ni Sofija ni Lea NEG-AUX.3Pl ni singPART-Pl.F ni dancePART-Pl.F
'Neither Sofija nor Lea sang or danced'

Furthermore, *ni*-coordination cannot be a weak NPI, since it is not grammatical in DE environments that are not anti-additive[5], such as the scope of *at most* (372).

(372)   ** Najviše tri   studenta ni puše   ni piju.*
at-most three students ni smoke ni drink
Intended: 'At most three students smoke or drink'

As for *niti*, this coordination marker also has *ni* as part of its morphology, or so it seems. Furthermore, *niti...niti*-coordination of embedded clauses with neg-words and a negative verbal marker in the matrix yields single negation readings. This means that *niti* cannot be inherently negative and it could be analyzed on a par with neg-words. It deserves a similar treatment to that for *neither...nor*, with the major difference being that *niti* does not seem to contribute a negation of its own, for the aforementioned reason, whereas *neither* and *nor* do. Given that it coordinates clauses, *niti* could be seen as a neg-word at the clausal

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[5]Anti-additive environments are defined as functions satisfying the equivalence given in (1) (Zwarts, 1998).

(1)   Anti-additivity: $f(X \cup Y) = f(X) \cap f(Y)$

level. In fact, thanks to their (somewhat blurry) complementary distribution, *ni* and *niti* represent two pieces of the same puzzle – they are both neg-words, but they attach to different kinds of phrases and likely occupy different structural positions. Nonetheless, the question still remains as to what exactly their lexical entry looks like: (i) what kind of objects would they quantify over if they were to be modeled after negative indefinites, and crucially (ii) what scope they take with respect to negation. The latter question will be answered in Part III.

What happens inside negative coordination in BCMS remains another open issue. More precisely,

1. why are neg-words marginal inside constituents coordinated by *ni*,

2. why are *i*-NPIs acceptable at all inside constituents coordinated by *ni*, even though marginal, and

3. why are neg-words ungrammatical inside clauses coordinated by *niti*?

What can be ascertained is that *i*-NPIs are fully acceptable inside *niti*-coordination; an example is repeated in (373a). This might seem as problematic given the claim about the neg-word status of *niti* – why are *ni*-wh neg-words bad inside *niti*-coordinands but *i*-NPIs are acceptable? However, recall that *niti...niti* embedded clausal coordination is compatible with neg-words in the matrix and that negation is interpreted only once, as repeated in (373b).

(373) a. *Niti je ikoga   slušao,   niti je išta   shvatio.*
       niti ᴀᴜx any-who listened-to niti ᴀᴜx any-what understood
       'Neither did he listen to anybody nor did he understand anything'

    b. *Nijedan student ne zna   niti da Lea peva niti da   Ina igra.*
       ɴᴇɢ-one student ɴᴇɢ knows niti that Lea sings niti that Ina dances
       'No student knows that Lea sings or that Ina dances'

These two facts in conjunction yield the conclusion that the coordination marker *niti* is not part of the clause that it introduces but rather adjoined to a full IP. This could then also be the reason why *niti* is marginal with non-clausal coordination – it wants to sit in the C-layer. In (373a), the negative operator is somewhere outside of the IP that hosts *i*-NPI, so the latter does not get anti-licensed, and in (373b), *niti*-markers belong to the matrix clause, in which they, together with the subject neg-word and the negative verbal marker, yield the interpretation of one logical negation.

Now, there is one more thing that has to be examined in the context of the discussion of the place of negative coordination in the system of negation in a given language, and that is its compatibility with a discourse that consists of a question and a fragment answer.

6.5   Fragment answers

Usually performed as the ultimate test for neg-word-hood in NC languages is the possibility for polarity sensitive items to occur without an overt licensor in fragment answers to *wh*-questions. Negative quantifiers in DN languages are also grammatical in this environment. Crucially, NPIs are ungrammatical as fragment answers to *wh*-questions.

(374)   a. Q: Who did you invite? A: Nobody. / *Anybody.

   b. *Q: Koga si   pozvao? A: Nikoga.   / *Ikoga.*
       who AUX invited   NEG-who   any-who
       'Q: Who did you invite? A: Nobody. /Anybody.'

This means that, if the suspect polarity sensitive item can be used as a fragment answer, it qualifies as a neg-word or a negative quantifier, otherwise it is simply an NPI.

English   Examples of question-answer pairs are given in (375) and (376). In both cases, the answers contain *neither...nor*-coordination of the constituents that correspond to the *wh*-expression in the question: animate subject in (375) and inanimate object in (376). Both examples are syntactically well-formed, but pragmatically not as felicitous as their counterparts with canonical negative quantifiers would be.

(375)   a. Q: Who passed Syntax?

   b. A1: ?# Neither George nor Ryan.   A2: Nobody.

(376)   a. Q: What do you like?

   b. A1: ?# Neither books nor music.   A2: Nothing.

It looks like the only way to accommodate the answers in (375b) and (376b) would be to assume that the coordinated constituents make part of the set of alternatives that was under discussion. The kind of question $neither...nor$ could then be more adequate for is a polar disjunctive one, as in (377). However, note that the negative coordination of DPs feels somewhat redundant, especially in competition with the pronoun *neither*. Moreover, it looks like the disjunctive question should adopt the prosody and the interpretation of an alternative question ('do you like books or do you like music?'), in order for the answer with negative coordination to be congruent.

(377) a. Q: Do you like books or music?

  b. A1: Neither books nor music.   A2: Neither.

Fragment answers with *neither...nor*-coordination are thus not ungrammatical the way NPIs in this role would be, but they come with a pragmatic requirement of the kind that negative quantifiers do not impose.

BCMS The same requirement exists for the examples with *wh*-questions and *ni...ni* fragment answers in BCMS (378, 379). Namely, (378) is pragmatically odd if *Tamara* and *Sofija* have not already been made salient, and the same goes for 'books' and 'music' in (379).

(378) a. *Q: Ko je   položio Sintaksu?*
            who AUX.3Sg passPART SyntaxACC
        'Who passed Syntax?'

  b. *A: ?# Ni Tamara ni Sofija.*
            ni Tamara ni Sofija
        'Neither Tamara nor Sofija'

(379) a. *Q: Šta   voliš?*
            whatACC likeₐSg
        'What do you like?'

  b. *A: ?# Ni knjige   ni muziku.*
            ni booksACC ni musicACC
        'Neither books nor music'

Niti...niti cannot really be tested for fragment answers, given its resistance to non-clausal constituents. Broad focus is used in the *wh*-question in (380a), but the answer (380b) cannot be 'short'.

(380) a. *Q: Šta   je   Marko   uradio?*
            whatACC AUX.3Sg MarkoNOM doPART
        Q: 'What did Marko do?'

  b. *A: ?# Niti je   položio ispit, niti je   pronašao ključeve.*
            niti AUX.3Sg passPART exam niti AUx.3Sg findPART keys
        A: 'He neither passed the exam, nor found the keys'

Niti is thus exempt from the test because of the nature of its incompatibility with it, which seems independent from the self-licensing of neg-words issue. As for *ni...ni*, a polar disjunctive question with an alternative reading yields a better environment for a fragment answer with this negative coordination (381).

(381) a. *Q: Jesi   pozvao Nataliju   ili Hrvoja?*
           did.2SG invited NatalijaACC or HrvojeACC
           'Did you invite Natalija or Hrvoje?'

       b. *A: Ni Nataliju   ni Hrvoja.*
           ni NatalijaACC ni HrvojeACC
           'Neither Natalija nor Hrvoje'

We thus see that the fragment answer diagnostic gives the same results in English and in BCMS – in both languages negative coordination seems syntactically well-formed, but in need of pragmatic licensing, when answering a *wh*-question. Alternative questions, on the other hand, can be congruently answered with a negative coordination of the same constituents that constituted the disjuncts inside the question. To the extent that the fragment answer test is applicable then, we conclude that negative coordination markers can be treated on a par with negative quantifiers in English and neg-words in BCMS.

6.6   Conclusions and implications

Negative coordination markers seem to inhabit the domain of negation and polarity in the given language, which is confirmed by the interaction of *neither...nor*, *ni...ni* and *niti...niti* with other negative(ly marked) expressions in the language, when the latter are found outside of the coordination, as well as in the behavoir of the markers as additive particles and fragments. Nonetheless, unexpected effects with neg-words and weak NPIs inside constituents introduced by *ni* and by *niti* are yet to be explained (section 10.4).

Let us briefly summarize what Chapters 3, 4, 5 and 6 have taught us. There are roughly three roles in which *neither*, *nor*, *ni* and *niti* appear: (i) coordination, (ii) focus particles and (iii) quantification. The first two roles can be more straightforwadly unified, given the additive use of the single particles in independent sentences with contextual antecedents. This raises the question whether there exists any decisive difference between constructions that have been considered as coordinative in English (382a) and those that clearly constitute independent sentences (382b). What has gone unnoticed so far is that the former are well-formed only with clausal constituents introduced by the negative coordination marker, and that, in principle, both markers may appear in this position.

(382) a. i. Nick didn't get a raise, (and) nor did he ask for it.

           ii. Nick didn't get a raise, (and) neither did he ask for it.

       b. i. Nick didn't get a raise. (And) Nor did he ask for it.

           ii. Nick didn't get a raise. (And) Neither did he ask for it.

Moreover, the pattern is reproduced in BCMS, where only structures which syntactically match the additive particle use in independent sentences are well-formed as complex sentences with single negative coordination markers, as depicted in the partial contrast between (383a) and (383b).

(383)   a.   i. *??? Lea nije   igrala, ni nije   pevala.*
                  Lea NEG-AUX danced ni NEG-AUX sung

                'Lea didn't dance, {neither/nor} did she sing'

           ii. *Lea nije igrala,   niti   je pevala.*
                  Lea NEG-AUX danced niti AUX   sung

                'Lea didn't dance, {neither/nor} did she sing'

       b.   i. *Lea nije   igrala. Nije   ni pevala.*
                  Lea NEG-AUX danced NEG-AUX ni sung

                'Lea didn't dance. {Neither/Nor} did she sing'

           ii. *Lea nije   igrala. Niti je   pevala.*
                  Lea NEG-AUX danced niti AUX sung

                'Lea didn't dance. {Neither/Nor} did she sing'

Thus from now on, only structures where each correlated constituent has a coordinating, or rather additive marker attached to it will be considered as coordinative, and the following two parts of this dissertation will mostly be concerned with them, unless indicated otherwise. Nonetheless, the exact relation between such negative coordination structures and proper additive constructions remains a pressing issue.

Part III

Semantic status of negative coordination

In the Introduction part of this thesis (section 1.2) the issue is raised of an underlying representation for negative coordination. Namely, sentences like the ones in (384a) can have a LF which corresponds to a disjunction in the scope of negation (384b-i), or a LF corresponding to a conjunction which outscopes negation (384b-ii). This equivalence is known from classical propositional logic as one of de Morgan's laws.

(384)   a.   i. Brenda neither sang nor danced.

              ii. *Lea nije   ni pevala ni igrala.*
                  Lea NEG-AUX ni sung   ni danced
                  'Lea neither sang nor danced'

        b.   i. $\neg(p \lor q)$

                $\Leftrightarrow$

             ii. $(\neg p) \land (\neg q)$

The other de Morgan's law, however, expresses an equivalence which corresponds to a weaker interpretation (385). It states that a conjunction in the scope of negation is equivalent to a disjunction outscoping negation.

(385)   a. $\neg(p \land q)$

           $\Leftrightarrow$

    b. $(\neg p) \lor (\neg q)$

Importantly, special forms for negative coordination which would express the weak meaning corresponding to (385) have not been attested in any natural language so far. English and BCMS are thus no different when it comes to the interpretation of such structures

– in these two languages negative coordinations unambiguously express interpretations which need as underlying LFs either (384b-i) or (384b-ii), and they never express the less informative meaning which would correspond to either of the underlying structures in (385).[6] Although this narrows the choice, the question still remains as to what the appropriate underlying representation for negative coordination is in these two languages, bearing in mind differences they exhibit in the expression of negation. The present Part is devoted to answering this question.

In Chapter 7 I present the diagnostics which will subsequently be used to tease apart the disjunction- (384b-i) form the conjunction-based (384b-ii) LF for negative coordination. Applying one of the tests, Chapter 8 will then present an argument against a conjunctive analysis of negative coordination in either English or BCMS. This is reinforced in Chapter 9 where evidence is brought in support of negative coordination being an underlying disjunction in both languages. Chapter 10 discusses homogeneity, distributivity and non-maximality in the context of negative coordination. Finally, implications for compositionality are addressed (10.4).

Chapter 7

Diagnostics

I first elaborate on the absence of certain interpretations for negative coordination in English and in BCMS (section 7.1), and then proceed to explain the overall mechanism for disentangling equivalent interpretations based on intermediate scope taking (section 7.2). Section 7.3 presents a test for diagnosing wide scope, which employs quantificatonal adverbs. Section 7.4 presents a test for diagnosing narrow scope, one which employs modals.

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[6]Assuming classical denotations for natural language connectives, that is:

(1) $[\![\wedge]\!] = \lambda p.\ \lambda q.\ p = q = 1$

(2) $[\![\vee]\!] = \lambda p.\ \lambda q.\ \exists r \in \{p, q\}\ \&\ r = 1$

(3) $[\![\neg]\!] = \lambda p.\ p = 0$

7.1 The unattested weak interpretations

Regardless of the position and the number of negative coordination markers in the structure, an interpretation which would correspond to a conjunction in the scope of one negative operator, or to a disjunction scoping over negation is never the result. This is shown in (386a) for coordinated subjects, in (386b) for objects, and in (386c) for an example with a verbal marker of negation and *nor*.

(386) * ¬(p∧q)
      * (¬p)∨(¬q)

   a. Neither Jenny nor Katie read the book.

      i. # 'It is not the case that (both) Jenny and Katie read the book'

      ii. # 'It is not the case that Jenny read the book or it is not the case that Katie read the book'

   b. Jackie likes neither coffee nor tea.

      i. # 'It is not the case that Jackie likes (both) coffee and tea'

      ii. # 'It is not the case that Jackie likes coffee or it is not the case that Jackie likes tea'

   c. Brenda hasn't read the book, nor will Jeff see the film.

      i. # 'It is not the case that Brenda has read the book and Jeff will see the film'

      ii. # 'It is not the case that Brenda has read the book or it is not the case that Jeff will see the film'

To illustrate, a sentence like the one in (386a) cannot be true in a context in which Jenny has not read the book but Katie has (or vice versa), and the sentence in (386b) is incompatible with a scenario in which Jackie likes coffee, but not tea (or vice versa). Finally, the example in (386c) is false in a situation where Brenda has not read the book, yet Jeff will see the film.

    The same facts obtain in BCMS, as shown in (387).

(387) * ¬(p∧q)
      * (¬p)∨(¬q)

   a. *Ni Lea ni Marko nisu   videli taj film.*
      ni Lea ni Marko NEG-AUX seePART this film

‘It is not the case that (both) Lea and Marko saw this film’

‘It is not the case that Lea saw this film or it is not the case that Marko saw this film’

b. *Ina ne voli (ni) kafu ni čaj.*
Ina ɴᴇɢ likes ni coffeeᴀᴄᴄ ni tea

‘It is not the case that Ina likes (both) coffee and tea’

‘It is not the case that Ina likes coffee or it is not the case that Ina likes tea’

c. *{Niti} Lea {ne} voli kafu, niti Marko jede voće.*
niti Lea NEG likes coffeeᴀᴄᴄ niti Marko eats fruit

‘It is not the case that Lea likes coffee and Marko eats fruit’

‘It is not the case that Lea likes coffee or it is not the case that Marko eats fruit’

A sentence like the one in (387a) cannot be true in a context in which Lea didn't see this film, but Marko did (or vice versa), and the sentence in (387b) is incompatible with a scenario in which Ina likes coffee, but not tea (or vice versa). Finally, the example in (387c) is false in a situation where Ina doesn't like coffee, yet Marko does eat fruit (or vice versa).

To summarize, both English and BCMS negative coordinations are bad in contexts that support the logically weaker configurations, i.e. the logical equivalence expressed in (388). Such interpretations are less informative because they are compatible with more scenarios, i.e. they are true in more worlds. Namely, a sentence with a narrow-scope conjunction, such as the ones in (388a-i, 388b-i), as well as a sentence with a wide-scope disjunction, such as the ones in (388a-ii, 388b-ii), would be true in all of the scenarios listed in (388c), except for the one in (388c-iv). However, a sentence with negative coordination is only true in the scenario in (388c-iii).

(388) $\neg(p \wedge q) \Leftrightarrow (\neg p) \vee (\neg q)$

    a.   i. Nina doesn't like both coffee and tea.

        ii. Nina doesn't like coffee or she doesn't like tea.

        iii. Nina likes neither coffee nor tea.

    b.   i. *Nina ne voli i kafu i čaj.*
          Nina ɴᴇɢ likes and coffeeᴀᴄᴄ and tea
          ‘Nina doesn't like both coffee and tea’

        ii. *Nina ne voli kafu ili (Ina) ne voli čaj.*
          Nina ɴᴇɢ likes coffeeᴀᴄᴄ or Ina ɴᴇɢ likes tea
          ‘Nina doesn't like coffee or she doesn't like tea’

166

  iii. *Nina ne voli ni kafu   ni čaj.*
    Nina NEG likes ni coffeeACC ni tea

    'Nina likes neither coffee nor tea'

 c. i. #(388b-iii); ✓(388b-i,388b-ii) Scenario 1: Nina likes coffee. She doesn't like tea.

  ii. #(388b-iii); ✓(388b-i,388b-ii) Scenario 2: Nina doesn't like coffee. She likes tea.

  iii. ✓(388b-iii,388b-i,388b-ii) Scenario 3: Ina doesn't like coffee and she doesn't like tea.

  iv. #(388b-iii,388b-i,388b-ii) Scenario 4: Nina likes coffee and she likes tea.

This is unambiguous and independent of the position of negative coordination markers. Such a logically strong interpretation, stable across contexts, seems to neatly fit the general picture concerning the cross-linguistic existence of only strong negative scope-taking expressions, and the unavailability of lexicalized weak negative ones (389), i.e. the Square of Opposition (Horn, 1989; Katzir and Singh, 2013).

A	all/everybody	always	both	(both...)and
I	some/somebody	sometimes	one	(either...)or
E	no/nobody	never	neither	(neither...)nor
O	*nall/*neverybody	*nalways	*noth	* (noth...)nand

(389)

At the same time, given the morphosyntactic realities of English and BCMS regarding the expression of negation and the theoretical assumptions layed out in Chapter 2, as well as negative coordination data presented in Part II, one might expect that English *neither...nor* is a conjunction which in its scope has negative operators contributed by individual markers *neither* and *nor*, whereas the two forms of negative coordination in BCMS are underlyingly disjunctions (which need to be) in the scope of a negation. Whether this is compatible with a more fine-grained empirical investigation of the interpretation of negative coordination we will find out in the following three chapters. In the remainder of this chapter I discuss two related ways to get there, that is, to determine the right underlying representation for negative coordination in English and in BCMS.

7.2 Intermediate scope

We are presented with the possibility of modelling the structure of different negative coordination constructions after either of the two equivalent configurations in (390).

(390) a. ¬(p∨q)

   ⇔

b. (¬p)∧(¬q)

But simple sentences do not allow to tease apart these configurations – given the logical equivalence, both the English and the BCMS negative coordinations can be assigned the structure either (390a) or (390b). Due to this, sentences lacking any other functional expression(s) which could scopally interact with negative coordination can never be transparent with respect to the logical nature of the connective. Yet if another scope-taking element is present in the structure, it might be possible to see through the opacity created by anti-additivity. The following two sections will be devoted to such "scope-splitting". I will use the remainder of this section to introduce the gist of the procedure.

We have seen that negative coordination, in principle, involves two scope-taking expressions – sentential negation and a connective. In order to break the anti-additive environment and tease apart the two equivalent configurations which potentially underlie negative coordination, a third functional element can be added to the structure. Namely, an element ScE, whose scope with respect to negation is more or less fixed, can be added to the sentence. The result are configurations given in (391). If ScE takes scope below negation, it is possible to test for interpretations which would map onto the configuration in (391a-i). (391a-i) is not equivalent to any configuration with a logical conjunction, i.e. it is not possible to "transform" (391a-i) into any other configuration, in which the disjunction would be "replaced" with a conjunction. If a conjunction scoped below negation (and another scope taking element ScE) the result would be a logically weaker interpretation (391a-ii). In the same vein, if ScE scopes above negation, a possibility is created for an unambiguous conjunctive structure, as in (391b-i). Again, this means that (391b-i) cannot be turned into a disjunction-based configuration while preserving equivalence. A wide scope disjunction would simply represent a logically weaker reading (391b-ii).

(391) a. i. $\neg > ScE_1 > (p\lor q)$

      ⇎

ii. $\neg > ScE_1 > (p\land q)$

b. i. $(p\land q) > ScE_2 > \neg$

      ⇎

ii. $(p\lor q) > ScE_2 > \neg$

Availability of an interpretation corresponding to (391a-i) would provide evidence for a disjunctive underlying structure of negative coordination. Conversely, availability of an in-

terpretation corresponding to (391b-i) would speak in favor of a conjunction-based structure for negative coordination. Both strategies have been explored in the literature on neg-words, most notably by Shimoyama (2011) and Penka (2011).

7.3 Shimoyama (2011) and the wide-scope test

Shimoyama (2011) pondered the question of scope which Japanese indeterminate NPIs take relative to sentential negation. The class of indeterminate NPIs characterized by the particle *mo* corresponds to neg-words in strict NC languages because local sentential negation is required (392b) and because they can appear in fragment answers. As such, these expressions present the same difficulty in determining the scopal status inside "simple" negative environments. Namely, the Japanese sentence in (392b) with an indeterminate NPI *dare-mo* ('who-MO') is ambiguous between an interpretation in which 'It is not the case that Yoko invited some (or other) student' (392a-i) and the one where 'For every student x it was not the case that Yoko invited x' (392a-ii).

(392)   a.   i. $\neg > \exists$

$\Leftrightarrow$

ii. $\forall > \neg$

b.   *Yoko-ga gakusei-o   dare-mo syootaisi-*(nakat)-ta*
Yoko_NOM student_ACC who-MO invite-not-_PAST_
'Yoko didn't invite any student'
'Yoko invited no student'

Shimoyama finds that indeterminate NPIs in Japanese might need a wide-scope universal analysis and provides a diagnostic which speaks in favor. The basic idea of the tests modeled by Shimoyama was to create a non-anti-additive context by inserting a quantificational element between sentential negation and a neg-word at LF. This would allow to break free from the de Morgan's law, that is, from the equivalence which can be transferred over to a narrow-scope existential and a wide-scope universal (392a-i=392a-ii). Quantificational adverbs, such as Japanese counterparts of *mostly* ("taitei") and *usually* ("hudan(-wa)"), were employed in these tests, although Shimoyama (2011) also suggested some other quantificational elements. These adverbs take scope over negation, as shown in (393).

(393)   a.   *Hanako-wa {hudan(-wa)/taitei...} asa-gohan-o tabe-nai.*
Hanako-_WA_ usually-_WA_/mostly   breakfast_ACC eat_NEG_
'Usually/mostly Hanako doesn't eat breakfast'

b.   i.   ✓ usually/mostly > not

ii. * not > usually/mostly

If these quantificational adverbs are taken to mean "more than 50% of the time", roughly, the Japanese sentence in (393) would be false if Hanako eats breakfast every other day, which would be compatible with the adverb scoping below negation. What needs to be the case for (393) to be true is that the number of days on which Hanako does not have breakfast strictly exceeds the number of days on which she does have breakfast. Now, the Q-adverbs that scope above negation are useful for creating a configuration that would allow to confirm the exclusivity of a wide-scope universal interpretation of the indeterminate NPI, as shown in (394b). But there are two possible readings: if the Q-adverb takes the widest scope in the sentence, the scopal relation between the two elements in its scope - the sentential negation and the indeterminate NPI - looks like (394a). Crucially, with such an interpretation, the indeterminate NPI can be analysed both as an existential in the scope of negation and as a universal outscoping negation (394a), and its availability obviously would not clarify the meaning ambiguity of indeterminate NPIs, or neg-words in general. However, the Q-adverb can also end up inserted between the neg-word and the sentential negation at LF, as in (394b). In this scopal configuration, the neg-word outscopes both the adverb and sentential negation. The availability of this reading indicates that the neg-word should be taken to be a wide-scope universal, because it is impossible to transform the configuration in (394b) into an equivalent one where the neg-word would appear as an existential.

(394) a. i. Q $>\neg$ $\exists$

$\Leftrightarrow$

ii. Q $>\forall$ $\neg$

b. $\forall$ $>$Q$\neg$

For the Japanese example in (395), the unambiguously universal interpretation in (394b) is paraphrased as (395b). The interpretation in (395a) corresponds to the possible configurations in (394a).

(395) *Nihonzin gakusei-no dare-mo hudan-wa   sankasi-nakat-ta*
       Japanese student_GEN who-MO usually-WA participate-not-_PAST_

   a. 'It was usually the case that no Japanese student participated'

   b. 'For every Japanese student, it was usually the case that he or she did not participate' (394b)

Shimoyama observes that the reading that corresponds to (394b) is available with Japanese indeterminate NPIs (395b). Actually, both readings are accepted with the Japanese ex-

ample in (395), but they are not logically independent from each other, as there is an entailment relation. To overcome this, Shimoyama suggests a disambiguating scenario given with the table in (396).

(396)

	m1	m2	m3	m4	m5	m6
s1	no	no	no	no	yes	yes
s2	yes	no	no	no	no	yes
s3	yes	yes	no	no	no	no

If there were six meetings and three Japanese students, with the distribution of their presences as given in (396), (395b) is true because each student missed most of the classes. At the same time (395a) is false because only two meetings (m3 and m4) were without a single Japanese student and two out of six does not justify 'most of the times'. The reading in (395b) corresponds to the configuration in (394b) and the fact that the sentence in (395) is accepted by native speakers in the (396) context indicates that the interpretation in (395b) is available independently from the interpretation in (395a). This leads Shimoyama to the conclusion that Japanese indeterminate NPIs can be analysed as wide-scope universals. Nonetheless, such a conclusion is only possible if the wide scope of the adverb with respect to the sentential negation is ensured.[1]

We thus see that a quantificational adverb which scopes above negation can help us create scopal orderings that reveal the underlying structure of negative coordination. If a reading is attested in which the adverb takes intermediate scope – above negation, but below the connective, an analysis based on a strong element, conjunction, should be considered, on a par with conclusions made for universal neg-words in Japanese. If such a reading is not attested independently from the other possible interpretation, a conjunction-based account should be dispreferred. I now turn to the other diagnostic, one that can probe for a weak scalar element which would obligatorily take narrow scope with respect to negation.

7.4   Penka (2011) and the narrow-scope test

A somewhat similar diagnostic for distinguishing narrow-scope existentials from wide-scope universals relies on observations about German negative quantifiers, going back to Bech (1955), discussed by Jacobs (1980, 1982, 1991), and exploited by Penka (2011) for her analysis of such expressions in terms of Negative Concord. Unsurprisingly, negative quantifiers

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[1]Otherwise, the configurations $[\neg > Q > \exists]$, i.e. 'It was not usually the case that a student or other participated', and $[\neg\exists > Q]$, i.e. 'No student participated often', would also correspond to the situation depicted in (396).

such as *kein Professor* ('no professor') or *niemand* ('nobody') can, in principle, be either existentials in the scope of negation, or universals outscoping negation.

(397)   a. *Hans hat   keinen Professor eingeladen.*
          Hans AUX-3Sg noACC professor invitePART

          'Hans didn't invite any professor' $\neg{>}\exists \Leftrightarrow \forall{>}\neg$

     b. *Gestern   hat   niemand Bier getrunken.*
          yesterday AUX-3Sg nobody beer drinkPART

          'Nobody drank beer yesterday' $\neg{>}\exists \Leftrightarrow \forall{>}\neg$

Relevant observations pertain to the behavior of such expressions in modal, as well as other intensional environments, and the crucial example is given in (398). Namely, the fact that the reading in (398a) is available shows that German negative quantifiers must consist of a negative and an existential component, since no reanalysis in terms of universal quantification is possible here. The reason for this is that a universal quantifier in the scope of a negated modal would yield a different, weaker reading: 'It is not required that there be every professor present'.

(398)   *Bei der Prüfung muss kein Professor anwesend sein.*
       at   the exam   must no   professor present   be

     a. 'It is not required that there be a professor present' $\neg{>}\Box{>}\exists$

     b. 'There is no professor who is required to be present' $\neg\exists{>}\Box$

     c. ?? 'It is required that there be no professor present' $\Box{>}\neg\exists$

For our purposes crucial is the interpretation in (398a), where the necessity modal *müssen* ('have to') takes intermediate scope and the only way the quantificational contribution of *kein Professor* can be represented is with a low-scope existential:

(399) $[\![(398a)]\!] = \lambda w.\neg\forall w'[Acc_w(w') \rightarrow \exists x[x$ is a professor in w' & x is present at the exam in w']]

      'It is not the case that in all worlds conforming to the examination regulations there is a professor present at the exam'

Negation in (398a, 399) takes the widest scope, yielding the "no requirement" reading, as opposed to the *de dicto* reading with the wide scope of the modal (398c), which is not as readily available[2]. On the other hand, the interpretation in (398b) appears to be available, but such an LF would be compatible with an analysis of the negative quantifier as either an

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[2]The reason for this is that the necessity modal *müssen* prefers to be in the scope of negation. Under *de dicto*, the sentence in (398) would read: 'in all worlds conforming to the examination regulations no professor is present at the exam'.

existential in the scope of negation or as a universal outscoping negation (400b), since now the modal has the lowest scope and this leaves some freedom as to the representation of the negative quantifier. This is also known as the *de re* reading, as there is no professor in the actual world such that s/he is present at the exam in all the accessible worlds conforming to the examination regulations. As for (398a, 399), the intermediate scope of the modal – below negation but above the existential – is puzzling, because it seems to split the negative quantifier into two components: the negative and the quantificational one. This is what earned it the name "split scope interpretation".

(400)   a. $\neg > \square > \exists$

    b. $\neg \exists > \square \Leftrightarrow \forall \neg > \square$

The *de re* reading in (398b, 400b) is entailed by the split-scope reading (398a, 400a). However, as they are not equivalent, the former can still be true if the examination regulations require the presence of a professor at the exam, but there is no particular professor whose presence is required. The two interpretations are thus distinguishable and the scope-splitting one needs to be accounted for. It sometimes even constitutes the only available reading, as with a vP-internal subject negative quantifier and the NPI modal *brauchen* ("need") which can only be interpreted in the scope of negation, exemplified in (401).

(401) *Es   braucht kein Arzt   anwesend sein.*
      there need   no   physician present   be

    a. 'There needn't be a physician present' $\neg > \square > \exists$

    b. * 'There is no physician who has to be present' $\neg \exists > \square$

    c. * 'It is required that there be no physician present' $\square > \neg \exists$

In (401) the subject can only be interpreted in its base position, where it is overtly present, and therefore only *de dicto* is possible for the existential quantifier. However, this modal is only acceptable in the scope of negation, so the negative component has to take the widest scope at LF. The combination of these factors leaves the split-scope interpretation in (401a) as the only available. Intensional verbs such as *suchen* ('seek, look for') also yield split-scope readings, as shown in (402). For the split-scope reading (402a), it matters that Peter is not involved in any unicorn-seeking, regardless of whether unicorns exist in the actual world. For the *de re* reading in (402b) to be true, unicorns must not exist in the actual world, regardless of what Peter is doing.

(402) *Peter sucht kein Einhorn.*
      Peter seeks no   unicorn

    a. 'Peter isn't trying to find a unicorn' $\neg > seek > \exists$

b. 'There is no unicorn Peter is trying to find' $\qquad$ $\neg\exists{>}seek$

Such scope-splitting interpretations have been discussed for Dutch by Rullmann (1995), and for other DE quantifiers by de de Swart (2001b), who also proposed an analysis in terms of higher-order quantification. Geurts (1996) accounts for split-scope interpretations as instances of quantification over abstract individuals (kinds in the sense of Carlson (1977)), but faces problems with atypical abstract individuals, as well as the fact that negative indefinites can be part of an idiomatic expression. In her 2007/2011 thesis, Penka accounts for the above split-scope effects, as well as others, by abandoning the negative quantifier analysis and treating such expressions as semantically non-negative indefinites which have to be adjacent to an abstract negative operator in the surface syntax.[3] In this way, a double negation language such as German is essentially brought to the ground of Negative Concord, as negative indefinites in NC languages are also shown to deserve this kind of analysis. As the whole mechanism relies on feature-checking, the difference between NC and DN would then be in whether the negative operator can check features of multiple negative indefinites or not. Since Penka provides an analysis in terms of non-negative indefinites for expressions such as German *kein* NP, the issues of existential vs. universal quantificational force, and the implications for the scopal interaction with negation do not arise. It is only in other work, where this proposal has been modified, that the narrow-scope existential nature of "negative indefinites" imposes itself as a consequence. Namely, in decompositional accounts of negative quantifiers in Germanic DN languages (Penka and Zeijlstra, 2005; Zeijlstra, 2011), these expressions are treated as complex lexical items, comprising a negative and an existential component. The split-scope interpretations are then the result of the two components occupying different positions in the structure: after QR of the negative quantifier to a position above the modal or intensional verb, both the option of reconstructing only the existential component and the option of reconstructing the entire complex expression are available. The former yields split-scope readings. Finally, split-scope readings have also been attested in English (Iatridou and Sichel, 2011; Potts, 2000), both for modals (403) and for other intensional verbs (404).

(403)   You have to do no homework.

a. % 'It is not required that you do homework' $\qquad$ $\neg{>}\square{>}\exists$

b. 'There is no homework that you are required to do' $\qquad$ $\neg\exists{>}\square$

c. 'It is required that you do no homework' $\qquad$ $\square{>}\neg\exists$

(404)   Mary needs no secretary.

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[3]Brasoveanu and Roelofsen (2013) bring experimental evidence from polarity particles and VP ellipsis in favor of an analysis in terms of negative indefinites, instead of negative quantifiers.

a. % 'It is not the case that Mary needs a secretary' $\neg > \square > \exists$

b. 'There is no secretary that Mary needs' $\neg \exists > \square$

c. 'What Mary needs is no secretary' $\square > \neg \exists$

However, not all native speakers report the availability of split-scope readings (403a, 404a), and with the right context, the reading with the widest scope of the modal pops up (403c, 404c). As pointed out also by Penka (2011), this is due to the preference for NPIs over negative quantifiers for VP-internal position in English, in contrast to the situation in German. Penka (2012) discusses the equivalent of split-scope interpretations for NC languages, where a non-negative existential/indefinite analysis for neg-words is not controversial. An example from Spanish, a non-strict NC language, is given in (405), and an example from Russian, a strict NC language is in (406).

(405) *Durante el examen no tiene por que estar presente ningún professor.*
during the exam NEG has for C ne present NEG-DET professor
'It is not required that a professor be present during the exam' $\neg > \square > \exists$

(406) *Ty ne dolzhen mne darit nikakich podarkov.*
you NEG must meDAT give NEG-DET.GEN presentsGEN
'It is not necessary that you give me presents' $\neg > \square > \exists$

The same argument is pursued in Gajić (2016a), where it is shown that neg-words in BCMS (the class of wh-based expressions bearing *ni-* as a prefix) behave as narrow scope existentials. Nonetheless, in the case of NC languages, split scope could be a misleading term, since now there is an overt negation marker outscoping the modal verb at surface: *no* in (405) and *ne* in (406). But the above diagnostic is still useful – the availability of "split scope" readings points to the narrow scope existential nature of neg-words, since it is not possible to transform such LF configurations into ones where the quantificational component of the neg-word would be universal. The reason for this is that a universal quantifier with the lowest scope would yield a weaker (entailed) reading. For example, in (406), this would be paraphrased as 'it is not necessary that you give me every present', which is not how the Russian sentence in (406) is interpreted.

7.5   Interim summary

The emergence of existential-only interpretations for negative quantifiers and neg-words in different languages points to a potential cross-linguistic universal: morphosyntactically negative expressions consist of weak members of the Horn-scale, existentials, which obligatorily take narrow-scope with respect to negation. Crucially, the same kind of diagnostic

can be employed to test for the underlying structure of negative coordination and determine whether it is based on a weak element of the scale, disjunction. In other words, availability of split-scope interpretations with negative coordination would provide evidence for a disjunctive analysis. I will keep the term "split scope" for English, but use "scope intervention by {modals/quantifiers}" for BCMS, to avoid any confusion. This choice is motivated by the pre-theoretical observation that, due to negative doubling, one logical negation can be morphosyntactically expressed multiple times in NC languages, and by the theoretical stance that no decomposition onto a negative and a quantificational component occurs here, as neg-words in NC languages are not inherently negative to start with. The term "intervention" reflects well the intermediate scope that the additional scopal element can take between sentential negation and the coordination. But recall that Shimoyama (2011) found that Japanese indeterminate NPIs outscope negation, which indicates the potential for cross-linguistic variation in the domain of neg-words. If the application of the test with wide scope adverbs resulted in split-scope/intervention readings, this would constitute evidence for a wide scope conjunction analysis of negative coordination.

It is important to point out that my aim is somewhat different than those declared in the above discussed scholarship. Namely, Shimoyama (2011) raised the issue of the scope that indeterminate NPIs (Japanese neg-words) take in a clause, and her main research question was whether these expressions have to stay in the scope of negation or to outscope it. For Penka (2011) and her predecessors, the major issue lies in the difficulties of maintaining an analysis of Germanic negative elements in terms of (negative) quantifiers. But their empirical findings ultimately weigh in on the debate about the nature of these expressions – i.e. whether they are existentials or universals. Due to the interaction with negation, expressed in logic through de Morgan's laws, the nature of an element and its scope go hand in hand: when it comes to morphosyntactically negative items, weak elements (existentials, disjunctions) can only be interpreted in the scope of negation, whereas the strong ones (universals, conjunctions) have to outscope negation. The opposite would go against the fact that only the stronger of the de Morgan's equivalences is attested as a possible interpretation of neg-words, negative quantifiers and negative coordinations. This means that 'split scope' readings reveal both the scope with respect to negation and the nature of any of these expressions. My starting point is thus the view that availability of an interpretation with scopal intervention of a functional element which is not part of the negative coordination is an indicator of the underlying nature of the latter in a given language – in other words, it allows us to determine whether negative coordination is a narrow-scope disjunction or a wide-scope conjunction.

With this goal in mind, I will apply the diagnostics demonstrated in the previous two

sections to negative coordination in English and in BCMS. Th diagnostic with quantificational adverbs will be applied first, to probe for a conjunctive underlying structure of negative coordination in section 8, for English, as well as BCMS. The results of this test will reveal that there is no evidence for a conjunction-based structure in either English or BCMS. I will then apply the diagnostic with necessity modals (section 9), and show that a disjunction-based account for negative coordination in both languages is on the right track.

Chapter 8

Conjunction scoping above negation

In order to provide an opportunity to test whether negative coordination in English and BCMS is unambiguously a conjunction, a quantificational element which scopes above negation ought to be employed. Apart from the relevant configuration in (407a), such a scopal relation between the quantifier and the negation also permits configurations with the widest scope of the quantificational element (407b), where the equivalence between a narrow scope disjunction and a wide scope conjunction can still be expressed. (407b) would thus be of no help for determining the underlying structure of negative coordination.

(407) a. $(p \wedge q) > \text{ScE} > \neg$

b. $\text{ScE} > \neg(p \vee q) \Leftrightarrow \text{ScE} > (\neg p) \wedge (\neg q)$

Adverbs are good candidates for constructing test sentences, as they easily or exclusively scope above negation. This means that the sentence in (408) is judged true in a context where most of the time, i.e. on the majority of mornings, Nina does not eat breakfast. In the same vein, the BCMS sentence in (409) describes the same scenario, and it would not be true if Nina ate breakfast every other day or on most of the mornings.

(408) Nina usually didn't have breakfast.

(409) *Nina obično nije   doručkovala.*
Nina usually NEG-AUX.3Sg eat-breakfastPART
'Nina usually didn't have breakfast'

Adverbs such as *usually* in English and *obično* in BCMS can thus be used as scope-taking elements to try scope-splitting with, as Shimoyama (2011) did. Now that the third scope-taking element has been introduced, we can give a better representation for the configuration in which it takes intermediate scope (408):

(410) $(Q_{ADV}\neg p)\wedge(Q_{ADV}\neg q)$ $= (408)$

What does it mean to be a wide scope conjunction? It means that all the other scope-taking elements are symmetrically present in each of the conjuncts, as shown with *usually* and negation in (410), all while maintaining their mutual scopal order ('usually not' in this case).

8.1 English

A sentence like (411a), containing a quantificational adverb *usually* and *neither...nor*-coordination of VPs, is not easy to process, and not judged as fully acceptable by all speakers, but it roughly has the readings in (411a-i) and (411a-ii).

(411) a. Jeff usually neither cooks nor cleans.

  i. $(Q_{ADV}\neg p)\wedge(Q_{ADV}\neg q)$
  'It is usually not the case that Jeff cooks and it is usually not the case that Jeff cleans'

  ii. $Q_{ADV} > \neg(p\vee q) \Leftrightarrow Q_{ADV} > (\neg p)\wedge(\neg q)$
  'Is is usually the case that Jeff does not cook or clean' $\Leftrightarrow$ 'It is usually the case that Jeff does not cook and that he does not clean'

The two equivalent interpretations (or, rather, the two possible LF configurations for the interpretation) in (411a-ii) entail the split-scope interpretation in (411a-i) because, if it is true that most of the time Jeff does neither of the two (cooking, cleaning), it must also be true that for either of the two (cooking, cleaning), on the majority of occasions, Jeff does not do it. If cooking is an activity that one could do daily, let's say once a day, and the same could be said for cleaning, then the table in (412) depicts a scenario in which both the reading in (411a-i) and the one in (411a-ii) are true: on the majority of days Jeff did not cook (4 out of 6) and on the majority of days Jeff did not clean, either (again 4 out of 6) as per (411a-i), but also – on the majority of days he neither cooked nor cleaned as per (411a-ii). Native speakers judge the sentence in (411a) as compatible with the scenario in (412).

	M	T	W	T	F	S
(412) OK cooked(j)	X	✓	X	X	X	✓
cleaned(j)	X	✓	X	X	X	X

The context in (412) is thus compatible with both the conjunction-only interpretation (411a-i) and the one where we are stuck with de Morgan's equivalence (411a-ii). But the sentence in (411a) is acceptable in it. Now, if the context is modified slightly to depict the scenario in the table in (413), the immediate consequence is that the reading(s) in (411a-ii) is no longer true, whereas the split-scope interpretation (411a-i) remains unaffacted. In other words, since (411a-i) is entailed by (411a-ii), the right test consists in excluding the latter, to see if the former still holds, i.e. if it is an independent reading. For this reason, (413) describes the scenario in which it was usually not the case that Jeff cooked (he did not cook on 4 out of 6 days) and it was usually not the case that he cleaned (he did not clean on 4 out of 6 days). But (413) does not truthfully describe the scenario in which on most of the days Jeff neither cooked nor cleaned, as only two out of six days were such – on other four days he either cooked or cleaned.

	M	T	W	T	F	S
(413) * cooked(j)	X	X	X	X	✓	✓
cleaned(j)	✓	✓	X	X	X	X

Native speakers judge the sentence in (411a) as false in the context given in (413). This means that the split-scope interpretation in (411a-i) is not available independently from the one in (411a-ii), where the latter can consist of either a narrow scope disjunction or of a wide scope conjunction. But if *neither...nor* was an underlying conjunction, sentences with an additional quantificational adverb (411a) should display the reading where this is unambiguously shown and therefore be compatible with the context in (413). Unsurprisingly, different position of the negative coordination does not change this fact: speakers also find coordinations of nominals below the verb (414) incompatible with the split scope supporting context in (415a).

(414) a. Jeff usually eats neither breakfast nor dinner.

b. Brenda usually reads neither the Guardian nor the Independent.

	M	T	W	T	F	S
(415) a. * P	X	X	X	X	✓	✓
Q	✓	✓	X	X	X	X

	M	T	W	T	F	S
b. OK P	X	✓	X	X	X	X
Q	X	✓	X	X	X	✓

At the same time, the sentences with *neither...nor*-coordinated objects are acceptable in the context depicted in (415b), where also the reading with the widest scope of *usually* is true. It is only with negative coordination of subjects (416) that the context such as (416a) is judged compatible.

(416)   Neither you nor I usually read The Guardian.

			M	T	W	T	F	S
a. OK	read(you,G)		X	X	X	X	✓	✓
	read(I,G)		✓	✓	X	X	X	X

			M	T	W	T	F	S
b. OK	read(you,G)		X	✓	X	X	X	X
	read(I,G)		X	X	X	X	X	✓

A potential reason behind this switch with subjects is that the adverb could now be in the scope of negation, at least judging by the surface structure and linear order. If this is indeed the case and if (416) conveys 'not usually', then the attested reading may well be the one in (417) where the quantificational adverb takes the lowest scope and negative coordination can be either a narrow scope disjunction or a wide scope conjunction[1]. Recall that 'not usually' is not much different from 'usually not' – both are compatible with situations where most of the occasions were such that something did not happen, but only the former can also be compatible with a situation in which somethin did not happen on exactly one half of the occasions.

(417) $\neg \, (Q_{ADV}p \vee Q_{ADV}q) \Leftrightarrow (\neg Q_{ADV}p) \wedge (\neg Q_{ADV}q)$

Observe that a reading like (417) would indeed be true in the context in (416a), since it is not the case that I read the Guardian on most of the days or that you read the Guardian on most of the days (or, alternatively, it is not the case that I read the Guardian on most of the days and it is not the case that you read the Guardian on most of the days). But then a sentence like (416) should be acceptable also in a "50-50%" context like the one in (418), borderline compatible with (417) .

		M	T	W	T	F	S
(418)	read(you,G)	X	✓	X	✓	X	✓
	read(I,G)	X	✓	X	✓	X	✓

This indeed seems to be the case, usual caveats about such 'exactly half of the time' readings of relatively vague and context-dependent adverbs applying. What blurrs judgements even more is the generic potential of the adverb *usually*, where speakers find it hard to judge

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[1]This reading can also be represented as: $\neg(P \vee Q) > usually \Leftrightarrow (\neg P) \wedge (\neg Q) > usually$

on the basis of one week. This affects borderline scenarios more than those with a clear majority vs. minority, when only the distribution over individuals and over days of the week changes (for example, (415a) and (415b)). Let's look at BCMS now, a language substantially different in that (the scope of) negation is also marked on the finite verb. However, things will not turn out to be any different.

8.2 BCMS

As pointed out at the beginning of this section (8), the BCMS adverb *obično* (lit. 'habitually') scopes over negation. In the example in (419) this adverb is placed above the negated auxiliary *nije* whose presence is necessary[2]. Nothing thus stands in the way of the adverb taking scope above negation, and the sentence indeed seems compatible with both interpretations, (419a) and (419b). For our purposes here, it is also possible to use another adverb, *često* ('often'), without making any tangible difference.

(419)   *Marko obično/često nije   ni kuvao   ni čistio.*
Marko usually/often NEG-AUX.3Sg ni cook_{PART} ni clean_{PART}
'Marko usually neither cooked nor cleaned'

    a.   (usually¬P)∧(usually¬Q)
'It was usually not the case that Marko cooked and it was usually not the case that Marko cleaned'

    b.   usually>¬(P∨Q) ⇔ usually>(¬P)∧(¬Q)
'Is was usually the case that Marko did not cook or clean' ⇔ 'It was usually the case that Marko did not cook and that he did not clean'

The same can be said about the example with *niti...niti*-coordination. This time no negative verbal marker is present, and the adverb *obično* is above the *niti*-coordinated VPs[3].

(420)   *Marko obično/često niti kuva niti čisti.*
Marko usually/often niti cooks niti cleans
'Marko usually neither cooks nor cleans"

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[2]The negative marker has to be present on the finite verb in sentences with *ni...ni*-coordination. Analytic past tense is used to ensure the presence of the auxiliary to which the verbal marker of negation could attach, as otherwise each finite, present tense verb would be preceded by a negative marker. This, however, clashes with the incompatibility of *ni* with verbal markers of negation inside the constituents it introduces.

[3]Caveats about the grammaticality of such examples with *niti...niti*-coordination of non-clausal constituents (verb phrases) apply, as discussed previously. Nonetheless, the example with the adverb (420) sounds somewhat better. Moreover, it is not excluded that this sentence actually consists of clausal coordination, with ATB-movement of the subject and the adverb.

a. (usually¬P)∧(usually¬Q)

'It is usually not the case that Jeff cooks and it is usually not the case that Jeff cleans'

b. usually>¬(P∨Q) ⇔ usually>(¬P)∧(¬Q)

'Is is usually the case that Jeff does not cook or clean' ⇔ 'It is usually the case that Jeff does not cook and that he does not clean'

Unsurprisingly, both the sentence with *ni...ni* (419) and the one with *niti...niti* (420) are acceptable in the context in (421), compatible with both pairs of interpretations given above (419a, 419b, 420a, 420b).

		M	T	W	T	F	S
(421) OK	cooked(m)	X	✓	X	X	X	✓
	cleaned(m)	X	✓	X	X	X	X

However, native speakers judge neither the sentence (419) nor the sentence (420) as true in the context (422) which supports only the interpretation in which the adverb scopally intervenes (419a, 420a).

		M	T	W	T	F	S
(422) *	cooked(m)	X	X	X	X	✓	✓
	cooked(m)	✓	✓	X	X	X	X

These judgements remain stable across different structural positions. The example with *ni*-coordinated objects in (423a) is unacceptable in a context that would correspond to (422), as well as the example with *niti*-coordinated clauses (423b).

(423) a. *Hrvoje obično/često ne čita ni Politiku ni Danas.*
Hrvoje usually/often NEG reads ni Politika_ACC ni Danas_ACC
'Hrvoje usually reads neither Politika nor Danas'

b. *Obično/često niti Ina doručkuje niti Lea večera.*
usually/often niti Ina eat-breakfast niti Lea eat-dinner
'Usually neither Ina has breakfast nor Lea dinner'

However, sentences with coordinated subjects behave differently, just like in English. Namely, some speakers accept sentences with *ni*-coordinated nominals in subject position (424) in a context that would correspond to (422).

(424) *Ni Lea ni Sofija obično/često ne doručkuju.*
ni Lea ni Sofija usually/often NEG eat-breakfast_PL
'Neither Lea nor Sofija usually eat breakfast'

The same sentence (424) does not seem to be acceptable in a 50/50% scenario (425), discussed for *neither...nor*-coordinations of subjects. This means that a 'not usually / not often' scopal ordering can be eliminated as a potential culprit, and the source of this kind of effect in BCMS has to be looked for elsewhere.

		M	T	W	T	F	S
(425)	breakfast(l)	X	✓	X	✓	X	✓
	breakfast(s)	X	✓	X	✓	X	✓

A solution along those lines was proposed in Gajić (2016a), where contrastive focus and the subject position of neg-words like *niko* ('ni-person') allow for the latter to seemingly outscope the adverb and the negation. The reasoning followed is that the neg-word marks the scope of negation in these sentences, as the highest morphosyntactically negative element, which means that the negative operator is at least as high and therefore outscopes the adverb. However, it is not even the sentence-initial position of coordinated subjects that renders this scope intervention effect. When such *ni*-coordinated nominals are placed in a sentence-final position, some speakers again accept the sentence (426a) in a scenario like the distribution in (422). The effect grows stronger with singular verbal agreement, as in (426b). Among the speakers who accept the sentences with sentence-final subjects in scope intervention contexts (422), only a minority finds the same sentence compatible with a 50-50% scenario, as the one in (425). This means that a 'not usually' reading is not always the culprit for the acceptance of such sentences in scenarios that would otherwise correspond to exclusively conjunctive readings (422).

(426) a. *Obično nisu   doručkovale   ni Lea   ni Sofija.*
           usually NEG-AUX.3Pl eat-breakfastPl.F ni LeaNOM ni SofijaNOM
           'Neither Lea nor Sofija usually had breakfast'

    b. *Obično nije   doručkovala   ni Lea   ni Sofija.*
        usually NEG-AUX.3Sg eat-breakfastSg.F ni LeaNOM ni SofijaNOM
        'Neither Lea nor Sofija usually had breakfast'

It is important to point out that in BCMS the position of (contrastive) focus is not restricted to the sentence-initial position. Moreover, negative coordination seems to be 'inherently' focused, as will be discussed posteriorly (section **??**). Nonetheless, it looks like this effect by which negative coordinations are acceptable in contexts that seem to unambiguously demonstrate the scopally intervening adverb really is the result of the structural position of subjects, especially because it emerges in both English and BCMS. A sustainable solution, that works for both languages, ought to be found.

8.3 Interim summary

The conclusion of this section is that there is no evidence for a conjunction-based analysis of negative coordination either in English or in BCMS. Sentences with negative coordination and quantificational adverbs are unacceptable in scenarios that unambiguously support interpretations which can only be translated into a conjunction at LF. This is the case in both English, a putative DN language, and in BCMS, a strict NC language. The only exception comes with the structural position of coordinated subjects, which necessitates further explanation. Nonetheless, a true conjunctive connective should be detectable in other positions, as well, and not rely on the high structural position for its manifestation. I now move on to the second diagnostic for the underlying structure of negative coordination, the mirror image of the first one, where the goal is to show that such constructions can be shown to be unambiguously disjunctive.

Chapter 9

Disjunction in the scope of negation

To test whether negative coordination is unambiguously an underlying disjunction, functional expressions which take narrow scope with respect to negation should be employed. This permits derivations to result in LF configurations correponding to (427a), where negation takes the widest scope and the component that works as the connective can only be realized through a narrow scope disjunction. The reason for this is that the additional scope-taking element is sandwiched between the two components making up the negative coordination. Nonetheless, there is another theoretically possible interpretation (427b), in which the negative coordination can be decomposed either onto a disjunction in the scope of negation or onto a conjunction outscoping negation. This interpretation (427b) is entailed by the split-scope one (427a).

(427)   a. $\neg > \text{ScE} > (p \lor q)$

   b. $\neg(p \lor q) > \text{ScE} \iff (\neg p \land \neg q) > \text{ScE}$

This time, good candidates for such scopal intervention tests are necessity modals, such as *have to* (428a) in English and *morati* (428b) in BCMS. In both cases, the only reading possible is that where it is not necessary, i.e. there is no requirement for Nina to learn Spanish. The weak reading by which it is necessary, i.e. there is a requirement for Nina not to learn Spanish is unavailable.

(428) a. Nina doesn't have to learn Spanish.   ✓ ¬>□; * □>¬

    b. *Nina ne mora {da uči   / učiti} španski.*
      Nina ɴᴇɢ has to learn₃ₛg learnɪɴꜰ Spanish
      'Nina doesn't have to learn Spanish'   ✓ ¬>□; * □>¬

In BCMS, there are two syntactic possibilities for modals and restructuring verbs more generally, namely either to have the modal followed by the multifunctional particle *da*, after which the verb takes the usual agreement features of present tense, or, alternatively, to have the modal followed by an infinitival form of the verb, in which case *da* is left out. Crucially, the choice between the two does not affect the interpretation, since the verbal marker of negation is above the modal either way, so the necessity modal can only be interpreted in the scope of sentential negation. These two modals will then be used to perform the disjunction-diagnostic and verify the possibility of having split-scope interpretations with *neither...nor*-coordinations in English and with *ni(ti)...ni(ti)*-coordinations in BCMS. The configuration with the wide scope of the whole negative coordination over the modal (427b) is represented with more precision in (429a). At the same time, the split-scope interpretation, where the modal scopally intervenes between negation and the connective, can only be represented as (429b). Such an interpretation is only available if the connective is a disjunction, because only a disjunction can remain in the scope of negation and yield the logically strong meaning of negative coordination.

(429) a. ¬(□p∨□q) ⇔ (¬□p)∧(¬□q)

    b. ¬ > □ > (p∨q)

To keep things theory-neutral and to avoid any confusion, in BCMS I will call it scope intervention by modal, instead of split-scope interpretation.

9.1   English

A sentence with the necessity modal *have to* and *neither...nor*-coordination of verb phrases, such as (430), is somewhat hard to parse at first.[1] In theory, there are three different

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[1]The sentence has another syntactic version (1), in which *neither* is placed above the infinitival particle *to*, preferred by some speakers.

readings such a sentence could convey: the split-scope one in (430a), the one where the modal is outscoped by both components of negative coordination (430b) and the one where the modal outscopes negative coordination (430c). The latter two are not revealing about the nature of the connective component of *neither...nor*-coordination.

(430)   Jenny has to neither sing nor dance.

    a. ¬> □ > (p∨q)

       'It is not necessary for Jenny to sing or to dance'

    b. ¬(□p∨□q) ⇔ (¬□p)∧(¬□q)

       'It is not the case that it is necessary for Jenny to sing or that it is necessary for her to dance' ⇔ 'It is not necessary for Jenny to sing and it is not necessary for Jenny to dance'

    c. □>¬(p∨q) ⇔ □>¬p∧¬q

       'It is necessary that Jenny does not sing or dance' ⇔ 'It is necessary that Jenny does not sing and that she does not dance'

To verify whether the sentence in (430) is indeed ambiguous between these readings, appropriate contexts need to be constructed. The reason is that the interpretation in (430a) entails the one in (430b), whereas the interpretation in (430c) is independent. Such contexts are described in (431). The context in (431a) is compatible with the split-scope reading in (430a), as Jenny is not required to do either of the two (singing, dancing). Native speakers find the sentence acceptable in this scenario. However, the context is also compatible with the entailed interpretation in (430b), and it is necessary to check whether the latter can be attested independently. This is the goal of the context in (431b), contradictory to (430a) since there is now a requirement for Jenny to either sing or dance, but neither of the two is imposed to her as a particular requirement, in keeping with (430b). Native speakers reject the sentence in (430) for the context in (431b), which means that the interpretation in (430b) is not available independently. The split-scope interpretation (430a) is thus genuinely attested.

(431)   A school musical is being prepared by Jenny's class teacher...

    a. Just like all her classmates, Jenny has to participate in the school musical. The most prominent tasks involve singing and dancing, but Jenny could, alternatively, help offstage, or work on the costumes and the scenography.

    b. Just like all her classmates, Jenny has to participate in the school musical. In fact, everyone is required to perform on stage, but the pupils should choose

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(1)   Jenny has neither to sing nor to dance.

between singing and dancing (and focus on one), otherwise they won't get a grade for their Performing Arts subject.

c. The school musical is an extracurricular activity, so only talented pupils are invited to participate on stage. Others can be involved off stage or pick some other extracurricular activity. Jenny is notorious for her lack of rhythm and vocal capacities.

The third context (431c) is the one in which the wide scope interpretation of the modal (430c) is true, since here Jenny should not get involved in activities which do not correspond to her talents. Speakers mostly accept the sentence (430) in this context, which means that the wide scope of the modal over negation that comes with negative coordination is also attested. That this interpretation is available is not surprising given the surface linear order and the possibility of an LF in which the modal c-commands the *neither...nor*-coordination, although *have to* more generally prefers to be in the scope of negation. The split-scope reading is the most salient also with objects coordinated by *neither...nor*, as shown through the context in (432). The majority of native speakers do not accept the sentence *Katie has to pass neither Syntax I nor Semantics I* in a scenario in which the curriculum imposes on Katie to take either Syntax I or Semantics I at the Linguistics Department, but neither of the two courses in particular is mandatory (432b). Again, this shows that the wide scope reading of the whole negative coordination above the necessity modal is mostly unachievable independently from the split-scope reading. The interpretation with the wide scope of the modal would be unrealistic with the initial context in (432), and it is tangential to our purposes here, as well.

(432)   Katie is a university student, she studies Math and Computer Science.

a. She is allowed to take courses of her choice from the Linguistics Department. Her friend Ryan, who studies German Language and Literature, often takes courses from the Linguistics Department, with the difference that he is actually required to pass Syntax I and Semantics I there.
✓ Katie has to pass neither Syntax I nor Semantics I. $\neg > \square > (p \lor q)$

b. She is required to take one course from the Linguistics Department, and she can choose between Syntax I and Semantics I.
??# Katie has to pass neither Syntax I nor Semantics I.
$\neg(\square p \lor \square q) \Leftrightarrow (\neg \square p) \land (\neg \square q)$

Negative coordination of subjects (433) displays the same behavior and the split-scope reading is the most salient one. In fact, for most speakers it is the only interpretation

187

possible, even when the context is manipulated in such a way that the wide scope interpretation of both coordinands is the only true, as in (433b).[2]

(433)   We are siblings...

    a. But we have a third sibling Jackie, and the schedule says that it is Jackie's turn to clean the kitchen today.
      ✓ Neither you nor I have to clean the kitchen. $\neg > \square > (p \lor q)$

    b. We are only two siblings and our mother requested us to clean the kitchen, but she doesn't care which one of us will do it.
      ???# Neither you nor I have to clean the kitchen.
      $\neg(\square p \lor \square q) \Leftrightarrow (\neg \square p) \land (\neg \square q)$

We thus see that the argument for an underlying disjunctive structure of *neither...nor*-coordination coming from split-scope effects with modals is strong. Other intensional verbs also display split-scope readings, such as *need* in (434a) and *look for* in (434b).

(434)   a. Ryan needs neither a secretary nor a student assistant.
      'It is not the case that Ryan needs a secretary or a student assistant' $\neg > need > (p \lor q)$

    b. Brenda is looking neither for a linguist nor for a philosopher.
      'It is not the case that Brenda is trying to find a linguist or a philosopher'
      $\neg > look\ for > (p \lor q)$

In general, sentences of the kind employed in this section are difficult to process and speakers have a hard time accessing the readings where negation scopes above the modal, without appropriate contextual input and prosodic countouring. This parallels observations in Penka (2011) about the difficulties of diagnosing split-scope in English which are due to the fact that structures with a verbal negative marker and an NPI are preferred over those with VP-internal negative indefinites. In other words, structures with an overt marking for negation no lower than the finite verb are more easily parsed and thus give clearer judgements. Such are all negative sentences in strict NC languages, such as BCMS, to which I now turn.

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[2]It is important to note an unexpected effect which arises with verbal agreement in the case of *Neither you nor I...* as subjects. Namely, some speakers request 3Sg agreement on the verb, in this case modal – *has to*. This is surprising, as it does not represent any of the usual agreement options: highest conjunct agreement, closest conjunct agreement, syncretism of forms, agreement resolution. In fact, all the four would give the same form with the example as in (433): *have to*. This means that *neither...nor* subjects are here inaccessible for the agreement operation, and some sort of default agreement obtains. Moreover, if a speaker accepts both verbal forms in this example, then the plural one corresponds to the split-scope reading (433), whereas the singular one corresponds to the wide scope of the negative coordination over the modal (433b).

9.2 BCMS

A sentence with *ni*-coordination of verb phrases below the necessity modal *morati* (435) could, in principle, be ambiguous between an LF with scopal intervention of the modal, corresponding to what was, in the context of English, referred to as 'split scope' (435a) and a reading with the wide scope of the negative coordination above the modal (435b). A reading where the necessity modal scopes over the negative coordination (435c) is completely unavailable. This is due to the fact that the sentence in (435), just like any sentence with *ni...ni*-coordination, would be ungrammatical without the presence of a negative verbal marker, but this marker has to immediately precede the finite verb which is, in this case - the modal itself. *Morati*, therefore, cannot escape the scope of sentential negation.

(435) *(Lea) ne   mora ni {da} peva{ti} ni {da} igra{ti}.*
       Lea   NEG has   ni {to} sing{INF} ni {to} dance{INF}

       'Lea has to neither sing nor dance'

   a. ¬> □ > (p∨q)

       'It is not necessary for Lea to sing or to dance'

   b. ¬(□p∨□q) ⇔ (¬□p)∧(¬□q)

       'It is not the case that it is necessary for Lea to sing or that it is necessary for her to dance' ⇔ 'It is not necessary for Lea to sing and it is not necessary for Lea to dance'

   c. * □ > ¬(p∨q) ⇔ □ > ¬p∧¬q

       'It is necessary that Lea does not sing or dance' ⇔ 'It is necessary that Lea does not sing and that she does not dance'

Native speakers accept the sentence (435) in the context depicted in (436a), compatible with both readings (435a, 435b). Crucially, the same sentence (435) is rejected in the context in (436b), where only the interpretation with wide scope of the negation and the connective over the modal is true (435b).

(436) A school musical is being prepared by Lea's class teacher...

   a. Just like all her classmates, Lea has to participate. The most prominent tasks involve singing and dancing, but Lea could, alternatively, help offstage, or work on the costumes and the scenography.

   b. Just like all her classmates, Lea has to participate in the school musical. In fact, they are all required to perform on stage, but they should make a choice between singing and dancing (and focus on one), otherwise they won't get a

grade for the Performing Arts subject.

These facts don't change with *niti...niti*-coordination: a sentence like (437) is also acceptable in a context like (436a), compatible with the two interpretations (437a, 437b), and incompatible with the widest scope of the modal (437c) reading, due to the presence of the verbal marker of negation on the finite form of the modal. The same sentence (437) is judged infelicitous in a context like (436b) which is compatible only with the entailed reading (437b).

(437) *(Lea) ne   mora niti da peva niti da igra.*
 Lea   NEG has   niti to sing niti to dance
 'Lea has to neither sing nor dance'

  a. ✓ $\neg > \Box > (p \lor q)$
   'It is not necessary for Lea to sing or to dance'

  b. * $\neg(\Box p \lor \Box q) \Leftrightarrow (\neg\Box p) \land (\neg\Box q)$
   'It is not the case that it is necessary for Lea to sing or that it is necessary for her to dance' $\Leftrightarrow$ 'It is not necessary for Lea to sing and it is not necessary for Lea to dance'

  c. * $\Box > \neg(p \lor q) \Leftrightarrow \Box > \neg p \land \neg q$
   'It is necessary that Lea does not sing or dance' $\Leftrightarrow$ 'It is necessary that Lea does not sing and that she does not dance'

This indicates that the interpretation where negative coordination scopes above the modal is not independently available, and the reading with the scopal intervention of the modal is the only attested one. This holds both for *ni...ni* and *niti...niti* coordination of VPs. Unsurprisingly, the same is true of negative coordinations in other structural positions, such as *ni...ni*-coordination of objects in (438) – only the interpretation where the modal takes intermediate scope between negation and the connective is attested (438b-ii), whereas the ambiguous one (438c-ii) is not.

(438) *(Ina) ne mora da položi ni Sintaksu   ni Semantiku.*
 Ina   NEG has   to pass   ni Syntax_ACC ni Semantics_ACC
 'Ina has to pass neither Syntax nor Semantics'

  a. Context: Ina is a university student, she studies Math and CS...

  b. i. She is allowed to take courses of her choice from the Linguistics Department. Her friend Marko, who studies German Language and Literature, often takes courses from the Linguistics Department, with the difference that he is actually required to pass Syntax and Semantics there.

ii. ✓ ¬> □ > (p∨q)

'It is not necessary for Ina to pass either Syntax or Semantics'

c. i. She is required to take one course from the Linguistics Department, and she can choose between Syntax and Semantics.

ii. * ¬(□p∨□q) ⇔ (¬□p)∧(¬□q)

'It is not the case that it is necessary for Ina to pass Syntax or that it is necessary for her to pass Semantics' ⇔ 'It is not necessary for Ina to pass Syntax and it is not necessary for her to pass Semantics'

Since *niti...niti*-coordination works best with clausal constituents, there are not many construals that could be tested for scopal intervention. Another attempt is given in (439). The sentence receives the disjunction-only reading (439a), and the entailed reading (439b) does not obtain independently. However, it is not controversial to think that in (439) the coordination is fully clausal, given that the subjects are different. It may well be the case that the modal is simply not spelled out in the second member of coordination, but that it is silently present. In this case, scope intervention would not be an appropriate term. Of course, all this depends on the approach to gapping taken.

(439) *Niti Lea mora da kuva, niti Marko da čisti.*
niti Lea has   to cook niti Marko to clean
'Neither does Lea have to cook nor Marko to clean'

a. ✓ ¬> □ > (p∨q)

'It is not necessary for Lea to cook or for Marko to clean'

b. * ¬(□p∨□q) ⇔ (¬□p)∧(¬□q)

'It is not the case that it is necessary for Lea to cook or that it is necessary for Marko to clean' ⇔ 'It is not necessary for Lea to cook and it is not necessary for Marko to clean'

Subjects can be tested only with *ni...ni*-coordination. This is shown in (440). Only the reading in (440a) is available, because the sentence is acceptable in the context (441a), but not in the context (441b)).[3]

(440) *Ni Lea ni Marko ne moraju da počiste kuhinju.*
ni Lea ni Marko NEG have   to cleanPl kitchen
'Neither Lea nor Marko have to clean the kitchen'

a. ✓ ¬> □ > (p∨q)

'It is not necessary for either Lea or Marko to clean the kitchen'

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[3]With singular verbal agreement instead of plural, such a sentence seems more acceptable in the context (441b). However, such agreement is generally dispreferred.

b. * ¬(□p∨□q) ⇔ (¬□p)∧(¬□q)

'It is not the case that it is necessary for Lea to clean the kitchen or that it is necessary for Marko to clean the kitchen' ⇔ 'It is not necessary for Lea to clean the kitchen and it is not necessary for Marko to clean the kitchen'

(441) Lea and Marko are siblings...

a. But they have a third sibling, Sofija, and the schedule says that it is Sofija's turn to clean the kitchen today.

✓ (440a); ✓ (440b)

b. They don't have any other siblings. Their mother requested them to clean the kitchen, but she doesn't care which one of the two will do it.

* (440a); ✓ (440b)

Other intensional verbs also display scopal intervention readings with negative coordination in BCMS. This is shown for *trebati* ('need') in (442a) and for *tražiti* ('look for') in (442b).

(442) a. *Ini   ne treba(ju) ni sekretar   ni pomoćnik.*
Ina_DAT NEG need_3Sg/3Pl ni secretary_NOM ni assistant_NOM

'Ina needs neither a secretary nor an assistant'

  i. 'It is not the case that Ina needs either a secretary or an assistant'

  ii. 'It is not the case that either a secretary or an assitant are such that Ina needs them'

b. *Sofija ne traži ni lingvistu   ni filozofa.*
Sofija NEG seeks ni linguist_ACC ni philosopher_ACC

'Sofija is looking for neither a linguist nor a philosopher'

  i. 'It is not the case that Sofija is trying to find either a linguist or a philosopher'

  ii. 'It is not the case that either a linguist or a philosopher are such that Sofija is trying to find them'

Nonetheless, since bare nominals are notoriously ambiguous in BCMS between unspecific and specific readings, due to the fact that the language is without obligatory determiners (articleless), along with the scopal intervention readings (442a-i, 442b-i), the *de re* ones are also available (442a-ii, 442b-ii). The choice between the two depends on the context.

9.3 Interim summary

The diagnostic which features necessity modals as scope interveners provides evidence that negative coordination is underlyingly a disjunction in both English and BCMS. In other words, negative coordination constructions display the same readings in a DN language and in a strict NC language. This is unambiguously shown with the availability of interpretations in which the modal takes intermediate scope between negation and the connective. Inside such configurations, the connective can only be represented as a disjunction, given that it is interpreted in the scope of negation. A conjunction stuck in the scope of negation would simply give the unattested weaker meaning. The interpretations with scopal intervention are the preferred ones, whereas interpretations where the ambiguity persists because the negation and the connective both scope over the modal are independently available only marginally. Importantly, the situation does not change with negative coordination of subjects, unlike what was attested in the diagnostic with adverbs. There is thus no structural asymmetry in this diagnostic and disjunctive interpretations are unambiguously present with different kinds of intensional verbs. Adopting these findings, in Chapter 10 I explore other relevant characteristics of negative coordination in English and in BCMS, which will eventually bring further support for a disjunction-based analysis. Finally, I close Chapter 10, as well as the present Part (P. III), with a discussion of certain challenges for such an approach.

Chapter 10

Further support for a disjunctive account and implications for compositionality

The present chapter explores some other interpretational properties of negative coordination in English and in BCMS, and puts them in the context of the conclusions made in the preceding two chapters, which motivate taking the stand that negative coordination

is disjunction-based. Section 10.1 revisits some points made in the previous literature and assesses them against the findings that *neither...nor* and *ni(ti)..ni(ti)* are underlyingly disjunctive. Section 10.2 argues against accounting for interpretations of negative coordination in terms of plurality-forming conjunction. Scope and other properties of the disjunction underlying negative coordination are discussed in section 10.3, whereas section 10.4 reviews certain issues relating to form and meaning, which arise with the designated LFs for negative coordination.

10.1   Previous literature

Hendriks (2004) refers to $neither...nor$ as a disjunction whose scopal properties are to blame for two readings of the sentence in (443a). Even though her paraphrases employ a conjunction, as repeated in (443b), the corresponding configurations for a disjunction should be as in (443c).[1]

(443)   a. They were advised to learn <u>neither</u> Spanish nor German.

      b.   i. Reading 1: they were advised not to learn Spanish and not to learn German.

          ii. Reading 2: they were not advised to learn Spanish and they were not advised to learn German.

      c.   i. Reading 1: $advised > \neg[S \vee G] \Leftrightarrow advised > [\neg S \wedge \neg G]$

          ii. Reading 2: $\neg > advised > [S \vee G]$

On the reading in (443c-i), the advice given is such that they shouldn't learn either of the two languages, whereas with the reading in (443c-ii) there was no advice concerning these two particular languages, so if they take up learning Spanish (or German, for that matter), they would not disobey as per (443c-ii), but they would as per (443c-i). Such ambiguity is absent with the sentence in (444), which can only have the second reading (443c-ii).

(444)   They were <u>neither</u> advised to learn Spanish nor German.
      #(443c-i), ✓(443c-ii)

Hendriks (2004) attributes this lack of ambiguity to the position of *neither*, following Larson (1985) where it is claimed that *either* used in disjunctions fixes their scope, but only if it is moved to a higher position, like *neither* supposedly would be, in (444). If *(n)either* is attached directly to the initial disjunct, as in (443a), both the corresponding surface scope of disjunction is possible (443c-ii), as well as the wider scope (443c-i) which would come

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[1]Where 'S' stands for 'x learned Spanish', and 'G' for 'x learned German'.

about if *(n)either* were to be overtly moved out of the infinitival clause and across the matrix predicate, like it is the case in (443a). Larson's idea is that the ambiguity with low *(n)either* arises because this marker can occupy a higher position after overt movement, as in the example in (444), so covert movement should be available as well.

For Hendriks, the data in (443a) and (444) confirm the focus particle nature of *(n)either* employed in coordinations. Based on the observations from Taglicht (1984: 142-164), she emphasizes a parallel between *(n)either* and the exclusive focus particle *only* whose associate also seems to depend on the position where *only* is attached (445).

(445)   a. They were advised to learn only Spanish.

       b. They were only advised to learn Spanish.

       c.   i. ✓(445a), ✓(445b): 'They were advised to learn Spanish and they were not advised to learn any other language'

            ii. ✓(445a), #(445b): 'They were advised to learn Spanish and they were advised not to learn any other language'

Hendriks thus insists that it is not the disjunctive nature of *(n)either...(n)or* alone that makes up for the distribution of the initial coordinand markers, but also their focus-based semantics. This perspective will represent an important component in the 'Analyses' Part (P. IV) of this thesis, as well.

On the other hand, the findings from Chapter 8 and Chapter 9 seem to contradict certain claims in Wurmbrand (2008) where English *nor* is analysed as an inherently negative wide scope conjunction. But Wurmbrand's squib deals only with *nor* inside NEG...*nor* constructions and is not concerned with *neither...nor* coordinations. Yet the main claim in this thesis is that structures with both *neither* and *nor* are disjunction-based coordinations. It then turns out that Wurmbrand's arguments, presented in subsection 2.5, mostly do not apply. First, subject NPIs are fine inside *neither...nor* coordination, with no difference between the coordinand associated with *neither* and the one with *nor*, to the extent that such full clausal structures, embedded (446b) or not (446a), are well-formed.

(446)   a. ? Neither did any student fail, nor will any professor assign A.

       b. ? Jenny claimed neither that any student failed nor that any professor assigned an A.

This is unsurprising given that with such structures even the surface position of the subject NPI in the first coordinand is in the scope of negation, whereas with NEG...*nor* this appears not to be the case, which resulted in ungrammaticality (447a). Of course, when an NPI is found outside of a *neither...nor* coordination, the sentence is not well-formed, either

(447b). Nonetheless, as pointed out by Wurmbrand herself, following Ladusaw (1979), there does seem to be a requirement for surface NPI-licensing, which also explains why (447b) is bad.

(447) a. * Any toddler has never been to Canada, nor has Leo met the queen.Wurmbrand (2008: 513)

  b. * Any student neither failed nor got an A.

Second, the argument pertaining to the use of single *nor* in independent sentences (448), i.e. without a correlate with negation inside the same sentence, is not valid here, given that we are interested in structures with both *neither* and *nor*. Wurmbrand's reasoning is that in (448) *nor* cannot be in the scope of negation from a clause embedded inside the preceding indepenedent sentence, thus it is not a disjunction. But the argument presupposes narrow scope of disjunction with respect to negation in the basic LF, which need not correspond to the actual underlying structure in English, even though a wide scope disjunction would not directly map onto attested interpretations, as discussed in section 7.1 and revisited in section 10.4.

(448) He was one of those people who can't relax. Nor did he have many friends.Wurmbrand (2008: 514)

As negative coordination proper I consider examples like (449a) and they have been found to denote Boolean disjunctions (Ch.8, Ch.9). As for (448), there are different ways to accommodate such, essentially, additive focus particle uses in which *nor* can, in fact, be replaced with *neither* (449b).

(449) a. He neither was one of those people who can relax, nor did he have many friends.

  b. He was one of those people who can't relax. Neither did he have many friends.

Third, Wurmbrand's argument which capitalizes on the availability of wide scope for existential and universal quantifiers in the initial coordinand is also valid only if narrow scope of disjunction with respect to negation is assumed. Namely, binding from the first into the second disjunct (450a) is not needed to prove that a universal or an existential quantifier can non-ATB move out of the first disjunct (Ruys, 1992; Fox, 1995) if the disjunction takes wide scope over negation (450b) and there is a negative operator in each disjunct that the quantifier can raise over for purposes of scope.

(450) a. everyone$_i$/someone$_i$ [NEG [[⟨everyone/someone⟩$_i$ ⟨NEG⟩ talk to the king] OR [he$_{*i}$ meet the queen]]] ∀/∃>¬; ¬>∀/*∃

  b. everyone$_i$/someone$_i$ [neither¬ [[⟨everyone/someone⟩$_i$ talk to the king] OR [nor¬ [Kim meet the queen]]]] ?*∀/∃>¬; ¬>∀/?*∃

196

Again, the structure in (450b) would not give the right interpretation as is, but this will be the topic of Part IV. Finally, Wurmbrand's claim that *nor* consists of a conjunction seems to be problematic also for the use of this marker without *neither*, but with sentential negation marked on the verb, which is the main focus of her squib. Namely, it is difficult to explain why *nor* cannot coordinate embedded clauses (451a), although negation is correctly marked on the verb in the initial embedded clause, whereas plain conjunction *and* can (451b).[2]

(451) a. * Nick said that Leo didn't eat the rice, nor did he eat the carrots.

   b. Nick said that Leo didn't eat the rice and he didn't eat the carrots.

Arguments against a disjunctive account of *nor* presented in Wurmbrand (2008) can thus be dismissed for $neither...nor$ coordination. Nonetheless, it matters to say that the argument with subject NPIs, as well as the one with quantifier scope, both present difficulties in view of the fact that they employ coordination of full clauses, whose degradedness results exactly from the initial coordinand with *neither*. The same problem with the latter diagnostic presents itself for BCMS *ni...ni*. Namely, an analysis of *ni...ni* coordination as a disjunction in the scope of negation would require the same effects as what Wurmbrand predicted for English *nor* when testing its potential disjunctive nature (450a): wide scope of a quantifier in the initial disjunct should be allowed only if it binds a variable in the final disjunct. But *ni...ni* is degraded as a coordination of full finite clauses, and for this reason it is not possible to test the scope of subject quantifiers in the first disjunct (452a). When an existential (*neki*) or a universal (*svaki*) quantifier is found in subject position of a *ni...ni* VP-coordination (452b), it is likely ATB-moved to this surface position from which it then scopes above negation. Finally, *ni* is fine with embedded clausal coordination, but as (452c) shows, neither the existential nor the universal quantifier take wide scope with respect to negation when appearing as subjects in clauses introduced by *ni*.

(452)

   a. *??? Ni {neki/svaki} student ne   puši,   ni {neki/svaki} profesor ne*
          ni {some/every} student NEG smokes ni {some/every} professor NEG

      pije.
      drinks

      '?Neither does {some/every} student smoke, nor does {some/every} professor drink'

   b. *{Neki/svaki} student nije   ni igrao   ni pevao.*
      {some/every} student NEG-AUX ni danced ni sung

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[2]I thank Hazel Pearson for this data point.

'{Some/every} student neither danced nor sang'

∀/∃>¬; ¬>*∀/*∃

c. *Lea ne tvrdi ni da {neki/svaki} student$_i$ puši, ni da njegov$_{*i}$*
Lea NEG claims ni that {some/every} student smokes ni that his

mentor pije.
mentor drinks

'?Lea claims neither that {some/every} student smokes, nor that his mentor drinks' ?*∃/*∀>¬; ¬>∃/∀

As for *niti...niti* which is well-formed as matrix full clausal coordination, both the existential and the universal quantifier remain in the scope of negation (453), for which reason binding is not an issue.

(453) *Niti je {neki/svaki} kralj$_i$ go, niti je njegov$_{*i}$ sluga zao.*
niti AUX {some/every} king naked niti AUX his servant mean

'?Neither is {some/every} king naked, nor is his servant mean'
?*∃/*∀>¬; ¬>∀/∃

To summarize, quantifiers found inside coordinands to which *ni* or *niti* is attached normally take narrow scope with respect to negation, which is in compliance with the results of the diagnostics obtained in Chapters 8 and 9 prompting a disjunctive analysis of *ni(ti)...ni(ti)*. In Gajić (2016b, 2018) it has, in fact, been claimed that *ni*-coordination is a disjunction in the scope of negation. This view does not converge with the approach taken in Arsenijević (2011). The starting point there is the apparent morphological kinship between plain conjunction *i* and negative coordination marker *ni*, where the latter is taken as conjunction-based, but only morphosyntactically marked for negation by the prefix *n-*. The issue of scope with respect to semantic negation does not really pop up, given that the conjunction itself, as *i* or inside *ni*, dubbed 'additive coordination', denotes plurals of semantic types of the individual conjuncts. Arsenijević's example with DP-conjunction is given in (454a). Whichever negation then comes on top will scope over an existential quantifier, thus giving the attested interpretation (454b). However, the exact source of the existential remains unclear, as well as the mechanism of variable binding.

(454) a. i. *Jovan je video Mariju i Petra.*
Jovan AUX see.PART Marija and Petar

'Jovan saw Marija and Petar'

ii. ∃e, x. saw(e, J, x) & x=M⊕P   Arsenijević (2011: 180)

b. i. *Jovan nije video (ni) Mariju ni Petra.*
Jovan NEG-AUX see.PART ni Marija ni Petar

198

'Jovan saw neither Marija nor Petar'

ii. ¬∃e, x. saw(e, J, x) & x=M⊕P

It appears that an approach along these lines could be adequate for an account of negative coordination. Nonetheless, natural language expressions denoting pluralities tend to display a certains set of characteristics. This brings us to the next section, dedicated to a brief exploration of Homogeneity and its potential role in the analysis of both English and BCMS negative coordinations.

10.2 Pluralities and distributivity

The proposal discussed at the end of the previous section (10.1) exploits the resemblance in form between the BCMS negative coordination marker *ni* and plain conjunction *i* and relates the meaning of both to what roughly corresponds to indefinite plurals. However, conjunction is usually put on a par with another kind of expressions – definite plurals, as exempliefied in (455a) for English and in (455b) for BCMS[3].

(455) a. i. Rob visited Paris and Vienna.

ii. Rob visited the cities.

b. i. *Lea je   posetila   Pariz i   Beč.*
Lea AUX visit.PART Paris and Vienna

'Lea visited Paris and Vienna'

ii. *Lea je   posetila   te   gradove.*
Lea AUX visit.PART these cities

'Lea visited the(se) cities'

This motivates a comparison between negative coordination in English, as well as in BCMS, and definite plurals, with the aim to verify how far their parallel behavior extends and whether this could overturn the analysis.

10.2.1 Definite plurals and Homogeneity

We have seen positive evidence for a disjunctive analysis of negative coordination in both languages (Ch.9) and negative evidence for a conjunctive analysis (8). To completely dismiss the latter one, it matters to compare the iconic properties of definite plurals to the effects displayed by negative coordination and see whether they exhibit the same kind of

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[3]A (masculine plural accusative form of the) demonstrative determiner *te* is used in BCMS (455b-ii) due to lack of obligatory (in)definite determiners in the language.

parallel behavior as definite plurals and conjunctions. I start with Homogeneity, since it seems to directly relate to the findings of the scope intervention diagnostics. This property concerns plural DPs and conjunctions equating them to universal quantifiers in positive contexts (456a), but distinguishing them from universals in negative contexts (456b).

(456)   a.   i. He visited Colombia and Brazil.   ⇝ both

           ii. He visited the countries.   ⇝ each

          iii. He visited both/each of the countries.   ⇝ both/each

     b.   i. He didn't visit Colombia and Brazil.   ⇝ both not

           ii. He didn't visit the countries.   ⇝ each not

          iii. He didn't visit both/each country.   ⇝ not both/each

Homogeneity is a descriptive term used when a requirement is imposed by which a distributive predicate (like *visit*) must hold of all atomic individuals in the denotation of a conjunction/plural (456a-i/456a-ii) or of none of the atomic individuals (456b-i/456b-ii)[4]. This 'all-or-nothing' effect has initially been observed with plural definites (456a-ii/456b-ii) (Fodor, 1970; Löbner, 1987, 2000), as well as conjunctions of singular definite descriptions or of proper names (456a-i/456b-i) (Schwarzschild, 1994; Szabolcsi and Haddican, 2004; Križ, 2015), but Schmitt (2017: 10-11) shows that Homogeneity extends to conjunctions of predicates (457a) and even propositions (457b) (see Gajewski (2005) for questions).

(457)   a. (The party had already been going on for a couple of hours, when Bert arrived.)

         i. He danced and smoked. (But he didn't look high.)

        ii. He didn't dance and smoke. (But he looked high.)
            ⇝ He didn't dance and he didn't smoke.

     b. (I just talked to old chatterbox Abe. We discussed his old enemies, Bert, Gina and Joe...)

         i. He claimed that Bert is in jail and (that) Gina is in rehab. (But he didn't say anything about Joe being in hiding.)

        ii. He didn't claim that Bert is in jail and (that) Gina is in rehab. (But he did say something about Joe being in hiding.)
            ⇝ He didn't claim that Bert is in jail and he didn't claim that Gina is in rehab.

Now, negative coordination (458a) and its determiner cousin *neither* (458b) mimic the negative pattern in (456b).

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[4]Unstressed *and* is needed for the interpretation in (456b-i).

(458) a. He visited neither Colombia nor Brazil. ⟷ (456b-i)

b. He visited neither country. / He visited neither of the countries. ⟷ (456b-ii)

Unsurprisingly so, given the discussion of the unattested weak interpretations in section 7.1, $neither...nor$ gets the same strong interpretations as those of plurals and unstressed conjunctions under negation and it never gets the interpretation of a universal under negation (456b-iii). Moreover, since the conjuncts need not be definite singular DPs to be interpreted this way with negation, the correspondence between conjunction and negative coordination is completed, as shown in (459).

(459) a. He neither danced nor smoked. ⟷ (457a-ii)

b. ? He claimed neither that Bert is in jail nor that Gina is in rehab. ⟷ (457b-ii)

Leaving aside the exact source of Homogeneity and different possiblities for analysing it, this effect might then be a good hint at the mechanism behind the interpretation of negative coordination. In other words, the fact that plain conjunction *and* in a negative context can get the truth conditions equivalent to those of $neither...nor$ possibly signals that the latter is conjunction-based after all. Crucially, even the diagnostic with necessity modals and other intensional verbs scoping under negation from Chapter 9, which brought decisive evidence for an underlying disjunctive status of negative coordination, could be attributed to Homogeneity and recast in terms of whichever analysis is adopted for this inference in the case of conjunction. This would mean that a sentence with a necessity modal which normally scopes under negation like the one in (460a), when interpreted as the absence of obligation to do either of the two things, would not get the LF with narrow scope disjunction sketched in (460b), but an LF in compliance with a conjunctive status of the connective together with its Homogeneity inference.

(460) a. You have to neither sing nor dance.

b. ¬>□>(p∨q)

Basically, there is no need to assume that the connective component of negative coordination is a disjunction for it to receive the right interpretation with negation, just like this is normally not assumed for homogeneity readings of *and*. The same could then be said for BCMS – both *ni-* and *niti*-coordinations would be underlyingly conjunctions, similar to what Arsenijević (2011) proposed. This would also mean that a sentence with a quantificational adverb which normally outscopes negation and $neither...nor$ (461a), such as the data used for the split scope test in Chapter 8, cannot yield an interpretation corresponding to the configuration in (461b) because there is no mechanism which allows an essentially scopeless plurality to take wide scope over negation and a quantificational adverb.

(461)   a. Jeff usually eats neither breakfast nor dinner.

         b. $(Q\neg p)\wedge(Q\neg q)$

Furthermore, sentences with $neither...nor$ pass one of the diagnostics for Homogeneity used in Schmitt (2017), whereby the continuations in (462) are incompatible with what has been asserted in the sentence with negative coordination.[5]

(462)   a. He visited neither Colombia nor Brazil. *He visited (only) Brazil.

         b. He neither danced nor smoked. *He (only) danced.

         c. ? He claimed neither that Bert is in jail nor that Gina is in rehab. *He claimed (only) that Gina is in rehab.

However, these discourse effects are comparably stronger than with negated *and*, as the pairs of sentences in (462) are in clear contradiction with each other. Moreover, $neither...nor$ does not even pass the second diagnostic for Homogeneity, one that employs relativizing continuations (463)[6], which have been shown to be available for negated conjunctions, but not so much for universals under negation.

(463)   a. He visited neither Colombia nor Brazil. ?*Well/I mean, he didn't visit both.

         b. He neither danced nor smoked. ?*Well/I mean, he didn't do both.

         c. ? He claimed neither that Bert is in jail nor that Gina is in rehab. ?*Well/I mean, he didn't claim both.

This already is an indicator that the source and the nature of the strong interpretations with negation in the case of conjunction and in the case of negative coordination is likely not the same. The latter diagnostic is, nonetheless, related to the effect of 'non-maximality', which is often observed with definite plurals (Brisson, 1998; Malamud, 2012; Križ, 2015), so that (464a) can often be uttered felicitously in a context where, out of, say, seven dogs in total, only four are barking. Yet, it has been noted that non-maximality is more restricted in sentences with negation (464b-i), especially if a quantifier binds a variable of the plural (464b-ii) (Bar-Lev, 2018).

(464)   a. The dogs are barking.

         b. i. The dogs are not barking.

               % 'Almost none of the dogs is barking (one out of seven is)'

            ii. None of the dogs recognized their owners.

               # 'One out of seven dogs recognized his owner'

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[5]The same facts obtain in BCMS for $ni...ni$ and $niti...niti$ but I leave out the data for reasons of space.
[6]Idem for negative coordinations in BCMS.

It is thus likely that non-maximality is reserved for plural definite DPs in positive contexts and that negative coordination simply does not display it for the same reasons the negative sentences in (464b-i) and especially in (464b-ii) do not. Notice that even plain conjunction does not license non-maximality, as (465a) would be infelicitous in a scenario where, for example, George is not dancing, and conversely for (465b), which is unacceptable if, say, George is dancing. This is certainly related to the low number of conjuncts, and therefore individuals, which makes such an exception unjustified.

(465)   a. Ryan (and) George and Nick are dancing.

        b. Ryan (and) George and Nick are not dancing.

Now, there is an interesting effect with non-maximality which can be observed when definite plurals and coordination interact from different structural positions in the same sentence – namely, it appears that non-maximality is indeed available for the plain conjunction *and* (466a), whereas negative coordination seems to block it (466b). In other words, the atomic individuals which make up the plurality of children in (466a) need not be exhausted by both negated predicates, that is, the sentence could in certain contexts be accepted as true if, out of ten children in total, one child did sing (and one danced). The sentence in (466b), on the other hand, requires that none of the ten children sang and none of the ten children danced or, at least, is much less likely to tolerate exceptions.[7]

(466)   a. The children didn't sing and dance.

        b. The children neither sang nor danced.

Thus, irreversibility of Homogeneity-like inferences, as well as intolerance to exceptions, points to a conclusion that negative coordination should not be modelled after plain conjunction. Moreover, such an approach would pick up only one, very specific aspect of the meaning of conjunction, namely the non-Boolean plural denotations combined with negation, and exploit it for the semantics of negative coordination. In a way, it would correspond to lexicalization of homogeneity in negative environments. However, it turns out that *neither...nor* does not display all the characteristics of pluralities, as discussed in the next subsection.

10.2.2   No collective interpretations

Conjunction *and* is not always interpreted as a plurality – it has been observed that even when coordinating definite objects, negated stressed *and* does not trigger the Homogeneity

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[7]Of course, all of these intuitions are very subtle and would require experimental confirmation.

inference (Szabolcsi and Haddican, 2004), and instead receives an interpretation expected for strong elements, such as universals, in the scope of negation (467a-i). Furthermore, Homogeneity inferences are known to arise with unstressed *and* in absence of any other coordination or quantificational markers, whereas constructions we are dealing with here are notorious for their iterated markers – one attaching to each coordinand. But when *and* is coupled with *both* placed on the initial conjunct, Homogeneity disappears (467a-ii). The same effect replicates with predicate conjunction, as shown in (467b).

(467)　a.　i.　He didn't visit Colombia AND Brazil.　　　　　⤳ not both

　　　　　　ii.　He didn't visit both Colombia and Brazil.　　　⤳ not both

　　　b.　i.　He didn't sing AND dance.　　　　　　　　　　⤳ not both

　　　　　　ii.　He didn't both sing and dance.　　　　　　　⤳ not both

Of course, this morphosyntactic mismatch need not seem as puzzling because nothing prevents Homogeneity to be blocked when plain conjunctive marker is stressed or accompanied by *both*, but to be enforced with negative coordination where markers are correlative and can be stressed. In fact, the only structural position in which dropping the initial marker in both English and BCMS results in sheer ungrammaticality are negatively coordinated subjects (468).[8]

(468)　a.　* George nor Brenda danced.

　　　b.　*　*Sofija ni(ti) Lea nisu　　　igrale.*
　　　　　　Sofija ni(ti) Lea NEG-AUX.PL danced
　　　　　Intended: 'Neither Sofija nor Lea danced'

It is exactly this subject position, once well-formed, that is revealing of further disparities between plain conjunction and negative coordination. Namely, conjoined subject DPs in English and BCMS in (469) can both mean that the individuals in the denotations of the conjuncts did not dance together, while in absence of such a modifier (like 'together' or 'with each other') they felicitously describe a situation in which dancing in pairs is not even contextually salient, i.e. neither of the individuals performed an activity that is typically recognized as dancing. Crucially, negative coordination of subjects can only have the latter, distributive interpretation, as shown by the incompatibility with the presence of collective modifiers in both languages (470).

(469)　a.　George and Brenda didn't dance (together).

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[8]In BCMS, probably thanks to the presence of a negative marker on the verb, the sentence (468b) could become grammatical with a certain intonation, that is, if there are clear prosodic breaks before and after the second coordinand. Nonetheless, my intuition is that even this would require singular agreement on the negated auxiliary.

b. *Sofija i   Lea nisu   igrale (jedna sa   drugom).*
Sofija and Lea NEG-AUX danced one   with other

'Sofija and Lea didn't dance (with each other)'

(470) a. * Neither George nor Brenda danced together.

   b. * *Ni Sofija ni Lea nisu   igrale jedna sa   drugom.*
   ni Sofija ni Lea NEG-AUX danced one   with other

   '*Neither Sofija nor Lea danced with each other'

The final nail in the coffin for the idea that plurality-forming conjunction is behind the interpretation of negative coordination is thus that the latter does not display the hallmark property of the former (Link, 1983; Dowty, 1987). Namely, plural DPs can appear in sentences with collective predicates (471) and, crucially, the same is true for plain conjunction (472).

(471) a. The girls {met / formed a team}.

   b. *Te   (četiri) devojčice (ni)su   {se   srele / oformile tim}.*
   these four   girls   (NEG-)AUX REFL met   formed   team

   'The(se) (four) girls (did not) {meet / form a team}'

(472) a. George and Brenda {met / formed a team}.

   b. *Sofija i   Lea (ni)su   {se   srele / oformile tim}.*
   Sofija and Lea (NEG-)AUX REFL met   formed   team

   'Sofija and Lea (did not) {meet / form a team}'

But neither English nor BCMS negative coordinations of subjects are grammatical with collective predicates, as exemplified in (473a) for the verb *meet*, and in (473b) for the collective predicate 'to form a team'. In the latter case (473b) the only interpretation possible is that the group of boys did not form a team among themselves and the group of girls did not form a team among themselves, but it does not convey the meaning that they did not form a mixed team, i.e. between girls and boys.

(473) a. i. * Neither George nor Brenda met yesterday.

      ii. * *Ni Sofija ni Lea se   nisu   srele juče.*
      ni Sofija ni Lea REFL NEG-AUX met yesterday

      '*Neither Sofija nor Lea met yesterday'

   b. i. # Neither boys nor girls formed a team.

      ii. # *Ni dečaci ni devojčice nisu   oformili tim.*
      ni boys   ni girls   NEG-AUX formed   team

      'Neither boys nor girls formed a team'

205

Interestingly, the same anti-collectivity effects can be observed with conjunctive *both* (474a-i) in English (but not with the determiner *both* (474a-ii), as observed by Schwarzschild (1996)), as well as iterated conjunctive markers in BCMS (474b).

(474) a. i. * Both George and Brenda met yesterday.

ii. Both students met yesterday.

b. * *I   Sofija i   Lea su   se   srele juče.*
and Sofija and Lea AUX REFL met yesterday
'*Both Sofija and Lea met yesterday'

This indicates that the presence of an initial marker in a coordination plays a role in forcing distributive readings, i.e. preventing collective ones.

Along with homogeneity and collectivity, another symptom of plural denotations is cumulativity (Link, 1983; Krifka, 1986; Schwarzschild, 1994), whereby atomic individuals that form a plurality can have their properties combined in order to satisfy a predicate. Concretely this means that in (475a) it suffices that Alun-the-dog bit boy 1 and Kira-the-dog bit boy 2, for the sentences to be judged true. Cumulativity can also be observed with measure phrases such as 'exactly 200 euros' (475b-i) and with plural indefinites such as 'exactly six tequilas' (475b-ii) (Scha, 1981; Landman, 2000; Flor et al., 2017). Therefore, (475b-i) is true if Jenny earned 100 euros and Katie earned 100 euros, and (475b-ii) is true if Jeff drank four tequilas and Nick drank only two.

(475) a. i. The two dogs bit the two boys.

ii. Alun and Kira bit the two boys.

b. i. Jenny and Katie earned exactly 200 euros.

ii. Jeff and Nick drank exactly six tequilas.

Now, the presence of negation with negative coordination complicates matters, but let us try to motivate that these constructions allow only for distributive readings and never for cumulative ones. A sentence with negative coordination of the subjects and a measure phrase, such as the one in (476a) can only mean that Jenny didn't earn exactly 200 euros and that Katie didn't earn exactly 200 euros. In a scenario in which Jenny earned 160 euros and Katie earned 40 euros, (476a) is judged as true, although together they did earn exactly 200 euros, which would contradict a cumulative interpretation. Conversely, if Jenny earned 200 euros and Katie earned 200 euros, the same sentence is judged as false, even though now they earned 400 euros together, which is compatible with 'not exactly 200 euros'. Incompatibility with the modifier 'between them' proves the point (476b).

(476) a. Neither Jenny nor Katie earned exactly 200EUR.

b. * Neither Jenny nor Katie earned exactly 200EUR between them.

The same facts obtain in BCMS (477): if Marko earned 40 euros and Lea earned 160 euros, the sentence is judged true, whereas if each of them earned exactly 200 euros, the sentence is judged false.

(477) *Ni Marko ni Lea nisu   zaradili tačno   200 evra (*zajedno).*
      ni Marko ni Lea NEG-AUX earned exactly 200 euros together

      'Neither Marko nor Lea earned exactly 200 euros (*together)'

Just the same happens with a plural indefinite in (478). If Jeff had four tequilas and Nick two, (478a) would still be judged true, although they consumed six tequilas between them. Conversely, if Jeff drank six tequilas and Nick also drank six, the sentence in (478a) is judged false, even though it should be true 'cumulatively'. Again, the same facts obtain for the parallel BCMS sentence in (478b).

(478)   a. Neither Jeff nor Nick drank exactly six tequilas (*between them).

      b. *Ni Ina ni Maja nisu   popile šest tekila   (*zajedno).*
         ni Ina ni Maja NEG-AUX drunk six   tequilas together

         'Neither Ina nor Maja drank six tequilas (*together)'

This means that negative coordination in both languages yields strictly distributive interpretations, which speaks against an account in terms of plurality-forming conjunction.

I thus conclude that, despite initial similarities between the plurality-like constructs of plain conjunction and negative coordination, namely Homogeneity-like effects, pursuing an analysis of negative coordination in terms of plural semantics is not particularly advantegeous or even tenable, the anticollectivity of negatively coordinated subjects being the crucial argument against. This need not have repercussions on Arsenijević (2011)'s approach to BCMS plain conjunction *i*, however, it does invalidate the extension of that proposal to *ni...ni*. As for Szabolcsi and Haddican (2004), although they opt for a plural semantics to model the Homogeneity effects with negated unstressed *and*, they see negative coordination in a different light: the former and the latter construction are true under the same conditions, but the use of $neither...nor$ suggests that the coordinands 'are under discussion and checks them off one by one' (Szabolcsi and Haddican, 2004: 237). From what I can gather, the necessity for discourse salient members of coordination, which end up being negated separately, precludes the use of any plurality machinery for negative coordination. Szabolcsi and Haddican (2004) wind up sketching the meaning of $neither...nor$ on a par with negated disjunction *or*, whereby a conventional implicature is present in both cases, stating that one disjunct is independent from the other based on some contextually

given set of practical considerations[9]. This would in addition mean that the inherent distributivity of negative coordination necessarily ensues from its disjunctive nature, as also pointed out by Hendriks (2004) for *either...or*. In the next section I will draw attention to some other features of negative coordination in English and in BCMS, in the context of the underlying disjunction and its scope.

10.3 Scope of disjunction

This section discusses absence of alternative question interpretations for embedded negative coordination, as well as absence of ignorance inferences, both of these being normally attested properties of disjunction.

10.3.1 No alternative question readings

When disjunctions are explored in the context of yes/no questions, they notoriously give rise to ambiguity between a polar disjunctive reading, and an alternative reading (Karttunen, 1977; Han and Romero, 2004b). In (479a), the former corresponds to 'is it the case that Rob drinks coffee or tea' and can be answered as any other polar question (479a-i). The alternative reading, however, corresponds to 'which of these two things does Rob drink: coffee or tea' and demands that the answer be one of the two disjuncts (479a-ii). Both readings are observable also in embedded environments (479b), with rogative (479b-i) and with responsive (479b-ii) matrix predicates (Lahiri, 2002).

(479) a. Does Rob drink coffee or tea?
          i. Yes. / No.
          ii. Coffee. / Tea.
       b. i. Nick asks/wonders whether Rob drinks coffee or tea.
          ii. Nick knows whether Rob drinks coffee or tea.

The two readings can be disambiguated using prosody, in both matrix and embedded contexts. Interestingly, inserting *either* forces the polar disjunctive reading and blocks the alternative one (480a), as reported in Haspelmath (2007). On the other hand, disjunctions of full polar questions yield alternative readings (480b)[10]. Again, the pattern replicates in embedded environments (480c, 480d).

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[9]As opposed to the logical independence of disjuncts propagated by Stalnaker (1975) and Zimmermann (2000).

[10]There are some rare exceptions to this, as noted in Haida (2013)

(480)   a. Does Rob drink either coffee or tea?

        i. ✓ Yes. / No.

        ii. # Coffee. / # Tea.

   b. Does Rob drink coffee or does he drink tea?

        i. # Yes. / # No.

        ii. ✓ Coffee. / Tea.

   c. Nick wonders whether Rob drinks either coffee or tea.   *Alt-Q

   d. Nick wonders whether Rob drinks /COFFEE or whether he drinks TEA\.✓Alt-Q

This opens the following issue: if negative coordination is underlyingly a disjunction, does it offer both polar disjunctive and alternative question readings, the way *or* in English and *ili* in BCMS (481a) does?[11]

(481)   a. *Je l' Ina pije   kafu ili čaj?*
        be Q Ina drinks coffee or tea
        'Does Ina drink coffee or tea?'

   b. Da. ('yes') / Ne. ('no')

   c. Kafu. ('coffee') / Čaj. ('tea')

Matrix questions are not a good testing ground for the readings possible with negative coordination, given that they are marked and come close to echo-questions in their low disjunction version (482). Moreover, the presence of the initial marker *neither* or *ni* on the first disjunct seems to have the same effect as *either* in (480a) – only a polar question reading is possible. In addition, the intonational pattern required for an alternative question interpretation is not reproducible with negative coordination inside the yes/no interrogative.

(482)   a. ? Does Rob like neither coffee nor tea?   Yes. / #Coffee.

   b. *? Je l' Ina ne   voli ni kafu ni čaj?*
        be Q Ina NEG likes ni coffee ni tea

        '?Does Ina like neither coffee nor tea?'   Da. / #Kafu.

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[11]Interestingly, attaching a disjunctive marker to the first disjunct in BCMS precludes the alternative reading (1), just like *either* does in English.

(1)   a. *Je l' Ina pije   ili kafu ili čaj?*
        be Q Ina drinks or coffee or tea
        'Does Ina drink either coffee or tea?'

   b. Da. ('yes') / Ne. ('no')

   c. # Kafu. ('coffee') / # Čaj. ('tea')

Furthermore, it looks like the absence of an alternative interpretation for the questions in (482) results from the impossibility of negative coordination to take scope over the question operator Mayr (to appear). This is supported by the fact that overt attachment of negative coordination markers to the root of the polar questions, as in (483), results in ungrammaticality, regardless of ellipsis in the second disjunct.

(483)   a. * Neither does Rob like coffee nor (does he like) tea?

   b. * *Niti da li Ina voli kafu niti (da li voli) čaj?*
      niti C Q Ina likes coffee niti C Q likes tea
      '*Neither does Ina like coffee nor does she like tea?'

Nonetheless, the same problem of scope with respect to the question operators seems to emerge in embedded contexts, even though the structures are now less/not degraded. Regardless of the embedding predicate, when negative coordination markers are attached directly to the complement disjuncts (484a), an alternative question interpretation is unavailable. Crucially, even when the overt interrogative complementizer *whether* is repeated on both disjuncts, with no deletion of the clausal material (484b), it is not possible to have an alternative question interpretation. This is at first surprising, given that we are dealing here with coordination of full, overtly marked polar questions, which is known to bring about the alternative reading (480b).

(484)   a. ? Nick {wonders/knows} whether Rob drinks neither coffee nor tea.

   b. ? Nick {wonders/knows} neither whether Rob drinks coffee nor whether he drinks tea.

But negation provided by the negative coordination of full embedded CPs can take scope only above the matrix verb, as observed in section 3.5. This means that (484b) gets interpreted as 'I don't wonder/know whether Rob drinks coffee or whether he drinks tea'. This blocks the widest scope of disjunction, since it is now outscoped by negation, which in turn prevents the alternative question reading. Furthermore, it has been noted (Belnap and Steel, 1976; Biezma and Rawlins, 2012) that alternative readings in embedded environments also require the right intonational effects on the disjuncts even though full clausal disjunction is spelled out like in (480d). However, the structure with negative coordination of embedded polar questions (484a) does not support such prosody, just like with matrix yes/no interrogatives (482, 483).[12] Moreover, it has been noted previously that

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[12]As for the degradedness of (484b), it certainly comes from the general unease with embedded negative coordination, as speakers report that its most natural use would be in response to a question of the same form, modulo the negation:

(1)   Does Nick {wonder/know} whether Rob drinks coffee or whether he drinks tea?

overt negation on the matrix verb makes embedded alternative questions degraded (485).

(485)   # Mary didn't ask whether John brought the /BEER or the WINE\.

<div align="right">Mayr (to appear)</div>

The alternative question interpretation thus cannot survive with negative coordination, although the interrogative complementizer is there to overtly mark each polar question. The same state of affairs obtains in BCMS. The examples with *wonder* are given in (486), and an alternative question interpretation is unavailable even with the full polar questions in (486b). Nonetheless, they are syntactically well-formed, yet exclusively with a polar disjunctive reading, for the example (486b) this gives: 'it is not the case that Lea wonders whether Ina drinks coffee or tea'.

(486)   a. *Lea se   pita da li Ina ne   pije   ni kafu ni čaj.*
           Lea REFL asks C Q Ina NEG drinks ni coffee ni tea
           '?Lea wonders whether Ina drinks neither coffee nor tea'

      b. *Lea se   ne pita ni(ti) da li Ina pije   kafu ni(ti) da li pije   čaj.*
           Lea REFL NEG asks niti   C Q Ina drinks coffee niti   C Q drinks tea
           '?Lea wonders neither whether Ina drinks coffee nor whether she drinks tea'

Although the absence of alternative question interpretation with negative coordination in both English and BCMS might seem as an argument against a disjunctive analysis, since it shows that the full range of disjunctive meanings is not available for negative coordination, I will argue that this is not the case and that it has to do with the scope of negation, but only in the derived meaning for negative coordination, not necessarily in the basic LF.

Han and Romero (2004a) show that high (preposed) negation in polar questions containing a disjunction blocks the alternative question interpretation, whereas low negation does not (487).

(487)   Han and Romero (2004a: 180)

      a. Did John not drink coffee or tea?   ✓(487c-i), ✓(487c-ii)

      b. Didn't John drink coffee or tea?   ✓(487c-i), *(487c-ii)

      c.   i. Yes, John did not drink coffee or tea.
            / No, he did drink coffee or tea.

         ii. John did not drink coffee. / John did not drink tea.

This is attributed to the impossibility of disjunction to take scope over negation in (487b).[13] An explanation along these lines is then called upon for negative coordination as well, since

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[13]On their account, such scopal relation results from an interaction of verum focus, contributed by preposed negation, and ellipsis which affects the structure of disjunction.

it has been noted above that the only interpretation possible for a sentence with negative coordination below rogative or responsive predicates is the one where negation ends up taking scope from the matrix clause (484b, 486b). In BCMS this is not surprising, given that an overt negative marker is required on the matrix verb for syntactic reasons (486b). In English, however, there is no overt negative marking on the matrix verb (488a), yet the sentence gets the interpretation of 'it is not the case that Nick wonders/knows whether Rob drinks coffee or tea'. This is not limited to only certain types of predicates – the matrix scope of negation is observable with negative coordination under any predicate (488b), as long as the coordinative structure does not appear below the complementizer.

(488) a. ? Nick {wonders/knows} neither whether Rob drinks coffee nor whether he drinks tea.

b. ? Nick {believes/claims} neither that Rob drinks coffee nor that he drinks tea.

Whatever mechanism derives these facts, it is responsible also for the fact that disjunction cannot take wide scope – it is trapped under negation in such cases. Without the wide scope for disjunction, the alternative reading cannot be derived (Karttunen, 1977; Haida, 2013; Pruitt and Roelofsen, 2011; Uegaki, 2014; Han and Romero, 2004b). As for the cases of negative coordination inside an (un)embedded polar question, as in English and BCMS examples in (482, 484a, 486a), here the disjunction remains in the scope of the question operator, regardless of the scopal ordering with respect to negation, and therefore the alternative interpretation cannot be derived again. The overt presence of an initial marker *neither/ni* forces the disjunction to remain in the scope of the question operator, just like *either* does in (480a). Why and how exactly this happens, and how it relates to the account along the lines of Han and Romero (2004a) with the interaction of different foci and ellipsis, is left for future research.[14] Importantly, Han and Romero (2004a) show that wide scope of disjunction is also ruled out in declaratives with preposed negative adverbials, as in (489a), unlike their counterparts with non-preposed negative elements (489b). On their account, the reasons for this are the same as in the case of alternative questions with preposed negation.

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[14]Another relevant question is whether the present discussion can shed any light on the interesting observation that NPIs are not licensed in alternative questions (Ladusaw (1979); Higginbotham (1993), Han and Romero (2004b: fn.13, p.557)) or, rather, that the presence of an NPI blocks the alternative reading of a polar question with disjunction (1).

(1)   Does anybody like coffee or tea?'
      a. ✓ Yes. / ✓ No.
      b. # Coffee. / # Tea.

Unlike the polar question with a proper name and disjunction in (479a), (1) can only be felicitously replied to with a 'yes' or a 'no'.

(489)   Han and Romero (2004a: 181)

    a. Never has John drunk coffee or tea.   ✓(489b-i), #(489b-ii)

    b. John has never drunk coffee or tea.   ✓(489b-i), ✓(489b-ii)

        i. ... He always drinks juice. $\neg > \vee$

       ii. ... But now I can't remember which. $\vee > \neg$

The parallel that can be established with respect to the present discussion is that, again, a negative operator above the coordination prevents the wide scope of disjunction, without which the alternative readings of interrogatives are unavailable.

10.3.2 No ignorance inferences

The crucial point of the present discussion is that the wide scope of disjunction is supposed to convey ignorance with respect to the status of the individual disjuncts. The contrast between (489a) and (489b) teaches us that the availability of the 'I don't remember/know which' continuation signals the presence of wide scope disjunction and its ignorance inference, and that this is possible whenever some external factor does not prevent it, as is the case with preposed negation (489a) as opposed to the non-preposed one (489b). In other words, the presence of negation itself does not cancel the ignorance inference, as long as the intonational pattern is adequate. This is shown in (490), where the rising pitch accent on the first disjunct and the falling one on the second indicate that the speaker is uncertain about whether Iqbal does not eat beef or whether she does not eat pork.

(490)   Han and Romero (2004a: 181)

    a. Context: The speaker knows that Iqbal subscribes to one of two food taboos.

    b. S: Iqbal doesn't eat /BEEF or PORK\. But now I can't remember which.

Such considerations of the wide scope of disjunction are notorious at least since Rooth and Partee (1982) seminal paper, where the utterance in the continuation is used to attest the wide scope de dicto reading with intensional verbs (491).

(491)   Mary is looking for a maid or a cook... But I don't know which.
       'Mary is looking for a maid or looking for a cook'

Rooth and Partee (1982) further observe that plain disjunction *or* can also scope above subject quantifiers and matrix attitude verbs, as in (492a), which is not an option for conjunction *and* (492b).

(492) a. Bill hopes that someone will hire a maid or a cook.

'Bill hopes that someone will hire a maid or hopes that someone will hire a cook'

b. Bill hopes that someone will hire a maid and a cook.

#'Bill hopes that someone will hire a maid and hopes that someone will hire a cook'

In each of these cases (489b-489b-ii, 490, 491, 492a), it is the effect of speaker ignorance that illustrates the interpretation with wide scope of disjunction.

Importantly, research on this topic has been influenced by considerations of pragmatic principles of communication, and discussed as the Ignorance Inference(s) in the (Neo-)Gricean tradition (Grice, 1975; Horn, 1972; Gazdar, 1979; Sauerland, 2004). Although other kinds of implicatures are by now standardly accounted for inside grammatical approaches (Chierchia et al., 2012a; Chierchia, 2013), the prevailant opinion has it that Ignorance Inferences stem from principles of communication, and not some grammatical process which would employ a syntactic operator. As illustrated in Fox (2007) on an example with plain unembedded disjunction (493), the addressee makes the assumption that the speaker is correct, thus drawing the basic inference (493a), since a disjunction is logically compatible with a conjunction. Following Grice's Maxim of Quantity[15], the addressee further concludes that, being the stronger, i.e. more informative statement, the conjunctive alternative is not corroborated (493b). The addressee also draws conclusions about speaker's beliefs, assuming that they obey the Maxim of Quality[16], which then translates into Ignorance Inferences in (493c).

(493) Sue talked to John or Fred.

a. Basic Inference: 'Sue talked to John or Fred (or both)'

b. Scalar Implicature: 'Sue didn't talk to both John and Fred'

c. Ignorance Inferences:

   i. 'The speaker doesn't know whether Sue talked to John'

   ii. 'The speaker doesn't know whether Sue talked to Fred'

More recent scrutiny of the facts has provided arguments for a grammatical approach to such ignorance inferences, most notably in Meyer (2013), with the use of a covert universal modal (belief) operator K. But where does negative coordination stand with respect to

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[15]'Make your contribution as informative as is required (for the current purpose of the exchange). Do not make your contribution more informative than is required.'

[16]'Try to make your contribution one that is true.'

ignorance inferences? The English and BCMS data in (494) show that there are none, as the ignorance signalling continuations are infelicitous.

(494) a. Rob invited neither Jenny nor Katie... # But I don't {know / remember} who exactly.

  b. *Sofija nije   pozvala   ni Marka ni Leu...* # *Ali ne   znam koga*
      Sofija NEG-AUX invite.PART ni Marko ni Lea   but NEG know who
      tačno.
      exactly

      'Sofija invited neither Marko nor Lea... # But I don't know who exactly'

Now, this absence of ignorance inferences is another property of negative coordination that does not converge with well-known characteristics of plain overt disjunction. The absence of alternative readings with embedded questions, as we have seen, can be explained by appealing to independent scopal facts – namely, that the wide(st) scope of disjunction is prevented because negation scopes over it. But what about ignorance inferences? What does their absence (494) teach us about the nature of the underlying disjunction in negative coordination? It might point to a conclusion that the disjunction inside negative coordination is embedded under some other scope-taking element, i.e. that it is necessarily in the scope of negation (495a). After all, we saw that plain disjunction *or* inside a sentence with negation (490) gives rise to ignorance inferences only if special prosody is employed. The absence of ignorance effects could thus correlate with the absence of the widest scope for disjunction (495b) due to it being embedded under negation (495a).

(495) a. ¬[p∨q]
       b. [¬p]∨[¬q]

I take the stand that the disjunction in an unembedded negative coordination takes narrow scope with respect to negation in BCMS (495a), but not in English where it outscopes negation (495b), as explained in section 10.4. This leaves the absence of ignorance inferences in English unexplained for the time being; the issue will, nonetheless, be readdressed in section 12.4.

10.4   Implications for compositionality

In order to take stock after the empirically oriented Part II, as well as the current one, Part III, subsection 10.4.1 recapitulates the observations and the diagnostics concerning negative coordination in English and BCMS. In subsection 10.4.2, implications that these findings have on analyses of negative coordination and related phenomena will be discussed.

10.4.1 Summary of the empirical findings

The prerequisite for a fruitful problematisation and explanation of the phenomenon of negative coordination is an overview of the most relevant empirical observations which should make up the ingredients for a cross-linguistically solid analysis. The overarching question is what the lexical entries for the negative coordination markers (*neither*, *nor*, *ni*, *niti*) should look like and how they compose with other elements to yield an interpretation. Each of the following subsubsections will answer a question about a particular aspect of negative coordination in English and in BCMS.

10.4.1.1 Inherent negativity vs. negative concord

Are negative coordination markers semantically negative or are they only formally marked for negation?

English   Investigations presented in Parts II and III show that *neither* and *nor* are both inherently negative. The lexical entry for each of the markers should thus contain a semantic negation ($\neg$). This converges with the rest of the system of negation in English, since negative quantifiers also (i) contribute negation to the sentence they occur in, (ii) yield double negation readings in Standard English if they occur with other negative elements in the same clause, and (iii) license NPIs. Moreover, the whole negative coordination should not be regarded as a construction with a fixed meaning, given that both *neither* and *nor* can introduce an independent sentence, in which case the latter has a negative interpretation. This confirms that each of the two markers bears a negation of its own.

BCMS   Conversely, Parts II and III show that the negative coordination marker *ni* does not exhibit properties of an inherently negative element. It participates in negative concord and it cannot negate a clause on its own, no matter whether it makes part of the *ni...ni*-coordination or it acts alone. This supports an account in which *ni* does not bear a semantic negative operator, but is merely a morphosyntactic marker of negation. The same can be said of the *niti* marker, despite its initial appearance – it is not inherently negative, either. Nonetheless, its participation in NC sometimes has to be realized at the level of a full clause, where *niti* marks the clausal disjunct as a participant in NC, sitting at its left edge.

10.4.1.2 Underlying disjunction

What is the logical nature of the connective inside negative coordination?

English   Chapters 8 and 9, as well as the current one (Ch. 10) argue for an underlying disjunctive nature of *neither...nor* coordination. The simplest application of these findings would be to incorporate the Boolean connective ($\vee$) into the account for English negative coordination. Nonetheless, what the diagnostics for the nature of the connective do not reveal is which of the two markers, *neither* or *nor*, should host $\vee$ in its lexical entry and whether it is incarnated by one of the two markers at all. Furthermore, if compositionality is to be maintained, the same lexical entry should be applicable in cases when *neither* or *nor* introduces an independent sentence. Another major issue is that of scope, as it must be determined whether in the basic LF for $neither...nor$ coordination the underlying disjunction remains in the scope of negation, or vice versa.

BCMS   Chapters 8 and 9, as well as the current one (Ch. 10) show the same results for *ni...ni* and *niti...niti* coordinations in BCMS – both are based on a disjunction. Nonetheless, this does not mean that the Boolean connective $\vee$ is hosted in either the *ni* or the *niti* marker itself, again due to compositionality considerations. In other words, one would not want to assume that, in a *ni...ni* or *niti...niti* coordination, the disjunction appears twice in the derivation. Moreover, the issue with independent sentences remains in the case of single *ni* or *niti*, just like in English. Finally, the scope of the disjunction with respect to negation is to be fixed.

10.4.1.3 Additive focus particles

What other role(s) of negative coordination markers is relevant?

English   Both *neither* and *nor* can be employed in constructions in which they introduce and negate a sentence, if preceded by another negative sentence, when the two are independent (separated by a full stop in writing, or by a longer prosodic break or a turn of speaker in spoken language). Since the form of the antecedent is often dependent on the form of the clause these markers attach to and the kind of alternatives that can be obtained by substitution, focus association seems to be a necessary ingredient. Whence the relation to additive focus particles. As pointed out above, in this additive role both *neither* and *nor* bear a negative operator, unlike their sentence-final counterpart *either*.

BCMS Both *ni* and *niti* can be employed in constructions in which they introduce a sentence which is negative, if preceded by another negative sentence, when the two are independent (separated by a full stop in writing, or by a longer prosodic break or a turn of speaker in spoken language). Independent sentences with *ni* and *niti* are thus marked by the anaphoric-like requirement for another negative statement to be present in the immediately preceding discourse or accommodated. Furthermore, focus association plays a crucial role.

10.4.2 Form-meaning mismatches

What does the combination of the above empirical findings leave us with? As its name tells us, negative coordination has two purposes: to introduce negation, and to connect two or more constituents. The connective component in both English and in BCMS is disjunctive, but a disjunction-based account is compatible with two structures, as schematized in (496). That is, the underlying disjunction can either be in the scope of negation (496a), or the disjunction can outscope the negation (496b).

(496)   a. $\neg(p \lor q)$

      b. $(\neg p) \lor (\neg q)$

Yet, in combination with the other empirical findings, as well as more general characteristics of the two languages, this can have different implications.

English On the one hand, the configuration in (496a) yields the attested interpretation for negative coordination. Moreover, it would correspond to the attested split scope readings (Chapter 9), where negation outscopes both the modal or the intensional verb and the disjunction. On the other hand, the configuration in (496b) yields an interpretation that is logically weaker than the one attested with negative coordination (section 7.1). However, the latter configuration would be straightforwardly applicable to structures in which both of the negative coordination markers are inherently negative. The underlying disjunction should be present in the structure only once. We are thus presented with the following choice:

1. (Standard) English exhibits strict NC (but only) in its coordination system, which would correspond to (496a),

2. English negative coordination actually has an LF with disjunction scoping over negation, which would correspond to (496b), and the attested interpretations (496a) come from further strengthening.

Since negative coordination is disjunction-based in both approaches, the parallel with negative quantifiers in English is maintained – in both cases a weak scalar element underlies the semantics of the negative expression, that is, a disjunction in one case, and an existential in the other. Moreover, the same diagnostic is used to determine this, since negative quantifiers in Germanic are considered to be negated existentials instead of negative universals based on the split scope readings they display (Penka (2011) and others), just like negative coordination. Now, negative quantifiers have a straightforward lexical entry, which simply relies on the fact that the existential component is in the scope of the negative one (497a). The two components syntactically occupy two sister nodes (497b), and this is why split scope readings may arise: one component (existential) can reconstruct without the other (negation) (Zeijlstra, 2011).

(497) a. ⟦nobody⟧$= \lambda P.\neg\exists x$ [person'(x) & P(x)]

  b. Op¬ ∃
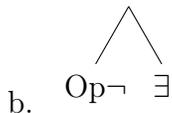
Matters are not as simple with negative coordination, if we are to give *neither* and *nor* equal status with respect to negation – the two markers should either both be inherently negative, or both be semantically non-negative but formally marked for negation. But then there are either two negative operators present in the structure (496b), or only one, null and outscoping the coordination (496a). The latter analytical option is exploited in the section offering a NC approach to $neither...nor$ (subsection 11.1.1), whereas an across-the-board movement of negation which turns the wide scope disjunction configuration (496b) into the narrow scope one (496a) is attempted in subsection 11.2.1. Neither will be adopted as the general account for English negative coordination. This means that I will opt for the wide scope disjunction with negative operators present in the *neither* and *nor* markers as the basic LF for negative coordination (496b), and the attested strong meaning (496a) is to be derived from additional meaning components or strengthening mechanisms. The former refers to focus presuppositions, which come with the two coordination markers and conspire to yield the attested strong meaning (Chapter 13). The latter refers to an exhaustification of alternatives procedure which, in its different implementations, also can derive the attested strong interptretation of negative coordination (Chapter 12).

The main motivation for choosing the analytical option 2 is that negative coordination markers show all signs of inherently negative expressions. However, this confronts us with the problem of there not being any manifestations of a wide scope disjunction, such as alternative question readings or ignorance inferences, as discussed in section 10.3.

Nonetheless, the former is only visible in embedded environments, and it therefore deserves the same treatment as split scope effects, whereas the latter will be 'neutralized' through strengthening. Furthermore, that the negation is in the scope of disjunction at LF seems to be corroborated by the picture emerging from the behavior of PPIs inside negative co-ordination in section 6.3. Namely, most speakers interpret the PPI existentials outside the scope of negation, which means that 'anti-licensing' of the PPI takes place due to it being in the immediate scope of negation, the one provided by the coordination marker attached to the coordinand hosting the PPI (498a). If negation was unambiguously taking scope over the disjunction, the PPIs inside the disjuncts would not be anti-licensed.

(498)   a. [neither¬[...PPI-∃...]] ∨ [nor¬[...PPI-∃...]]   ∃>¬

         b. Op¬[[...PPI-∃...]∨[...PPI-∃...]]   ¬>∃

I will thus take $neither...nor$ coordinations as disjunctions scoping over negation contributed by the markers and assume that the form-meaning mismatch results from additional meaning components. Now, it matters to point out that this goes against the received wisdom about the Square of Opposition, and the missing 'nall'-type element, since this is exactly what the wide scope disjunction over negation as the basic LF corresponds to. However, negative coordination is not reduced to a simple combination of a connective and negation. Due to the presence of other semantic components, for instance inherent contrastive focus, but also others depending on the analysis, one might wonder whether $neither...nor$ should be discussed in the context of the Square of Opposition and the *NALL problem to start with.

BCMS   The situation seems to be more straightforward in BCMS, at least for $ni...ni$ coordination, as it requires an obligatory marker of negation on the finite verb, which indicates that it participates in NC. Since the structure of ni-coordination has been found to be disjunction-based, an analysis in terms of a disjunction in the scope of negation (499) seems to be adequate.

(499)   ¬(p∨q)

Such a configuration is compatible with the evidence against inherent negativity of the ni markers. Since ni cannot induce negation on its own, and always yields single negation readings when combined with other morhosyntactically negative elements such as the verbal marker of negation and neg-words, it makes sense to analyse it as a semantically non-negative disjunction which must be in the scope of a higher negative operator. The details will be spelled out in subsection 11.1.2. This approach is fully compatible with the view of

neg-words in a NC language such as BCMS as semantically non-negative existentials (Gajić, 2016a). In both cases, we are dealing with an expression which is only morphosyntactically negative, but not semantically, and, being a distributionally restricted disjunction or a distributionally restricted existential, needs to be in the scope of a negative operator. The behavior of individual-denoting existential neg-words inside *ni...ni* coordination, which turned out to be puzzling in subsection 6.1.1, can now be viewed as a case of intervention – namely, if we are dealing with a disjunction in the scope of negation, then the former disrupts the licensing of neg-words by the latter, as schematized in (500).

(500)   Op¬[[...ni-wh/one...]∨[...ni-wh/one...]]

However, since the weak *i*-NPIs are also not fully acceptable inside *ni*-disjuncts (section 6.2), it might as well be the case that polarity sensitive quantificational expressions cannot be hosted inside structures that are smaller than IPs, which then bans them from appearing inside members of a *ni...ni* coordination. Nonetheless, this would cast doubt on the claim that *ni*-coordinands are always clausal because of the projection dedicated to focus which they need to host (Arsenijević, 2011). I will leave it as an open issue whether this additional component or chunk of structure necessarily needs to be incorporated into the account for *ni...ni* coordination, or only with anaphoric uses of the markers in indepnendent sentences. As we will see, the syntactic agreement approach completely dispenses with it (subsection 11.1.2), whereas the presuppositional one would require focus semantics as an ingredient (Chapter 15).

As for the other negative coordination in BCMS, *niti...niti* also has an underlying disjunctive nature. At first it looks like the direct counterpart of *neither...nor* in English, which would recreate all the form-meaning mismatches discussed above. Nonetheless, inherent negativity of the markers would be unexpected in a NC language, such as BCMS. Moreover, in a number of contexts *niti* combines with morphosyntactically negative elements thus yielding single negation readings. I will therefore keep it that the *niti* markers are semantically non-negative and participate in NC, just like *ni*. The details of the account are to come in section 11.1.2. This is supported by the narrow scope of PPI existentials inside *niti...niti* coordination, as the external negation does not anti-license them (501).

(501)   Op¬[[...PPI-∃...]∨[...PPI-∃...]]   ¬>∃

The same configuration (501) should then be the reason why *i*-wh/one weak NPIs, but not *ni*-wh/one neg-words are grammatical inside clauses coordinated by *niti*. The licensing of the latter by negation is disabled due to non-locality and the intervening disjunction, whereas the clausal status of the disjuncts and the presence of external negation allows well-formedness with the former.

Locus of the connective If the connective component is not spelled out separately from the two negative coordination markers in either of the two languages, how do we determine its syntactic position? That is, should the disjunction be hosted in any of the coordination markers, or should it occupy a position of its own in the structure? If we opt for the former, it seems reasonable to say that it should be the marker of the final coordinand that carries the disjunctive connective. Although this does not seem controversial for English, in BCMS the identical form of the initial and the final marker speaks against such an approach. In other words, it is desirable to maintain compositionality by giving a stable lexical entry to the markers, as one simply would not want the connective to appear twice in the LF. I will therefore assume that the disjunction is silent and present in a syntactic node of its own, most likely the J(unction)-head (Den Dikken, 2006), with the final disjunct in the complement and the initial one in the specifier position. In English, with the wide scope disjunction and inherently negative coordination markers, it seems possible to implement either of the approaches, i.e. *nor* could host the connective, or it could be in a specially dedicated position. I leave the discussion of the exact locus of disjunction, as well as many other syntactic considerations that come with it, for future work. For purposes of simplicity, and to keep a parallel with respect to BCMS, I will assume that the disjunction is silently present in its own node in the tree with English negative coordination, as well.

With all these ingredients in mind, I proceed to lay out analyses of negative coordination in the following Part.

Part IV

Analyses

The aim of this Part is to account for the interpretation and the distribution of *neither...nor*, *ni...ni* and *niti...niti* constructions in English and BCMS respectively. The following chapters present three major, overarching approaches, as an attempt to account for the empirical facts from negative coordination, with a potential extension to the use of the same markers as additive focus particles.

Chapter 11

Covert negation
or covert movement of negation

This Chapter relies on an LF with a disjunction in the scope of negation (502) for negative coordination, and two different implementations are explored in both languages.

(502) $\neg(p \lor q)$

In one implementation, the negative operator is silent and present outside of the coordination, which means that it needs a dedicated mechanism to trigger its presence (§ 11.1). In the other implementation, the negative operators present on the disjuncts move across the board to a position from which negation outscopes the disjunction. Of course, the two

implementations are not compatible to an equal extent with the empirical facts in English and in BCMS, as well as with the theoratical assumptions made.

11.1 Negative Concord as syntactic agreement

In this approach, I am following the syntactic account of NC proposed by Zeijlstra (2004) and subsequent. The account makes use of the distinction between interpretable and uninterpretable features in order to capture multiple occurrences of negatively marked expressions inside one clause which result in single negation interpretations. Strict NC languages, such as BCMS, where combinations of a neg-word and a verbal negative marker yield single negation regardless of the position of the neg-word with respect to the verb, only make use of null negative operators $Op\neg$ in their expression of negation. Such a silent operator carries an interpretable negative feature [NEG], and it must c-command all the elements which carry uninterpretable negative features [uNEG] (503).

(503) $Op\neg_{[\text{NEG}]}$[$Niko_{[u\text{NEG}]}$ $ne_{[u\text{NEG}]}$ $voli$ $nikoga_{[u\text{NEG}]}$]
             NEG-who NEG   loves NEG-who
     'Nobody loves anybody'

In a strict NC language, all neg-words, but also the verbal negative marker (*ne* in (503)) carry uninterpretable features for negation, and these must be checked by the interpretable feature of the silent negative operator. As mentioned before, Standard English is normally not regarded as a NC language, but rather a DN one. However, it is different from other DN languages, such as German for example, in that it is by now assumed that its negative verbal markers do actually bear formal features for negation (Zeijlstra, to appear). Namely, clitic-like *n't* carries a [uNEG], whereas its non-contracted form *not* bears an interpretable [NEG] feature. Negative quantifiers in English are inherently negative and do not have any formal features for negation, whence the double negation readings in combination with *not* or *n't*. Let us now see how this system applies to negative coordination in English and in BCMS.

11.1.1 English

In a syntactic agreement approach, neither of the coordination markers would be inherently negative, i.e. *neither* and *nor* would not each contain a negative operator (¬). Instead, they would bear uninterpretable negative features ([uNEG]), which have to be checked by a c-commanding negative operator with a matching interpretable feature ([NEG]). This silent

operator would provide a negative interpretation for the whole sentence with disjunction. For an example like (504a), this looks like the structure in (504b).

(504) a. (?) Neither did Jenny dance nor (did Katie) sing.
           'It is not the case that Jenny danced or (that Katie) sang'

       b.

Since most speakers find full clausal *neither...nor* coordination (where each coordinand features its own subject) marginal, the structure in (504b) can also be considered as the moment in the derivation before ATB-movement of the only subject (in that case *Jenny*, with the final linearization 'Jenny neither danced nor sang'). Crucially, the silent negative operator outscopes the disjunction, and the coordination markers *neither* and *nor* carry [uNEG] features, so they do not contribute semantic negation. This would give the right interpretation for (504a). The disjunction itself is null in the structure in (504b); another agreement mechanism could be established from *neither* and/or *nor* to ensure its presence. Alternatively, the connective could be made part of the lexical entry for *nor*, as it wouldn't make any difference in this particular case.

However, (Standard) English is not a NC language and it is not easy to see how *neither...nor* coordination would fit into such a system. First, even a non-strict NC language would not allow postverbal elements with [uNEG] features to occur without a verbal marker of negation, which is grammatical in the case of *neither...nor* (505).

(505) Jackie invited neither Ryan nor George.

Now, when other negative elements do appear in the same clause, double negation readings are attested, as shown for the presence of a negative quantifier in (506a), and a negative adverb in (506b).

(506)   a. Nobody invited neither Ryan nor George.
            'Everybody invited either Ryan or George'

        b. Jackie will not invite neither Ryan nor George.
            'Jackie invited either Ryan or George'

This is unexpected in a NC system, where double negation interpretations are generally non-existent or very rare. Nonetheless, one could say that we are dealing with a mixed system, where double negation in (506a) would result from the presence of one negative operator contributed by *nobody* ($\neg$), and another one contributed by the agreement mechanism in which $neither_{[u\text{NEG}]}$ and $nor_{[u\text{NEG}]}$ trigger the presence of a silent operator that can check their features ($Op\neg_{[\text{NEG}]}$). However, the obligatory *do*-support in (506b) indicates that a Negative projection (NegP) is in fact present in that structure. An analysis (Zeijlstra, to appear) of *not* as the [NEG]-bearing negative operator $\neg$ sitting in Spec.NegP would predict successful checking of the uninterpretable features on the coordination markers ($neither_{[u\text{NEG}]}$ and $nor_{[u\text{NEG}]}$), with a single negation reading as a result, contrary to fact. Moreover, an analysis of the clitic-like *n't* as the Neg-head itself, with an obligatory [uNEG] feature which has to be checked by an Op¬[NEG] sitting in the specifier of the same NegP (Zeijlstra, 2008), predicts NC to occur also in (507). But double negation is again possible.

(507)   Jackie didn't invite neither Ryan nor George.
        'Jackie invited either Ryan or George'

If *neither* and *nor* were not inherently negative, but mere carriers of [uNEG] features, why would it not be possible for the same silent negative operator in the Spec.NegP which carries an interpretable [NEG] feature to check the [uNEG] features of *n't*, *neither* and *nor* via Multiple Agree? Furthermore, [uNEG] features on the coordination markers would predict that two *neither...nor* coordinations inside one clause, as in (508), yield a single negation reading. However, this is not the case.

(508)   Neither Brenda nor Nina likes neither coffee nor tea.
        'Both Brenda and Nina like either coffee or tea'

It is thus unclear how elements which do not seem to participate in any negative doubling would be acquired by native speakers as carriers of formal features for negation, especially given the more general picture in which they often occur independently from each other and as the only negative element in a clause (509).

(509)   Jenny didn't see the talk. {Neither / Nor} could Katie download the paper.

Neither and *nor* used to participate in NC and (obligatorily) co-occur in the same clause with other negative elements, but with the loss of such a system in Modern English these

coordination particles started behaving like negative quantifiers, i.e. presumably lost their uninterpretable features. Moreover, there is no evidence for a claim that NC is now being reestablished more robustly with negative coordination than with other phenomena in English. I therefore dismiss the hypothesis that *neither...nor* coordination is a non-negative disjunction in English. Finally, it needs to be said that there are other, non-syntactic approaches to NC, and that the present discussion pertains only to Zeijlstra's agreement approach. Nonetheless, without a quantificational analysis of negative coordination, a resumptive quantification account (de Swart and Sag, 2002) could not be straightforwardly implemented.

11.1.2 BCMS

A hypothesis by which negative coordination in BCMS is a non-negative disjunction subject to syntactic agreement is tenable. Consider a vP-coordination with *ni...ni* in (510a).

(510)   a. *Lea nije   ni poslala   rad   ni napisala recenziju.*
           Lea NEG-AUX.3Sg ni submitPART paper ni writePART review

        'Lea neither submitted a/the paper nor wrote a/the review'
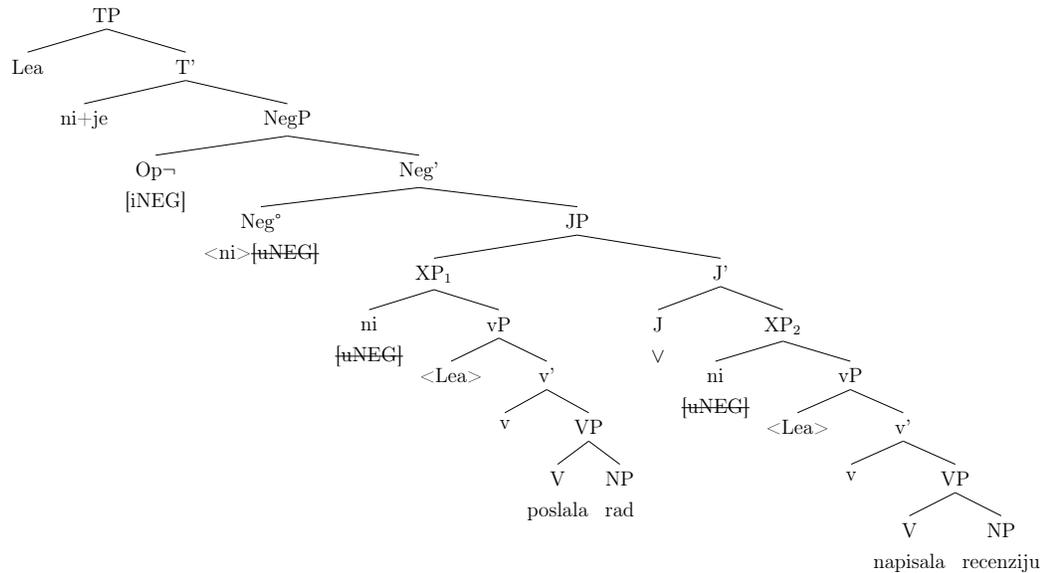
        b.

Recall that a verbal marker of negation (*ni-*, when attached to the auxiliary *je*) is mandatory, which indicates the presence of a Negative Head in the structure (510b). Neg° hosts the verbal marker of negation and projects a Phrase with an [iNEG]-bearing negative operator in its Specifier. Since an agreement mechanism is already established between the Head and the Specifer in the NegP, identical [uNEG] features can be checked on the *ni* coordination markers. *Ni...ni*-coordination can thus be handled under a NC-participating

disjunction analysis. *Niti...niti* coordination, however, looks more controversial at first: it consists of clausal coordination where no verbal marker of negation is present in the structure (511).

(511) *Niti je   Lea pevala, niti će   Sofija igrati.*
      niti AUX.3Sg Lea singPART niti will3Sg Sofija dancePART

      '(?)Neither did Lea sing, nor will Sofija dance'

The main reason why I do not analyze *niti* as inherently negative and contributing semantic negation to the clause it introduces is that it does not look so anymore once found under overtly negated verbs, like in the example in (512), where negation is interpreted only in the matrix clause.

(512) *(Niko)   ne tvrdi   niti da   Lea peva niti da   Sofija igra.*
      NEG-who NEG claims niti that Lea sings niti that Sofija dances

      'Nobody claims that Lea sings or that Sofija dances'

      'S-he doesn't claim that Lea sings or that Sofija dances'

In (512) negation is interpreted only once ('It is not the case that some or other person / s-he claims that Lea sings or that Sofija dances'), which shows that *niti* markers do not contribute semantic negation (otherwise the sentence in (512) would mean 'It is not the case that some or other person / s-he claims that Lea does not sing or Sofija does not dance'). This means that, like *ni*, *niti* should be analyzed as bearing a [uNEG] feature which is to be checked by a c-commanding silent negative operator (513), in presence of other [uNEG]-bearing expressions, as would be the case for (512) with $niko_{[uNEG]}$ and $ne_{[uNEG]}$, or in their absence, as in (511).
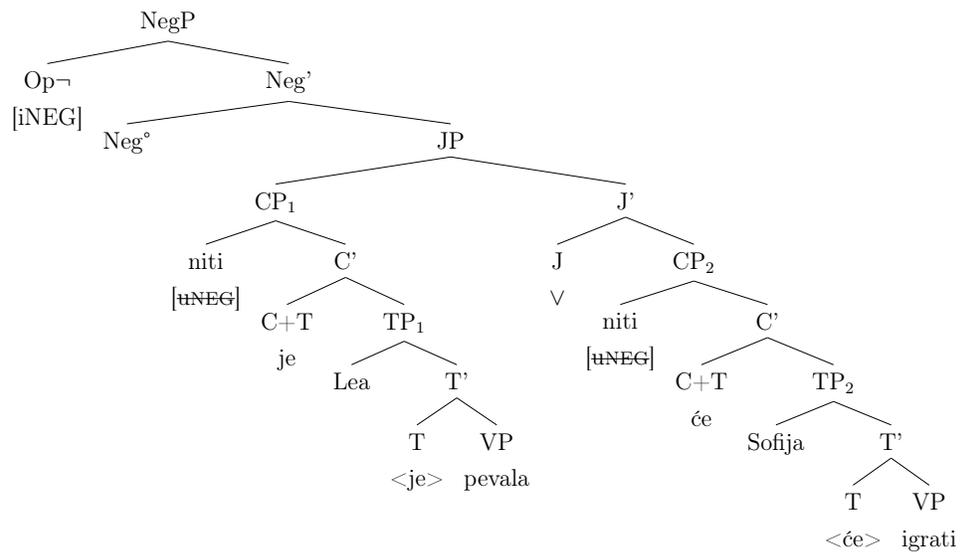
(513)   = (511)

What about the ungrammaticality of neg-words appearing inside clauses introduced by *niti* (514a)? It looks like they are not in the same clausal domain as the silent negative operator which carries the [NEG], as shown in (514b). For the same reason, weak NPIs and PPIs are not blocked from occurring inside *niti...niti* coordination taking narrow scope with respect to negation (514) – they are not clausemate with the negative operator and its [NEG] feature.

(514)   a. *Niti je   slušao   {*nikoga/ikoga/nekoga},   niti je*
            niti AUX.3Sg listen-toPART NEG-who/any-who/some-who niti AUX.3Sg
            razumeo   {*ništa/išta/nešto}.
            understandPART NEG-what/any-what/some-what
            '(?)Neither did he listen to any/somebody, nor did he understand any/something'

    b.

```
                          NegP
                 ┌─────────┴──────────┐
               Op¬                   Neg'
             [iNEG]        ┌──────────┴──────────────┐
                         Neg°                        JP
                              ┌──────────────────────┴──────────────┐
                            CP₁                                      J'
                      ┌──────┴───────┐                    ┌──────────┴──────────┐
                    niti            C'                    J                    CP₂
                   [uNEG]     ┌──────┴──────┐             ∨           ┌─────────┴─────────┐
                            C+T          TP₁                        niti                 C'
                            je      ┌─────┴──────┐                 [uNEG]        ┌─────────┴────────┐
                                   pro          T'                            C+T               TP₂
                                          ┌──────┴──────┐                     je          ┌───────┴──────┐
                                          T            vP                               pro             T'
                                         <je>   slušao *ni-wh[uNEG]                            ┌─────────┴────────┐
                                                 i-wh NPI                                      T                 vP
                                                 ne-wh PPI                                   <je>    razumeo *ni-wh[uNEG]
                                                                                                      i-wh NPI
                                                                                                      ne-wh PPI
```
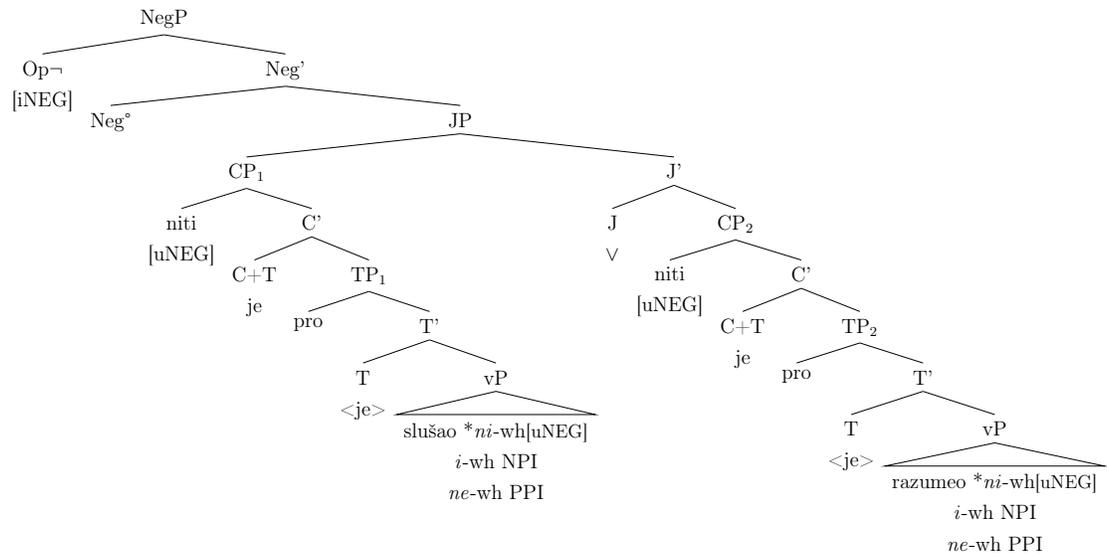
This means that the CP is a boundary for syntactic agreement and that *niti* is actually not part of the clause it itself introduces, otherwise [uNEG] features on neg-words in (514) would be checked through the same mechanism that allows the [uNEG] features on the *niti* markers to be checked. Furthermore, when a negative verbal marker is present inside *niti...niti*-coordination, with or without neg-words, double negation arises (515).

(515)   *? Niti nije   slušao   (nikoga), niti nije   razumeo   (ništa).*
         niti NEG-AUX listened-to NEG-who   niti NEG-AUX understood NEG-what
         '(?)Neither did s-he {not} listen {to nobody}, nor did s-he {not} understand {nothing}'
         = S-he listened (to somebody) and s-he understood (something)

The double negation reading in (515) results from the additional silent negative operators which are inserted inside the coordinated TPs, in order to locally check the [uNEG] features

on the verbal markers of negation (as well as the uninterpretable features of coordination-internal neg-words, if there are any present). The coordination-external Op¬$_{[\text{NEG}]}$ cannot check the uninterpretable features inside the disjuncts. But the combination of this silent negative operator adjoined to the whole coordination (JP), checking the [uNEG] features on the *niti* markers, and the disjunct-internal ones yields double negation readings, as paraphrased in (516).

(516) ¬(¬p ∨ ¬q) = p ∧ q
    'It is not the case that s-he did not listen (to anybody) or that s-he did not understand (anything)'

However, the proposed structure for *niti...niti* coordination, with its agreement mechanism, cannot be transferred over to sequences of negative clauses, where the last one is introduced by *niti* (517a). Such constructions are usually understood as coordinations.

(517)   a. *Sofija nije   pevala, niti je   Lea igrala.*
         Sofija NEG-AUX.3Sg singPART niti AUX.3Sg Lea dancePART
         'Sofija didn't sing, nor did Lea dance'
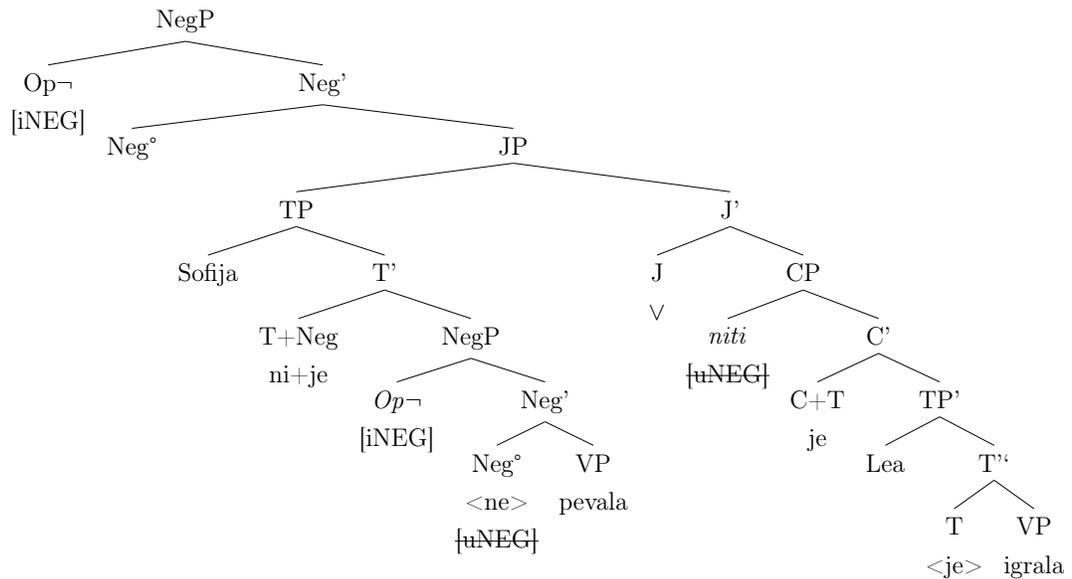
   b.

   c. 'It is not the case that Sofija didn't sing or that Lea danced'
      = Sofija sang and Lea didn't dance

   d. 'It is not the case that Sofija sang or that Lea danced'
      = It is not the case that Sofija sang and it is not the case that Lea danced

If the example in (517a) is treated as a coordination, and the assumptions about licensing of *niti* made previously are maintained, the result is the structure in (517b). As the structure

shows, double negation is predicted for the first member of coordination, with the overall reading as in (517c). But (517a) is interpreted as (517d) instead.

But what makes the difference between constructions in which each clause is introduced by *niti* and those in which *niti* appears only on the last clause in the sequence? The reason why the latter case (like (517)) is normally considered to be a coordination is that one could imagine that the initial coordination marker is simply dropped, i.e. not overtly realized. This would be tenable for *ni*-coordination, since there is a negative verbal marker present anyway. The problem with *niti*-coordination arises because a single *niti* cannot invoke the presence of a c-commanding negative operator that could check [uNEG] features of negative elements inside the initial clause at the same time – otherwise neg-words would be predicted as grammatical inside the *niti*-clause as well, but they are not (518).

(518) * *Sofija nije   pevala, niti je   Lea pozvala nikoga.*
       Sofija NEG-AUX.3Sg singPART niti AUX.3Sg Lea callPART neg-who

       Intended: 'Sofija didn't sing, nor did Lea invite anybody'

Furthermore, if *niti* can invoke the presence of a negative operator that would c-command the whole coordination, why can't this operator keep a plain disjunction (*ili*) in its scope (519)?

(519) * *Niti je Ina predala   rad   ili je Maja napisala recenziju.*
       niti AUX Ina submitPART article or AUX Maja writePART review

       '*Neither did Ina submit the article or did Maja write the review'

In other words, if final-only *niti* is possible (517a), why is initial-only *niti* unavailable (519)? The pattern seems to be as follows (considering a case where only two clauses are involved): a clause introduced by *niti* can be preceded either by another clause introduced by *niti* or by a clause that contains a negative verbal marker (and possibly some other morphosyntactically negative elements). The final *niti* is thus present either way, and the difference lies in the initial clause. Taking an approach in which the initial *niti* or, alternatively, the presence of a negative verbal marker, invokes negation for the whole coordination (i.e. scopes over the final, non-negative, *niti* and the clause it introduces) would run into two problems: (i) it would be incompatible with compositionality, since *niti* would not always have the same meaning contribution – it would invoke negation in one but not in another case, and (ii) a syntactic agreement mechanism would not be able to capture it, since the structure is biclausal. Nonetheless, it is still imaginable to model some special status for initial *niti*, i.e. for structures where more than one *niti* occurs, for example through additional feature-checking mechanisms via J°, which would eventually ensure the presence of the silent negative operator outscoping the whole coordination and

checking the uninterpretable features of the *niti* markers. But I rather opt for treating every instance of the final-only *niti* as an additive focus particle, instead of a coordination. This would eliminate the difference between what is marked in a text by a comma and full stop (or in spoken language by a shorter and a longer prosodic break) and equalize the 'NEG...*niti*-coordinations' with cases where *niti* introduces an independent clause, as in (520a). Notice that the NC agreement facts remain the same (520b).

(520) a. *Sofija nije   pevala. Niti je   Lea igrala.*
          Sofija NEG-AUX.3Sg singPART niti AUX.3Sg Lea dancePART
          'Sofija didn't sing. Nor did Lea dance'

       b. *Sofija nije   pevala. * Niti je   Lea pozvala nikoga.*
          Sofija NEG-AUX.3Sg singPART   niti AUX.3Sg Lea callPART neg-who
          'Sofija didn't sing. Nor did Lea invite anybody'

Evidence is thus strong that *niti* does not merely represent a connective which needs to be in the scope of negation syntactically. It also requires another negative clause to be present in its linguistic or discourse context. However, this negative clause has to precede the *niti*-clause, the only exception being when the negative clause is itself a *niti*-clause. Such a prerequisite in the form of a requirement on the preceding context, i.e. the common ground, indicates that *niti* should also carry a presupposition, along with its [uNEG] formal feature.

In conclusion, an analysis of negative coordination in terms of NC as syntactic agreement is not compatible with the empricial facts in English, but it is adequate for *ni...ni* coordination in BCMS. *Niti...niti* coordination also participates in NC via an agreement mechanism, however, some further amendments need to be made. In the next section, a negative operator ends up outscoping the disjunctive coordination not due to some agreement mechanism, but thanks to a movement operation from the disjuncts' edges.

11.2   ATB-NEG-raising approach

In this section I explore the possibility of taking the negative operators present on the individual disjuncts and fusioning them into one negation that scopes over the disjunction. This is executed through covert across-the-board movement. Such a procedure only concerns English, due to its inherently negative coordination markers in combination with an underlying disjunction, and especially in the context of split scope interpretations.

11.2.1   English

In order to circumvent the problems that arise for an account of *neither...nor* coordination in terms of negative concord and syntactic agreement, one could imagine an approach in which both markers are analyzed as inherently negative but their negative operators undergo across-the-board movement to a position above the whole coordination. For an example with clausal *neither...nor* coordination, this would give (521), and an example with vP-coordination would roughly look like (522). 'NR' stands for negation raising.

(521)   a. (?) Neither did Jenny dance nor did Katie sing.
         'It is not the case that Jenny danced or that Katie sang'

Op¬ — JP
CP₁: neither (¬), C': C+T (did), TP₁: Jenny, T': T <[Past...]>, vP₁ <Jenny> dance
J' : J (∨, nor ¬), CP₂: C': C+T (did), TP₂: Katie, T': T <[Past...]>, vP₂ <Katie> sing
NR
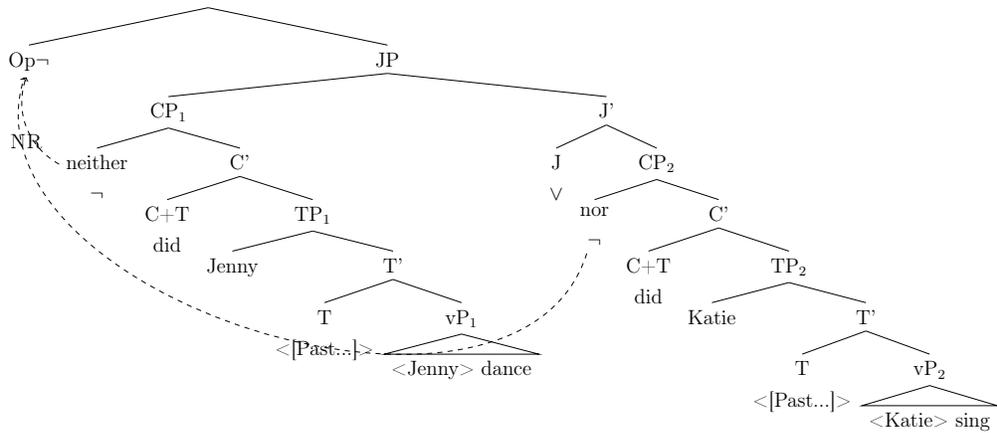
         b.

(522)   a. Jenny neither danced nor sang.
         'It is not the case that Jenny danced or sang'

Op¬ — JP
TP₁: Jenny, T': T -d[Past...], vP₁: neither (¬), v'₁ <Jenny> dance
J': J (∨), TP₂: ~~Jenny~~, T': T [Past...], vP₂: nor (¬), v'₂ <Jenny> sing
NR

         b.

233
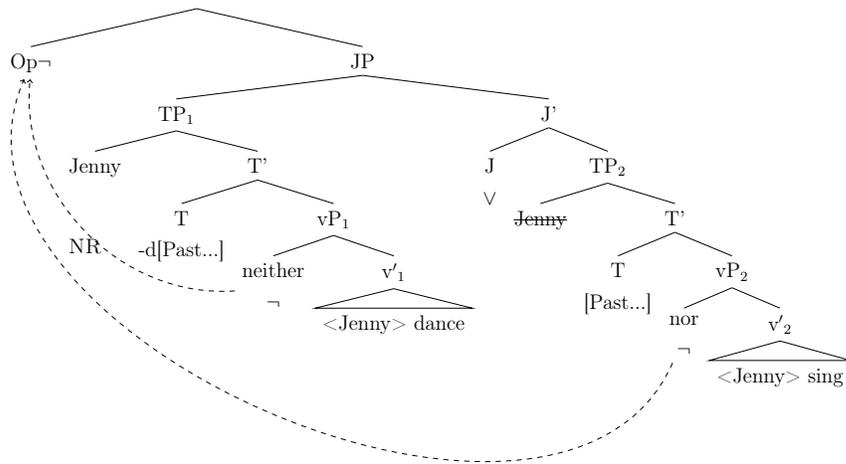
As depicted in (521b) and (522b), the NR operation amounts to covert syntactic NEG-raising which would be the mirror image of what is usually subsumed under this term (Fillmore, 1963; Horn, 1972; Collins and Postal, 2014) in relation to predicates like *believe, think, expect*, which allow negation to be interpreted inside their complements (523).

(523)   Andy doesn't {believe/think/expect} that Patrick will join.
        'Andy {believes/thinks/expects} that Patrick won't join'

Such a possibility of covert negation raising is evoked in Wurmbrand (2008), with the goal of modeling sentences with a single *nor* as disjunctive structures, but ultimately dismissed. However, as discussed in section 10.1, the same arguments do not apply to structures with both *neither* and *nor*. ATB movement of negation thus seems tenable for *neither...nor* coordination. Crucially, this would allow maintaining inherent negativity of the coordination markers in English (*neither* and *nor* would bear a negative operator each), while complying with the findings from split-scope phenomena which point to a disjunctive nature of the whole coordination (Chapter 9). In such cases, a negation scopes over a necessity modal which, in turn, scopes over a disjunction (524). ATB movement of negation from *neither* and *nor* and across the modal would materialize this interpretation.

(524)   Jenny has to neither sing nor dance.
        Op¬ [Jenny □ [[neither<¬> sing] ∨ [nor<¬> dance]]]

Now, what would be the trigger for such movement? ATB movement is usually discussed in the context of coordinated *wh*-questions (525) and the Coordinate Structure Constraint (Ross, 1967).

(525)   What$_1$ did John sell t_1 and Mary buy t_1?
        'What is x, such that John sold x, and Mary bought x'

Diachronic relation of negative coordination markers *neither* and *nor* to *wh*-expressions (Gast, 2013), as well as to the present day *whether*, could be the catalyst of ATB-movement: potentially, some remnants of the *wh*-components move covertly out of the coordination markers, pied-piping the negative operators, whereas the connective component, disjunction, is left in situ, together with the negative coordination markers. Obligatory subject-auxiliary inversion and *do*-support could result from this movement, were it not the case that *neither*, the marker with clear historic relation to *which*, actually does not really allow for a finite element to immediately follow it, for most speakers. But ATB movement is also often evoked for indefinites and other quantificational expressions, especially in the context of Right Node Raising. What these related phenomena share is the relevance of contrastive focus: namely, remnants in the two coordinands should be contrastive foci ('distinctness

constraint', Citko 2006). A minimal pair with R'N'R is shown in (526a), and one with ATB movement in (526b).

(526) a. i. John liked ~~the opera~~, but Mary hated the opera.

         ii. * John liked ~~the opera~~, and Mary liked the opera.

    b. i. What did John like *t*, but Mary hate *t*?

         ii. ?? What did John like *t*, and Mary like *t*?

It would then have to be the contrastive focus on constituents inside *neither...nor* coordination that forces the negative operators to ATB move.

(527) a. (?) Neither does John like, nor does Mary hate the opera.

    b. John neither likes nor hates the opera.

Finally, ATB negation raising could explain the peculiar effect which arises with negative coordination of embedded clauses where the matrix verb becomes negated at LF, although no overt negation outscopes it (528).

(528) a. George wondered neither what happened nor who lied.
       'George didn't wonder what happened or who lied'

    b. George claimed neither that Jenny smoked nor that Katie drank.
       'George didn't claim that Jenny smoked or that Katie drank'

The rationale is that, if the negative operators really move covertly and fusion into a single negative operator that outscopes the whole disjunction, then this operator can also outscope the matrix verb, when there is one present, like in the examples in (528). In fact, a negative operator has to outscope the matrix predicate, since the negative coordination markers (and the negative operators they contribute) are, in fact, part of the matrix clause and cannot directly negate the embedded clauses due to a C-layer boundary. Moreover, such complex structures are only licensed as contrastive denials of previous assertions in positive form. Together with another case of contrastive embedding, namely split scope phenomena, the puzzling behavior of *neither...nor* coordination of full CPs constitutes the strongest argument for ATB negation raising.

11.2.1.1 Arguments against this analysis

There is a number of shortcomings of such an analysis. The major one is that it looks like an ad-hoc solution that finds its application only in the analysis of negative coordination. Although it is inspired by ATB movement, it is not overt, but covert movement of operators, and covert ATB QR is not possible (Bošković and Franks, 2000). Moreover, although a

parallel is made to *wh*-expressions and quantifiers thanks to the etymology of the negative coordination markers, there is no clear evidence that they retain such status in present day English and that this is sufficient motivation for movement. Like *wh* and quantificational elements, the negative operators would move out to a higher position in which they would become one operator. This process of turning two negative operators into one would resemble analyses of negative quantifiers in terms of polyadic quantification. Again, a quantificational analysis of negative coordination would have to be provided for ATB QR to be able to take place.[1]

11.2.2   BCMS

As has been shown, neither *ni* nor *niti* is inherently negative, so there are no operators which could ATB move out of the disjunction. An account in terms of ATB NR is thus not applicable in BCMS, and moreover, it could not bring anything more to *ni...ni* and *niti..niti* coordination than what an account in terms of negative concord via syntactic agreement already provides.

The next chapter (Chapter 12) will also take as a starting point an LF with a disjunction scoping over negation for English negative coordination and Chapter 14 an LF with a disjunction in the scope of negation for BCMS. A semantico-pragmatic mechanism which makes use of alternatives to an assertion with negative coordination can provide the right strengthening of the meaning for the construction in English, whereas the same procedure is vacuous in BCMS. Multiple versions and extensions of the approach are to be discussed, as well as a number of problems that arise.

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[1]A quantificational approach to negation, sensitive to focus association and presuppostions, as outlined by Kratzer (1989) in situation semantics, is an interesting potential starting point for such an account.

Chapter 12

Alternatives and exhaustification approach: English

Two major advantages of an exhaustification approach consist of (i) the possibility of treating *neither...nor* coordination as a disjunction with inherently negative coordination markers and (ii) the active role of alternatives and focus. Analyzing *neither* and *nor* as markers which bear negative operators and introduce memebers of a disjunctive coordination gets us the weak interpretation in (529b) for a sentence like (529a). However, the interpretation which is actually attested for negative coordination is the stronger de Morgan's equivalence in (529c).

(529)   a. Brenda neither sings nor dances.

          b. $\neg p \vee \neg q$

             'Brenda does not sing or she does not dance'

          c. $\neg p \wedge \neg q \Leftrightarrow \neg(p \vee q)$

             'Brenda does not sing and she does not dance' $\Leftrightarrow$ 'It is not the case that Brenda sings or dances'

A way to start out with (529b) and get to (529c) is to make use of covert EXH operators, which will operate over a prejacent and a corresponding set of alternatives. There are two implementations od this idea which can derive a satisfactory result: (i) recursive application of EXH using only Innocent Exclusion, and (ii) single application of EXH using Innocent Exclusion followed by Innocent Inclusion. The two versions of the approach are closely related, as they employ exhaustification of a set of alternatives to enrich the meaning of the assertion. The difference lies in the lexical entries for the operator EXH and the number of times it needs to be applied.

    I will first present the mechanism with recursive exhaustification (section 12.1), and then the one which combines exclusion and inclusion procedures (section 12.2). Both approaches are to make use of the same set of alternatives whose make up is crucial for the right outcome, which is why a discussion of the derivation of alternatives supplied to the

exhaustification operator is provided in section 12.3. A more general discussion of the motivation for strengthening via exhaustification follows (section 12.4), after which I present a problem for this account which arises in DE environments (section 12.5), and a potential solution (section 12.6). Two related accounts will then be explored, one unsuccessful (embedded exhaustification in section 12.7), and one which fares better (a NOT-ONLY-NOT entry for the coordination markers in section 12.8). As it will turn out that an exhaustification approach to strenghtening *neither...nor* is not tenable without special assumptions and motivation, I will go on to show in the next chapter (Chapter 13) that there is a simpler way to derive the same result.

12.1   Recursive EXH

The strong interpretation (529c) of a sentence with negative coordination like (529a) can be obtained with two applications of a covert exhaustifying operator EXH. The EXH operator takes a set of alternatives as its first argument and the prejacent as its second argument, thus yielding a strengthened meaning (530).

(530) $[\![EXH]\!](C)(r)(w) = 1$ iff $r(w) = 1$ & $\forall q \in C[r \subseteq q \rightarrow q(w) = 0]$

<div align="right">Chierchia et al. (2012a)</div>

The strengthened meaning is obtained by excluding all the non-weaker alternatives. That is – what is asserted after exhaustification is the prejacent and the negation of its non-entailed alternatives (Krifka, 1995; Fox, 2007; Chierchia et al., 2012b; Magri, 2011). Pending a discussion of the exact derivation of alternatives (subsection 12.3), let us take it for granted for the time being that, in order to strengthen the negative disjunction which underlies *neither...nor* coordination in (531a), the first argument of EXH is the set of alternatives ALT in (531c), and its second argument is the assertion S (531b).[1]

(531)   a. Brenda neither sings nor dances.

   b. S: ¬p∨¬q
       where ¬p *stands for* 'Brenda does not sing'
       and ¬q *for* 'Brenda does not dance'

   c. ALT = {¬p∨¬q, ¬p, ¬q}

Since the role of EXH is to negate all alternatives from the set ALT which are not entailed by the assertion S, we should first check the entailment relations (532). It turns out that each of the alternatives asymmetrically entails the assertion, i.e. neither is entailed by it.

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[1]I will switch to loose notation from now on.

(532)   a. ¬p ⇒ ¬p∨¬q

b. ¬q ⇒ ¬p∨¬q

This means that EXH should exclude both alternatives from ALT, since they are not entailed by the assertion S. However, this would produce a contradiction once the outcome of the exhaustification is conjoined with the assertion (533).

(533)   EXH(ALT)(S) ⇔ ¬p∨¬q ∧ ¬¬p ∧ ¬¬q ⇔ ⊥

Of course, this need not be the case if we define EXH as an operator whose first argument is the set of so-called Innocently Excludable (ALT$_{IE}$) alternatives (534). The goal of restricting the set of alternatives in such a way is to avoid exactly the kind of contradiction that occurs in (533). ALT$_{IE}$ are defined as alternatives which are found in all those maximal subsets of ALT(S) that can be negated consistently with the prejacent (534).

(534)   ALT$_{IE}$(S, ALT(S)) =
∩{ALT′⊆ ALT(S) : ALT′ is a maximal subset of ALT(S),
s.t. {¬p : p ∈ ALT′}∪{S} is consistent}

Fox (2007); Bar-Lev and Fox (2017)

There are only two sets ALT′: {¬p∨¬q, ¬p} and {¬p∨¬q, ¬q}, and the only element found in their intersection is the prejacent. For this reason, no alternative makes it to the set ALT$_{IE}$ (535).

(535)   a. ¬p ∉ ALT$_{IE}$ *because ¬¬p ∧ (¬p∨¬q) ⇒ ¬q*

b. ¬q ∉ ALT$_{IE}$ *because ¬¬q ∧ (¬p∨¬q) ⇒ ¬p*

In other words, the two alternatives are symmetric to each other. This means that exhaustification with respect to the set of innocently excludable alternatives ALT$_{IE}$ is vacuous here (536b), since the set ALT$_{IE}$ is empty (536a). Due to this, the meaning cannot become strengthened in one round of exhaustification. In other words, there is no semantically palpable effect.

(536)   a. ALT$_{IE}$ = ∅

b. EXH(ALT$_{IE}$)(S) ⇔ ¬p∨¬q

When one round of exhaustification does not result in the enrichment of meaning, then grammar can resort to recursive, iterated application of the EXH operator (Fox, 2007; Chierchia, 2013). Importantly, more than one round of exhaustification does yield a result with the given set of alternatives, i.e. it outputs the desired strengthened meaning. The corresponding parse looks like (537). This means that EXH operates over a previously already exhaustified set of alternatives, as well as the exhaustified assertion.

(537) $\text{EXH}(\text{ALT}_{IE-1})(\text{EXH}(\text{ALT}_{IE-2})(\text{S})) \Leftrightarrow \neg p \wedge \neg q$

As has just been discussed, the assertion S corresponds to the LF of a disjunction scoping over negation, and the set of alternatives consists of the individual disjuncts, but neither of them is innocently excludable (538a). Due to this, the first, 'inner' layer of exhaustification is vacuous (538b).

(538)   a. $\text{ALT}_{IE-2} = \varnothing$

b. $\text{EXH}(\text{ALT}_{IE-2})(\text{S}) \Leftrightarrow \neg p \vee \neg q$

Now, the second, 'outer' layer of exhaustification as its first argument has the set of exhaustified alternatives, given in (539a), and as its second argument the result of the first round of exhaustification from (538b). The set in (539a) consists of each alternative conjoined with the negation of the other one, as they are logically independent from each other, i.e. neither one entails the other. Moreover, both are innocently excludable, since the negation of one together with the result from (538b) does not entail the other exhaustified alternative, as shown in (539b) and (539c).

(539)   a. $\text{ALT}_{IE-1} = \{ \text{EXH}(\{\neg p, \neg q\})(\neg p), \ \text{EXH}(\{\neg p, \neg q\})(\neg q) \}$
    $= \{ \neg p \wedge \neg\neg q, \ \neg q \wedge \neg\neg p \}$

b. $\neg p \wedge \neg\neg q \in \text{ALT}_{IE-1} \ bc. \ \neg(\neg p \wedge \neg\neg q) \wedge (\neg p \vee \neg q) \not\Rightarrow (\neg q \wedge \neg\neg p)$

c. $\neg q \wedge \neg\neg p \in \text{ALT}_{IE-1} \ bc. \ \neg(\neg q \wedge \neg\neg p) \wedge (\neg p \vee \neg q) \not\Rightarrow (\neg p \wedge \neg\neg q)$

Exclusion of the alternatives from the set ALT_{IE-1} performed by the outer EXH, in conjunction with the result of the first round of exhaustification (540a), ultimately yields the strengthened meaning (540c), as demonstrated in (540).

(540)   a. $\text{EXH}(\text{ALT}_{IE-1})(\text{EXH}(\text{ALT}_{IE-2})(\text{S})) \Leftrightarrow$
    $\Leftrightarrow \neg(\neg p \wedge \neg\neg q) \wedge \neg(\neg q \wedge \neg\neg p) \wedge (\neg p \vee \neg q)$

b. $\Leftrightarrow (\neg p \rightarrow \neg q) \wedge (\neg q \rightarrow \neg p) \wedge (\neg p \vee \neg q)$

c. $\Leftrightarrow \neg(p \vee q) \Leftrightarrow \neg p \wedge \neg q$

The reading which corresponds to the stronger of de Morgan's equivalences could thus be the product of recursive exhaustification of the wide scope inherently negative disjunction with respect to its subconstituent alternatives, i.e. individual disjuncts. This means that exhaustification is used as a tool for strengthening the interpretation of *neither...nor* coordinations, as without it their LF would yield logically weak and under-informative interpretations. However, since the strong interpretation of English negative coordination is stable, the insertion of a silent EXH which operates over IE alternatives is obligatory. Moreover, only two applications of EXH over sets of innocently excludable alternatives

can yield a palpable result. Due to symmetry, one round of exhaustification would be vacuous and without a semantic effect, which is undesirable. In other words, the procedure is applied recursively until it gives a result. Nonetheless, there is a way to avoid double application of an alternative-excluding operator. In the next section I turn to an exhaustification mechanism which combines exclusion with inclusion of alternatives in each application.

12.2   Innocent Inclusion

Two applications of the EXH operator over sets of Innocently Excludable alternatives is not the only way to derive the strong interpretation for *neither...nor* coordination within an alternatives-and-exhaustification framework. It is also possible to combine Innocent Exclusion with its opposite – so-called Innocent Inclusion, i.e. to first exclude certain alternatives and then include the remainder, under a condition of consistency. Namely, Bar-Lev and Fox (2017) first developed this mechanism in order to offer a global derivation of certain Free Choice inferences which could not be captured in an account using embedded recursive exhaustification, all while preserving the implicature status of the inference.[2] Now, canonical Free Choice inferences (Kamp, 1973), which arise with disjunction in the scope of a possibility modal (541), can be derived in a procedure using recursive applications of an operator which only excludes alternatives (Fox, 2007; Chierchia, 2013), entirely parallel to the one employed for negative coordination in the preceding section.

(541)   You can eat ice cream or cake.

'You can eat ice cream and you can eat cake'

But Free Choice disjunction (541) can also be handled in a single application of an EXH operator, if this operator is designed so as to first exclude and then include 'innocent' alternatives, as defined in (542).

(542) $[\![EXH]\!](C)(p)(w) \Leftrightarrow \forall q \in IE(p, C)[\neg q(w)] \wedge \forall r \in II(p, C)[r(w)]$
        Bar-Lev and Fox (2017: 10)

Crucial in the definition of the operator in (542) are the sets of Innocently Excludable (IE) and Innocently Includable (II) alternatives. The former are defined as alternatives which are found in all those maximal sets of alternatives which can be negated consistently with the prejacent (543a). The latter are defined as alternatives which are found in all those maximal sets of alternatives which can be asserted consistenly with the prejacent and with the negation of the IE alternatives (543b).

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[2]See also Bar-Lev (2018); Bar-Lev and Fox (2019); Gotzner et al. (2018)

(543)　　a.　IE(p,C) = ∩{C′⊆C: C′ is a maximal subset of C, s.t.

　　　　　　{¬q: q∈C′}∪{p} is consistent}　　　　　　　　Bar-Lev and Fox (2017: 10)

　　　　b.　II(p,C) = ∩{C″⊆C: C″ is a maximal subset of C, s.t.

　　　　　　{r: r∈C″}∪{p}∪{¬q: q∈IE(p,C)} is consistent}　　　　　　*idem*

One application of the EXH operator from (542) will negate IE alternatives and then assert II alternatives. Exclusion must take place before inclusion, as otherwise only maximally informative interpretations could ever be uttered. Furthermore, the effect that EXH will have is dependent on the logical properties of the functional elements found in the prejacent and the environment they are embedded in, if there is any. This way an unembedded disjunction (544a) yields a scalar implicature which is the exclusion of its stronger, conjunctive alternative, whereas the individual coordinands cannot be asserted simultaneously and consistently with such negation of the conjunction and with the disjunctive prejacent (544d).

(544)　　a.　Ryan ate ice cream or cake.

　　　　b.　$p = a \lor b$

　　　　c.　$\text{ALT}_{IE} = \text{MS}' \cap \text{MS}'' = \{\ a \land b\ \}$

　　　　　　because

　　　　　　i.　$\text{MS}' = \{\ a,\ a \land b\ \}$

　　　　　　ii.　$\text{MS}'' = \{\ b,\ a \land b\ \}$

　　　　d.　$\text{ALT}_{II} = \text{MS}_1 \cap \text{MS}_2 = \{\ a \lor b\ \}$

　　　　　　because

　　　　　　i.　$\text{MS}_1 = \{\ a \lor b,\ a\ \}$

　　　　　　ii.　$\text{MS}_2 = \{\ a \lor b,\ b\ \}$

　　　　e.　$\text{EXH(C)(p)} \Leftrightarrow a \lor b \land \neg(a \land b)$

In other words, a plain disjunction (544b) can only have its conjunctive counterpart as an IE alternative (544c). Once this alternative is negated, there are only two maximal sets of alternatives (544d-i, 544d-ii) which can be asserted consistently. Their intersection contains the prejacent and nothing else, which leaves the set of innocently includable alternatives empty (544d). The result of such exhaustification is given in (544e). Nonetheless, it is important to point out that this scalar implicature will not arise when the alternative with conjunction is absent from the computation.

　　　Strengthening of a disjunction into a conjunction (545e) is, however, possible in the case of Free Choice disjunction (545a). Namely, due to the presence of the modal operator

(545b), the truth of subconstituent alternatives is now logically compatible with the falsity of the conjunctive alternative (545d).

(545)   a. You can eat ice cream or cake.

      b. $p = \diamond(a \vee b)$

      c. $ALT_{IE} = MS' \cap MS'' = \{ \diamond(a \wedge b) \}$
         because

         i. $MS' = \{ \diamond a, \diamond(a \wedge b) \}$

         ii. $MS'' = \{ \diamond b, \diamond(a \wedge b) \}$

      d. $ALT_{II} = \{ \diamond(a \vee b), \diamond a, \diamond b \}$
         because $MS = \{ \diamond(a \vee b), \diamond a, \diamond b \}$

      e. $EXH(C)(p) \Leftrightarrow \diamond(a \vee b) \wedge \neg \diamond(a \wedge b) \wedge \diamond a \wedge \diamond b$

As put forward in the previous section, in the case of negative coordination the prejacent consists of a disjunction which outscopes negation (546a) and the only alternatives available are the individual disjuncts (546b).

(546)   a. S: $\neg p \vee \neg q$

      b. $ALT = \{\neg p \vee \neg q, \neg p, \neg q\}$

Now, applying the covert exhaustifying operator from (542) will render the strong meaning in (547d), which corresponds to the attested readings of *neither...nor* coordinations (547a). Absence of the alternative with conjunction makes the set of IE alternatives empty (547b). Moreover, there is just one maximal set of alternatives which can be asserted consistently with the prejacent and it contains both subconstituent alternatives (547c).

(547)   a. Brenda neither sings nor dances.

      b. $ALT_{IE} = MS' \cap MS'' = \varnothing$
         because

         i. $MS' = \{ \neg p \}$

         ii. $MS'' = \{ \neg q \}$

      c. $ALT_{II} = \{ \neg p \vee \neg q, \neg p, \neg q \}$
         because $MS = \{ \neg p \vee \neg q, \neg p, \neg q \}$

      d. $EXH(ALT)(S) \Leftrightarrow \neg p \vee \neg q \wedge \neg p \wedge \neg q$ $\Leftrightarrow \neg p \wedge \neg q$

This shows that the exhaustification operator which is designed to first exclude and then include alternatives derives the strong reading of a disjunctive negative coordination. The use of such a combined exclusive and inclusive EXH is motivated as an attempt at assigning

a truth value to every alternative whenever possible, i.e. unless it yields a contradiction (Bar-Lev and Fox, 2017). EXH is thus modeled in such a way to give the most complete answer to the question raised by the set of alternatives. This is exactly the result obtained for *neither...nor*. Crucially, according to Bar-Lev and Fox (2017), Innocent Exclusion followed by Innocent Inclusion is an obligatory procedure, whereas Innocent Exclusion alone is not. This distinguishes phenomena like Free Choice and Homogeneity from regular (scalar) implicatures (Bar-Lev, 2018). Negative coordination could then be added to the former group.

The two mechanisms presented in the previous (section 12.1) and the current section (section 12.2) both take the same starting point, i.e. a disjunction scoping over negation, and derive the same result, which is the strengthened meaning attested with negative coordination (548)[3].

(548) $\text{EXH}^+(\{\neg p, \neg q\})(\neg p \vee \neg q) \Leftrightarrow \neg p \wedge \neg q \Leftrightarrow \neg(p \vee q)$

What the two approaches have in common is negation of innocently excludable alternatives. Where they diverge is that one (section 12.1) can iterate the same, exclusive procedure on the assertion, but crucially also on its alternatives, whereas the other further proceeds with simply asserting those alternatives which are innocently includable. In the case of negative coordination the two mechanisms yield the same result, provided that the set of alternatives they operate with is stable and, moreover, such that the alternative with a conjunction is absent from the computation. What is then crucial for our case study with *neither...nor* coordination is the unavailability of the conjunctive alternative, and therefrom the absence of its negation, which ultimately allows strengthening on both approaches. This was taken for granted so far, but the goal of the next section (section 12.3) is to motivate it and explain how and why only subconstituent alternatives are derived for negative coordination in English, from the point of view of the major approaches to alternative generation.

12.3   Make up of the alternative set

This section addresses the pressing issue of how the set of alternatives to an assertion with negative coordination (549a) is generated and why it consists of individual disjuncts only (549b).

(549)   a. S: $\neg p \vee \neg q$

b. $\text{ALT(S)} = \{ \neg p \vee \neg q, \neg p, \neg q \}$

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[3]EXH^+ stands for either recursive exhaustification over IE alternatives or simple exhaustification over IE+II alternatives.

In principle, there are three ways to form alternatives to an assertion (with considerable overlaps, depending on the approach):

1. through association with focus,

2. using lexically predefined scales,

3. manipulating the prejacent under structural complexity constraints.

I will now discuss these three ways of deriving alternatives in the context of *neither...nor* coordination, as well as the issues which arise for each one of them.

12.3.1   Focus alternatives

Inside a bi-dimensional semantic system, realized through an ordinary semantic value and a focus semantic value (Rooth, 1992, 2016), focus alternatives are sets of propositions obtained by substitution of the denotation of a focused phrase in the host proposition. For the example sentence with negative coordination, repeated in (550), this yields (551) for the first disjunct and (552) for the second disjunct.

(550)   Brenda [neither SINGS]$_F$ [nor DANCES]$_F$.

(551)   neither Brenda SINGS$_F$

    a. $[\![$neither Brenda sings$_F]\!]_o$ = λw. Brenda does not sing in w

    b. $[\![$neither Brenda sings$_F]\!]_f$ = {p: $\exists$f$\in$D$_{\langle e,\langle s,t\rangle\rangle}$. p=$\lambda$w.f(Brenda)=0}

    c. $[\![$neither Brenda sings$_F]\!]_f$ = {λw. Brenda does not sing in w, λw. Brenda does not dance in w}

(552)   nor Brenda DANCES$_F$

    a. $[\![$nor Brenda dances$_F]\!]_o$ = λw. Brenda does not dance in w

    b. $[\![$nor Brenda dances$_F]\!]_f$ = {p: $\exists$f$\in$D$_{\langle e,\langle s,t\rangle\rangle}$. p=$\lambda$w.f(Brenda)=0}

    c. $[\![$nor Brenda dances$_F]\!]_f$ = {λw. Brenda does not dance in w, λw. Brenda does not sing in w}

The ordinary semantic values of the disjuncts are their regular denotations (551a, 552a), for which the interpretation function remains blind to the F-marks. The focus semantic values are sets of propositions of the same form as the host proposition, with variation centered in the F-marked constituent; in the present case, it is the one–place predicates *sing* and *dance* that are to be replaced in the two focus values by constituents of the same semantic type (551b, 552b). Indirect association of the covert operator EXH with focus

can proceed in the same way an overt exclusive particle *only* would associate with focus – via another covert operator in charge of evaluating alternatives, the so-called $\sim$ 'squiggle' operator (553). The role of squiggle is to introduce a presupposition that the possible values of the focus anaphor C, where C represents a set of contextual alternatives, should be a subset of the focus value of the constituent to which $\sim$C is adjoined (553a).

(553) $\sim$ operator

 if $\alpha = [\sim C\ \beta]$, then: Bade and Sachs (2019)

  a. $[\![\alpha]\!]^g$ is only defined if $g(C) \subseteq [\![\beta]\!]^g_f$.
     If defined, then:

  b. $[\![\alpha]\!]^g_o = [\![\beta]\!]^g_o$

  c. $[\![\alpha]\!]^g_f = \{[\![\beta]\!]^g_o\}$

Interestingly, in the case of negative coordination and the contrastive foci present in the disjuncts, the contextual alternatives end up being provided from one disjunct to the other, i.e. the disjuncts are mutually focus alternatives, since they match the requirements on the form of each others focus value (551b, 552b). With co-indexation established between squiggle in one disjunct and the corresponding constituent (the sister of $\sim$C) in the other disjunct, we end up with the first disjunct supplying the antecedent to the contextual anaphor in the second disjunct, and vice versa – the second disjunct supplies the postcedent to the cataphor of the first disjunct. This is schematized in (554), where p stands for 'Brenda sings', and q stands for 'Brenda dances'.
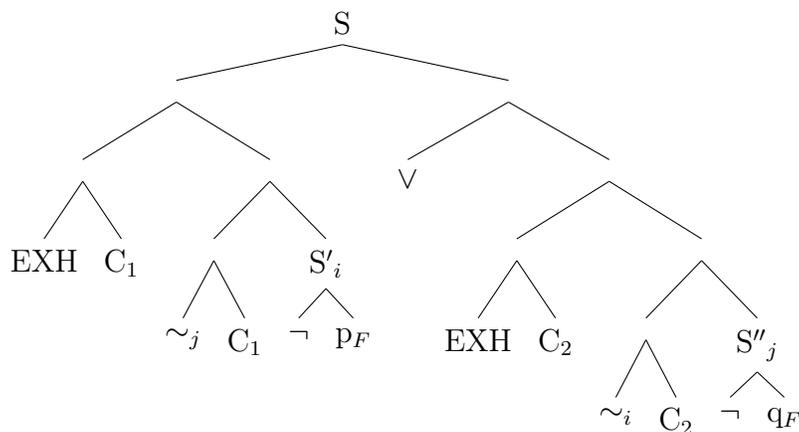
(554)

(554) sketches the procedure by which focus alternatives can be obtained in a coordinative structure, in order to be consumed by a focus-sensitive operator. In the case at hand, these alternatives are to be used by covert EXH. It is important to point out that in *neither...nor* structures, the two members of the coordination satisfy each other's presupposition of the squiggle operator, and satisfaction from outside of the coordination does not seem to be

possible. That is, in (555), neither of the disjuncts in the negative coordination takes the preceding sentence as its antecedent, although it is of the right form and could be a member of their focus values.

(555)   Brenda doesn't do drugs. She neither smokes nor drinks.

Moreover, the ability of licensing cataphora also seems to be specific to coordinative constructions, as it cannot be achieved in independent sentences bearing focus-sensitive elements, regardless of the polarity (556a, 556b).

(556)   a.   # Neither does Brenda smoke. She doesn't drink.

　　　　b.   # Brenda {also} smokes {too}. She drinks.

Now, the proposals for *neither...nor* described in this section rely on strengthening via exhaustification, as performed by EXH. This covert exhaustifying operator can also associate with focus directly, that is, without squiggle's mediation (557), as shown by Bade and Sachs (2019).

(557)   EXH operator
　　　　If $\alpha = [\,[\text{ EXH C}]\ \beta]$, then:

　　　　a. $[\![\alpha]\!]^g$ is only defined if $g(C) \subseteq [\![\beta]\!]^g_f$
　　　　　　 If defined, then:

　　　　b. $[\![\alpha]\!]^g_o = \lambda w.\ [\![\beta]\!]^g_o(w)=1\ \&\ \forall q[(g(C))(q)\ \&\ [\![\beta]\!]^g_o \not\Rightarrow q \rightarrow q(w)=0]$

　　　　c. $[\![\alpha]\!]^g_f = \lambda p.\ \exists q[q \in [\![\beta]\!]^g_f\ \&\ p=\lambda w.q(w)\ \&\ \forall u[(g(C))(u)\ \&q \not\Rightarrow u \rightarrow u(w)=0]]$

Such a definition of EXH (557) incorporates the workings of squiggle through the presupposition in (557a), and it is tacitly adopted by most literature on exhaustification.

　　I showed that focus alternatives are candidates for the set supplied to EXH. However, the LF in (554) would not yield the right meaning for our example with negative coordination (550), as will be shown in the section on 'Embedded exhaustification' (section 12.7), where I will also explore other ways to use focus alternatives for deriving the attested interpretation. Nonetheless, substitution does not only concern lexical vocabulary, but also functional expressions, so the next subsection investigates how the scalar approach to alternatives fares when it comes to generating the set of alternatives for negative coordination.

12.3.2   Scalar alternatives

The goal of this subsection is to answer the question whether, for an assertion S of the form in (558a), the set of scalar alternatives could consist of the conjunctive alternative (558b-

i), as well as of subconstituent alternatives (558b-ii, 558b-iii). The latter correspond to individual members of the coordination, disjuncts in this case (558b-ii, 558b-iii), and they match the focus alternatives discussed previously. Such alternatives are sometimes called 'subdomain' alternatives, especially in the exhaustification approaches to NPIs (Chierchia, 2013).

(558)   Brenda neither sings nor dances.

    a. S = ¬p∨¬q

    b. ALT(S) = {¬p∨¬q, ¬p∧¬q, ¬p, ¬q}

       i. ¬p∧¬q = 'Brenda does not sing and she does not dance'

      ii. ¬p = 'Brenda does not sing'

     iii. ¬q = 'Brenda does not dance'

(558b) is what one might initially expect to find in the set of alternatives to a sentence with *neither...nor*, since a disjunction normally gets substituted by a conjunction. This is what happens in the case of *or* (559a), where a sentence containing *and* becomes its alternative (559; also section 12.2).

(559)   a. S: Brenda called Jenny or Katie.

    b. ALT(S) = {Brenda called Jenny *or* Katie, Brenda called Jenny *and* Katie, Brenda called Jenny, Brenda called Katie}

However, such an assumption becomes problematic when subjected to closer scrutiny. Namely, the scalar approach to alternatives postulates lexical scales whose elements are interchangeable in the formation of alternatives, as in Horn (1972), Gazdar (1979), and subsequent work (560a). Scalar items are considered to be a subset of the lexicon, but which expressions exactly are scalemates needs to be stipulated, and considerations of complexity and monotonicity are usually invoked. More concretely, to form a scale together, scalar items should be of the same complexity, which is respected in (560b), but not in <*or, and not*>, for example.

(560)   a. ALT(S) = {S′: S′ is the result of replacing scalar items in S with their scale-mates}

<div align="right">Fox and Katzir (2011)</div>

    b. <*or, and*>   Horn scale

Nonetheless, it has been argued that turning to complexity of potential scalemates cannot capture all the empirical facts about implicatures (Matsumoto, 1995), and that a notion of monotonicity is needed (Horn, 1989). By such a requirement, scalemates cannot be

of different polarity. Furthermore, Atlas and Levinson (1981: p.44) make the claim that scalemates must be 'lexicalized to the same degree'.

An extension of the scalar approach derives the subconstituent alternatives by stipulating the existence of silent binary operators which render their right argument (R, as in (561b-i)) or their left argument (L, as in (561b-ii)) as a value (Sauerland, 2004). Such a set is only partially ordered by entailment (561a), since thus obtained subconstituent alternatives are logically independent from each other. The R and L operators were initially conceived in order to account for the ignorance inferences of disjunctive sentences (559a), discussed in section 10.3, which could not be captured using only original Horn scales. The reason is that the Horn scale (560b) does not allow access to subconstituens, i.e. members of the coordination.

(561) a. $<or,\ L/R,\ and>$ Sauerland scale

       b.   i. $pLq \Leftrightarrow p$ = 'Brenda called Jenny'

             ii. $pRq \Leftrightarrow q$ = 'Brenda called Katie'

Now, if we take that *neither...nor* is a scalar expression or, rather, construction, could we expect the scalar approach to derive the full set of alternatives in (562a)? First, obtaining the subconstituent alternatives $\neg p$ and $\neg q$ with the help of the binary operators L and R is possible, the only difference now being the presence of negation on the coordinands (562b-i, 562b-ii).

(562) a. ALT(S) = $\{\neg p \vee \neg q,\ \neg p \wedge \neg q,\ \neg p,\ \neg q\}$

       b.   i. $\neg pL\neg q \Leftrightarrow \neg p$

             ii. $\neg pR\neg q \Leftrightarrow \neg q$

However, it is not obvious that an expression like *neither...nor* actually has a scalemate which could replace *neither...nor* and which corresponds to the alternative with conjunction ($\neg p \wedge \neg q$). Unlike the 'plain' connectives *or* and *and*, *neither...nor* participates in a so-called bivalent (correlative) coordination (Lechner, 2000), marked by an initial (*neither*) and a final (*nor*) coordinand marker. Its form suggests that it could share a scale with *either...or* and *both...and* (563). But this would violate the condition on monotonicity, as *neither...nor* is inherently negative, but *either...or* and *both...and* are not.

(563) $<$ *neither...nor/either...or, L/R, both...and* $>$

It is then imaginable that the scale to which *neither...nor* belongs looks like (564) instead.

(564) $<$ *neither...nor, L/R, both...not...and...not* $>$

But now the conjunctive scalemate *both...not...and...not* is more complex than *neither...nor*. However, complexity should not prevent it from forming a scale with the negative coordination, as argued by Matsumoto (1995). Furthermore, one could say that *both...and* coordinations with negative conjuncts are not lexicalized at all, i.e. such an expression does not form a fixed lexical entry with its own morphology, so stipulating the scale in (564) would be arbitrary (Atlas and Levinson, 1981). Although arguments along these lines have later been contested, Horn (2000) concludes that the degree of lexicalization matters in that implicatures do not arise when they are associated with stronger alternatives in which the relevant expression is not at least as lexicalized as its counterpart in the host assertion. In his case study of (perfectioned) conditionals, the crucial observation is that simple *if*-conditionals do not yield an implicature corresponding to the negation of their logically stronger counterpart *iff* (565), where *if and only if* is less lexicalized.

(565)   if p, q $\not\Rightarrow$ if and only if p, q

This is parallel to the case at hand, for which reason I assume that the scale in (564) cannot be formed and that the lexical approach to alternatives would not yield the set containing a conjunctive alternative (562a). The scale for *neither...nor* should then look like (566).

(566)   *<neither...nor, L/R>*

Nonetheless, one need not stipulate a scale in order to derive the set of alternatives for a sentence with negative coordination, since the structural approach can do the same job, as discussed more extensively in the next subsection.

12.3.3   Structural alternatives

The so-called structural approach to alternatives (Katzir, 2007; Fox and Katzir, 2011) provides a more straightforward way to generate a set of alternatives consisting of individual members of a coordination ($\neg$p, $\neg$q). In other words, stipulating null binary operators (L, R), which allowed the individual disjuncts to become members of the alternative set, is no longer necessary, as it gives place to certain operations on the LF of the assertion, as defined in (567).

(567) $S' \precsim_C S$ if S' can be derived from S by successive replacements of subconstituents of S with elements of the substitution source for S in C, $SS(S,C)$,
         where $S' \precsim_C S$ states that an alternative S' is at most as complex as S, in context C.   Fox and Katzir (2011: 97)

The major constraint is therefore structural complexity, which ensures that the possible replacements are at most equally complex as the constituent being replaced. Crucially, the

individual disjuncts are members of the substitution source (568) for our S with negative coordination, as they are its subconstituents (568b) and they are structurally less complex than the whole disjunction.

(568) $SS(X,C)$, the substitution source for X in context C, is the union of the following sets:

    a. The lexicon

    b. The sub-constituents of X

    c. The set of salient constituents in C Fox and Katzir (2011: 97)

The procedure is very simple: the whole disjunction is replaced with one of its disjuncts and this creates a subconstituent alternative (569). 'X/Y' means that the constituent X is substituted with the constituent Y.

(569)   a.   i. $[_{\phi} [_{\psi} \neg p] \vee [_{\chi} \neg q]] \gg_{\phi/\psi} [\neg p]$

        ii. 'Brenda does not sing or she does not dance' $\gg$ 'Brenda does not sing'

    b.   i. $[_{\phi} [_{\psi} \neg p] \vee [_{\chi} \neg q]] \gg_{\phi/\chi} [\neg q]$

        ii. 'Brenda does not sing or she does not dance' $\gg$ 'Brenda does not dance'

This approach thus keeps substitution as the only mechanism to derive alternatives, but what is different with respect to the scalar approach is that the lexicon is not the only source of substitutes. The structural approach to alternatives therefore yields a good result for our case study with negative coordination in English, as it successfully derives subconstituent alternatives ($\neg p$, $\neg q$). However, two major problems arise:

1. the structural approach seems to predict p, q as alternatives,

2. the structural approach seems to predict $\neg p \wedge \neg q$ as a derivable alternative (as well as $p \wedge q$, for that matter).

12.3.3.1   First problem: Symmetry

Even if we do not allow deletion as an alternative-generating procedure (Katzir, 2007), but work only with substitution (Fox and Katzir, 2011), nothing a priori prevents 'extracting' subconstituent alternatives without negation (570a, 570b), i.e. having p and q in the set of structurally derived ALT is not ruled out (570c), since both are strictly less complex than the prejacent.

(570)   a.   i. $[_{\phi} [_{\psi} \neg [_{\theta} p]] \vee [_{\chi} \neg [_{\omega} q]]] \gg_{\phi/\theta} [p]$

        ii. 'Brenda does not sing or she does not dance' $\gg$ 'Brenda sings'

   b.   i. $[_\phi\ [_\psi\lnot\ [_\theta\ \text{p}]\ ]\ \lor\ [_\chi\lnot\ [_\omega\text{q}]\ ]\ ]\gg_{\phi/\omega}[\text{q}]$

      ii. 'Brenda does not sing or she does not dance' $\gg$ 'Brenda dances'

   c. ALT(S) = $\{\lnot\text{p}\lor\lnot\text{q},\ \lnot\text{p},\ \lnot\text{q},\ \text{p},\ \text{q}\}$

But this would create the so-called Symmetry Problem (Kroch, 1972; von Fintel and Heim, 1997). Namely, the pairs p and $\lnot p$, as well as q and $\lnot q$ are symmetric alternatives of S ($\lnot\text{p}\lor\lnot\text{q}$) because they cannot be true at the same time ($\text{p}\land\lnot\text{p}$ is a contradiction). However, both pairs are less complex than the prejacent and thus derivable as formal alternatives, and moreover, the relevance of one automatically makes the other one relevant as well. Therefore, they should all be present in the intersection of the set of formally defined alternatives ($F(S)$) and the set of contextually relevant (pragmatically salient (Rooth, 1992)) alternatives (C). This intersection (571a) is what makes the set ALT(S).

(571)   a. ALT = F(S) $\cap$ C   Horn (1972)

      b. Closure conditions on C   Fox and Katzir (2011)

        i. If p $\in$ C, then $\lnot$p $\in$ C.

        ii. If p $\in$ C and q $\in$ C, then p$\land$q $\in$ C.

The assumption is that relevance is always closed under Boolean operations of negation and conjunction (571b), which means that considerations of relevance cannot help with this kind of symmetry. In other words, the symmetry caused by the presence of both a positive alternative and its negative counterpart in the same set has to be broken formally, and that is in $F(S)$. But we have just demonstrated that the 'positive' subconstituent alternatives are formally derivable. The problem is that, due to the presence of negation in the uttered structure, generating the subconstituent alternatives without negation is not ruled out in the structural approach, as they are necessarily available and simpler substitutes, which inevitably adds them to the set $F(S)$, whereas (571b) ensures their presence in C.[4] Therefore, p and q should be members of the their intersection, i.e. ALT.

12.3.3.2   First solution: Atomicity

Can a more fine-grained approach to alternative generation and symmetry breaking explain why only the subconstituent alternatives with negation are members of $F(S)$? The goal of this subsection is to show that further structural constraints are needed for deriving

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[4]I should point out that an idea put out in Bar-Lev and Fox (2019), which is to replace a negative operator by an exhaustification operator for deriving alternatives (thus generating $\{\lnot\text{p}\lor\lnot\text{q},\ \lnot\text{p},\ \lnot\text{q},\ \text{EXHp},\ \text{EXHq},\ \text{EXHp}\lor\text{EXHq}\}$ as ALT(S)), would not give the right result for our case with negative coordination. I leave out the proof, for reasons of space.

alternatives, as the same problem of symmetry pops up for prejacents with negation more generally, by virtue of their non-negative counterparts necessarily being less complex and thus eligible for the set of structural alternatives. I develop an idea inspired by *Atomicity* (572), proposed by Trinh and Haida (2015).

(572)   *Atomicity*   Trinh and Haida (2015: 261)
        Expressions in the substitution source are syntactically atomic.

Atomicity is implemented through the use of a formal feature [AT], which makes each constituent in the substitution source syntactically atomic and therefore internally inaccessible to substitution operations.[5] The problem is that Atomicity only affects derivation of alternatives when the latter involves multiple steps, since it places restrictions on what can be done to the constituents once they have entered the substitution source. This is not our case, as the most straightforward approach to how alternatives for negative coordination are derived would consider that p, as well as q are directly identified as subtrees of the prejacent (573), i.e. of the uttered structure, and as such they are added to the substitution source, from where each is in turn selected to substitute the whole tree in one single step, as shown in (570a).

(573) EXH^+ [Brenda$_i$ [[$_{=\neg p}$ neither [$_{=p}$ t$_i$ sings]] [$\lor$ [$_{=\neg q}$ nor [$_{=q}$ t$_i$ dances]]]]]

In other words, no intermediate operations need take place because the tree representing the assertion is chunked up into all its possible constituents which end up in the substitution source, ready to serve as substitutes. Unfortunately, this leaves the Symmetry Problem unresolved (574).

(574)   F(S) = ALT(S) = {¬p∨¬q, ¬p, ¬q, p, q}

Trinh (2018) further elaborates the idea of Atomicity for alternative generation by stipulating the requirement that elements in the substitution source cannot be subconstituents of each other. Contextual alternatives are distinguished from grammatical ones: the former obey this refined Atomicity constraint at the level of phrases, whereas the latter rely on lexical replacement of individual words. Moreover, 'Symmetry can be broken in favor of grammatical alternatives against contextual alternatives, but not the other way around' (Trinh, 2018: 120). However, in the case of negative coordination, the constituents corresponding to the symmetric alternatives ¬p, ¬q, p, q have all been uttered, respectively as β, δ, ϵ, ζ in (575). For this reason they all belong in the set of contextual alternatives. But

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[5]This relates the substitution source for alternative derivation to the numeration for syntactic derivation (Chomsky, 1995).

two of these alternatives are contained inside the other two, namely, ϵ is a subconstituent of β, and ζ is a subconstituent of δ.

(575)   Brenda$_i$ [$_\alpha$[$_\beta$neither [$_\epsilon$t$_i$ sings]] [$_\gamma$OR [$_\delta$nor [$_\zeta$t$_i$ dances]]]]

This means that they cannot enter the substitution source together: if ¬p, ¬q (that is, β and δ) become part of the substitution source, then p, q (ϵ, ζ) must stay out, and vice versa. Does this mean that the former pair of alternatives should be prioritized over the latter? But notice that the two pairs of alternatives could separately give the right result. Namely, if the set is as in (576a), the derivation of the enriched meaning proceeds as described in previous sections (most notably via an exclusive and then inclusive exhaustification in section 12.2). Instead, if the set looks like (576b), since neither of the alternatives is entailed by the assertion (576b-i, 576b-ii), both get innocently excluded and the result is the strong interpretation (576b-iii).

(576)   a. F(S) = ALT(S) = {¬p∨¬q, ¬p, ¬q}

   b. F(S) = ALT(S) = {¬p∨¬q, p, q}

   i. ¬p∨¬q $\not\Leftrightarrow$ p

   ii. ¬p∨¬q $\not\Leftrightarrow$ q

   iii. EXH$^{IE(+II)}$(ALT)(S) $\Leftrightarrow$ ¬p∨¬q $\wedge$ ¬p $\wedge$ ¬q

The second option (576b) will connect to the discussion of contrastive negation and its effects in the next subsection. Which of the two pairs of alternatives will enter $F(S)$ likely depends on whether the Question Under Discussion (QUD, Roberts (1996), Beaver and Clark (2008)) is of the kind 'Does Brenda not sing or does she not dance?', yielding (576a), or of the kind 'Does Brenda sing or does she dance?', yielding (576b). As for the actual existence of two possibilities, as in (576a) and (576b), certain cases are presented in Trinh (2018) where different implicatures arise from the same contextual input, but the subconstituency prohibits two contextual implicatures from being in the substitution source simultaneously. The case at hand is (577) vs. (578).

(577)   a. A: Bill went for a run. [$_{TP}$ He [λx [$_{T'}$ did [$_{NegP\alpha}$ not [$_{VP\beta}$ t$_x$ smoke]]]]]

   b. B: What about John?

   c. A: John (only) went for a run.   ⇝ John smoked

(578)   a. A: Bill went for a run. [$_{TP}$ He [λx [$_{T'}$ did [$_{NegP\alpha}$ not [$_{VP\beta}$ t$_x$ smoke]]]]]

   b. B: What about John?

   c. A: John (only) went for a run also.   ⇝ John did not smoke

In (577), α enters the substitution source, thus generating an alternative for the $F(S)$, to the exclusion of β. This results in an implicature totally opposite from the one in (578), where β enters the substitution source, but α is left out. The only difference is that the contrast depicted in (577) and (578) involves contextual alternatives entering the substitution source from the preceding discourse, and not from the uttered structure, i.e. the prejacent, like in the case of negative coordination. Nonetheless, I find it imaginable that the same constraint applies to the uttered sentence: the set of formal alternatives in general cannot contain alternatives which are subconstituents of other alternatives. This could be stipulated as a syntactic constraint, by which the negative disjuncts are 'atomic' and as such closed off constituents, so that their subtrees are inaccessible and cannot be used as substitutes. In the case at hand, it is motivated by the presence of markers *neither* and *nor*, in combination with a restriction on 'eligible' subconstituents which would require them to be full phrases (579a). The coordination marker carrying the negative operator sits in the specifier of such a phrase and cannot be 'peeled off' and left out from the alternative. The phrase would arguably be FocP (or CP), but there is one per disjunct (579b): FocP″ in the position of the specifier of the JP (for the disjunct introduced by *neither*) and FocP′ as the complement of JP (for the disjunct introduced by *nor*), where JP is Junction Phrase headed by the null disjunction (Den Dikken, 2006). Crucially, remnant movement of the focused phrase prohibits either of the IPs from being added to the substitution source and turned into alternatives (579b). This is why p, q are not members of $F(S)$.

(579)   a. Only maximal projections can be extracted as subtrees from the structure of a prejacent, i.e. the uttered assertion, and as such added to the substitution source.

   b. S: Brenda$_i$ [[$_{FocP''}$ neither [$_{FocP''}$ sings Foc″°[$_{IP''}$ t$_i$ ~~\<sings\>~~]]] [$_J$OR [$_{FocP'}$ nor [$_{FocP'}$ dances Foc′°[$_{IP'}$ t$_i$ ~~\<dances\>~~]]]]]]

In other words, unless some special rule of this or similar kind is enforced, no inference could ever arise with an assertion whose structure comprises negation, as symmetric alternatives would always be formally derivable (Trinh and Haida, 2015; Romoli, 2013). After all, usual considerations about the structural approach to alternatives deal with parse trees containing plain disjunction, and do not tackle structures which are at surface 'bivalent' coordinations with inherent negation of the disjuncts. Perhaps a construction like *neither...nor* deserves a rethinking of the alternative generating algorithm and some special take on it. But it looks like this subsection provided us with two options for fixing the symmetry problem with negation: (i) allowing either pair of alternatives to the exclusion of the other in the set $F(S)$ since applying EXH$^+$ gives the same result (576), (ii) stipulat-

ing a syntactic constraint on contextual alternatives as maximal projections. In the next subsection, the former option gets further support.

12.3.3.3 Second solution: Contrastive negation

Contrastive focus on the disjuncts in constructions like *neither... nor* could offer an explanation how the symmetry gets broken. Namely, it has been proposed that symmetry is not always and necessarily broken formally, in $F(S)$, but that it can also be broken in the context Meyer (2018). Nonetheless, when symmetry is broken in the context, it is not through relevance, but through salience. Namely, Meyer (2018) develops a compositional account of pitch accents and boundary tones, starting with the hypothesis that they contribute to the overall meaning of the sentence in different ways. In the same vein, presence of pitch accent on negation also affects the meaning of a sentence. The intonation contours studied in Meyer's work correspond to contrastive and metalinguistic negation, where very nuanced interpretations can be identified. The pattern which matters for our purposes is that of contrastive negation, as reported in (580).[6]

(580)   Contrastive Negation

     a. Mary didn'tH* eat chocolateL+H*-LL% (but she ate fruit)

     b. $[[\text{EXH}_{LL\%} \text{ not}_{H*} [\text{Mary ate chocolate}_{LH}]]]^g$

     c. $\text{EXH}_{LL\%}$: $K(\neg\psi)$, *where* $\psi \in$ ALT

     d. Basic assertion: $\neg(\text{eat}(m,ch))$

     e. Presupposition: $\exists\psi \in$ ALT$(\text{not}[\text{Mary ate chocolate}_{LH}])$ such that ψ is salient

     f. $\text{EXH}_{LL\%}$: $\forall\psi \in [\text{ALT}(\text{not}_F \text{ Mary eat chocolate}_F) \cap g(C)]_{IE} : K(\neg\psi)$

(580a) depicts the distribution and the quality of the pitch accents ('*') and the boundary tone ('%'). The latter contributes a special kind of exhaustification which is tied to the falling quality of the tone (580b). This exhaustification does not only negate alternatives but also does so with respect to scope-taking K operator, which factors in speaker's certainty (Sauerland, 2004; Meyer, 2013), as in (580c). The assertive component with negation is given in (580d). The presupposition introduced by the presence of the rising pitch accent on 'chocolate' (L+H*) is given in (580e), and it says that there is a salient alternative in the set of formal alternatives derived from the F-marked structure. Finally, the exhaustification which is introduced by the falling boundary tone (LL%) yields as its result that the speaker is certain that no non-entailed alternative from the intersection of

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[6]H* stands for a high pitch accent, L+H* for a rising high pitch accent, and LL% for a low boundary tone.

formal alternatives generated by the F-marks and a contextually given set $g(C)$ is true (580f). Crucially, g maps C to (the set containing) the proposition already presupposed to be salient by the contrastive focus L+H* (580e). Intersecting ALT with $g(C)$ yields the domain of quantification for LL% as given in (581), which is akin to quantifier domain restriction (von Fintel, 1994).

(581)   a. $\text{ALT}(\text{not}_F\text{ Mary eat chocolate}_F) = \{$ not[Mary ate fruit], Mary ate fruit, not[Mary ate sausage], Mary ate sausage,.. $\}$

        b. $g(C) = \{$not[Mary ate fruit]$\}$

        c. $\text{ALT} \cap g(C) = \{$not[Mary ate fruit]$\}$

        d. $\text{ALT}_{IE} = \{$not[Mary ate fruit]$\}$

This results in the meaning in (582).

(582)   Mary didn't H* eat chocolate L+H*-LL%

        $\approx$ 'Mary didn't eat chocolate & I'm certain she ate fruit'

In this way, it is ensured that the exhaustification triggered by the boundary tones targets exactly the alternatives invoked by the rising pitch accent, i.e. that the salient alternative indicated by L+H* is picked up again by EXH-LL%.[7] Exhaustification would normally be vacuous whenever negation is focused due to symmetric alternatives, which amounts to the same problem as the one we are facing with negative coordination. But with contrastive negation as in (582), the restriction C renders the focus on negation semantically significant in a different way: without focus all the formal alternatives would be evaluated for exhaustification (which would then end up vacuous, as no alternative could be innocently excludable due to symmetry), but with focus only one alternative is picked out and subject to exhaustification.

The same mechanism could be at work with *neither...nor*. Without going into an analysis of the prosodic characteristics of negative coordination, it should not be controversial to assume F-marking on negation, which is instantiated by the markers *neither* and *nor*. Similarly, the contrastive focus associates in the disjuncts also bear F-marking. In any case, the salient alternative that the pressuposition of L+H* would need to pick up is now provided by the opposite disjunct.

(583)   a. Brenda$_i$ neither$_{F1}$ t$_i$ sings$_{F2}$ nor$_{F3}$ t$_i$ dances$_{F4}$

        where F1 *and* F3 $\approx$ H*, *and* F2 *and* F4 $\approx$ L+H*-LL%

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[7]This is related to the problem with binding of presuppositions (Karttunen and Peters, 1979), where the variable in the presuppositional component needs to pick up the same entity as the one in the assertive component.

b. $[[\text{EXH}_{LL\%}\ \text{neither}_{H*}\ [\text{Brenda sings}_{LH}]\ ]]^g\ [\vee\ [[[\text{EXH}_{LL\%}\ \text{nor}_{H*}\ [\text{Brenda dances}_{LH}]\ ]]^g]\ ]$

c. $\text{EXH}_{LL\%}$: $K(\neg\psi)$

d. Basic assertion: $[\neg(\text{sing}(b))]\vee[\neg(\text{dance}(b))]$

e. Presuppositions: $\exists\psi\in\text{ALT}(\text{neither}_F\ \text{Brenda sings}_{LH})$ such that ψ is salient & $\exists\chi\in\text{ALT}(\text{nor}_F\ \text{Brenda dances}_{LH})$ such that χ is salient

f. $\text{EXH}_{LL\%}$: $\forall\psi\in[\text{ALT}(\text{neither}_F\ \text{Brenda sings}_F)\cap\text{g(C)}]_{IE}$: $K(\neg\psi)$ & $\forall\chi\in[\text{ALT}(\text{nor}_F\ \text{Brenda dances}_F)\cap\text{g(C)}]_{IE}$: $K(\neg\chi)$

g. Disjunct introduced by *neither*:

   i. $\text{ALT}(\text{neither}_F\ \text{Brenda sings}_F)=\{$ $\neg[\text{Brenda dances}]$, Brenda dances, Mary dances, $\neg[\text{Mary dances}]$, $\neg[\text{Brenda smokes}]$, Mary smokes,.. $\}$

   ii. $\text{g(C)}=\{\text{Brenda dances}\}$ because (583e)

   iii. $\text{ALT}\cap\text{g(C)}=\{\text{Brenda dances}\}$

   iv. $\text{ALT}_{IE}=\{\text{Brenda dances}\}$ supplied to (583c)

h. Disjunct introduced by *nor*: idem ...
$\text{ALT}_{IE}=\{\text{Brenda sings}\}$

i. $\text{Brenda}_i\ \text{neither}_{F1}\ t_i\ \text{sings}_{F2}\ \text{nor}_{F3}\ t_i\ \text{dances}_{F4}$
$\approx$ 'Brenda doesn't sing & I'm certain she does not dance, or Brenda doesn't dance & I'm certain she does not sing'

This is just a sketch of a possible derivation for the meaning of *neither...nor*, inspired by Meyer's approach to contrastive negation. The idea of specific alternatives being 'picked up' for exhaustification under certain circumstances can be transposed to *neither...nor*. Crucially, either the associates of *neither* and *nor* must bear a rising contour (L+H*), or something else has to be in charge of introducing the presupposition in (583e). Without this presupposition no particular alternative is designated as salient and eligible for exhaustification. This would mean that each member of a negative coordination is treated as a sentence with contrastive negation. Nonetheless, the QUD answered is 'Does Brenda sing or does she dance?', which is why the positive alternatives are contextually salient (583g, 583h) and picked up by the presupposition to be supplied to EXH. This echoes the discussion in the previous subsection, where it is established that allowing only p, q into the set of alternatives would result in the right meaning after exhaustification. On the other hand, the position of EXH here is not the same – instead of one EXH^+ at the root of the whole coordination as assumed so far, there is one $\text{EXH}_{LL\%}$ operator present on each

disjunct in (583b). This anticipates the discussion of embedded exhaustification in section 12.7.

To close the discussion, I acknowledge that Symmetry is a potential problem for the current account and for successful enrichment of the meaning via exhaustification, unless further assumptions are made about where and how it can be broken. But this was not the only issue raised by the structural approach to alternatives.

12.3.3.4 Second problem: Lexical replacement

If the Lexicon is part of the substitution source, as repeated in (584a), why is the disjunction in the LF of *neither...nor* not replaced with a conjunction? The procedure in (584b) shows that the conjunctive alternative is, in principle, derivable, and therefore expected to be member of the set of formal alternatives $F(S)$ for negative coordination (584c).

(584)   a. $SS(X,C)$, the substitution source for X in context C, is the union of the following sets: Fox and Katzir (2011: 97)

          i. The lexicon

          ii. The sub-constituents of X

          iii. The set of salient constituents in C

    b.   i. $[_{\phi} [_{\psi} \neg p]] \vee [_{\chi} \neg q]]] \gg_{\vee/\wedge} [_{\phi} [_{\psi} \neg p]] \wedge [_{\chi} \neg q]]]$

          ii. 'Brenda does not sing *or* she does not dance' $\gg$ 'Brenda does not sing *and* she does not dance'

    c. F(S) = ALT(S) = {¬p∨¬q, ¬p, ¬q, ¬p∧¬q}

Moreover, the closure conditions on contextual relevance, repeated in (585b), ensure the presence of the conjunctive alternative in the set C, as the relevance of $\neg p$ and $\neg q$ individually makes their conjunction relevant as well.

(585)   a. ALT = F(S) ∩ C   Horn (1972)

    b. Closure conditions on C   Fox and Katzir (2011)

          i. If p ∈ C, then ¬p ∈ C.

          ii. If p ∈ C and q ∈ C, then p∧q ∈ C.

So nothing seems to prevent the membership of $\neg p \wedge \neg q$ in ALT(S). However, this would have unwelcome consequences for any exhaustification approach, as it would yield unattested readings for negative coordination (586).

(586)   EXH^{+}(ALT)(S) $\Leftrightarrow$ ¬p∨¬q ∧ ¬(¬p∧¬q)

The reason is that, with the set as in (584c), the conjunctive alternative would be innocently excludable, but the subconstituent alternatives would then not be consistent with the prejacent and the negation of the conjunctive alternative (586), so they cannot be innocently included.

Now, given that the structural approach considers substitution to be the basic mechanism in the algorithm for generating alternatives and always applicable, the only reason why an alternative would fail to be generated is the absence of the corresponding element in the substitution source. For the alternative with conjunction to not be derived, the conjunction itself would have to be absent from the substitution source, which can only happen if access to the lexicon is denied for some reason. The fact that no plain connective (*or*, *and*) is present inside the *neither...nor* coordination cannot serve as a straightforward explanation for the lack of access to the right subset of the lexicon, as the alternative generation algorithm works with LFs (or 'parse trees', as Katzir (2007) puts it), where the disjunction is clearly identifiable and replaceable.

Why would the (relevant subset of the) lexicon not be able to feed the substitution source here? It would not be very sensible to say that adult speakers of English do not have full access to the lexicon when computing implicatures as it has been argued for children and their interpretation of plain disjunction *or* (Singh et al., 2016). Rather, with negative coordination the access to the lexicon is restricted, if not disabled, due to the unclear categorial status of the coordination markers *neither* and *nor*: the combination of multiple meaning components inside one lexical item (and construction) – negation, connectivity, focus association – disables access to the adequate part of the lexicon (plain connectives). That is, the 'bivalent' form of the coordination and absence of an overt pivotal connective prevents the inclusion of a subset of lexical items, i.e. connectives like $\vee$, $\wedge$, into the substitution source.

Furthermore, similar claims have been made implicitly for the *or else* disjunctions in Meyer (2016). These constructions comprise a clearly identifiable disjunction *or* (587a), yet they always yield conjunctive interpretations (587b), with the wide scope of the epistemic necessity modal. Moreover, Meyer observes that, in certain cases, the *else* pronoun does not have to be expressed, and therefore she posits a null *else* (pro_{else}), which yields the same meaning in combination with *or* and the modal as the overt one (587a).[8]

(587)   a. John must be rich or else/ pro_{else} he wouldn't own a Porsche.

         b. $\approx$ It must be the case that John is rich and that he owns a Porsche.

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[8]Overt or covert *else* has the meaning contribution of a semantically complex anaphoric pro-form: 'it takes a proposition-denoting antecedent and subtracts this antecedent proposition from a set of worlds, namely, the set of worlds that the modal in the second disjunct quantifies over' (Meyer, 2016: 712).

Crucially, for an assertion with a disjunction *or* and an overt or a covert pronoun *else* (588a), the set of alternatives would look like (588b).

(588)   a. S: A or else/[pro$_{else}$] B

         b. ALT = {A; B[else]; B[pro$_{else}$]; [AandB[else]]; [AandB[pro$_{else}$]]}

However, since independent, non-coordinated sentences introduced by *else* (B[*else*]) are not well-formed for most speakers of English, and conjunctions with *and* plus *else* attached to the second conjunct ([*A and B*[*else*]]) are clearly ungrammatical, whereas conjunctions with silent *else* ([*A and B*[*pro$_{else}$*]]) are unattested, Meyer concludes that the set of alternatives for (588a) boils down to (589). This eventually permits recursive application of an EXH operator to derive the conjunctive meaning for (587a), in a procedure which is fully parallel to the one proposed in section 12.1 for *neither...nor*.

(589)   ALT={A; #B[else]; B[pro$_{else}$]; #[AandB[else]]; #[AandB[pro$_{else}$]]}
         = { A; B[pro$_{else}$] }

We thus see that, as soon as there is a non-canonical coordination construction, the (sub-)structures that can(not) be found as overtly expressed in the grammar of a given language start playing a role in determining the set of alternatives.[9] The same could then be said about *neither...nor* – existence of only one overt and specialized form for negative coordination, which is the 'bivalent' *neither...nor* construction, leaves the set of formal alternatives without a conjunctive alternative (590). In other words, the fact that a construction like *noth...nand*, or the like, is unattested means that $\neg p \wedge \neg q$ should not be a member of the set of alternatives for *neither...nor*.[10]

(590)   F(S) = ALT(S) = {$\neg p \vee \neg q$, $\neg p$, $\neg q$, #$\neg p \wedge \neg q$}

Finally, one might wonder why access to the appropriate subset of the lexicon is not enabled by the existence of other lexical forms for bivalent coordination, namely *both...and*, but also *either...or*. I assume that, due to their complex structure, it is not possible to make use

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[9]Bassi and Bar-Lev (2018) also use the absence of a strong lexical alternative to bare conditionals, which are underlyingly existential on their analysis, to motivate the absence of a strong scalar alternative from the alternative set. This relates to the claims in Horn (2000), invoked in subsection 12.3.2. Moreover, it stands in contrast to non-bare conditionals, where strong alternatives are lexically available, and this is reflected in the interpretation of their weak counterparts.

[10]It is important to point out that I do not assume a morphological decomposition od *neither...nor* onto a combination of a negative affix *n-* and the disjunction *either...or*. As The Oxford English Dictionary shows, there is no evidence that *nor* is actually directly related to the disjunction *or*. I thus base its disjunctive nature on the split scope effects that it exhibits and assume that the connective itself is likely null, i.e. not present in the position of *nor*. However, given the non-existence of an alternative grammaticalized morphological form for negative coordination, just like with #[A and B[else]], the conjunctive alternative is not a member of the set of formal alternatives for *neither...nor*.

of just one of their components, namely the connectives ∧ and ∨ respectively, and add them to the substitution source. Whatever the contribution of their initial markers, these bivalent coordinators would have to be added to the substitution source holistically, which means that, at best, we could wind up with a conjunctive and a disjunctive alternative, but without the negations (591a). Since neither of these two alternatives is entailed by the assertion, both would be excluded, and the subconstituent alternatives would be included (591b).

(591)   a. F(S) = ALT(S) = {¬p∨¬q, ¬p, ¬q, p∧q, p∨q}

      b. EXH$^+$(ALT)(S) ⇔ ¬p∨¬q ∧ ¬(p∧q) ∧ ¬(p∨q) ∧ ¬p ∧ ¬q

This would give the attested strong interpretation for negative coordination (591b). Thus, if at all, I assume that the lexical replacement for a prejacent with *neither...nor* could only be provided by *both...and* and *either...or*, in which case the negation on the coordinands is 'rewritten' because the initial markers cannot be neglected and the negation was not a lexical item on its own but part of *neither* and *nor*. Further replacement of coordinands of such created p∧q and p∨q with the negative coordinands of the prejacent is not possible due to Atomicity (Trinh and Haida, 2015).

Let me assume, ultimately, that the ALT(S) in (592) are the only alternatives EXH$^+$ is sensitive to in the case of negative coordination in English.

(592)   F(S) = ALT(S) = {¬p∨¬q, ¬p, ¬q}

I now turn to some more general considerations of the utility and applicability of the strengthening mechanism explored in this chapter.

12.4   Motivation for exhaustification

It has been demonstrated that *neither...nor*-coordination in English can be analyzed as an inherently negative disjunction if the right use of exhaustification over the right set of alternatives is brought in as a strengthening mechanism that derives the wide scope conjunction interpretation. Applications of EXH over disjuncts in the first argument are motivated by the presence of focus. From here, the following step depends on the choice of the approach to exhaustification – either another application of EXH or Innocent Inclusion. The former is motivated by the necessity of obtaining an enriched meaning, different from the basic truth-conditional interpretation of the prejacent, for which purpose EXH is reapplied, this time excluding already exhaustified subconstituent alternatives. The latter is built into a modified lexical entry for the EXH operator, as a procedure (Innocent Inclusion) which

follows Innocent Exclusion. That the EXH operator is equipped with such a procedure that can carry out the full strengthening is an advantage.

Although sometimes considered controversial, exhaustification performed by covert operators which can be adjoined to different nodes in the structure has often been successfully implemented to deal with scalar elements as a strengthening device. *Neither...nor*-coordination is disjunction-based, which qualifies it for the same treatment, even though it is not assumed here that it shares the (Horn) scale with plain conjunction, i.e. that it has access to the lexicon as per the structural approach to alternatives (see discussion in subsection 12.3).

Now, EXH as a device, in its REXH[11] and EXH^{IE+II} versions is employed in order to avoid undesirable ignorance inferences (Sauerland, 2004; Fox, 2007). As discussed in section 10.3, a wide scope disjunction which underlies *neither...nor* coordination (593b), without any strenghtening (593a) would inevitably yield such effects, shown in (593c). But this would make special forms of markers and the coordination they participate in (negative coordination) no different than a plain disjunction with negative disjuncts (593d). Exhaustification is performed with *neither...nor* coordination in order to eliminate ignorance inferences, and especially in view of the competition with negative plain disjunction (*either*)...*or* (593d), which does display such effects (593c).

(593)   a. Brenda neither sings nor dances.

     b. S = ¬p∨¬q

     c.   i. The speaker doesn't know whether Brenda does not sing.

        ii. The speaker doesn't know whether Brenda does not dance.

     d. Brenda (either) doesn't sing or doesn't dance.   ⇝ (593c)

This seems to predict that a disjunction whose disjuncts are focused, like (594a), could be strengthened into a conjunctive interpretation using exhaustification, since one might want to avoid ignorance inferences here, as well. The presence of F-marking triggers insertion of EXH operators, so why can't it be used in such a way to yield a conjunctive meaning (594b)?

(594)   a. Brenda SINGS$_F$ or DANCES$_F$

     b. ⇏ Brenda sings and dances.

     c. ALT = {p∨q, p∧q, p, q}

     d. ¬(Brenda sings and dances)

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[11]That is, recursive, iterated exhaustification.

It is usually assumed that the interpretation in (594b) does not arise due to the availability of the lexical replacement mechanism in which an alternative would be created by replacing the disjunction with a conjunction (594c). In fact, such 'scalar' alternative is equivalent to the strong interpretation which multiple applications of EXH or EXH^{IE+II} would derive. The presence of a conjunctive alternative in the set used by EXH therefore prevents any strengthening of (594a) that could yield a strong, conjunctive meaning, by virtue of the contradiction with the scalar implicature (594d), as pointed out in the previous section.[12] However, in the case of negative coordination, the symmetry of constructions involving two coordination markers (*neither* and *nor*), as well as the presence of focus on the disjuncts closely resemble circumstances with *either...or* disjunction (595a), where the two markers supposedly also attach to contrastive/ exhaustive foci (Hendriks, 2004; Den Dikken, 2006). The above question now becomes more valid: what prevents triggering exhaustification and strengthening *either...or* into a conjuction? I.e. why is (595a) still interpreted as a disjunction, whereas (595b) is interpreted as a conjunction with negative coordinands?

(595)   a.   Brenda either $\textsc{sings}_F$ or $\textsc{dances}_F$ p∨q
           Brenda $\textsc{either}_F$ sings $\textsc{or}_F$ dances   p∨q

      b.   Brenda neither $\textsc{sings}_F$ nor $\textsc{dances}_F$ ¬p∧¬q

Instead of receiving a doubly strengthened, conjunctive interpretation, *either...or* disjunction in (595a) usually receives an exclusive interpretation, which can correspond to either of the paraphrases in (596a) and (596b), where the former comes about as a scalar implicature, just like (594d), whereas the latter is the product of embedded exhaustification of the disjuncts with respect to each other.

(596)   a.   Brenda either EXH[sings or dances] (but not both)
         EXH({¬p∨¬q, ¬p∧¬q})(¬p∨¬q)

      b.   Brenda either EXH[sings] (but does not dance) or EXH[dances] (but does not sing)
         [EXH({¬p, ¬q})(¬p)] ∨ [EXH({¬q, ¬p})(¬q)]

In the first case (596a), the alternative with conjunction is part of the set of IE alternatives, whereas the two disjuncts cannot be. The conjunctive alternative being subject to exhaustification would thus explain the usual absence of the conjunctive reading for (595a) – neither REXH nor EXH^{IE+II} can derive it under these circumstances. But it does not

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[12]Such strengthening for the disjunction *or* is, in fact, possible under certain circumstances, such as in child grammar (Singh et al., 2016), or in combination with *else* (Meyer, 2016). Crucially, in these cases, a conjunctive, 'scalar' alternative is not found in the set of alternatives the exhaustifying operator takes as its first argument.

explain what the contribution of *either* is, if the enriched meaning is the same as in its absence, with bare *or* (594a).[13] In the second case, EXH operators are applied locally (an EXH adjoins to each disjunct), and presumably operating over a set of focus alternatives, so the disjuncts become alternatives to each other. The alternative with conjunction (594b) does not participate in this because the EXH operators are embedded in positions where no connective is present as part of the prejacent.

Crucially, we see that the two versions of the EXH approach to *neither...nor* coordination, i.e. both REXH and EXH^{IE+II}, successfully derive the strong interpretation thanks to the absence of the 'scalar' alternative from the set of alternatives in the first argument of the exhaustifying operator (597).

(597) $\neg p \wedge \neg q \notin F(S)$, *therefore* $\neg p \wedge \neg q \notin IE$

For either of the versions of exhaustification, the strengthening procedure would not work the same if the stronger, conjunctive alternative entered the computation, since the resulting implicature would then amount to (598a), which is compatible with the basic meaning of the assertion (598b). But this would preclude strengthening of the negative disjunction into a negative conjunction, as it produces exactly the opposite effect – it negates the strong interpretation. Moreover, presence of the conjunctive alternative would render the subconstituent alternatives non-excludable, i.e. absent from the set IE. However, this does not correspond to the interpretations attested with negative coordination (598c).

(598)   a. $\neg(\neg p \wedge \neg q) \Leftrightarrow p \vee q$

      b. $EXH(\{\neg p \vee \neg q, \neg p \wedge \neg q\})(\neg p \vee \neg q)$ $\Leftrightarrow \neg p \vee \neg q \wedge \neg(\neg p \wedge \neg q)$

      c.   Brenda neither sings nor dances.

         # 'Brenda either does not sing or does not dance, but not both'

More generally, the kind of conjunctive strengthening performed for *neither...nor* in this chapter can arise every time the alternatives are not closed under conjunction; when they are closed under conjunction, a regular scalar implicature arises, just like with plain, unembedded disjunction.

Finally, the version of the approach using an EXH operator which combines Innocent Exclusion and Innocent Inclusion (EXH^{IE+II}) is postulated as an obligatory procedure, unlike exhaustification by exclusion only (Bar-Lev and Fox, 2017). The motivation for this is the observed robustness of Free Choice effects compared to scalar implicatures

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[13]Note that a difference between simple *or* and *either...or*, where the latter is more strongly associated with exclusive inferences, arises only when they are contrasted with each other, as experimenatal results show that they are almost equally exclusive when used in isolation from each other (Nicolae and Sauerland, 2016).

(Chemla, 2009). Moreover, Free Choice inferences are not cancelable (599a), unlike typical implicatures, such as the scalar implicature of unembedded disjunction (599b).

(599) a. You can eat ice cream or cake; # in fact, you are not allowed to eat ice cream, but you are allowed to eat cake.

b. Ryan ate ice cream or cake; in fact, he ate both.

Furthermore, experimental findings show that the computation of scalar implicatures is costly from the processing point of view, whereas that of FC inferences is not (Chemla and Bott, 2014). Bar-Lev and Fox (2017) thus conjecture that FC inferences are obligatory implicatures, whereas scalar implicatures are not, and that this is due to the Inclusion procedure being obligatory and Exclusion optional. The reason for this is that II alternatives are always relevant, yet it is possible to not take the IE ones into account when they are deemed irrelevant. This, in turn, follows from observations that FC effects are independent of any contextual factors, while scalar implicatures are context-dependent.

The account for FC disjunction in terms of Innocent Inclusion is thus related to other reported cases of obligatory implicatures, some of which deal with connectives (Bowler, 2014; Meyer, 2016), and others with quantificational elements (Bar-Lev and Margulis, 2014; Bassi and Bar-Lev, 2018). Opting for such an account of *neither...nor* coordination would then provide an explanation for the robustness of the strong, conjunctive interpretation which results from the obligatory presence of an EXH^{IE+II} operator and the II alternatives not being subject to considerations of contextual relevance. But with the observed interpretation of English negative coordination, such obligatoriness would also have to hold with the option of recursive exhaustification, although this mechanism works only with innocently excludable alternatives. This constitutes another argument in favor of an 'Inclusion' approach over one with iterated Exclusion.

Now, implicature-based accounts of FC disjunction boast both conceptual and empirical arguments (Bar-Lev and Fox, 2019). On the one hand, they do not require the meaning of logical words to be modified in any way, i.e. a connective like *or* can retain its usual Boolean denotation. On the other hand, an implicature approach correctly predicts the behavior of FC disjunction under negation (Kratzer and Shimoyama, 2002; Alonso-Ovalle, 2005), where the conjunctive-like meaning disappears (600). In other words, exhaustification does not take place inside the DE environment created in the scope of negation in (600), since the basic truth conditional meaning already offers a strong interpretation (600a). A negated FC interpretation, where the implicature would be computed below negation is not attested (600b).

(600) You cannot eat ice cream or cake.

266

a. 'You are not allowed to eat ice cream and you are not allowed to eat cake'

b. # 'It is not the case that you are both allowed to eat ice cream and allowed to eat cake'

However, *neither...nor* constructions do not seem to converge in their behavior with either canonical scalar implicatures or with FC inferences once the monotonicity of the environment changes. This is discussed in the next section.

12.5 DE environments

A non-negligible problem for an account of *neither...nor* coordination in terms of alternatives and exhaustification is posed in DE environments[14]. Namely, EXH operators are conceived as meaning enrichment devices which strengthen an interpretation of a linguistic structure by adding further inferences to the assertive component. EXH$^+$ accounts proposed here have been exemplified only for matrix negative coordination, i.e. without any interaction with scope-taking and monotonicity-affecting operators. Yet exhaustification and its effects on the meaning are dependent on the logical properties of the environment in which it occurs. Therefore any change in entailment relations affects the results which an exhaustification procedure can obtain, under the condition that the alternative set remains constant. That is to say, inside a DE environment the entailment relations reverse with respect to an unembedded UE context, created by the wide scope disjunction, so what used to be strengthening becomes weakening. One might thus expect that no exhaustification takes place when *neither...nor* coordination is embedded under a DE operator, such as the predicates *doubt* (601a) or 'it is false that' (601b).

(601)   a. I doubt that neither Jenny smokes nor Katie drinks.

b. It is false that Jenny neither smokes nor drinks.

The reasoning is the following. English negative coordination is underlyingly a disjunction, and as such logically weak and entailed by its individual disjuncts in an UE environment. However, in a DE context its basic meaning should already yield a strong interpretation, which is not entailed by any alternative. This is schematized for embedding under negation in (602).

(602) $\neg[\neg p \vee \neg q] \Leftrightarrow \neg[\neg(p \wedge q)] \Leftrightarrow p \wedge q$

This means that further strengthening is impossible and no EXH($^+$) should be inserted taking the embedded coordination as its prejacent. Somewhat simplifying, absence of

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[14]Downward entailing/monotonic

exhaustification over an inherently negative wide scope disjunction ($\neg p \vee \neg q$), which is the basic meaning of *neither...nor*, would predict the interpretations in (603a) and (604a), as the negation from negative coordination gets cancelled out by the one from the embedding predicate.[15] However, this prediction is not borne out – such readings with embedded conjunction are not the immediately accessible ones for most speakers (603a, 604a), and the sentences in (603) and (604) are usually interpreted as embedded disjunctions (603b) and (604b), respectively.

(603) I doubt that neither Jenny smokes nor Katie drinks.

    a. # I believe that Jenny smokes and Katie drinks.

      $\neg K_S(\neg p \vee \neg q) \Leftrightarrow \neg K_S(\neg(p \wedge q)) \Leftrightarrow K_S(p \wedge q)$

    b. ✓ I believe that (either) Jenny smokes or Katie drinks.

      $\neg K_S \neg(p \vee q) \Leftrightarrow K_S(p \vee q)$

(604) It is false that Jenny neither smokes nor drinks.

    a. # Jenny smokes and drinks. $\neg(\neg p \vee \neg q) \Leftrightarrow \neg(\neg(p \wedge q)) \Leftrightarrow p \wedge q$

    b. ✓ Jenny either smokes or drinks. $\neg\neg(p \vee q) \Leftrightarrow p \vee q$

But such readings would be predicted for *neither...nor* if the coordination was embedded inside a DE environment with its already strengthened and not with its basic meaning. Here is a surprising finding – exhaustification seems to take place even in an environment in which strengthening is not needed. This goes against the received wisdom about general behavior of implicatures (Horn (1972) and much subsequent work), and this goes for canonical scalar implicatures, as well as more intricate ones, such as the Free Choice inferences invoked in the previous section. Moreover, the initial argument by which exhaustification is there to provide strengthening for a weak basic interpretation of *neither...nor* is now undermined.

The EXH$^+$ approach to *neither...nor*-coordination presented in the present chapter did not place the burden of transforming a wide scope disjunction into a wide scope conjunction in the pragmatics module of grammar, where this process would correspond to the computation of a conversational implicature. Crucially, this would not even be possible, since the use of iterated exhaustification and complex manipulation of alternatives is not realizable inside a (Neo-)Gricean framework. Such a framework would also not allow for embedded exhaustification, as the pragmatic operations can only apply post-syntactically, at the level of speech acts, i.e. at the root node of complex sentences. CP$_1$ in (605) would thus be an eligible node, but CP$_2$ wouldn't. Yet, embedded and obligatory exhaustification

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[15]For presentational purposes, I take the meaning contribution of *doubt* to be 'it is not the case that the speaker believes that p' and notate it as '$\neg K_S$'.

at the level of CP$_2$ is what seems to be needed in order to account for the readings of (603) and (604).

(605) [$_{CP1}$ It is false [$_{CP2}$ that Jenny neither smokes nor drinks]]

Although availability of a covert operator EXH, applicable in matrix as well as embedded positions in the syntactic structure, makes it possible to adjoin EXH$^+$ to the the CP$_2$ node in (605) in principle, distribution of EXH operators is not entirely unconstrained. Namely, insertion of EXH is governed by an Economy Condition (Chierchia et al. (2012b), formulated there as the 'Strongest Meaning Hypothesis', p. 2327), as given in (606)[16].

(606) An occurrence of EXH in a given sentence S is not licensed if eliminating this occurrence leads to a sentence S' such that S' entails S.

The Economy Condition in (606) prohibits strengthening of *neither...nor* coordination at the level of the embedded clause(s) (CP$_2$ in (605)) because the version of the complex sentence S' with no EXH$^+$, which corresponds to (607a), entails the version with embedded exhaustification S in (607b), so the insertion of EXH is not licensed at all. In other words, embedded strengthening led to global weakening.

(607) a. Jenny smokes and drinks. $\neg[\neg p \vee \neg q]$

       b. Jenny (either) smokes or drinks. $\neg[EXH^+(\neg p \vee \neg q)]$

Why would exhaustification be mandatory and insensitive to the linguistic context, defying even the Economy Condition (606)? I will explore metalinguistic negation as the major culprit, as well as some related factors.

12.5.1   Focus, relevance, and metalinguistic negation

It has been observed in the research on scalar implicatures that the presence of focus on a scalar item forces an implicature even in DE environments (Cohen, 1971). As discussed by Fox and Spector (2018), if no exhaustification happened under negation in (608a), the continuation with *both* would contradict the sentence with stressed *or* (see also Meyer (2015)). This prompts them to formulate *The Implicature Focus Generalization* (608b).

(608) a. John didn't do the reading OR$_F$ the homework. He did both.

       b. Implicatures can be embedded under a DE operator only if the (relevant) scalar term bears pitch accent.

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[16]The definition is taken from Spector (2014: p.20). For a more recent discussion of the Economy Condition see Fox and Spector (2018).

Furthermore, they point out that the scope of a DE operator is not necessarily a global DE context, which makes it possible to explain the absence of a globally weakening implicature and the availability of the conjunctive, 'both' interpretation in (608a). For this purpose they stipulate the presence of both an embedded (EXH_1) and a matrix exhaustifying operator (EXH_2) in a sentence like (608a), where the latter one creates a globally non-monotonic environment (609).

(609) EXH_2 [John didn't EXH_1 [do the reading OR the homework]]

However, unlike the negation of a stressed plain disjunction in (608a), embedding *neither...nor* in a DE context does yield a weakened global meaning ((607b) instead of (607a)). This indicates that what we are dealing with are in fact global DE environments, inside which exhaustification cannot produce strengthening, so attaching an EXH at the root of such complex structures is unmotivated.[17] The exhaustification which takes place obligatorily and even in a DE environment then has to do with some particularity of *neither...nor* as opposed to plain *or*. A crucial difference is that the proposal laid out in previous sections for *neither...nor* derives its basic meaning, and not like in the case of negated stressed *or* an interpretation due to scalar implicatures characteristic only for certain circumstances. Moreover, the embedded exhaustification in the two cases is not the same: iterated application of an exclusive operator or an application of an exclusive and inclusive operator over subconstituent alternatives is needed for negative coordination, whereas stressed plain disjunction is handled with a single application of an exclusive operator over scalar alternatives. It matters to add that a fully global application of whichever form of EXH^+ (instead of one that combines a local and a global application (609), as in Fox and Spector (2018)) cannot yield any results for the situation in which *neither...nor* is under a DE operator because the prejacent would be conjunctive ($p \wedge q$) and as such unaffected by global exhaustification.

Away from the 'Implicature Focus Generalization', Magri (2011) discusses certain cases where scalar implicatures obligatorily arise inside DE environments causing oddness due to world knowledge and the contextual equivalence between alternatives. In (610) context makes it such that 'some' entails 'every', which produces oddness when 'some' is embedded inside a DE environment like (610a), where an embedded 'not all' implicature is computed.

(610)   Context: In Italy, children always inherit the last name of their father.

        a.   # Every father some of whose children have a funny last name must pay a fine.

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[17]In fact, having a matrix EXH would yield the attested exclusive disjunctive meaning, if we follow Fox and Spector (2018)'s mechanism, but only assuming that the embedded exhaustification (EXH_1) is recursive or exclusive + inclusive.

b. Every father whose children have a funny last name must pay a fine.

Nonetheless, in basic cases of DE environments no implicature arises (611a). This is in compliance with the Economy Condition (606), and does not change even when the scalar alternative ('all' in this case) is made salient in the preceding context, as exemplified by Magri in the short dialogue in (611b).

(611)   a. Every student who did some of the homework will get an A.
            ↛ Every student who did some but not all of the homework will get an A.

        b. A: I did all of the homework. Will I get an A?
           B: You definitely will. Everybody who did some of the homework will get an
           A.   ↛ some but not all

Even so, Magri assumes that at least one EXH is obligatorily present in each LF (612a). The Economy Condition is then dealt with by shifting the burden of its satisfaction to the presence or absence of certain alternatives in the domain of the exhaustifying operator (612b).

(612)   a. The exhaustivity operator EXH is mandatory at every scope site.

                                                                        Magri (2011: 35)

        b. An occurrence of the exhaustivity operator is ungrammatical whenever its do-
           main contains an alternative whose corresponding implicature leads to a weak-
           ening of the global meaning.

                                                                        Magri (2011: 41)

In view of this, it is proposed that relevance can be accommodated in such a way that, even when an alternative is salient in the preceding discourse, as in (611b), perspectival shift between two utterances can remove it from the set of relevant alternatives, in which case it must be absent from the intersection with formal alternatives, as well. This would explain (611b) – relevance is locally accommodated between the first and the second sentence uttered by B, given that only the first one directly answers A's question and thus shares the same discourse perspective. This eliminates the alternative with 'all' from the set of relevant alternatives and therefore from the intersection with F(S) which is supplied as the first argument to EXH. The Economy Condition is satisfied in this way, i.e. this is why exhaustification below DE (in the restrictor of a universal quantifier) in (611b) does not give rise to a globally weakened meaning – the set of alternatives for embedded EXH does not contain the strong alternative with 'all'.

Now, if such a modification of the Economy Condition (612b) is adopted here, by which it is not the presence or absence of EXH that makes a difference, but the presence or ab-

sence of a particular alternative in the set of relevant alternatives, it is then imaginable that, under certain circumstances, some alternatives cannot be exempt from relevance, so exhaustification is performed even inside a DE environment and even though it results in global weakening. Namely, the subconstituent alternatives ¬p, ¬q retain their relevance when negative coordination is embedded under *doubt* or 'it is false that'. As discussed extensively in section 12.3, exhaustification of negative coordination relies on subconstituent alternatives only, but these cannot be removed from the set of relevant alternatives since they are being uttered as individual disjuncts. Moreover, there can be no perspectival shift in this case because the mere fact that *neither...nor* is embedded can only be acceptable (and even then marginal) when it answers the same question as some contextual antecedent. The discourse in (613) exemplifies this.

(613) A: Did you go to the party yesterday? I heard that Brenda showed up, but was too sad to sing or dance.

   a. B: I doubt that Brenda neither sang nor danced.

   b. B: It is false that Brenda neither sang nor danced.

Both versions of B's response in (613a) and (613b) are employed to contradict A's answer to an implicit QUD 'What did Brenda do at the party?'. A's assertion denies the expectation that one would sing and dance at a party, making these two predicates salient when applied to Brenda. The two are still highly relevant further on when B disputes the truth value of their disjunction through (613a) or (613b). Crucially, (613a) and (613b) require such a contextual antecedent. The oddness in (614) illustrates that.

(614) a. A: Did you go to the party yesterday? I heard that Brenda showed up and drank an entire bottle of wine.

   b. B: # {It is false / I doubt} that Andy neither sang nor danced.

But this would presuppose obligatory presence of EXH$^+$ at the root of the negative coordination and below the embedding predicate. The problem is that Magri's approach (612a) predicts EXH to be present also in other positions inside this complex structure. As already pointed out, matrix EXH would not cause problems, but assuming the presence of an exhaustifying operator at other scope sites, such as the intermediate scope below the disjunction and above the negation of *neither...nor* would not give the right result, as will be shown in the next section. However, if the sets of alternatives for such EXH operators inside the coordination do not contain any excludable and relevant alternatives whose negation would yield a palpable result, then we have nothing to worry about. In this way, Magri's system could help explain the emergence of a disjunctive interpretation

272

(607b) for negative coordination inside DE environments, instead of a conjunctive one (607a). Nonetheless, it would still be problematic to motivate local strengthening which is reapplied after a vacuous first application at the level of the embedded negative coordination, i.e. why the local EXH is performed recursively before the higher parts of the structure are added. Exclusive and inclusive EXH, on the other hand, is conceived as a global mechanism and its embedded application would also be unexpected.

Crucially, on any account of embedded exhaustification, a scalar implicature is possible below a DE operator under the right circumstances, as shown in (615). This violates the Economy Condition in (606), but circumvents the one in (612b). As pointed out previously, the necessary ingredients seem to be stress on the scalar item, but also the right contextual and world knowledge interplay, as in (615). Namely, when the nuclear scope of the quantifier *every student* is such that it makes the 'some but not all' inference in the restrictor plausible, the globally weakening scalar implicature arises.

(615)   Every student who did SOME$_F$ of the homework will not get an A.

The example in (615) is almost identical to (611a), with the difference being the presence of negation in the scope of the quantifier. Under Magri's approach, the sentence in (615) must share a common discourse perspective with some utterance from the preceding context. But this entails that the sentence cannot be uttered out of the blue when it has the pitch accent as depicted in (615) and the corresponding weakening implicature – it must have some sort of an antecedent in the preceding discourse. In fact, this holds as an empirical observation and is independent of the approach to economy and exhaustification. Such cases are often related to the metalinguistic use of negation and other operators (Horn, 1985, 1989). It matters to say that couching the reading of *neither...nor* in the realm of metalinguistic (negation) phenomena is not incompatible with Magri's approach to embedded implicatures, since no perspectival shift can take place between the sentence with a metalinguistically used expression or construction and its discourse antecedent, so the relevance of alternatives remains unchanged. The relevant subconstituent alternatives thus make the embedded exhaustification non-vacuous and result in the globally weakening implicature. Analyzing (616a), (616b) and similar cases of *neither...nor* under DE operators as cases of metalinguistic use of the whole negative coordinative construction is tempting, especially because it seems compatible with other assumptions that could be made, such as Magri's version of the Economy Condition.

(616)   a. I doubt that neither Jenny smokes nor Katie drinks.
            'I believe that (either) Jenny smokes or Katie drinks'
        b. It is false that Jenny neither smokes nor drinks. 'Jenny either smokes or drinks'

273

Metalinguistic uses of negation have been offered different accounts, often under the name of 'external negation', whose presupposition-canceling properties are notorious. For Horn (1985), such negation is different from the truth-value reversing operator, as it does not target the propositional content, but assertability of an utterance. It is thus a pragmatically marked use of negation, and not a special semantic operator. The grounds for objecting to a particular utterance can be of different nature, but it is often linguistic inadequacy of the embedded expression employed and the implicatures it triggers. This is appropriate for our case (616a, 616b), and even more so now that implicatures are actually part of the enriched asserted meaning. Moreover, such treatment has further on been extended to operators other than negation, which means that different DE operators can be used metalinguistically, as well. For the present case (616a, 616b) this concretely means that the embedded negative coordination is not interpreted compositionally with the superordinate clause, but that the matrix predicate refers only to the particular preceding utterance, with its already composed meaning, which corresponds to $\neg(p\lor q) \Leftrightarrow p\neg\land\neg q$. The same effect arises with other DE operators and environments, as it seems (617).

(617)   a. Few students neither smoke nor drink.
            ⇝ Many students smoke or drink.
        b. Every student who neither smokes nor drinks will be rewarded.
        c. If George neither smokes nor drinks, he will be rewarded.

Another feature of the examples with negative coordination under metalinguistically used DE operators in (616a) and (616b) is that the coordination is, together with both of its markers *neither* and *nor*, embedded under the complementizer *that*. This signals something reminiscent of a quotative use of the construction, which is in accordance with the metalinguistic effects invoked and, moreover, facilitates them. But not only that speakers mostly interpret examples like (616a) and (616b) as some sort of fixed and reported negative coordination constructions, they also judge them as degraded to a certain extent in such positions. This degradedness potentially results from the impossibility of backpedaling and canceling the implicatures, as would be expected with purely pragmatic effects in a (Neo-)Gricean framework or even a grammatical approach to implicatures (Chierchia, 2004). As a comparison, French disjunction *soit...soit* is analyzed as a PPI, which is a consequence of obligatory exhaustification, and the latter causes incoherence and degradedness inside DE environments due to the Economy Condition (Spector, 2014). This represents an interesting parallel to *neither...nor* – possibly the degradedness comes from the inevitable violation of the Economy Condition when the obligatorily strengthened negative disjunction is found under a DE operator.

12.5.2 Matrix negation and split scope

Crucially, matters are different with negative coordination of full CPs, i.e. when the markers *neither* and *nor* are appearing above the complementizers. This is shown in (618) and (619).

(618) ? I doubt **neither that** Jenny smokes **nor that** Katie drinks.

    a. ✓ I believe that Jenny smokes and that Katie drinks.

    b. # I believe (either) that Jenny smokes or that Katie drinks.

(619) ? It is false **neither that** Jenny smokes **nor that** she drinks.

    a. ✓ Jenny smokes and drinks.

    b. # Jenny either smokes or drinks.

Now the only available readings are those where the negative coordination ends up as a conjunction (618a, 619a) instead of a disjunction (618b, 619b). This suggests that strengthening of the *neither...nor* disjunction into a conjunction of negative clauses is not possible when the coordination markers arguably belong to the same clause as the matrix predicate. In other words, strengthening of the negative disjunction which underlies *neither...nor* into a conjunction cannot take place before composition with the verb which takes the coordination as its complement and which is the source of downward monotonicity, if the two are local. What this points to is that the obligatory exhaustification of the negative disjunction needs to happen at the CP boundary the latest, which is why *neither...nor* coordination below a complementizer still undergoes strengthening into a conjunction, and eventually leads to global weakening, once the matrix DE operator is added (620).

(620) [$_{CP1}$ It is false [$_{CP2}$ that Jenny neither smokes nor drinks]]
    'Jenny (either) smokes or drinks'

On the other hand, when the *neither* and *nor* markers are above the complementizers, at the left-most edge of the coordinated CPs which constitute the complements to the matrix predicate (621), i.e. in a position where they are local with the DE predicate and directly modify its complements, then exhaustification does not happen at an intermediate point between the negative coordination and the predicate which immediately c-commands it, but at the root of the whole complex structure (CP$_1$ in (621)).

(621) [$_{CP1}$ It is false [$_{CP2}$ neither that Jenny smokes] [$_{CP3}$ nor that she drinks]]
    'Jenny (both) smokes and drinks'

Once the EXH operator is inserted above the embedding predicate, at the CP$_1$ position in (621), the procedure applies vacuously, since the prejacent is now a conjunction (622).

(622) LF(621): EXH$^+$ [¬ [¬p∨¬q]] ⇔ p∧q

However, there are reasons to believe that the LF of (618, 619) does not exactly correspond to (622), in reality. Namely, as has been observed in section 3.5 on negative coordination of clauses, when *neither* and *nor* are attached above the embedded complementizers (623), the matrix verb has to be interpreted in the scope of negation (623a).

(623) ? Pat claims neither that Andy smokes nor that Rob drinks.

      a. ✓ 'Pat does not claim that Andy smokes or that Rob drinks'

      b. * 'Pat claims that Andy doesn't smoke and that Rob doesn't drink'

The pattern is reproduced regardless of the matrix verb used. Such an interpretation (623a) would correspond to ATB-movement of the negative operators from the coordination markers up to the matrix clause (624), as discussed in section 11.2.1.

(624) [$_{CP1}$ Op¬$_i$ [$_{CP2}$ <¬$_i$>p [∨ [<¬$_i$>q]]]]

But this means that the LFs of (618) and (619) correspond rather to (625), instead of (622). Moreover, exhaustification still must be applied globally and over subconstituent alternatives, in order to derive the conjunctive meaning.

(625) EXH$^+$ [¬ [¬(K$_S$) [p∨q]]] ⇔ p∧q

Exhaustification at the root of the matrix clause is thus needed for negative coordination of full CPs, i.e. when *neither* and *nor* are sitting above the complementizers, unlike the cases of negative coordination below a complementizer discussed previously (616a, 616b) where exhaustification must happen below the matrix clause. Nonetheless, it is unclear why and how this ATB-movement of negation would happen with negative coordination of embedded clauses in the first place (624). Yet it is consistently observed that the matrix verb in such configurations is in the scope of a negation, although there is no overt negation c-commanding it. Such a pattern suspiciously resembles split scope interpretations (626), discussed in Chapter 9.

(626) Jenny has to neither sing nor dance.   ¬□(p∨q)

The problem is that exhaustification cannot derive the split scope interpretation if we submit to a surface scope LF for such sentences (627). With subconstituent alternatives generated for negative coordination and lexical replacement allowed for the modal only, no insertion spot of EXH or mode of application (inclusive or recursive), can derive the split scope reading. For reference, see the results in (627a) and (627b). The reason for this is that it is impossible to 'get rid' of the widest scope for the necessity modal established in

the prejacent. But it is exactly this wide scope of the modal that is incompatible with the meaning of split scope (626).

(627) (Non-enriched) LF(626): $\Box[\neg p \lor \neg q]$

    a. $\text{EXH}^+ [\Box [\neg p \lor \neg q]] \Leftrightarrow$

       $\underline{\Box(\neg p \lor \neg q)} \land \neg\Box\neg p \land \neg\Box\neg q \land \Diamond\neg p \land \Diamond\neg q$

    b. $\Box [\text{EXH}^+ [\neg p \lor \neg q]] \Leftrightarrow \underline{\Box(\neg p \land \neg q)}$

This remains a puzzle and I will have to leave for future research accounting for effects of negation interpreted in the matrix instead of its base position in the coordination.[18] Let us now turn back to the exhaustification approach to negative coordination in English.

12.6 Obligatory exhaustification

The interaction of *neither...nor* coordination with DE operators shows that exhaustification of the underlying negative disjunction is obligatory and independent of the monotonicity of the environment, but also that it needs to happen at each CP boundary. But the discussion of the Economy Condition in its different versions, as well as the metalinguistic effects in the context of *neither...nor* embedded under DE operators, sidetracked the fact that what we are dealing with here is not a plain connective, like the disjunction *or*, and that it does not trigger canonical scalar implicatures, which are sensitive to the semantico-logical nature of the environment they are found in. In fact, we are dealing with specially designed morphological forms which participate in coordinative, as well as other constructions, which bear focus marking, and undergo obligatory strengthening with respect to their subconstituent (disjunct) alternatives, independently from the linguistic context. Such indefeasible exhaustification of subconstituent ('subdomain') alternatives for *neither...nor* is reminiscent of polarity sensitive items – NPIs, PPIs, and FCIs (Chierchia, 2004, 2013; Homer, 2012). Namely, an NPI does not become ungrammatical or change its meaning once it is placed under two DE operators instead of just one, as exemplified

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[18]A potential way to resolve this is to admit wide scope of the whole negative coordination, i.e. of both the disjunctive and the negative component as the basic LF, as in (1a), so global exhaustification with such a prejacent and only disjunct alternatives would give the attested meaning (1b).

(1)   a. S: $(\neg\Box p)\lor(\neg\Box p)$
       b. $\text{EXH}^+(\text{ALT})(\text{S}) \Leftrightarrow (\neg\Box p)\lor(\neg\Box p) \land \neg\Box p \land \neg\Box q$

The same widest scope of disjunction could be assumed for other cases of embedding, such as with *claim* in (623) and 'it is false that' (or *doubt*, for that matter) in (621), where application of innocent exclusion and innocent inclusion would derive the attested meanings. However, such a step would mean giving up on split scope effects, and, with it, on a major argument for a disjunctive underlying structure to start with. In other words, (1a) is already equivalent to a conjunction, by de Morgan's Law.

for *anything* in (628a). This means that exhaustification must happen at the level of the embedded CP already, otherwise the EXH would have a positive sentence as its prejacent (the two DE operators canceling each other out), and this would create a contradiction with respect to obligatory subdomain alternatives of the indefinite, couched in terms of the Chierchia (2013) approach to NPIs. When there is no clause-internal negation, presence of negation in a superordinate clause can license *anything*, in which case an EXH operator must be applied at the root of the matrix clause, i.e. above negation (628b).

(628)   a. I didn't say EXH [that Jenny didn't read anything]

        b. EXH [I didn't say that Jenny read anything]

However, (629b) shows that, at least for a subset of NPIs (namely so-called 'strong' NPIs), such an option is not available – *in years* must be exhaustified locally (629a), but if the embedded clause hosting it is not DE, a contradiction will arise and with it degradedness.

(629)   a. I didn't say EXH [that Jenny hasn't read in years]

        b. * {EXH} [I didn't say {EXH} [that Jenny has read in years]]

The importance of locality which can be observed with exhaustification of strong NPIs (629b) makes a significant parallel to the behavior of *neither...nor* coordination embedded inside the complement of DE predicates. In both cases presence of an EXH operator is mandatory at the closest CP site. This suggests that negative coordination, just like NPIs, constitutes a case of grammaticalized implicatures. In other words, individual members of a negative coordination are always relevant and thus active as alternatives which must be exhaustified locally. Of course, negative coordination in English is different from NPIs in that it is not polarity sensitive itself, on the contrary, it is inherently negative and does not need to be 'licensed', i.e. it is acceptable in virtually any environment. Nonetheless, the same mechanism could be employed to ensure obligatory exhaustification of the negative disjunction which underlies *neither...nor* coordination as the one which has been proposed for NPIs and FCIs. In this, I will follow Chierchia (2013)'s approach to polarity sensitivity of indefinites such as *any*. This is motivated by the negative coordination in English being underlyingly disjunctive, since the parallelism with polarity sensitive indefinites, in particular NPIs and FCIs, is maintained: it is the weakest element of a scale that undergoes strengthening, i.e. exhaustification. In the case of negative coordination this is the disjunction, whereas in the case of NPIs and FCIs it is their existential component. Interestingly, in both cases obligatory exhaustification provides its effect thanks to alternatives retrieved from the prejacent, and not substitution from the lexicon. This holds of NPI and FCI indefinites with the 'subdomain' alternatives which are crucial for the explanation of their

278

polarity sensitivty, as well as *neither...nor* with the subconstituent alternatives consisting of disjuncts which eventually yield a conjunctive interpretation. This seems to suggest a correlation between obligatory exhaustification and absence of the lexical replacement for alternative generation. Furthermore, the coordination markers *neither* and *nor* arguably host an NPI-like element in their morpho-syntactic make up: namely, the sentence-final focus particle *either* (630), discussed in section 5.1.1.2.[19] Moreover, the quantificational version of *either* is akin to *any*, i.e. it behaves like a NPI and like a FCI (section 5.3).

(630) a. (Nick doesn't smoke.) He *(doesn't) drink, either.

  b. (Nobody sang.) {Nobody / *somebody} danced, either.

What we thus need is a syntactic agreement mechanism which will ensure the presence of an exhaustifying operator at the root of the complex, coordinative structure. The right featural parametrization can give us the right alternative set without further stipulations. Namely, it suffices to say that the negative coordination markers are specified with the formal features in charge of activating subconstituent ('subdomain') alternatives, let's call it [uD] after Chierchia (2013), but not with the features which would activate a set of scalar alternatives in addition ([uσ] in Chierchia's nomenclature). This entails the absence of the conjunctive alternative ($\neg p \wedge \neg q$) from the set of alternatives subject to exhaustification, whereas the subconstituent alternatives are correctly supplied. The same uninterpretable feature(s) invoke a c-commanding EXH$^+$. What complicates matters is that this EXH needs to be in the version which combines exclusion and inclusion of alternatives. However, this need not require a special feature, since inclusion is simply performed after exclusion whenever it does not yield a contradiction (Bar-Lev and Fox, 2019). It then only needs to be determined which element carries an uninterpretable feature. One option is to say that it is simply the null disjunction, as a weak scalar element, that bears an uninterpretable feature [uD] which needs to be checked by an interpretable [D] feature on the EXH operator, as depicted in (631a). Another option is to equip the coordination markers *neither* and *nor* with a [uD] feature each, as in (631b). In both cases, the EXH$^+$ operator sitting above the whole coordinative structure can successfuly check the uninterpretable features as it c-commands everything that is inside the coordination.

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[19]Diachronic evidence shows that *neither* was used in exactly the same contexts (630) until prescriptive effort against negative concord in English made it disappear from sentences with another negative element present (see Rullmann (2004) for possible explanations of how it got replaced by *either*). As for *nor*, the Oxford English Dictionary suggests *nother* as its predecessor, where the latter was employed in the same roles as present day *neither*, both quantificational and coordinative.

(631)   a.

```
                    S
             ┌──────┴──────┐
           EXH⁺            │
           [D]             │
                    ┌──────┴──────┐
                   S'             │
               ┌───┴───┐    ┌─────┴─────┐
               ¬       p    ∨          S''
            neither        [uD]     ┌───┴───┐
                                    ¬       q
                                   nor
```

b.

```
                    S
             ┌──────┴──────┐
           EXH⁺            │
           [D]             │
                    ┌──────┴──────┐
                   S'             │
               ┌───┴───┐    ┌──┬──┴──┐
               ¬       p    ∨       S''
           neither[uD]          ┌───┴───┐
                                ¬       q
                             nor[uD]
```
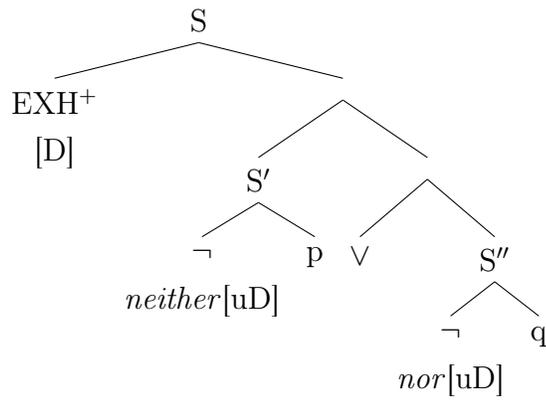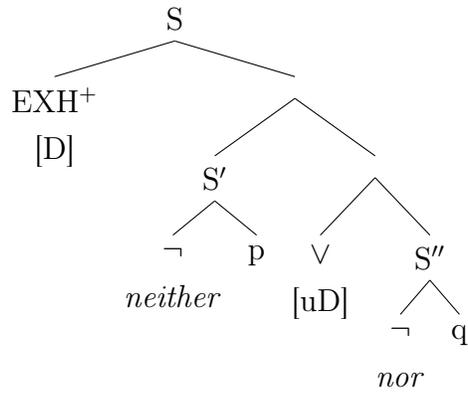
What speaks in favor of the latter option (631b) is that it must be ensured that EXH⁺ is attached at the root of the coordinative structure, and not somewhere lower, as would be possible with the former option (631a). In other words, if the null disjunction carried the uninterpretable feature (631a), nothing would forbid inserting EXH⁺ in a position right above the node hosting the connective but below the first disjunct introduced by *neither*, in which case the uninterpretable feature on *neither* would remain unchecked due to absence of c-command by EXH⁺ and its interpretable feature. Moreover, specifying *neither* and *nor* for [uD] would establish a direct relationship between the formal feature and the kind of alternatives it activates – these uninterpretable features are thus carried by markers which introduce disjuncts, and the latter give the form to the alternatives activated by the same formal features.

Such an agreement mechanism is then subject to locality constraints, which ensure that an EXH⁺ operator carrying the interpretable [D] feature is inserted no later than the closest CP. This explains the global weak readings obtained with embedding under DE predicates – inside their complement is an already strengthened meaning, since exhaustification had to take place as soon as the clause(s) with negative coordination got composed.

We see that the right featural specification can ensure three crucial things: (i) obligatory insertion of an EXH⁺ operator, (ii) its strictly local application, and (iii) presence of

only subconstituent alternatives in its first argument. However, this goes against the general idea in Chierchia (2013) where alternatives activated by formal features are not subject to considerations of consistency, the way 'Innocent' alternatives are, for which reason contradictions are not ruled out as results of exhaustification. This issue will be readdressed in Chapter 14. But *neither* and *nor* are not polarity sensitive the way *in years* or, for that matter, *any* is, so these negative coordination markers cannot straightforwardly be related to NPIs and contradictory interpretations which restrict the distribution of NPIs. The current account relies on the fact that negative operators on the disjuncts are in the scope of disjunction, and it is therefore not possible to talk about something in the nature of *neither* or *nor* being NPI-like because these markers are not in any way dependent on polarity, since they reverse it themselves.[20] To circumvent this, one could speculate that the '-either' component inside the negative coordination markers that bears the uninterpretable feature to be checked by a c-commanding EXH^+ operator and in charge of activating an alternative of the form of the disjunct the same marker is attached to. But then why not insert EXH right above negation, i.e. at the root of each disjunct, instead of at the root of the whole disjunction?

As discussed in section 5.1, both of the negative coordination markers can introduce an independent sentence, i.e. they function also outside of coordinative structures, but only if an adequate antecedent sentence is provided in the preceding discourse (632).

(632) a. (Nick doesn't smoke.) Neither does he/Ryan drink.

   b. (Nobody sang.) Nor did anybody/Ryan dance.

It would be desirable to extend the present approach to such uses of *neither* and *nor* (632), i.e. to offer an account of sentences without two overt disjuncts inside the present framework. The most obvious way to go would be to try and perform exhaustification of each disjunct in negative coordination, in order to transplant the account to additive focus particles (632). The next section explores possibilities for such local exhaustification over focus alternatives of each disjunct and shows why it fails. Nonetheless, a small modification of the focus semantics can ensure that focus alternatives of the disjuncts are supplied for root exhaustification.

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[20]It might matter to add that both markers participated in NC in previous stages of development of English. Sentence-final focus particle *neither* even had to be prescriptively removed from such positions below negation and replaced with *either* which is, to this day, a strong NPI. The analysis proposed in Ahn (2015) attributes such polarity sensitivity of the present day focus particle *either* to it being a disjunction which is obligatorily exhaustified, for which reason it needs to be in the scope of negation. Seen from a diachronic perspective, it is imaginable that the formal features [uD] remained even when inherent negation became part of the lexical entries of *neither* and *nor*.

12.7 Embedded EXH

This section tries out a different way to strenghten the interpretation of negative coordination. Namely, instead of applying EXH$^+$ at the root of the whole coordinative structure, it is possible to attach an EXH operator to each disjunct. Presence of contrastive or exhaustive foci in the *neither...nor* coordinands (633a) is discussed already by Hendriks (2004) and Den Dikken (2006). One could take it at face value, so as to exploit the presence of F-marking on the disjuncts as a trigger for local insertion of EXH operators (633b), while at the same time taking into account the mutual contrast between them.

(633)   a. Brenda neither SINGS$_{F1}$ nor DANCES$_{F2}$.

   b. [EXH ¬p$_{F1}$ [∨ [EXH ¬q$_{F2}$]]]

Following Fox and Spector (2018), covert EXH is employed here as a focus-sensitive operator, just like its overt counterpart, the exclusive focus particle *only*. As such, it operates on subconstituent alternatives, which are now unambiguously activated by focus. As introduced in section 12.3, focus alternatives are members of the focus semantic value of the prejacent and as such they are evaluated by the squiggle operator (Rooth, 1992), which ensures that the contextual alternatives, collected in the anaphor C, are indeed a subset of the focus value of the prejacent, as discussed before. The prejacent in this case is the individual disjunct itself and, since there are two of them in the example in (633a), we get the parallel structure repeated in (634).

(634)
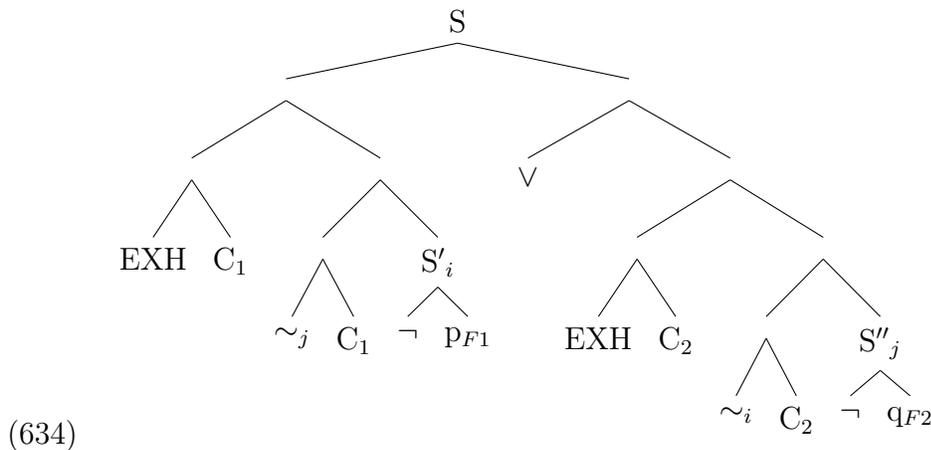
In fact, the mechanism depicted in (634) combines focus association of an operator (635a), i.e. 'focusing adverb' (in the present case, EXH), with a constraint which ensues from contrasting phrases (635b), and this is replicated for both disjuncts (635c).

(635)   a. If C is the domain of quantification of a focusing adverb with argument α, then
        C $\subseteq$ $[\![\alpha]\!]^f$.

b. If a phrase α is construed as in contrast with a phrase β,

then $[\![\beta]\!]^o \in [\![\alpha]\!]^f$

c. i. $[\![\neg q]\!]^o \in [\![\neg p]\!]^f \supseteq C_1$

ii. $[\![\neg p]\!]^o \in [\![\neg q]\!]^f \supseteq C_2$

In other words, the value of both contextual anaphors (C_1 and C_2 in the tree in (634)) is restricted to a set containing only the two propositional members of the coordination ($\neg p$, $\neg q$). Now, as shown in the tree in (634), each disjunct has a silent EXH operator adjoined to it, in analogy to $only...X_F$ configurations. The ordinary semantic values of the two disjuncts, S′ and S″, are repeated in (636a). The focus semantic values of the two disjuncts are equivalent (636b), given that the two sentences differ only in their F-marked constituent. Basically, the requirement is that there is some (other) predicate which does not hold of Brenda.

(636) Brenda neither SINGS$_F$ nor DANCES$_F$.

a. i. $[\![\neg p]\!]_o =[\![$neither Brenda sings$_F]\!]_o =\lambda w.$Brenda does not sing in w

ii. $[\![\neg q]\!]_o =[\![$nor Brenda dances$_F]\!]_o =\lambda w.$Brenda does not dance in w

b. $[\![\neg p]\!]_f = [\![\neg q]\!]_f = \{$p: $\exists f \in D_{\langle e,\langle s,t\rangle\rangle}$. p$=\lambda w.f($Brenda$)=0\}$

Crucially, due to the constraint on contrasting phrases (635b), the squiggle operators restrict the possible values of the focus anaphors C_1 and C_2 in such a way that the two disjuncts end up being alternatives to each other. In other words, although 'Brenda does not smoke' or 'Brenda does not drink wine' are formally possible members of the focus value in (636b), the only alternative that is supplied to EXH adjoined to the first disjunct S′ is 'Brenda does not dance', and conversely for the second disjunct. Moreover, the two propositions are logically independent from each other, as neither entails the other (637).

(637) a. $\neg p \not\Rightarrow \neg q$

b. $\neg q \not\Rightarrow \neg p$

The embedded EXH operators therefore exhaustify alternatives locally and with respect to each other, as shown in (638). Bearing in mind that p corresponds to 'Brenda sings' and q to 'Brenda dances', the result amounts to the strengthened meaning 'Brenda does not sing, but she dances' for the first disjunct, and to 'Brenda does not dance, but she sings' for the second. Furthermore, after these embedded exhaustifications take place, the strengthened meaning of each disjunct asymmetrically entails the assertion, i.e. the disjunction they are members of (638).

(638) a. EXH(C_1)($\neg p$) = $\neg p \wedge \neg\neg q$ $\Rightarrow \neg p \vee \neg q$

b. $\text{EXH}(C_2)(\neg q) = \neg q \wedge \neg\neg p$ $\Rightarrow \neg p \vee \neg q$

The result of the embedded applications of EXH operators is akin to local (below disjunction) exhaustification of subconstituent alternatives, and factoring it into the basic meaning of the assertion renders an exclusive disjunction, as paraphrased in (639a).

(639)   a. [EXH $\neg p_{F1}$ [$\vee$ [EXH $\neg q_{F2}$]]] $\Leftrightarrow (\neg p \wedge \neg\neg q) \vee (\neg q \wedge \neg\neg p)$
        'Brenda either does not sing but she dances, or she does not dance but she sings'

    b. $\neq$ 'Brenda does not sing and she does not dance'

This, in fact, is a strengthened interpretation (639a) for the wide scope disjunction we started out with ($\neg p \vee \neg q$). However, it does not correspond to the attested meaning (639b) of negative coordination. Could there be any other LF, which would bring about the right meaning? For instance, one could imagine adding another layer of exhaustification to each disjunct. In this version of the embedded exhaustification approach, two EXH operators adjoin to a single member of coordination instead of just one, and the only alternatives they have access to are those of the mutually exclusive foci. This is depicted in (640).

(640)
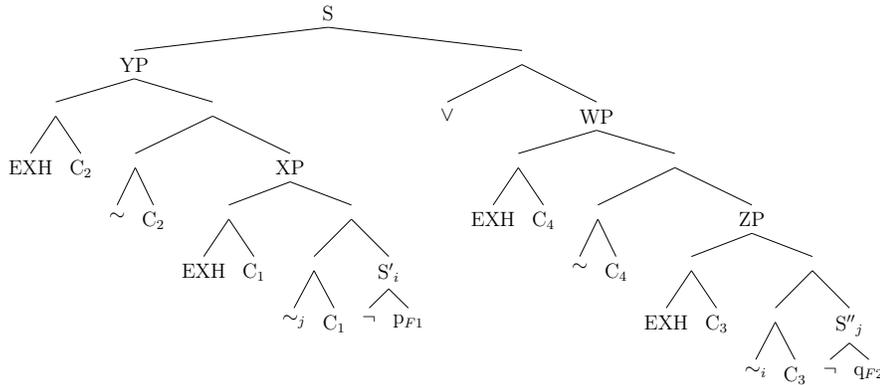
What is demonstrated in (640) is double exhaustification of each disjunct. Two important notes are in order. First, as shown in (640), each lower squiggle operator (the one evaluating C_1 and the one evaluating C_3) is co-indexed with the prejacent of the opposite member of the coordination, i.e. part of the disjunct below the lower alternative-sensitive operator (S' and S'' respectively). This is because the two disjuncts are contrastive phrases of each other, which ultimately limits the lower sets of alternatives (namely, C_1 and C_3) to singleton sets containing only the opposite disjunct. Second, it is assumed that the higher squiggle operators take over alternatives processed by the lower EXH operators. The whole procedure for the left disjunct then looks like (641) and it is modeled after Bade and Sachs (2019) approach to embedded and iterated exhaustification.

(641)   a. $[\![S']\!]_f = C_1 = \{ \neg p, \neg q \}$

        b. $[\![S']\!]_o = \neg p$

        c. $[\![XP]\!]_f = C_2 = \{EXH(\neg p), EXH(\neg q)\} = \{ \neg p \wedge \neg\neg q, \neg q \wedge \neg\neg p \}$

        d. $[\![XP]\!]_o = EXH(\neg p) = \neg p \wedge \neg\neg q$

        e. $[\![YP]\!]_o = EXH(C_2)(\neg p \wedge \neg\neg q) = \neg p \wedge q \wedge \neg(\neg q \wedge \neg\neg p)$

          $= \neg p \wedge q \wedge (\neg q \rightarrow \neg p)$

It is already clear that once we add the result of double exhaustification of the left disjunct (641e) to a parallel one to be obtained on the right side, the overall meaning of the disjunction (642a) will not correspond to the attested interpretation of negative coordination (642b).

(642)   a. $[\![640]\!] = (\neg p \wedge q \wedge (\neg q \rightarrow \neg p)) \vee (\neg q \wedge p \wedge (\neg p \rightarrow \neg q))$

        b. $\neg(p \vee q) \Leftrightarrow \neg p \wedge \neg q$

If we look at the result in (642a) more closely, we see that the conjuncts which represent doubly exhaustified alternatives, together with the initial prejacents (the ordinary meanings of S′ and S″), would in fact bring about the right meaning, as shown in (643a). However, there is no mechanism that could reset the ordinary values of XP and ZP nodes back to the denotations of S′ and S″. In other words, exhaustification of the latter two creates an input (643b) which prevents the attested meaning of *neither...nor*–coordination from ever arising with the given LF in (640), since the ordinary meaning will always contain conjunctions in which the conjuncts are of different polarity (643b).

(643)   a. $(\neg p \wedge (\neg q \rightarrow \neg p)) \vee (\neg q \wedge (\neg p \rightarrow \neg q)) \Leftrightarrow \neg p \wedge \neg q$

        b. i. $[\![XP]\!]_o = \neg p \wedge q$

   ii. $[\![ZP]\!]_o = \neg q \wedge p$

This means that any further applications of the EXH operator would 'drag' the same problem along, as they could never get rid of the conjuncts in (643b), i.e. one would always be positive and thus contradictory to the disjuncts in the assertion. Local exhaustification of the disjuncts in a negative coordination therefore cannot yield the attested strong interpretations. But could there then be any way to exploit the contrastive foci on the disjuncts with their ensuing alternatives, all while applying EXH in such a way to derive a conjunction of negative propositions?

    We saw previously that EXH$^+$ over subconstituent alternatives gives the right result. Crucially, focus alternatives obtained from the contrastive disjuncts take exactly the same form. Perhaps the two could be merged into a hybrid approach where the alternatives

are provided by focus (644a), but the exhaustification is performed at the root node, i.e. taking the whole negative disjunction as its prejacent (644b). As before, this would derive the strong interpretation for *neither...nor* (644c).

(644) a. C = { ¬p, ¬q } = II

  b. S = ¬p∨¬q

  c. $EXH^+(C)(S) \Leftrightarrow (\neg p \vee \neg q) \wedge \neg p \wedge \neg q$

Now, how could we ensure that the set C (644a) contains exactly these alternatives? After all, it is constituted and evaluated above the whole coordination (645). This would mean that alternatives which remain unexploited locally, inside the members of a coordination, percolate up to the root of the tree, in a similar way unchecked formal features do.

(645)
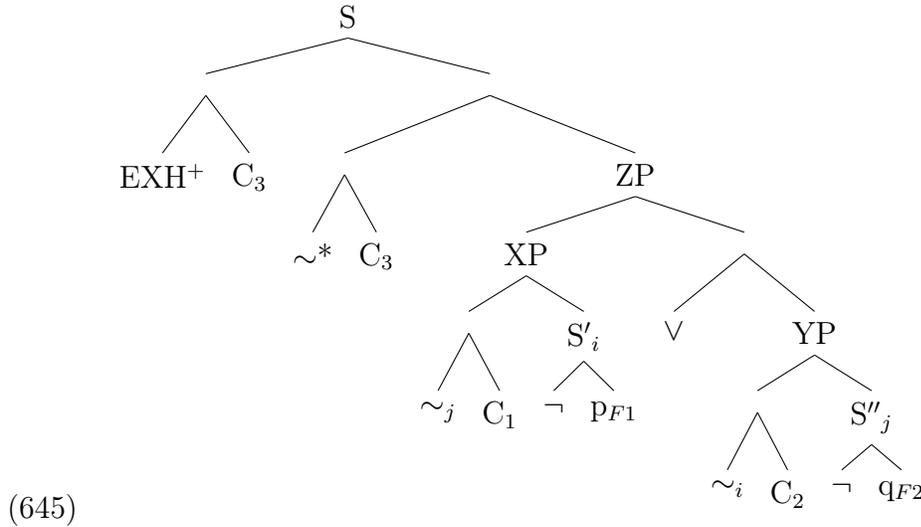
What is thus needed is a squiggle operator (646), written as $\sim^*$ in (645), which would ensure that the set C evaluated by it (C_3 in (645)) represents the union of the two sets of alternatives collected inside the coordination, i.e. focus alternatives of the disjuncts.

(646) $\sim^*$ operator:

  if $\alpha = [\sim_* C\ \beta]$ and β is a coordination, then:

  a. $[[\alpha]]^g$ is only defined if $g(C) \subseteq [\![\beta]\!]^g_f$,
    where $[\![\beta]\!]^g_f = [\![\varphi_1]\!]^g_f \cup ... \cup [\![\varphi_n]\!]^g_f$ and $[\![\varphi_1]\!]...[\![\varphi_n]\!]$ are members of the coordination β.
    If defined, then:

  b. $[\![\alpha]\!]^g_o = [\![\beta]\!]^g_o$

  c. $[\![\alpha]\!]^g_f = \{[\![\beta]\!]^g_o\}$

If the lexical entry designed for a squiggle operator specialized for coordinative structures in (646) can be further motivated, then we can get hold of the focus alternatives from inside the disjunction and hand them over to the alternative-sensitive EXH$^+$ at the root of the coordination. This gets us the strong conjunctive interpretation (644c). Problems with symmetric alternatives now disappear, as the set supplied to C is entirely made of focus alternatives which ensue from contrast. Nonetheless, the caveats from preceding sections apply here as well – the meaning attested for negative coordination can only be derived if the exhaustification at the root is recursive or exclusive + inclusive, obligatory and independent from the monotonicity of the environment it can be found in.

In an approach which takes the squiggle operator as responsible for intervention effects (Beck, 2006, 2016), as schematized in (647) where the squiggle operator would unselectively evaluate all F-marked elements in its scope, thus preventing higher focus-sensitive operators access to these foci, a modification of the squiggle operator ($\sim_E$) is needed to ensure passing on alternatives from lower on to the higher operators without resetting the focus value (648), as discussed in Bade and Sachs (2019), who propose the special version of squiggle which would go together with covert EXH. In our case, this would have to be $\sim_{E*}$. The presupposition would remain the same as in (646), as the difference is only in the transfer of the focus value from the lower constituent onto the higher one (648).

(647)   a. *[$\sim$...[$\sim$...F...F]]

   b. *[$\sim$...[$\sim$...F]]

(648)   a. $[\![\alpha]\!]^g_o = [\![\beta]\!]^g_o$

   b. $[\![\alpha]\!]^g_f = [\![\beta]\!]^g_f$

Nonetheless, intervention effects need not be attributed to the squiggle operator, but could be understood as a property of the focus-sensitive operator squiggle associates with, in which case one could say that the covert operator EXH does not reset the focus value, unlike most of the overt focus-sensitive operators. Making a distinction between two squiggle operators ($\sim$ and $\sim_{E(*)}$) would then not be necessary, but (648) needs to be enforced, in order to ensure the percolation of focus alternatives in our LF (645).

It is imaginable that the following system is at work with negative coordination in English: the markers *neither* and *nor* together contribute a null disjunction and an exhaustification operator adjoined at the root of the coordination, whereas individually they contribute a negative operator each and they attach only to contrastively focused phrases. This would mean that members of negative coordinations are not only negative, but also inherently focused. A more concrete implementation of this could make use of syntactic agreement, as sketched in the previous section (section 12.6). Such a mechanism could en-

sure the presence of a root EXH$^+$ operator only when constituents introduced by *neither* and *nor* are adjacent and establish a mutually contrastive cataphoric-anaphoric relationship. This provides an argument for a special version of squiggle for coordination (or, at least, for negative coordination), one that could not associate with an alternative-sensitive operator locally, on an individual coordinand, but once the whole coordinative structure is completed. In other words, something would have to prevent insertion of EXH immediately above the nodes where focus alternatives are collected and evaluated on the disjuncts – they must not be 'consumed' locally, in this system.[21]

Interestingly, modeling the meaning of *neither...nor* based on insights from this section could go even further in formalizing the contribution of the coordination markers. That is, effects of local exhaustification over focus alternatives could be encoded in the meaning of the negative coordination markers already. This is explored in the next section.

12.8   *Neither/nor* as NOT-ONLY-NOT

It was demonstrated in the previous section that embedded exhaustification of the disjuncts with respect to their focus alternatives fails because of the result of the first round of exhaustification which yields conjuncts of opposite polarity and, therefore, a wrong interpretation overall. This means that neither one nor two local applications of EXH can bring about the right meaning for *neither...nor*–coordination. Nonetheless, it is possible to incorporate the workings of an exhaustifying operator into the lexical entry of each coordination marker. This way we could gain the following benefits. First, meaning contributions of the markers can now host multiple components, and not just a negative operator, which makes them semantically more involved in the derivation of the meaning of negative coordination. Second, such a more complex lexical entry for the coordination markers can bring them closer to their focus particle counterparts, *neither* and *nor* when introducing independent sentences. Third, obligatory exhaustification and the Economy Condition for EXH are no longer an issue, since exhaustification is built into the very meaning of the coordination markers. Finally, effects of focus on the disjuncts are not left idle, as they are now systematically exploited by the focus particle components inherent to *neither* and *nor*. Let us now see some concrete implementations of this.

First of all, the lexical entry of both the coordination markers is roughly that of a negated exhaustifying operator over a negated prejacent. In other words, *neither* and *nor* would not only each contribute a negation to the disjunct they adjoin to, but also a negated

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[21]This would go against the proposal in Magri (2011), exploited in section 12.5.

exhaustifying operator on top of that, as sketched in (649a).
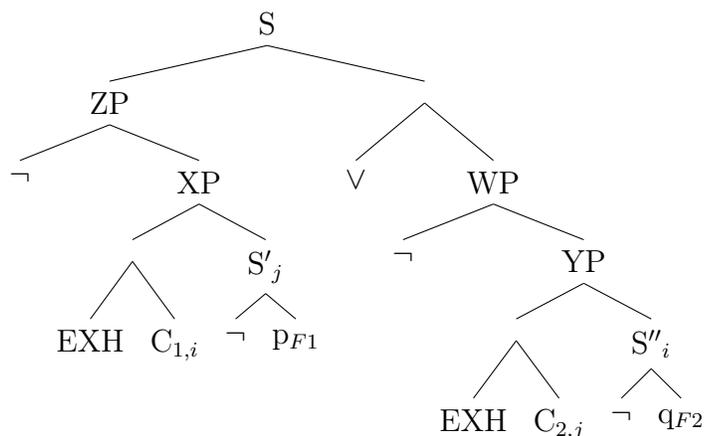
(649)   a.

   b.   i.   neither $p_{F1} = \neg\text{EXH}(C_1)(\neg p)$

        ii.   nor $q_{F2} = \neg\text{EXH}(C_2)(\neg q)$

Crucially, each of the markers is syntactically decomposed into three components (649b) which occupy their own nodes in the structure (649a) and can act independently, however, ultimately they get spelled out together as one word. The derivation then proceeds as in (650) and (651), with the final result given in (652).

(650)   Left disjunct

   a. $[\![p]\!] = \lambda w.$ Brenda sings in w

   b. $[\![S']\!] = [\![\neg p]\!] = \lambda w.$ Brenda does not sing in w

   c. $C_1 = \{\ \neg p,\ \neg q\ \}$

   d.   XP: $\neg p \wedge \neg\neg q$

   e.   ZP: $\neg\,[\neg p \wedge \neg\neg q] = \neg p \rightarrow \neg q$

(651)   Right disjunct

   a. $[\![q]\!] = \lambda w.$ Brenda dances in w

   b. $[\![S'']\!] = [\![\neg p]\!] = \lambda w.$ Brenda does not dance in w

   c. $C_2 = \{\ \neg q,\ \neg p\ \}$

   d.   YP: $\neg q \wedge \neg\neg p$

   e.   WP: $\neg\,[\neg q \wedge \neg\neg p] = \neg q \rightarrow \neg p$

(652)   S: $[\neg p \rightarrow \neg q] \vee [\neg q \rightarrow \neg p]$

However, the outcome of the derivation for the entire disjunction underlying this *nei-ther...nor*–coordination (652) is still not quite right, as it would be trivially true in a situation where Brenda sings and dances, i.e. where p (i.e. $\neg\neg p$) and q (i.e. $\neg\neg q$) are

true. What is needed then is a way to ensure that ¬p and ¬q hold. This can be done if, instead of exhaustifying with the covert version of the operator (EXH), we employ its presuppositional counterpart, akin to the overt particle *only* (653).

(653) $[\![only]\!]^{g,c} = \lambda C.\lambda p.\lambda w: p(w)=1. \ \forall q\in C[q\neq p\rightarrow q(w)=0]$

The entry in (653) will ensure the truth of the prejacent, since the latter is now presupposed, unlike what we had with EXH where it was only asserted. A covert version of (653) thus replaces EXH and contributes the 'only' denotation in the lexical entries for both *neither* and *nor*. The two markers are syntactically decomposed onto three components – two negative operators and the presuppositional exclusive particle ONLY, as shown in (654).

(654)

```
                              S
                 ┌────────────┴────────────┐
                ZP                          │
            ┌────┴────┐              ┌───────┴───────┐
            ¬        XP              ∨              WP
                  ┌───┴───┐                     ┌────┴────┐
                  │      S'_j                   ¬        YP
              ┌───┴──┐  ┌─┴──┐                        ┌───┴───┐
            ONLY  C_{1,i} ¬  p_{F1}                   │      S''_i
                                                  ┌───┴──┐  ┌─┴──┐
                                               ONLY  C_{2,j} ¬  q_{F2}
```
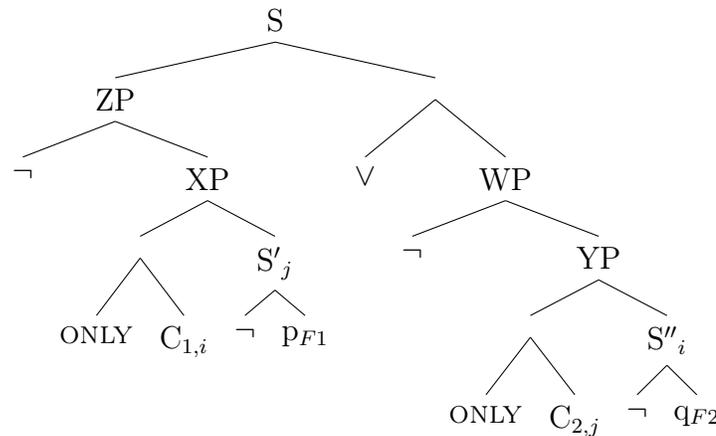
The difference between (649a) and (654) is only in the presence of the presuppositional exclusive particle (ONLY) in the middle node, instead of a simple, non-presuppositional covert EXH. ONLY associates with the contrastively focused constituent (p_{F1} for the left disjunct (655a-i) and q_{F2} for the right disjunct (655b-i)), which is, in addition, negated by the lowest component of *neither* and *nor*, respectively (655a-ii, 655b-ii). The set of contextual alternatives C, which ONLY takes as its first argument, contains only one other alternative, namely the negated proposition from the opposite disjunct (655a-iii, 655b-ii). The corresponding alternatives are negated and as such added to the assertion, whereas the prejacent is presupposed (655a-iv, 655b-iv). Finally, the highest component of the meaning of *neither* and *nor*, which is another negative operator, yields the interpretations for the disjuncts as in (655a-v, 655b-v). The overall meaning of the coordination would look roughly like (655c).

(655)   a. Left disjunct

       i. $[\![p]\!] = \lambda w.$ Brenda sings in w

      ii. $[\![S']\!] = [\![\neg p]\!] = \lambda w.$ Brenda does not sing in w

      iii. $C_1 = \{\ \neg p, \neg q\ \}$

      iv. $[\![XP]\!] = \lambda w: \neg p(w).\ \neg(\neg q(w))$

      v. $[\![ZP]\!] = \lambda w: \neg p(w).\ \neg[\neg(\neg q(w))]$

          $= \lambda w: \neg p(w).\ \neg q(w)$

  b. Right disjunct

      i. $[\![q]\!] = \lambda w.$ Brenda dances in w

      ii. $[\![S'']\!] = [\![\neg p]\!] = \lambda w.$ Brenda does not dance in w

      iii. $C_2 = \{\ \neg q, \neg p\ \}$

      iv. $[\![YP]\!] = \lambda w: \neg q(w).\ \neg(\neg p(w))$

      v. $[\![ZP]\!] = \lambda w: \neg q(w).\ \neg[\neg(\neg p(w))]$

          $= \lambda w: \neg q(w).\ \neg p(w)$

  c. $[\![S]\!] = \lambda w: \neg p(w) \wedge \neg q(w).\ \neg q(w) \vee \neg p(w)$

This brings about the strong meaning of the negative coordination – whenever the sentence S is defined, both disjuncts will have to be true. Nonetheless, two unusual assumptions have to be made here. First, the exhaustifying component of the meaning of the coordination markers has to correspond to the overt exclusive focus particle *only* and not to its covert counterpart EXH, as the presupposition is crucial in deriving the right meaning. But it is not clear whether existence of such a covert *only* is in fact independently motivated. In any case, here it represents merely one component of the meaning of a negative coordination marker, sandwiched between two negative operators. Second, this focus-sensitive particle has to associate with a set of alternatives corresponding to the focus value of a contrasted phrase whose one part (namely, the negation) is the third, lowest component of the corresponding negative coordination marker. This constitutes a somewhat unorthodox treatment of focus association in which the focus operator is part of the lexical item whose one element can be used separately and as part of the prejacent. Moreover, nothing seems to be gained for an account of the sentence final focus particle *either* along the same lines,[22] as its polarity sensitivity does not pan out.

One might thus wonder if there isn't a simpler way to capitalize on the parallelism between *neither/nor* and *either*. The behavior of *neither* and *nor* outside of coordinative structures (section 5.1) reveals their anaphoric nature. An account which employs focus presuppositions on the coordination markers to strenghten the interpretation of the inherently negative disjunction is explored in the next chapter.

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[22]I.e. removing one negative operator, since *either* is not inherently negative, would leave us with ONLY¬ or with ¬ONLY, where the latter seems to correspond to the additive meaning of the particle.

Chapter 13

Presuppositional approach: English

In this chapter I present another way to bring about the strong meaning of $neither...nor$ coordination based on an LF with a disjunction scoping over negation. The gist of the proposal lies in focus-based presuppositions which are part of the lexical entries for *neither* and *nor*, and which are inspired by the sentence final additive *either*.

13.1   Presuppositions of *either*, *neither* and *nor*

As discussed in section 5.1, negative coordination markers *neither* and *nor* are not relatable to the sentence-final focus particle *either* only because of their form and diachronic development, but also because of their use in independent sentences, as in (656). Namely, all the three particles appear independently from one another in negative sentences, the difference between them being in that *neither* and *nor* negate the clause themselves, whereas *either* needs to co-occur with another negative expression.[1]

(656)   a. *(Nick doesn't smoke.) Neither does he drink.

b. *(Nick doesn't smoke.) Nor does he drink.

c. *(Nick doesn't smoke.) He doesn't drink, either.

Crucially, what they have in common is the requirement for an adequate antecedent in the preceding discourse, provided by the negative sentence 'Nick doesn't smoke' in (656), whose absence would make a sentence with *neither*, *nor* or *either* infelicitous. They are thus employed in (656) as negative additive focus particles. This name captures the intuition that the three perform the same role as their more notorious positive counterparts, such as *too* (657). Nonetheless, the polarity of the contextual antecedent must match that of the host of the anaphor, which is why the first sentence is negative in the case of *neither*, *nor* and *either* (656), but positive in the case of *too* (657).

(657)   *(Nick smokes.) He drinks, too.

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[1]For more precise characterizations of the environments in which sentence-final *either* is licensed, see Rullmann (2003).

Additivity, as a signal that another sentence is salient in the surrounding context, is then what all these particles have in common (656, 657). What sets them apart is the polarity of their host sentence: *neither* and *nor* contribute negation, *either* is dependent on the presence of negation in the same clause, whereas *too* neither contributes negation nor requires it.

There is a further observation that additivity is strongly tied to focus. In other words, an additive particle associates with a focused constituent and the contextual antecedent must be found inside the so formed set of alternatives which constitute the focus value of the host. The latter requirement is usually encoded as a presupposition. In fact, this is the only meaning contribution of an additive focus particle, as it does not affect truth conditions. Such a state of affairs is reflected in the proposal for sentence-final *either* in Rullmann (2003: 343):

(658)   a.   Ordinary semantic value: $[\![\alpha \text{ either}]\!]^o = [\![\alpha]\!]^o$

           b.   Focus semantic value: $[\![\alpha \text{ either}]\!]^f = \{[\![\alpha]\!]^o\}$

           c.   Presupposition: $[\alpha \text{ either}]$ presupposes that there is at least one contextually salient proposition $p \in [\![\alpha]\!]^f - \{[\![\alpha]\!]^o\}$ such that p is false.

Due to its NPI behavior, Rullmann takes *either* and its prejacent to always be in the scope of negation (659), which affects the formulation of the presupposition (658c) – the additive particle associates with a non-negative host and for this reason the contextually salient alternative has to be 'false'.

(659)   not [[Nick drink] either]

The corresponding lexical entry for *either* is given in (660). C is the set of contextually salient propositions that are found in the focus value of *either*'s host proposition. *Either* then presupposes that one of these alternative propositions (distinct from the host) is false, while leaving the assertion unchanged.

(660) $[\![\text{either}]\!] = \lambda C.\lambda p.\lambda w: \exists q[q \in C \ \& \ q \neq [\![p]\!] \ \& \ \neg q(w)]. \ p(w)$

Now, we can use this entry to model the contribution of the negative coordination particles *neither* and *nor* by including the presuppositions observed with additive focus particles into lexical entries of negative coordination markers. Given the observed inherent negativity of *neither* and *nor*, a negative operator has to be included (661), just like a grammatical sentence with *either* also comprises negation (659).

(661) $[\![\text{neither}]\!] = [\![\text{nor}]\!] = \lambda C.\lambda p.\lambda w: \exists q[q \in C \ \& \ q \neq [\![p]\!] \ \& \ \neg q(w)]. \ \neg p(w)$

As shown in (661), the two negative coordination particles have the same meaning contribution, consisting of a negative operator in the assertive component and an exclusive existential focus presupposition.

The two members of the negative coordination, containing F-marked phrases, end up being alternatives to each other, as explained in the subsection on focus alternatives (subsection 12.3.1). That is, each restriction of the focus value to a set of contextually salient alternatives will contain only the disjuncts present in the structure and not some other, 'external' alternatives, since the F-marked phrases are mutually contrasted (see also discussion in section 12.7).

(662)
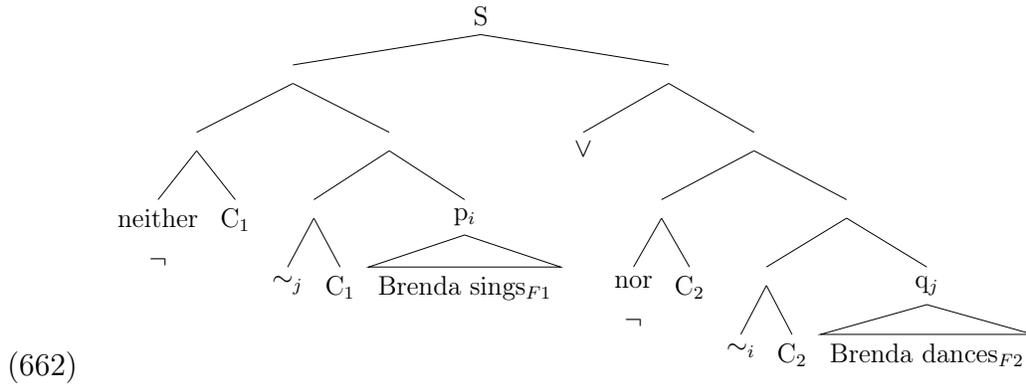
This is characteristic of coordinative structures in which each member bears its own marker (662). The problematic case here is the disjunct with *neither*, as it is cataphoric, which means that it will 'find' a postcedent that follows in the linear order. But what prevents it from being sensitive to potential contextual alternatives that could precede the coordinative structure in the discourse? Interestingly, the only time *neither* is fully well-formed when introducing a clausal constituent, along with the hallmark second position finite verb, is when appearing alone, in an independent sentence (656a), in which case it is anaphoric, so its antecedent precedes its host sentence. It is then likely that full clausal $neither...nor$ coordination is degraded due to the processing of *neither*'s presupposition and the mismatch between the missing antecedent and the delayed postcedent. In the case of $neither...nor$ coordination of smaller constituents and in other structural positions at surface, presupposition satisfaction takes place before the entire structure is completed, which means that the C sets must be closed off structure-internally. With $neither...nor$ this could also be ensured through a mechanism along the lines of what is proposed by Meyer (2018) for contrastive negation, as reported in subsection 12.3.3.3. Nonetheless, this would require introducing another presupposition (or amending the existing one) which would pick out a salient alternative, based on contrastive focus L+H*, to be picked up by $g(C)$, in a mechanism reminiscent of quantifier domain restriction. I leave this for future research.

Since the two disjuncts – the one to which *neither* attaches and the one to which *nor* attaches – are focus alternatives to each other, the set corresponding to C is identical on both sides of the disjunction (663).

(663) $C_{neither} = C_{nor} = C = \{\ [\![p]\!], [\![q]\!]\ \}$

Once the two propositions introduced by *neither* and *nor* are disjoined by a silent connective, the attested strong meaning ensues – whenever the complex disjunctive sentence is defined, it will contribute a conjunctive-like meaning in which both negative disjuncts have to be true (664b).

(664) a. Brenda neither sings nor dances.
          $p = $ 'Brenda sings', $q = $ 'Brenda dances'

       b. $[\![$neither p nor q$]\!] = $
          $\lambda w: \exists p', \exists q'\ [p',q' \in C\ \&\ p' \neq [\![q]\!]\ \&\ q' \neq [\![p]\!]\ \&\ \neg p'(w)\ \&\ \neg q'(w)].\ \neg [\![p]\!](w) \vee \neg [\![q]\!](w)$

Each constituent introduced by a negative coordination marker asserts the falsehood of the proposition found in its denotation and presupposes the falsehood of the proposition denoted by the contrasting disjunct. The basic LF for *neither...nor* constructions corresponds to the unattested meaning of an inherently negative wide scope disjunction. Nonetheless, once the presuppositions are factored into the meaning for the whole coordination, the strengthened interpretation of a wide scope conjunction emerges. But now it turns out that (664b) is informationally trivial overall, because whenever the presuppositions of this complex sentence are satisfied, the assertive component will not contribute any new information (Stalnaker, 1979).

13.2   Fixing redundancy: Accommodation

A possible way to avoid the redundancy which is due to the presuppositions of the complex sentence with $neither...nor$ being stronger than the truth conditions of the asserted disjunction would be to 'flatten' the structure, i.e. transfer the background information into the main assertion by attaching an accommodation operator (665).[2] This operator is also known as the Assertion operator, A (Beaver and Krahmer, 2001).

(665) $[\![A]\!] = \lambda p_t.\ 1$ if p=1, 0 if p$\neq$1   Fox (2013)

Inserted at the root of the structure, such a device effectively prohibits undefinedness for a sentence with negative coordination (664) and makes the truth of both disjuncts ($\neg p$,

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[2]Fox (2013) dubs it 'B', in honor of Bochvar (1939) and his 'Truth' operator, conceived for the same purposes.

$\neg q$) a requirement for the truth of the disjunction ($\neg p \lor \neg q$). Although this operator is postulated for purposes of the so-called 'local' presupposition accommodation, the system presented in Fox (2013) permits its use at matrix as well as at embedded scope sites. Applying it to our sentence with *neither...nor* thus amounts to shifting what used to be a condition on the domain of the function inside the denotation of the disjunction over to the truth conditions (666). This yields the strenghtened, conjunctive meaning, all the while infromative in a given context.

(666) $[\![A]\!]([\![\text{neither p nor q}]\!]) = \lambda w.\ \exists p', \exists q'\ [p', q' \in C\ \&\ q' \neq [\![p]\!]\ \&\ p' \neq [\![q]\!]\ \&\ \neg q'(w)\ \&$
$\neg p'(w)]\ \&\ \neg [\![p]\!](w) \lor \neg [\![q]\!](w) \Leftrightarrow \lambda w.\ \neg [\![p]\!](w) \land \neg [\![q]\!](w)$

In both Fox's and Beaver and Krahmer's version of the accommodation operator, the use of trivalent logic is needed for the workings of such an accommodation device.[3] That is, the semantic interpretation is based on functions from different domains to three truth values instead of just two: 1, 0, and #, where 1 is the denotation of a true and defined sentence, 0 of a false and defined sentence, and # is given if neither of these two obtains. Beaver and Krahmer (2001)'s Assertion operator is thus defined by the truth table in (667). With such accommodation, instead of getting a presuppositon failure, falsehood obtains.

(667)

	A
1	1
0	0
#	0

What motivates insertion of such an operator at the root of a structure with *neither...nor* coordination is to give it a parse which will contribute non-redundant meaning, i.e. to salvage it from a situation in which presuppositions asymmetrically entail the assertion. In other words, the new information in the sentence in this case happens to be no different than the background information. As discussed in Beaver and Krahmer (2001), application of the accommodation operator should be constrained in some way, presupposition projection being the priority. They postulate the constraints of definedness, consistency and informativity which regulate the use of the operator. The last one would mandate its insertion in the case at hand. Moreover, Beaver and Krahmer (2001) discuss presupposition accommodation operators both in terms of so-called 'meta-assertion', achieved by applying A to a proposition (667), and 'meta-denial', with the corresponding D operator, which

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[3]To avoid this, it is possible to use an entry for the accommodation operator that restricts the set of possible worlds to only those in which its complement proposition is defined and true, as in (1).

(1) $[\![\text{Acc}]\!] = \lambda p \in D_{<st>}.\lambda w \in D_s.\ p(w) = 1$ Mayr (2015: 219)

is the negative counterpart of the Assertion operator. Crucially, meta-denial amounts to applying meta-assertion above a negative operator (668a). This is exactly what we have with *neither...nor* (668b), and this meta-denial interpretation matches well the intuitions about the semantics and pragmatics of negative coordination.

(668)   a. $D\varphi \Leftrightarrow A\neg\varphi$

          b. $A(S) \Leftrightarrow A\neg(\varphi \wedge \psi)$

Furthermore, recall that the presuppositions of the negative disjuncts are derived based on focus association, just like those of additive focus particles. The latter are known as strong presupposition triggers, which means that their presuppositions cannot be easily accommodated. This is usually attributed to the anaphoric nature of their presupposition, i.e. the relevant focus alternative which can satisfy the existential presupposition must be present in the immediate context. Once such additive particles enter a coordination, the presuppositional dependency becomes mutual – both anaphoric and cataphoric. This is, at least for one of the disjuncts and namely the one introduced by *neither*, radically different from its role as an additive particle, since its position with respect to the antecedent is reversed (in fact, we are talking about a postcedent in this case). In other words, the crucial difference is that in a sentence with an additive particle the presupposition refers to something in the preceding discourse, so it represents an admittance condition on the common ground (Stalnaker, 1974), whereas in a coordination the presuppositions refer to the very linguistic structure in which they are found, in a symmetric fashion. An accommodation operator thus might be needed at the root in order to, basically, bring matters to the same level by turning this discourse relation into a more local, structural one, since now both the anaphor and its antecedent (as well as cataphor and postcedent) are part of one and the same assertion and independent of any contextual considerations. Furthermore, now the presupposition is not the only contribution of the particle, because the constituent it attaches to is also related to a disjunction of which it asserts a disjunct. Yet the presuppositions of the two disjuncts end up being stronger than the asserted disjunction itself.

It is also important to point out that accommodation could be performed locally, by attaching an A operator to each disjunct (669a). This is provided by another equivalence spelled out in Beaver and Krahmer (2001) (669b).

(669)   a. $(A\neg\varphi) \vee (A\neg\psi)$

          b. $A(\varphi \vee \psi) \Leftrightarrow A\varphi \vee A\psi$

However, if each presupposition was added to the assertion at the level of the disjunct, the argument about avoiding redundancy would be lost, since each individual disjunct

is in fact informative – it negates the proposition the coordination marker is attached to and it presupposes the falsehood of its focus alternative. Some other motivation for local accommodation would then have to be found. Moreover, as the major advantage of this approach is that the same focus-based presupposition also explains the additive focus particle use of the coordination markers, one might not want to predict insertion of the accommodation operator in such cases as well, i.e. when *neither* and *nor* appear independently of each other. Crucially, there is another way to avoid redundancy, without making use of the A operator altogther, as explained in the next section.

13.3   Fixing redundancy: conditional presuppositions

Instead of inserting an accommodation operator at the root of a *neither...nor* coordination, the problem of non-informativity in this approach can, in fact, be circumvented with a different definition of the presuppositions which come with *neither* and *nor*, as suggested by Jacopo Romoli (p.c.). Namely, if the presuppositions of the markers were modeled in the form of material implications (670a) instead of simply existential statements, the presuppositional component of negative coordination would end up as a biconditional (670b).

(670)   a. $[\![neither]\!] = [\![nor]\!] =$
$\lambda C.\lambda p.\lambda w:\ \exists q[q{\in}C\ \&\ q{\neq}[\![p]\!]\ \&\ \neg q(w){\rightarrow}\neg[\![p]\!](w)].\ \neg p(w)$

   b. $[\![neither\ p\ nor\ q]\!]=$
$\lambda w:\ \exists p',\exists q'\ [p',q'{\in}C\ \&\ q'{\neq}[\![p]\!]\ \&\ p'{\neq}[\![q]\!]\ \&\ \neg q'(w){\leftrightarrow}\neg p'(w)].\ \neg[\![p]\!](w){\vee}\neg[\![q]\!](w)$

Turning the presuppositional component into a biconditional would leave the disjunction in the assertive component informative because the former does not entail the latter. This is due to the fact that falsehood of both the antecedent and the consequent (in this case of $\neg p$ and $\neg q$, thus truth of p and q) would still make the conditional true, but this would be contradictory to the disjunction in the assertion. Yet, the two components together yield the strengthened meaning where both disjuncts indeed must be false, i.e. both $\neg p$ and $\neg q$ must hold for the whole sentence to be defined and true. With the lexical entries as in (670a), the presupposition states that if at least one of the focus alternatives of the host proposition is false then the assertion itself is false.

Furthermore, a potential problem which would arise once there are more than two disjuncts is now avoided.[4] As described before, negative coordination in English can comprise

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[4]Although it is typically considered that *neither...nor* coordination is exclusively bivalent, i.e. consisting of exactly two coordinands where each is introduced by a marker of its own – *neither* for the first member of coordination, *nor* for the second, speakers tend to find negative coordinations of more than two members

more than two members (671), in which case all the non-initial disjuncts are introduced by *nor* (which is, in fact, immaterial for our purposes, since *neither* and *nor* are given the same lexical entry).

(671)   Rob neither smokes nor drinks nor swears.

Entries for *neither* and *nor* which rely on an existential focus presupposition, as in (661), would not necessarily enforce the strong, conjunctive meaning for the coordination, in which all disjuncts have to hold. This is because one member of the coordination could, in principle, serve as a focus alternative which satisfies the presuppositions of multiple other coordinands, in which case we would be left with a disjunctive meaning for the whole coordination. However, a lexical entry with a presupposition in which a conditional relation stands between a focus alternative in the antecedent and the host proposition in the consequent, does not encounter such a problem, since the only time a coordination with, say, three members would be defined is when all the three disjuncts hold.

The proposed modification in the lexical entries for the negative coordination markers thus permits having a fully informative meaning for negative coordination while enforcing the presuppositional nature of *neither* and *nor*. Interestingly, it looks like the circle is now closed, since the presuppositions of the disjuncts modeled as material implications basically correspond to recursive exhaustification of subconstituent alternatives, but with reversed antecedent and consequent. Whether there are conditionals in the assertive component, as grammaticalized implicatures, or in the presuppositional component, using up focus alternatives, the required strengthening is achieved. Finally, this seems to mandate a modification of the lexical entry for the sentence-final additive focus particle *either* (672), in which focus alternatives would also be employed as an antecedent of a conditional, with the host assertion being the consequent.

(672) $[\![either]\!] = \lambda C.\lambda p.\lambda w: \exists q[q\in C \ \& \ q\neq[\![p]\!] \ \& \ \neg q(w)\rightarrow\neg[\![p]\!](w)].\ p(w)$

Further motivation for this still needs to be found. In the next chapter (Chapter 14), I turn to *ni...ni* and *niti...niti* and attempt to adapt the alternatives and exhaustification account to negative coordination in BCMS. The following chapter (Chapter 15) will discuss the implementation of the presuppositional approach presented in the current chapter for *ni...ni* and *niti...niti* in BCMS.

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acceptable. I assume that the ban against more than two disjuncts is largely prescriptive, and related to the use of *neither* as a quantificational determiner or pronoun equipped with a presupposition restricting the domain to the cardinality of two (Barwise and Cooper, 1981).

Chapter 14

Alternatives and exhaustification approach: BCMS

Section 11.1.2 offered an approach to *ni...ni*, as well as to *niti...niti* coordination in terms of syntactic agreement with a c-commanding negative operator, defending an intuition that these coordination markers participate in negative concord. Yet, it is possible to maintain the neg-word status of *ni* and *niti* while offering an account of the construction which relies on alternatives and exhaustification, along the lines of Chierchia (2013). Unlike what was demonstrated for English in section 12, this time the basic interpretation of negative coordination is already maximally informative, so no strengthening need take place under negation. Obligatory exhaustification in turn affects negative coordination in BCMS when it is unembedded, i.e. outside of an anti-additive environment. However, additional assumptions have to be made to account for ungrammaticality of *ni...ni* coordination under DE operators.

The two negative coordination constructions with their corresponding markers will now be discussed separately. Let us first look at the proposal for *ni...ni*.

14.1 *Ni...ni* coordination

Chapter III presented evidence that *ni...ni* coordination in BCMS is underlyingly a disjunction. Furthermore, the comparison of empirical facts concerning the distribution of negative coordination and its corresponding markers in English and in BCMS revealed a significant difference – whereas *neither* and *nor* appear to be inherently negative, *ni* does not, as it is consistently accompanied by a verbal marker of negation inside the same clause, but always outside of the coordination itself. The LF for a *ni...ni* coordination (673a), with the assumed structure in (673b), should thus look like (673c).

(673) a. *Ina *(ne) voli ni vino ni pivo.*
           Ina NEG likes ni wine ni beer
           'Ina likes neither wine nor beer'

b. Ina$_i$ [$_{NegP}$Op¬ ne [t$_i$ voli [ni vino [∨ [ni pivo]]]]]]

c. *Op¬* [p∨q]

where p corresponds to 'Ina likes wine'

and q corresponds to 'Ina likes beer'

What this means is that *ni* is polarity sensitive, in the sense that it needs to be in the scope of a particular kind of operator (negation in (673b)) to yield a well-formed sentence. Crucially, both the negative operator and the disjunction from (673c) are phonologically unexpressed, i.e. null. Moreover, their scopal relation is such that the strong meaning of 'Ina does not like wine and she does not like beer' directly follows. Nonetheless, what ensures this scopal relation, i.e. that the negative operator outscopes the disjunction? The proposal offered below is based on Gajić (2016b, 2018), which is in turn inspired by Ahn (2015).

14.1.1 Obligatory exclusion

As shown in section 12.6, it is possible to employ a formal feature to trigger obligatory exhaustification. But this procedure can also deliver the polarity sensitivity of the coordination marker *ni* and explain why the distribution of the coordination it participates in is restricted to anti-additive environments. In section 12.6, an uninterpretable feature [uD], carried by both *neither* and *nor*, was stipulated as an explanation for the behavior of English negative coordination in DE contexts. That is, [uD] guarantees the presence of a c-commanding EXH$^+$ operator even inside a downward monotonic environment (674a).

(674)   a. DE $>$ EXH$^+_{[D]}$ $>$ *neither*¬$_{[uD]}$-∨-*nor*¬$_{[uD]}$ English

b. EXH$_{[D]}$ $>$ Op¬ $>$ *ni*$_{[uD]}$-∨-*ni*$_{[uD]}$ BCMS

On the other hand, in BCMS, where the *ni* markers do not carry negative operators of their own, the insertion of negation is ensured by the obligatory presence of an exhaustification operator above it (674b). The reason for this is that obligatory exhaustification of a disjunction with respect to its disjuncts will not yield a contradiction only if the latter is in a negative environment. But this means that exhaustification in the case of such polarity sensitive items cannot be exempt from contradiction, i.e. that EXH does not operate over innocently excludable alternatives, otherwise nothing would explain why *ni...ni* is bad in absence of negation. But let us look at the concrete procedure.

(675)   a. * *Ina voli ni vino ni pivo.*

Ina likes ni wine ni beer

Intended: 'Ina likes neither wine nor beer'

b. $\text{EXH}_{[D]}[\text{Ina}_i\ [t_i\ \text{voli}\ [[\text{ni}_{[uD]}\ \text{vino}]\ [\vee\ \text{ni}_{[uD]}\ \text{pivo}]]]]]$

When *ni* coordination is found in a clause with no expressed verbal marker of negation, and thus no silent negative operator, ungrammaticality ensues (675a). This is because the [uD] feature on *ni* has a double role: on the one hand it has to be checked by a c-commanding EXH operator with a matching [D] feature (675b), and on the other hand, it makes the corresponding subconstituent ('subdomain' in Chierchia (2013) terms) alternative obligatorily active (676b).

(676) a. S: p∨q

b. ALT(S) = {p∨q, p, q}

After checking the [uD] features on the *ni* markers, the $\text{EXH}_{[D]}$ operator exhaustifies the assertion with respect to its subconstituent alternatives. Since neither of the alternatives is entailed by the assertion (677a), both get negated. Crucially, in conjunction with the assertion, the negation of the two subconstituent alternatives yields a contradiction (677b).

(677) a. i. p∨q $\not\Rightarrow$ p

ii. p∨q $\not\Rightarrow$ q

b. $\text{EXH}_{[D]}(\text{ALT})(S) \Leftrightarrow p \vee q \wedge \neg p \wedge \neg q \Leftrightarrow \perp$

This only holds if no alternative can be 'spared' from exclusion, i.e. if all alternatives are supplied to EXH, and not only the innocently excludable ones.[1] This is also behind the idea of formal features which activate obligatory alternatives, thus triggering grammaticalized implicatures (Chierchia, 2013).

We see that the source of ill-formedness of a sentence with *ni...ni* coordination, but without a negative operator and its overt manifestation, could in principle be twofold: it could either result from the absence of an EXH operator whose [D] interpretable feature would check off the uninterpretable features of the *ni* markers (678a), or from the contradiction which arises when the said operator is inserted and check off the [uD] features, after which the subconstituent alternatives get excluded (678b).

(678) a. * $[\text{Ina}_i\ [t_i\ \text{voli}\ [[\text{ni}_{[uD]}\ \text{vino}]\ [\vee\ \text{ni}_{[uD]}\ \text{pivo}]]]]]$

b. * $\text{EXH}_{[D]}[\text{Ina}_i\ [t_i\ \text{voli}\ [[\text{ni}_{[uD]}\ \text{vino}]\ [\vee\ \text{ni}_{[uD]}\ \text{pivo}]]]]]$

Inside a clause with negation, *ni...ni* coordination is grammatical, as shown in (679a). This means that the absence of an $\text{EXH}_{[uD]}$ operator at the root of the whole sentence is not an option, now that there is an available parse which derives a well-formed sentence. That is, the uninterpretable [uD] feature of the *ni* markers must be checked, so the $\text{EXH}_{[D]}$

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[1] See discussion in sections 12.1, 12.2, and 12.3.

operator must be c-commanding everything else in the clause. Yet now the insertion of such an alternative-excluding operator has no semantic effect, as the basic meaning of the prejacent is that of a weak scalar element – disjunction – in the scope of negation (679b), which already represents a strong interpretation. In other words, the assertion is stronger than either of its subconstituent alternatives (679d), which makes application of the EXH operator vacuous (679e), as there is nothing to exclude.

(679)   a. *Ina ne   voli ni vino ni pivo.*
            Ina NEG likes ni wine ni beer
            'Ina likes neither wine nor beer'

        b. S: ¬[p∨q]

        c. ALT(S) = {¬(p∨q), ¬p, ¬q}

        d.   i. ¬(p∨q) ⇒ ¬p

            ii. ¬(p∨q) ⇒ ¬q

        e. EXH$_{[D]}$(ALT)(S) ⇔ ¬(p∨q)

The agreement mechanism between the coordination markers and a silent exhaustifying operator therefore brings about the activation of the disjunct alternatives (679c), whose effect is, however, not detectable, due to the fact that they are entailed by the assertion. Moreover, the well-formedness of the sentence with overt sentential negation and *ni*-coordination indicates that the scopal order between the null negative operator and the disjunction is as given in (679b) and that the null exhaustifying operator is inserted above negation. Other conceivable configurations would not derive the attested interpretation and the grammaticality of the sentence in (679a).

(680)   a. EXH [¬ [p∨q]]   ¬(p∨q)

        b. ¬ [EXH [p∨q]]   ¬(p∨q) ∨ p ∨ q

        c. ¬ [[EXHp]∨[EXHq]]   (p→q)∧(q→p)

        d. EXH[¬p∨¬q]

Namely, if silent EXH$_{[D]}$ needs to be inserted in a position from which it c-commands the [uD]-bearing *ni* markers, there are four analytically possible configurations (680). The first one (680a) corresponds to the attested case in (679): here, the formal features are checked and the exhaustification of thus activated subconstituent alternatives is vacuous. The second one (680b) also allows feature checking, yet it would derive an unattested, weakened meaning. The third one (680c) derives trivial meaning. Finally, a root EXH operator could also check the features of the coordination markers in a configuration where

the disjunction outscopes the negation (680d). Recall that the proposal for negative co-ordination in English in section 12 dealt with exactly this case, demonstrating how the strong interpretation could be derived for an inherently negative wide scope disjunction. However, there is no evidence that the *ni* markers actually carry negative operators, as they are always coupled with a verbal marker of negation (681a), unlike *neither...nor*. The configuration in (680d) can be excluded for this reason. Furthermore, it is possible to marry the two approaches to neg-words which make use of a syntactic agreement mechanism, Zeijlstra (2004) and Chierchia (2013), i.e. rely on both feature–checking between the silent negative operator (Op¬$_{[NEG]}$) and neg-words ($ni_{[uNEG]}$), and between the silent exhaustifying operator (EXH$_{[D]}$) and neg-words ($ni_{[uD]}$), as represented in (681b). The two approaches achieve the same result using different means, but they are not incompatible with each other.

(681)   a. *Ina *(ne) voli ni vino ni pivo.*
            Ina NEG likes ni wine ni beer
            'Ina likes neither wine nor beer'

   b. EXH$_{[D]}$[Ina$_i$ [$_{NegP}$Op¬$_{[NEG]}$ ne$_{[uNEG]}$ [t$_i$ voli [ni$_{[uNEG,uD]}$ vino [∨ [ni$_{[uNEG,uD]}$ pivo]]]]]]

As has been shown, the present mechanism relies on the scopal ordering by which the disjunction contributed by *ni...ni* is in the scope of negation, and both are, in turn, embedded under an EXH operator (680a). This procedure presupposes a featural parametrization which permits the existence of a formal feature [uD] which, once checked, activates subdomains as alternatives, and a matching null exhaustification operator EXH$_{[D]}$ which can check off the [uD] features and perform exhaustification of subdomain alternatives. The individual disjuncts are subdomains of the disjunction underlying *ni...ni* coordination. But what about so-called 'scalar' alternatives and their activation? The discussion in section 12.3 pertaining to the alternative set for exhaustification of *neither...nor* in English can, in principle, be transferred to BCMS *ni...ni*. Moreover, now we can specify the features of *ni* in such a way for it to not contain [uσ] (Chierchia, 2013) which would be in charge of activating alternatives obtained by lexical replacement. Finally, the presence of an alternative with conjunction would not make a difference, as such an alternative would be entailed in a negative sentence (682a), but not in a positive one (682b), just like the subconstituent alternatives.

(682)   a.   i. ¬(p∨q) ⇒ ¬(p∧q)
            ii. EXH$_{[D,\sigma]}$(ALT)(S) ⇔ ¬(p∨q)
        b.   i. p∧q ⇒ p∨q

ii. $\text{EXH}_{[D,\sigma]}(\text{ALT})(\text{S}) \Leftrightarrow p \vee q \wedge \neg p \wedge \neg q \wedge \neg(p \wedge q) \Leftrightarrow \bot$

Importantly, the exhaustification operator has to be constructed in such a way to allow contradiction as a possible outcome, which means that it operates over active alternatives indiscriminately, and not only over the innocently excludable ones. Without this trait, the unacceptability of a non-negative sentence with *ni...ni* would remain unexplained. But this means that there is possibly a distinction to be made between such an $\text{EXH}_{[D]}$ which can yield contradictory meaning, and an $\text{EXH}_{[D]}^{IE}$ which does not allow for contradiction, but can be applied recursively or inclusively, as required for analysing *neither...nor*. Yet, both of these operators would carry an interpretable [D] feature and whence consume the subconstituent alternatives it activated.

14.1.2 Strong exhaustification

So far, only sentences with and without sentential negation were discussed. An exhaustification approach predicts that whatever works for a sentence with negation should work in one with any other DE operator, as the direction of the inferences remains the same (from sets to subsets). However, this is not the case for *ni...ni*, as shown in (683) with the scope of the quantifier 'at most five students'.

(683)   * *Najviše pet studenata voli ni vino ni pivo.*
         at-most five students   likes ni wine ni beer
      Intended: 'At most five students like (either) wine or beer'

It looks like something interferes with the realization of the procedure described above, rendering exhaustification of subconstituent alternatives non-vacuous and contradiction–provoking. This issue is usually discussed in the context of strong NPIs, such as English sentence final additive focus particle *either*, which is not acceptable in just any DE environment (684b), but requires a stronger, anti-additive one (684a).

(684)   a.   i. Nobody danced at the party. Nobody sang, either.
             ii. Nobody sang or danced ⇔ Nobody sand and nobody danced
         b.   i. At most ten/five students danced at the party. *At most five students sang, either.
             ii. At most five students sang ⇒ At most five students sang loudly
             iii. At most five students sang or danced ⇎ At most five students sang and at most five students danced

Following Gajewski (2011)[2], Chierchia (2013) argues that it is not the anti-additivity per se

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[2]Who himself is based on Krifka (1995); Chierchia (2004).

to be held responsible for this. A further parametric switch is introduced, which manifests itself through so-called strong exhaustification, performed by EXH^S. Such an operator takes into account all the active alternatives contributed by different elements inside its c-command domain. What is more, EXH^S is also sensitive to the presuppositional component, which is added to the assertion and can thus affect the inference patterns. This means that certain DE environments no longer exhibit entailment relations from sets to subsets when found in the scope of a strong exhaustifier: for instance, quantifiers such as *few students*, whose implicature 'it is not the case that no students', equaling 'some students' disrupts the downward monotonicity, or the focus–sensitive particle *only* whose presupposition acts to the same effect: 'x and nobody other than x', roughly, is not DE. But this means that instead of exhaustifying only subconstituent alternatives, EXH^S must be sensitive to the scalar alternatives at the same time.

(685) $\text{EXH}^S = \text{EXH}_{[D,\sigma]}$

Ni...ni is ungrammatical in a DE context such as the scope of 'at most five students' in (683) because 'at most five students like x' implies that 'some students like x', which renders the result of exhaustification contradictory. As pointed out by Chierchia (2013: 222), regardless of the analysis of modified numerals like 'at most five students' or 'less than five students', the strong exhaustification of an alternative–inducing expression in their scope will have the same, unacceptable result. Namely, Krifka (1999b) treats the existential implication which comes with modified numerals as a presupposition, whereas Gajewski (2011) treats it as an implicature. Interestingly, either of these two adds a positive conjunct to the formula, and this yields a contradiction with the exclusion of the subdomain, i.e. disjunct alternatives (686).

(686)   a. S: EXH^S [AT-MOST-$5_{students}$[p∨q]]

   b. *where* p = 'x likes wine', q = 'x likes beer', *and* AT-MOST-$5_{students}$ = 'at most five students'

   c. ALT = { NO-MORE-THAN-$5_{students}$(p∨q) $\wedge$ $\exists_{students}$(p∨q),
       NO-MORE-THAN-$5_{students}$-p $\wedge$ $\exists_{students}$-p,
       NO-MORE-THAN-$5_{students}$-q $\wedge$ $\exists_{students}$-q }

   d. EXH^S(ALT)(S) $\Leftrightarrow$
       NO-MORE-THAN-$5_{students}$(p∨q) $\wedge$ $\exists_{students}$(p∨q)
       $\wedge$ ¬(NO-MORE-THAN-$5_{students}$-p $\wedge$ $\exists_{students}$-p)
       $\wedge$ ¬(NO-MORE-THAN-$5_{students}$-q $\wedge$ $\exists_{students}$-q)
       $\Leftrightarrow \bot$

The result of strong exhaustification (686a) of the sentence featuring 'at most five students' and *ni...ni* coordination (683) with respect to a set of alternatives that now also contains a component arising as an implicature of the modified numeral (686c) is a statement that 'some but no more than five students like wine or beer, and either more than five students like wine or no student likes wine, and either more than five students like beer or no student likes beer', which is a contradiction. The same can be observed with 'not every student', where the presence of the universal quantifier with its corresponding alternatives abolishes the downward monotonicity once exhaustification takes place, even though the sentence features a verbal marker of negation *ne* (687a). After strong exhaustification we get the trivial meaning paraphrased in (687b).

(687)   a. * *Ne   voli svaki student ni vino ni pivo.*
             NEG likes every student ni wine ni beer

           Intended: 'Not every student likes (either) wine or beer'

     b. $\text{EXH}_{[D,\sigma]}[\neg\text{ne voli svaki}_{[uD,u\sigma]}$ student $\text{ni}_{[uD]}$ vino $\lor$ $\text{ni}_{[uD]}$ pivo]
        $\approx$ 'it is not the case that every student likes wine or beer, but some student likes wine or beer, and either every student likes wine or no student likes wine, and either every student likes beer or no student likes beer'

Now, strong exhaustification relies on simultaneous activation of subdomain and scalar alternatives, where a [uD] feature is in charge of the former and a [uσ] of the latter. When it is not a presupposition, it is a scalar implicature of the extra quantificational material in a sentence with a neg-word that prevents exhaustification from being vacuous above negation. But it has already been established that the *ni* markers do not bear the uninterpretable σ features and thus do not contribute scalar alternatives. After all, it is not really possible to prove their presence with the constellation of matters in BCMS, as they would have no effect with a non-negative disjunction like *ni...ni*, if the exhaustifying operator obligatorily takes into account the subdomains as well. One way to go is to admit that the featural specification of *ni* consists of both a [uD] and a [uσ], i.e. allow the generation of a conjunctive alternative (688a). This would not affect the present account of *ni... ni* coordination, as demonstrated previously (682). Furthermore, as we are dealing with grammatically determined alternatives, we can fully exploit the availability of formal features for triggering one or both of the mechanisms for alternative generation – replacement by subconstituents ([uD])[3] or lexical replacement ([uσ]).

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[3]That is, to be more precise and committed to Chierchia's original account, the activation of subdomains of the assertion as its alternatives.

(688) a. $\text{EXH}_{[D,\sigma]}[\text{Ina } \neg\text{ne voli } \text{ni}_{[uD,u\sigma]} \text{ vino } \lor \text{ni}_{[uD,u\sigma]} \text{ pivo}] \Leftrightarrow \neg(p\lor q)$
        $\text{ALT} = \{\neg(p\lor q), \neg p, \neg q, \neg(p\land q)\}$

       b. $\text{EXH}_{[D,\sigma]}[\text{Ina } \neg\text{ne voli } \text{ni}_{[uD]} \text{ vino } \lor_{[u\sigma]} \text{ni}_{[uD]} \text{ pivo}] \Leftrightarrow \neg(p\lor q)$

However, what exactly should be the effect of an uninterpretable σ feature present on each of the coordination markers (688a)? Unless formation of scalar alternatives is understood as a more abstract and more complex mechanism, it is hard to imagine what useful alternative lexical replacement would yield at the level of a single disjunct. One might then decide to equip the null disjunction with such a lexical replacement feature instead (688b). Further motivation would have to be found for this. Moreover, such a move would create a split between BCMS and English, as the conjunctive alternative is considered not to be available in the latter. Nonetheless, as pointed out, the discussion provided for English *neither...nor* and its alternative set in section 12.3 in principle applies to BCMS and *ni...ni*. Ideally, negative coordination constructions in the two languages should have parallel properties, if a uniform analysis (in terms of exhaustification) is to be pursued. We might thus choose to say that *ni* is specified only for subdomain alternatives through the [uD] feature and that a [uσ] feature is simply absent from this construction altogether. But it looks like this undermines the explanation for unacceptability of *ni...ni* in non-anti-additive DE environments in terms of strong exhaustification, as the latter is supposed to make use of both subdomain and scalar alternatives, as well as presuppositions, of all functional elements. In other words, why can $\text{EXH}_{[D,\sigma]}$ not skip the universal quantifier and its alternatives, but it can do so with negative coordination (689a) and its scalar alternative? One could say that this is simply due to the presence or absence of a [uσ] feature – *ni* coordination does not bear it, whereas the universal determiner *svaki* does – and $\text{EXH}_{[D,\sigma]}$ is blindly sensitive to the presence of these features.

(689) a. $\text{EXH}_{[D,\sigma]}[\neg\text{ne voli } \text{svaki}_{[uD,u\sigma]} \text{ student } \text{ni}_{[uD]} \text{ vino } \lor \text{ni}_{[uD]} \text{ pivo}]$

       b. $\text{EXH}_{[+D,+\sigma]}[\neg\text{ne voli } \text{svaki}_{[+D,+\sigma]} \text{ student } \text{ni}_{[-uD]} \text{ v. } \lor \text{ni}_{[-uD]} \text{ p.}]$

       c. $\text{svaki}_{[-D,-\sigma]}$ *student voli pivo*
           every   student likes beer
           'Every student likes beer'

But then one last modification should be made, in accordance with Chierchia's account (689b). Namely, there is no reason to assume that a quantificational determiner like *every* should carry uninterpretable features in charge of activating alternatives (689a), as this would predict obligatory exhaustification without which the syntactic derivation would crash due to unchecked features. A more appropriate system employs both feature checking and feature valuation, so that the null operator EXH ends up having interpretable

and valued features [+D,+σ], a strong NPI like *ni* comes with uninterpretable and unvalued features of the same kind [-uD,-uσ], and a functional element which is not polarity sensitive, such as *every*, enters the derivation bearing interpretable but unvalued features [-D,-σ]. This allows the intervening quantifier to have its subdomain and scalar alternatives activated only when found in such a c-command domain of an operator with matching valued features (689b). That is, *every* can appear in a sentence without an EXH operator at its root (689c), but when it is found in the scope of an EXH$_{[+D,+\sigma]}$, its D and σ feature get valued and produce subdomain and scalar alternatives to be consumed by the exhaustifier. A quantifier which is not polarity sensitive will thus have its subdomain or scalar alternatives active only optionally ((689c) vs. (689b)), whereas the restricted distribution of (strong) NPIs results from their alternatives being active obligatorily (Chierchia, 2013). The latter is due to uninterpretable features which will only be checked once a c-commanding EXH with matching interpretable features is inserted. Nonetheless, in the case of *ni*, there is only one uninterpretable feature in charge of activating alternatives, [-uD], present on each coordination marker and triggering the formation of subconsitutent, i.e. disjunct, alternatives (689b).

Strong exhaustification thus takes into account not only the truth-conditional component of the meaning, but also the presuppositions and the implicatures. This is why strong NPIs like *ni* are not acceptable in weak DE contexts, since additional scalar implicatures arise and yield a contradiction after exhaustification. Ultimately, this is a form of an intervention effect. But *ni* also turns out to be a strict NPI, as it has to be exhaustified locally. Namely, depending on the embedding predicate, *ni...ni* coordination gets more or less degraded if the overt marker of negation is in the matrix clause (690).

(690)   a.   *??? Ina nije   rekla   da   Maja voli ni vino ni pivo.*
             Ina NEG-ᴀᴜx.3Sg sayᴘᴀʀᴛ that Maha likes ni wine ni beer

        Intended: 'Ina didn't say that Maja likes (either) wine or beer'

        b.   *?? Ina ne   tvrdi   da   Maja voli ni vino ni pivo.*
             Ina NEG claims that Maja likes ni wine ni beer

        Intended: 'Ina doesn't claim that Maja likes (either) wine or beer'

        c.   *? Ina ne   veruje   da   je   položila ni pismeni ni usmeni.*
             Ina NEG believes that ᴀᴜx.3Sg passᴘᴀʀᴛ ni written ni oral

        Intended: 'Ina doesn't believe that she passed (either) the written or the oral (exam)'

This points to the (weaker) necessity for clause-bound exhaustification, as feature checking between the *ni* markers and the null EXH should not cross a CP boundary (691). The

EXH$_{[+D,+\sigma]}$ has to be inserted above the matrix clause, since this is where the negative verbal marker is.

(691)   EXH$_{[+D,+\sigma]}$[Ina ¬nije rekla [$_C$da Maja voli ni$_{[-uD]}$ v. ni$_{[-uD]}$ p.]]

Such strict locality with negation is common among neg-words cross-linguistically, but also, as Chierchia points out, strong NPIs. This is one of the reasons why a unified analysis is called for. Another pattern that neg-words and strong NPIs share, as discussed in Chierchia (2013: §4.5), is the observation that they are normally based on weakest elements of a scale. In the case of individual-denoting neg-words and NPIs, this means that they are existentials which come with special formal features, i.e. obligatory alternatives. But neither of the two exists in a grammaticalized form comprising a quantifier other than the lowest cardinalities. BCMS offers a good illustration of this. Namely, both of its markers, *ni-* for neg-words and *i-* for NPIs, combine with the numeral 'one' to yield polarity sensitive determiners (692). Crucially, neither of the markers combines with numerals higher than 'one' to yield a grammatical form (693).

(692)   a. *nijedan student* = ni[uD]–one∃[uσ] student

         b. *ijedan student* = i[uD]–one∃[uσ] student

(693)   a. **nidva/nitri* studenta = ni[uD]–two∃2[uσ]/three∃3[uσ] students

         b. **idva/itri* studenta = i[uD]–two∃2[uσ]/three∃3[uσ] students

This pattern can be explained if exhaustification over scalar and subdomain alternatives is obligatory, since it would result in a contradiction for any numeral higher than 'one', due to the occurrence of intermediate implicatures parallel to the ones arising with intervention (689b). If this explanation for why NPIs and neg-words are to be treated on a par, i.e. via exhaustification, were to carry over to the coordination marker *ni*, adding a [uσ] to its featural specification might be called for, after all. Nonetheless, this need not be enforced. The reason is that typical neg-words and NPIs in BCMS clearly have scalar components, transparent in their morphology. This is clear with the determiners in (692) and the numeral 'one', but it can also be argued for in the case of wh-based neg-words and NPIs like *niko* (*ni*-'who') or *iko* (*i*-'who'). The coordination marker *ni* does not comprise a morphological component of that kind, so there is nothing to induce association with an appropriate scale. Moreover, its counterpart *i* is not even polarity sensitive the way *i*-wh/'one' items are. The latter are weak NPIs (694a), whereas the conjunction *i* is not distributionally restricted (694b).

(694)   a. i. *Najviše pet studenata je   pozvalo   ikoga.*
                at-most five students   ᴀᴜx.3ꜱɢ invite$_{\text{PART}}$ i-who

'At most five students invited anyone'

ii. * *Pet studenata je   pozvalo   ikoga.*
    five students   AUX.3Sg invite_{PART} i-who

    Intended: 'Five students invited someone'

b. *(Najviše) pet studenata voli (i) vino i   pivo.*
   at-most   five students like and wine and beer

   '(At most) five students like (both) wine and beer'

All this points to the validity of the claim that the marker *ni*, or the entire coordination construction in which it participates, does not bear a [uσ] and hence does not contribute scalar alternatives for exhaustification, even though it belongs to the system of strict NC in BCMS and its neg-word inventory. Yet its subconstituent alternatives are always active and subject to obligatory exhaustification by an operator sensitive to the presence of scalar and subdomain alternatives as well as presuppositions originating on any element in the c-command domain of the operator.

14.1.3   Innocent Exclusion and Innocent Inclusion

Crucial for the account of *ni...ni* coordination presented above is that exhaustification can yield contradictory meaning. This ultimately distinguishes positive from negative sentences, explaining the fact that *ni...ni* is only acceptable in the latter. However, this is unsatisfactory seen from the perspective of the exhaustification analysis proposed for English (section 12), since there no contradiction could ever arise due to the sensitivity of the EXH operator only to innocently excludable alternatives. Transplating the current, contradiction-prone approach to the account for *neither...nor* would not be desirable since there is no unacceptability to be accounted for, i.e. no contradiction is observed with distributionally unrestricted negative coordination in English. Is the other way around possible then? At first glance it looks like a lost cause: Innocent Exclusion is there to avoid contradiction, but contradiction is crucial in the explanation of polarity sensitivity on Chierchia's account. Nonetheless, he does discuss the possibility of having IE-based exhaustification for NPIs (Chierchia, 2013: 185). The crux of the proposal is to distinguish ordinary scalar items like *or* from the polarity sensitive ones like *any* or, in our case, *ni...ni*, by designating the alternatives of the former, but not of the latter, as prunable. In other words, the alternatives generated by *or* are subject to relevance, whereas those generated by *ni...ni* are independent of it or, rather, understood as always relevant. This means that all the structurally derivable alternatives in F(S) (i.e. those activated by formal features) must also be present in C, so the intersection of these two sets can never be empty for

311

NPIs.

(695) $ALT = F(S) \cap C \neq \varnothing$

Moreover, alternatives cannot be activated idly – exclusion thus must be performed whenever activated alternatives are not entailed by the assertion.

(696) a. Jenny likes wine or beer.

    i. S: $p \lor q$

    ii. $ALT(S) = \{p \lor q, p, q, p \land q\}$

    iii. $IE = \{p \lor q, p \land q\}$

    iv. $EXH^{IE}(ALT)(S) \Leftrightarrow p \lor q \land \neg(p \land q)$

  b. *Ina voli ni vino ni pivo.*
    Ina likes ni wine ni beer

    i. S: $p \lor q$

    ii. $ALT(S) = \{p \lor q, p, q\}$

    iii. $IE = ALT(S) = \{p \lor q, p, q\}$

    iv. $EXH^{IE}(ALT)(S) \Leftrightarrow p \lor q \land \neg p \land \neg q \Leftrightarrow \bot$

Therefore, the reason why the disjunction *or* in (696a) is grammatical is that its subconstituent alternatives p, q can be pruned, i.e. considered as not relevant, for which reason they are not added to the set of innocently excludable alternatives IE. At the same time, the reason why *ni...ni* is ungrammatical in (696b) is that its subconstituent alternatives cannot be pruned, but once they are active and present in the domain of EXH, they will be excluded. This results in a contradiction with the assertion and thus unacceptability. Chierchia implements this via a presupposition tucked onto the exhaustifying operator (697).

(697) Anti-idleness   adapted from Chierchia (2013: 186)

  a. $EXH^{PR}(ALT)(\phi) =$

  b. $EXH(IE)(\phi)$, if $\forall p \in IE[\phi \nsubseteq p \rightarrow EXH(IE)(\phi) \nsubseteq \neg p]$

  c. $\bot$, otherwise

To achieve uniformity with the account for English *neither...nor* and stick to the notion of IE alternatives for *ni...ni* as well, one would thus have to add a presupposition like (697) to the definition of the EXH operator. Of course, the strong exhaustification requirement stays in place – the presupposition in (697) is just an add-on which allows the exhaustifying operator to work with innocently excludable alternatives and still have the possibility of yielding a contradiction.

Admittedly, this is just a first stab at unifying the proposals and keeping the notion of IE alternatives all the way. Chierchia himself acknowledges that problems would arise for his account of Free Choice and that the proposal needs to be worked out. Now, if we adopt the definition of EXH as in (697) and decide to assume Innocent Exclusion for *ni...ni*, how does this extend to the exclusive + inclusive exhaustifying operator EXH^{IE+II}, used in one of the versions of the approach to *neither...nor* (section 12.2)? It is not hard to see that performing Innocent Inclusion in the continuation cannot give any result. Namely, if the subconstituent alternatives p, q in (696b) are added to the set IE because they are unprunable, then we are left with no alternative which could be added to the set II and asserted together with the prejacent. This means that the presuppositional version of EXH from (697) would never allow the operation of Innocent Inclusion, as it would always force exclusion of all active non-entailed alternatives, regardless of whether it results in a contradiction or in non-trivial meaning. It is then possible that this new version of EXH^{PR} stands in opposition to the EXH^{IE+II} – the former (697) is coupled with polarity sensitive items and it can result in contradiction, whereas the latter is used for ordinary scalar items and it can result in a complete answer to the question formed by the set of alternatives.

Let us now turn to the other form of negative coordination in BCMS, *niti...niti*, and investigate how an exhaustification account could deal with the intricate empirical facts of this construction.

14.2   *Niti...niti* coordination

Niti...niti is mostly employed as the clausal version of *ni...ni* coordination (698).

(698)   *Niti je   Lea igrala,   niti je   Sofija pevala.*
        niti AUX.3Sg Lea dancePART niti AUX.3Sg Sofija singPART
        '? Neither did Lea dance, nor did Sofija sing'

Niti also need not host a negative verbal marker in the clause it introduces (698), yet it yields single negation readings when it is embedded under an overtly negated predicate (699).

(699)   *Ina ne   zna   niti da Lea igra   niti da   Sofija peva.*
        Ina NEG knows niti that Lea dances niti that Sofija sings
        'Ina knows neither that Lea dances nor that Sofija sings'
        = 'Ina doesn't know that Lea danced or that Sofija sang'

Crucially, the split scope diagnostic showed that *niti* coordination is disjunction-based, just like *ni...ni*. Is the exhaustification approach to *ni...ni* presented in the previous subsection

(14.1) applicable to *niti...niti*? From what I can see, there are two major ways to proceed, if one wants to postulate an exhaustification approach to *niti...niti* coordination. I will now briefly discuss the two takes on *niti...niti*, together with the complications they cause for a unified analysis.

14.2.1 Obligatory/Innocent Exclusion *ni...ni* style

One way to go is to design the account for *niti...niti* based on the one proposed for *ni...ni*. After all, the two constructions are, to a big extent, in complementary distribution with respect to the categorial status of the constituents they introduce. At the same time, regardless of whether they are interchangeable in a given context or not, the two kinds of negative coordination do not show any difference in interpretation. This points to the possibility that negative coordination in BCMS is simply embodied through two different markers, which are distinct at surface. Moreover, they are morphologically related, which further motivates the extension of any account of *ni* to *niti*. To pursue this for a sentence like (698), we need to assume that *niti* bears an uninterpretable (and unvalued) feature [-uD] in charge of activating the subconstituent alternative which corresponds to the disjunct the marker attaches to. The disjunction is null. This would be the contribution of *niti...niti* coordination alone (700a). However, as with *ni...ni*, this is insufficient, as the syntactic derivation would crash at this point. For this reason, a null negative operator is attached at the root of the coordination, and above it a null exhaustification operator (700b). $\text{EXH}^{PR}_{[+D,+\sigma]}$ is there to check the features of the two *niti* markers, after which the operator will apply to thus activated alternatives. Such exhaustification is vacuous because the basic interpretation of the assertion is already strong ($\neg(p \lor q)$). This is the attested meaning of *niti...niti* coordination. If the negative operator is not present in the structure (700c), the features of the *niti* markers will still be checked, but the exhaustification of the activated subconstituent alternatives then results in a contradiction.

(700) a. * niti$_{[-uD]}$ p $\lor$ niti$_{[-uD]}$ q

   b. $\text{EXH}^{PR}_{[+D,+\sigma]}[\neg$ [niti$_{[uD]}$ p $\lor$ niti$_{[uD]}$ q]]

   c. * $\text{EXH}^{PR}_{[+D,+\sigma]}$[niti$_{[uD]}$ p $\lor$ niti$_{[uD]}$ q]

The problem is that negation does not seem to have any overt realization the way things are in (700b). That is, unlike with *ni...ni*, no verbal marker of negation is present in sentences with *niti* coordination, at least not obligatorily. This seems to suggest that in this case the system with NC agreement established in section 11.1.2 has to be maintained for *niti...niti*, even if it is to be combined with exhaustification. Something simply has to

ensure the presence of a c-commanding negative operator, and to ensure that the LF of (698) is indeed (700b) and not (700c).

(701) a. $\text{EXH}^{PR}_{[+D,+\sigma]}[\text{Op}\neg_{[NEG]} [\text{niti}_{[uNEG,uD]} \text{ p} \lor \text{niti}_{[uNEG,uD]} \text{ q}]]$

     b. $\text{Op}\neg_{[NEG]} [\text{niti}_{[uNEG]} \text{ p} \lor \text{niti}_{[uNEG]} \text{ q}]$

But what is then the advantage of an analysis with exhaustification over one that only employs syntactic agreement between a null negative operator and the coordination markers (701b), if the latter can already yield the right meaning? Conversely, are we right to conclude that the *niti* markers are not inherently negative, given that they seem to be able to induce negation in absence of any other overtly negative element?

14.2.2 Innocent Exclusion *neither...nor* style

A more tenable account might seem to be the one that simply takes each *niti* marker as a negative operator which provides negation for the clause it introduces. This would avoid stipulating a null negative operator at the root of the coordination, and allow a direct form-meaning match for negation. However, this would not give the right LF for the attested meaning, since we are now essentially presented with the same problem as the one already discussed for *neither...nor*. This means that the solution proposed for English negative coordination could be transplanted to *niti...niti*, in either of its forms – as recursive exhaustification or as exclusive plus inclusive exhaustification. In this way *niti* coordination would be strengthened to its actual meaning of a narrow scope disjunction (or wide scope conjunction) starting from the wide scope disjunction in (**??**). So what is stopping us? Recall that double negation readings do not arise when *niti...niti* is embedded under verbs to which an overt negative marker is attached. This is valid for embedded clausal (702a), but also VP coordination (702b), to the extent that it is acceptable and not dispreferred to *ni...ni*.

(702) a. *Ina ne   tvrdi niti da Lea igra   niti da Sofija peva.*
        Ina NEG claims niti that Lea dances niti that Sofija sings

        'Ina claims neither that Lea dances nor that Sofija sings'

        = 'Ina doesn't know that Lea danced or that Sofija sang'

     b. *(?) Maja neće   niti pevati niti igrati.*
        Maja NEG-will niti sing   niti dance

        'Maja will neither sing nor dance'

These data cast a serious doubt on this coordination marker actually being inherently negative. Despite what unembedded clausal coordination might suggest, (702a, 702b) show

that *niti* markers are dependent on a silent c-commanding negative operator, as they now occur clausemate with a negative verbal marker and result in single negation readings. There is thus no need to assume the structure in (**??**) and follow the exhaustification analyses offered for *neither...nor*. As unsatisfactory as it might get when applied to *niti* coordination, an exhaustification account along the lines of that proposed for *ni...ni* is preferable to the one designed for *neither...nor*.

The present section was an attempt at developing an exhaustification-based analysis for both forms of negative coordination in BCMS: *ni...ni* and *niti...niti*. It presented us with considerable difficulties, especially in view of unification with the parallel proposal for *neither...nor*. The *niti...niti* construction seems particularly problematic and difficult to account for due to its intricate syntactic properties. Let us now check how an approach based on presuppositional content fares with negative coordination in BCMS.

Chapter 15

Presuppositional approach: BCMS

The account of *neither...nor* coordination in English which relies on presuppositions encoded in the lexical entries of the markers from Chapter 13 was motivated by their role as additive focus particles, i.e. elements which appear in non-coordinative structures but require an appropriate contextual antecedent. *Ni* and *niti* can also be employed in this way (703).

(703)   a. *Ina nije   igrala.*
            Ina NEG-AUX danced
            'Ina didn't dance'

          i. *{*(Ni)je} ni Maja {*(ni)je}.*
              NEG-AUX   ni Maja NEG-AUX
              '{Neither/Nor} did Maja' / 'Maja didn't (dance), either'

          ii. *Ni Maja.*
              ni Maja
              '{Neither/Nor} did Maja' / 'Maja didn't (dance), either'

b. *Ina nije   igrala. Niti ?%(je) Maja.*
   Ina NEG-AUX dance niti AUX   Maja
   'Ina didn't dance. Neither/Nor did Maja.'
   'Ina didn't dance. Maja didn't (dance), either.'

Although at surface it might look like both *ni* and *niti* are able to induce negation when they are used as additive focus particles (703), this is not actually the case. In the case of *ni*, it is evident in (703a-i) that, unless full deletion leaving only the additive particle and its associate took place (703a-ii), it is not possible to have the finite verb without a verbal marker of negation. This means that the focus particle *ni* is not inherently negative, just like the coordination marker isn't. After all, we are dealing with one and the same NC element, and this is why a unified analysis is called for. As for *niti*, full deletion is often dispreferred but, importantly, the finite verb does not bear an overt marker of negation. Again, as tempting as it might be to proclame *niti* inherently negative, it ran into a wall in the previous section when we considered this option, due to the fact that sentences where it is embedded under an overtly negated verb do not get double negation readings. The same goes for the focus particle use (704).

(704) *Ina ne zna   da Maja peva. Ne zna   niti da Lea igra.*
       Ina NEG knows that Maja sings NEG knows niti that Lea dances
       'Ina doesn't know that Maja sings. She doesn't know that Lea dances, either'

For this reason, and choosing to avoid an account in terms of lexical ambiguity, I assume that *niti* does not carry a negative operator of its own, but that it has to be in the scope of a null negative operator, just like *ni*. This means that both additive focus particles can receive the same semantic treatment as *either* (705).[1]

(705) ⟦ni⟧= ⟦niti⟧= ⟦either⟧= λC.λp.λw: ∃q[q∈C & q≠⟦p⟧ & ¬q(w)]. p(w)

As shown in (705), the two negative coordination markers have the same meaning contribution, consisting of an identity function which will output the same proposition *ni* or *niti* is attached to, but also contribute an exclusive existential focus presupposition. Nonetheless, this does not suffice to ensure the presence of a c-commanding negative operator. But *ni* and *niti* are morphosyntactically marked for negation, which means that certain formal features should be added to finalize the picture. That is, the lexical entry from (705) needs to be coupled with a syntactic agreement approach like the one presented in subsection 11.1.2. Building the presuppositional component into the entries for *ni* and *niti* will not have a decisive effect on negative coordination in BCMS, as it did in English. If both markers carry formal features which ensure the presence of a higher negation, as in (706a) and

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[1]Recall that this builds on Rullmann (2003).

(706b), then the attested meaning is present already in the assertive component. Namely, with the state of affairs in (706a) and (706b), both *ni...ni* and *niti...niti* coordination get interpreted as disjunctions in the scope of a negation, which is as desired.

(706) a. i. *Ina ne   voli ni vino ni pivo.*
Ina NEG likes ni wine ni beer
'Ina likes neither wine nor beer'

      ii. [Ina$_i$ [$_{NegP}$ Op¬$_{[NEG]}$ ne$_{[uNEG]}$ [t$_i$ voli [ni$_{[uNEG]}$ vino...
[∨ [ni$_{[uNEG]}$ pivo]]]]]]

  b. i. *Niti je   Lea igrala, niti je   Sofija pevala.*
niti AUX Lea dance niti AUX Sofija sing
'?Neither did Lea dance nor did Sofija sing'

      ii. Op¬$_{[NEG]}$ [niti$_{[uNEG]}$ p [∨ [niti$_{[uNEG]}$ q]]]

Once we include the presuppositions, we get the result in (**??**). Unlike what we had in English for *neither...nor*, this time the assertion is as informative as the presuppositions put together (707), and thus non-redundant.

(707) ⟦*Op*¬ [ni(ti) p ni(ti) q]⟧ =
= λw: ∃p′, ∃q′ [p′, q′∈C & q′≠⟦p⟧ & p′≠⟦q⟧ & ¬q′(w) & ¬p′(w)]. ¬(⟦p⟧(w)∨⟦q⟧(w))

This means that there is no need to insert an Accommodation operator at the root of the coordination. Moreover, as pointed out before, both *ni* and *niti* can introduce more than two members of a coordination (708).

(708) a. *Ina ne   voli ni vino ni pivo ni rakiju.*
Ina NEG likes ni wine ni beer ni brandy
'Ina likes neither wine nor beer nor brandy'

  b. *Niti je   Lea igrala, niti je   Sofija pevala, niti će   Marko doći.*
niti AUX Lea dance niti AUX Sofija sing   niti will Marko come
'?Neither did Lea dance nor did Sofija sing nor will Marko come'

Nontheless, given the already strong meaning of the assertive component, by which each of the coordinands must be false, the possibility of one of them satisfying multiple focus presuppositions does not harm the account. This means that neither of the problems which occured for the presuppositional approach to *neither...nor*, namely redundancy and presupposition satisfaction with more than two disjuncts, is present in the same approach to *ni...ni* and *niti...niti*, since here the burden of deriving the right interpretation is placed in the syntactic properties of these coordinations and their markers. This still does not mean that we should not opt for the alternative definition of the presuppositions introduced

by *ni* and *niti*. Namely, if conditional presuppositions are stipulated for *neither* and *nor*, then it wouldn't cost us anything to do the same for *ni* and *niti* (709b), and keep the analysis as uniform as possible.

(709)   a. $[\![ni\,]\!] = [\![niti]\!] =$
        $= \lambda C.\lambda p.\lambda w: \exists q[q\in C\ \&\ q\neq[\![p]\!]\ \&\ \neg q(w)\rightarrow\neg[\![p]\!](w)].\ p(w)$

        b. $[\![Op\neg\ [ni(ti)\ p\ ni(ti)\ q]]\!] =$
        $= \lambda w: \exists p', \exists q'\ [p', q'\in C\ \&\ q'\neq[\![p]\!]\ \&\ p'\neq[\![q]\!]\ \&\ \neg q'(w)\leftrightarrow\neg p'(w)].\ \neg([\![p]\!](w)\vee[\![q]\!](w))$

Now both of the markers assert the truth of the proposition generated out of the disjunct they attach to, and presuppose that, if there is at least one focus alternative to the host proposition that is false, then the host itself must be false, as well (709a). After the root negation is attached to satisfy the syntactic requirements of the markers, the final interpretation with negated disjunction in the assertive component is derived (709b). The presuppositions are then necessarily satisfied.

The immediate advantage of this approach is that it transfers over to the role of the markers as additive focus particles in negative environments. In fact, it is the other way around – the lexical entries for the coordination markers are now modeled after the entry for negative additives like *either*. Moreover, a unified analysis of additive particles and coordination markers in BCMS is highly desirable, as they show little divergence. An account based on presuppositional import can capture this without altering the otherwise needed syntactic machinery. The simplicity of the present account then makes it the most straightforward unification of negative coordination constructions and the contribution of the corresponding markers in the two studied languages. Furthermore, both the use of the particles as focused additives and as coordination markers is covered.

Part V

Chapter 16

Conclusions and outlook

The first chapter of this dissertation introduces the research questions:

1. What is the range of structural possibilities for expressing the meaning of negative coordination and which syntactic categories can participate in it?

2. What is the semantic status of the coordination markers and which LF should be given to negative coordination?

3. What theoretical approach caters best to the empirical situation in a given language and how far can a unification of the analysis with additives go?

The second chapter provides an overview of the literature on negative coordination in English and in BCMS.

Chapter 3 gives an empirical overview of negative coordination proper, i.e. those structures in which at least two coordination markers appear. In English this means that *neither* is attached to an initial constituent and *nor* to a final one, whereas in BCMS either *ni* or *niti* appears (at least) twice in the structure. Each of the three possibilities is shown to be compatible with multiple structural positions, i.e. each can attach to constituents of different categories and sizes. Clausal coordination is, nonetheless, not problematic only

for *niti...niti*. *Ni* and *niti* occasionally appear as markers inside the same coordinative structure. On the other hand, initial negative coordination markers, in general, do not combine with plain connectives on the final coordinand.

In Chapter 4, I show that three out of the four markers can introduce constituents which are preceded by a clause with sentential negation. Their use is syntactically more constrainted in such constructions. Namely, *nor* must introduce a full clause. Literature usually subsumes these cases under negative coordination, but such use of markers in both English and BCMS seems, in fact, relatable to their role as additive particles. In the latter, they appear in independent sentences, but require a salient antecedent in the context, as shown in Chapter 5. In BCMS, this role can be extended to an emphatic, scalar effect. Finally, in both languages one of the markers produces negative indefinites. All this points to some systematic similarities and recurrent cross-linguistic patterns. Of the roles the markers appear in, the one in coordination and the one as additive focus particles seem the most tightly related and deserving a unified analysis.

Part II closes with considerations of the place of negative coordination in the system of polarity in the given language in Chapter 6. *Neither*, *nor*, and *ni* behave like other negative elements – they participate in DN or in NC of the language in question. However, *niti* does not seem to fit in the system of NC in BCMS, which constitutes a major challenge. Looking at coordination of embedded clauses reveals its true, NC nature. Furthermore, polarity sensitive items in BCMS, namely neg-words, weak NPIs and PPIs, show unexpected behavior when appearing inside constituents coordinated by *niti*, but also by *ni*. The source of this is revealed in Part III.

Chapter 7 discusses the strong interpretation of negative coordination, systematically attested in both English and BCMS. Due to logical equivalences, this meaning is nontransparent with respect to the exact Boolean ingredients of negative coordination and their scopal relation. Two diagnostics are presented, which can serve to disentangle the equivalent interpretations and probe into the semantic nature of negative coordination. Chapter 8 thus uses a test with quantificational adverbs. The unavailability of interpretations where the adverb scopes between the connective and the negation independently from the ones where the adverb scopes over both components of negative coordination shows that there is no evidence that negative coordination is a conjunction which scopes over negation in either English or BCMS. In Chapter 9 necessity modals and other intensional verbs bring about readings which unambiguously show that negative coordinations in both English and BCMS are underlyingly disjunctions. Combining these findings with observations about inherent negativity of the markers in English or the lack thereof in BCMS, I conclude in Chapter 10 that negative coordinations are wide scope disjunctions in the

former language, but narrow scope disjunctions in the latter, and take this as a starting point for an analysis. This is further supported by the obligatory distributive readings of coordinated subjects and related phenomena, but it seems to go against the absence of alternative question readings and ignorance inferences in English. Nonetheless, the latter result from the same mechanism which derives the strong, conjunctive-like interpretation, as will be shown in Part IV.

Adopting such empirical findings which paint a picture of *ni...ni* and *niti...niti* coordinations as disjunctions in the scope of negation and *neither...nor* as disjunctions which outscope negation, it becomes clear that the former deliver the attested meaning, whereas the latter do not, which is why their meaning needs to be further enriched. The three major approaches presented in Part IV are thus attempting to embedd the facts from BCMS into an adequate theoretical frame, and to provide an additional component in English which would ensure the strong interpretation. Different analytical options are explored, some target syntax and some are semantics/pragmatics-oriented. The proposals account only for structures with iterated markers, in the hope that an adequate treatment of negative coordination proper can shed more light on single, additive-like uses of the markers. Such unification is achievable to various degrees in different approaches.

Chapter 11 splits onto section 11.1 which presents a syntactic agreement mechanism between a covert negative operator which c-commands the coordination markers and thus outscopes the disjunction, and section 11.2 where negative operators carried by coordination markers move across-the-board to a position from which their fusion outscopes the disjunction. The latter subapproach tries to syntactically transform the disjunction with inherently negative coordination markers into a disjunction in the scope of a silent negative operator, and the resulting LF is what the two sub-approaches have in common. Syntactic agreement is adequate for a NC language like BCMS, which displays negative doubling morphosyntactically, whereas ATB-movement would be needed for a language like English. Nonetheless, in the case of the latter, further motivation would be needed for such an unorthodox move.

Chapter 12 focuses on English and explores an exhaustification mechanism which employs a covert syntactic operator to perform strengthening of the wide scope disjunction over negation, therefore attributing to it the meaning which corresponds to the reverse scopal order. Two implementations are tested – one iterates exclusion of alternatives (section 12.1), whereas the other first excludes and then includes alternatives (section 12.2), under predefined conditions. Both versions of the exhaustification approach can derive the strong interpretation for negative coordination. Still, successful strengthening of the inherently negative disjunction which underlies *neither...nor* depends on the set of al-

ternatives which will serve as the first argument to the operator. This is why alternative generation is discussed in section 12.3, where arguments are brought forward to motivate the presence of only negative individual disjuncts in the set of formal alternatives. The reasoning is that special forms of coordination deserve a more intricate account of their alternatives. Exhaustification is performed primarily to remove ignorance inferences which arise with a wide scope disjunction (section 12.4). Yet, in section 12.5 embedding negative coordination under DE operators shows that its strengthening must be not only obligatory, but also independent of the monotonicity of the global environment in which it is found. This requires a series of stipulations, whose adoption is not necessarily warranted. Finally, two subapproaches are investigated in sections 12.7 and 12.8 – both play with the idea of exhaustifying locally, i.e. on the disjuncts, but neither is satisfactory.

In Chapter 13, presuppositions contributed by the markers *neither* and *nor* are used to strengthen the interpretation of negative coordination in English. Both presuppositions encode the presence of a salient focus alternative to the host proposition of the marker. The negative disjuncts satisfy each other's presuppositions through a cataphoric-anaphoric relation. Due to this, whenever the disjunction is defined, it will have a conjunctive meaning. Since presuppositions are encoded in the lexical entries as definedness conditions, the result is a stable strong interpretation of negative coordination. At the same time, this makes the meaning of negative coordination inherently redundant, with the assertive component not contributing any meaning beyond the (satisfied) presuppositions. This can be remedied by insertion of an Accommodation operator at the root of the coordination. Nonetheless, it is also possible to model the presuppositions as material conditionals instead. This solves the redundancy problem without insertion of a covert operator, and it in addition fixes a potential problem with coordinations of more than two disjuncts. Given that the lexical entries of the markers are inspired by those of negative additive focus particles, a unified analysis for the two uses of the markers *neither* and *nor* is provided, which makes this approach all the more satisfactory.

Chapter 14 demonstrates how exhaustification could be used to account for the polarity sensitivity of the negative coordinations in BCMS. Strengthening is not needed here since *ni...ni* and *niti...niti* are not inherently negative disjunctions. On the other hand, due to obligatory exhaustification, negative coordination is not acceptable in a non-negative context, as the assertion creates a contradiction with respect to its excluded alternatives. Nonetheless, further assumptions would have to be made to explain the very restricted distribution of *ni...ni*, as well as the availability of contradiction in positive contexts. This is why ensuring obligatory exhaustification for negative coordination in a strict NC language does not offer a simpler analysis, as syntactic agreement with a silent but interpretable

operator is needed in both cases: in one case it is [uNEG] with the negative operator, and in the other [uD] with an EXH operator.

The syntactic requirements of *ni...ni* and the additive behavior of single *ni* are finally reconciled in Chapter 15. There, focus-based presuppositions are added to the meaning of the markers, along the lines of those discussed for English in Chapter 13. They don't make a palpable difference in the interpretation of negative coordination in this case, since syntactic agreement between the markers and a silent negative operator must ensure that the disjunction is interpreted in the scope of negation. On the other hand, they allow unifying the proposals for negative coordination and for single, additive uses of the markers *ni* and *niti*. For this reason, a combined syntactic and presuppositional analysis is the most adequate for BCMS.

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