

Labeling and Negative Concord

by

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Abstract

This thesis discusses formal properties of negative constituents and their variations. It has been observed in the literature that four types of negative elements are present in natural languages: (i) negative concord items, (ii) negative polarity items, (iii) negative quantifiers, and (iv) n-words. As is well known, these negative expressions are different from one another in several respects such as whether the negative concord reading is involved, whether sentential negation in a higher clause can be a licenser, and whether a fragment answer is possible. Given such differences, there arises a theoretical problem: why do these negative elements behave differently from one another? Among the four negative phrases, we focus on negative concord items and n-words, because the distribution of negative quantifiers is simple and that of negative polarity items has been convincingly explained by Lahiri (1998). Specifically, we maintain that major properties of the two negative constituents can be derived from the Labeling Algorithm of Chomsky (2013, 2015). In so doing, a new labeling option that makes use of deletion is proposed. This simply resolves a potential theoretical problem that involves the negative fragment answer and is also shown to present a theoretical backbone to Lobeck's (1990, 1995) generalization with respect to ellipsis.

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Chapter 1: Introduction

1.1. Theoretical Issues

There are four types of negative constituents in natural languages: (i) negative concord items (NCIs), (ii) negative polarity items (NPIs), (ii) negative quantifiers (NQs), and (iv) n-words. The following table shows the correspondence relationship between these negative elements and some languages (see e.g. Brown 1999; Herburger 2001; Kuno 2007; Lahiri 1998; Zanuttini 1991).

(1)

Negative Constituents	Languages
NCIs	Japanese, Russian, etc.
NPIs	English, Hindi, etc.
NQs	English, etc.
N-words	Italian, Spanish, etc.

As we will carefully see in the subsequent discussion, earlier studies have clarified that the four kinds of negative elements behave differently from one another. For example, n-words and NQs can appear in preverbal position without sentential negation, whereas NCIs and NPIs are incapable of tolerating such a context. See the following contrast:¹

- (2) a. **Nadie** vino. (Spanish)
n-body came
'Nobody came.'

¹ We borrow the terms like NCI_{person} from Kuno (2007).

b. **Nobody** came.

((a) from Herburger 2001: 289)

(3) a. ***Daremo** kita. (Japanese)

NCI_{person} came

‘(Int.) No one came.’

b. ***koi** bhii aayaa (Hindi)

anyone came

‘Anyone came.’

((b) from Lahiri 1998: 60)

In (2), n-words and NQs appear preverbally and express the negative meaning by themselves; (3) shows that NCIs and NPIs occurring in the same syntactic context fail to do so.

Although n-words and NQs are similar to each other with respect to negativity in preverbal position, they differ in terms of whether negative concord is involved. This is shown below.

(4) a. No vino **nadie**. (Spanish)

not came n-body

‘Nobody came.’

b. I didn't say *nothing*. (standard English)

((a) from Herburger 2001: 289; (b) from Haegeman and Zanuttini 1996: 117)

As English translation indicates, (4a) receives single negation in spite of the fact that the two negative elements co-occur in the sentence; the same situation as (4a) leads to double negation in (4b). This shows that n-words can produce the negative concord reading, while NQs cannot.

Likewise, NCIs exhibit a different property from NPIs as to the (im)possibility of appearing in a short answer, as illustrated in (5).

(5) a. Q: John-wa nani-o mita no? (Japanese)

John-Top what-Acc saw Q

‘What did John see?’

A: **Nanimo.**

NCI_{thing}

‘Nothing.’

b. Q: What did you see?

A: *Anything.

((b) from Watanabe 2004: 564)

The contrast between (5a) and (5b) shows that NCIs can be used as a short answer, while NPIs fail to appear in that context.

Given the behavioral differences, there arises a theoretical problem: where do such differences come from? It should be noted at this point that among the four negative elements, the distribution of NQs is rather simple: they can occur freely regardless of the syntactic position. See the following contrast:

(6) a. I saw *nothing*.

b. *(Non) ho visto *niente*. (Italian)

(Haegeman and Zanuttini 1996: 120)

In (6), NQs can appear in postverbal position, whereas n-words require the presence of sentential

negation in such a context. This is simply because NQs do not require any licensors.

As for NPIs, Lahiri (1998) provides a convincing hypothesis about their (negative) polarity sensitivity; under his analysis, NPIs are made up of an indefinite and a focus particle (e.g. *koi bhii* ‘anyone’ in Hindi), and their compositional semantics yields contradictory implicatures in upward-entailing contexts, which do not arise in downward-entailing contexts such as negative sentences (see Ladusaw 1979 for detailed discussion on upward/downward-entailing contexts). In this thesis, we follow Lahiri’s (1998) analysis and assume that the NPI-hood of an indefinite-focus expression is derived from the semantic composition.

Since the distribution of NQs is rather simple and that of NPIs has been neatly dealt with by Lahiri (1998), this thesis focuses mainly on the behavior of NCIs and n-words. Specifically, it will be shown that major properties of the two negative constituents can be obtained from one factor: the Labeling Algorithm (Chomsky 2013, 2015). The core part of our proposals is simple: the NCI-hood comes from labeling, which also produces a preverbal-postverbal asymmetry of n-words.

The insight that labeling lies behind syntactic properties of NCIs and n-words will lead us to propose that deletion provides a new way for labeling. This simply resolves a theoretical problem that involves the elliptical answer with NCIs. Furthermore, we will extend the proposal and show that it provides a theoretical basis for Lobeck’s (1990, 1995) generalization on ellipsis.

1.2. Organization

This thesis is organized as follows. Chapter 2 introduces theoretical backgrounds on labeling and negative concord (items). Chapter 3 proposes that major properties of NCIs follow from the Labeling Algorithm. Chapter 4 discusses a typology of negative constituents and argues that two kinds of labeling features yield a preverbal-postverbal asymmetry of n-words. Chapter 5 shows that a formal relation is present between ellipsis and labeling. Chapter 6 concludes the discussion and takes up future research topics.

Chapter 2: Theoretical Backgrounds

This chapter introduces some theoretical backgrounds needed for the subsequent discussion. Specifically, we will see below: (i) the mechanism of labeling, and (ii) the definition of negative concord.

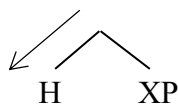
2.1. Labeling Algorithm

According to Chomsky (2013), the Labeling Algorithm is a search operation that finds a head H within syntactic objects (SOs) under Minimal Computation. In the labeling procedure, he takes two patterns into consideration: (i) an {H, XP} structure, and (ii) an {XP, YP} structure.² As to the former, Chomsky (2013: 43) notes:

“Suppose $SO = \{H, XP\}$, H a head and XP not a head. Then minimal search will select H as the label, and the usual procedures of interpretation at the interfaces can proceed.”

He mentions that Minimal Search can apply unambiguously in that configuration, since a head H is located immediately. (1) illustrates this:

(1) Unambiguous search:



On the other hand, Chomsky (2013: 43) makes a remark on the latter as follows:

“The interesting case is $SO = \{XP, YP\}$, neither a head [...]. Here minimal search is ambiguous, locating the heads X, Y of XP, YP, respectively. There are, then, two ways in which SO can be labeled: (A) modify SO so that there is only one visible head, or (B) X

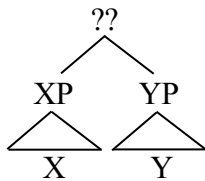
² Chomsky (2013) discusses an {H, H} structure as well, but we do not take it up here (cf. Chomsky 2013).

and Y are identical in a relevant respect, providing the same label, which can be taken as the label of the SO.”

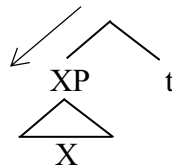
The claim is that Minimal Search involves ambiguity between two phrasal constituents, because it locates each head simultaneously. Then, two solutions are presented to the unlabeled structure: (i) dislocation, and (ii) feature sharing. The former is an option that an in-situ constituent can provide a label (i.e. labeling fails to *see* copies); the latter is the one that the same type of formal features shared between two heads can function as labeling features. The two labeling options are illustrated below.

(2) Dislocation:

a. Unlabeled SOs

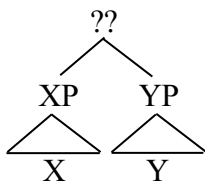


b. Unambiguous search

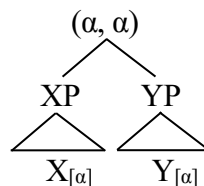


(3) Feature sharing:

a. Unlabeled SOs



b. Feature sharing:



In (2b), YP is displaced, so that only X is subject to labeling; formal features shared between X and Y are used as a label in (3b). In this way, syntactic derivations can resolve the labeling issue by the two options.

2.2. Negative Concord

Negative concord refers to phenomena in which, when (more than) two negative constituents co-occur in the same sentences, they do not give rise to double negation, but instead produce single negation. West Flemish provides an illustration for this:

(4) West Flemish:

a. da Valère *niemand* kent

that Valère nobody knows

‘that Valère doesn’t know anybody’

b. da Valère dienen boek *nie* (*en*)-wilt kuopen

that Valère that book not *en* wants buy

‘that Valère doesn’t want to buy that book’

(Haegeman and Zanuttini 1996: 126-127)

It is evident from (4a) and (4b) that both *nie* and *niemand* are inherently negative. However, in spite of the inherent negativity, they can collectively express single negative force, as in (5).

(5) West Flemish:

da Valère *niemand nie* kent

that Valère nobody not knows

‘that Valère doesn’t know anybody’

(Haegeman and Zanuttini 1996: 140)

This serves as a prime example of negative concord (cf. Haegeman 1995; Haegeman and Zanuttini 1996 for West Flemish negative concord).

According to Den Besten (1986), negative concord can be classified into two categories: (i) negative doubling, and (ii) negative spread. The former is defined as cases where (at least) one of the negative elements is a sentential negation marker (cf. (5)), while the latter is defined as cases where all of the negative elements are phrasal. See (6) for an instance of negative spread.

(6) West Flemish:

K' (en)-een *an niemand niets* gezeid.

I en have to nobody nothing said

'I didn't say anything to anyone.'

(Haegeman and Zanuttini 1996: 130)

It has been observed that languages like Japanese and Russian involve only negative doubling (see Brown 1999; Watanabe 2004),³ while those like Italian and Spanish involve both types of negative concord (see Déprez 2000; Herburger 2001; Kuno 2007; Zanuttini 1991).

Though there exist four kinds of negative elements, what are the defining properties of NCIs? In Kuno (2007), they are defined as in (7),⁴ which is originally from Giannakidou (2006).

(7) An expression α is an NCI iff

- a. α can be used in structures containing sentential negation yielding a reading equivalent to one logical negation; and

³ See also An (2007); Giannakidou (2000); Surányi (2006) for data on negative doubling in other languages.

⁴ To be exact, we cannot distinguish NCIs from n-words by (7); Kuno (2007) lumps them together under the strength to require sentential negation: strong NCIs (= NCIs in our term) and weak NCIs (= n-words in our term). We will take up the distinctive properties of NCIs in the subsequent chapter.

b. α can provide a negative fragment answer.

(Kuno 2007: 2)

Under (7), NCIs are distinguishable from other negative phrases like NPIs and NQs, both of which violate either (7a) or (7b). This is illustrated below.

(8) a. John did **not** see **anyone**.

(Single negation)

b. John did **not** see **no one**.

(Double negation)

(Kuno 2007: 2)

(9) Q: Did anyone come?

A: *Anyone/No one.

(Kuno 2007: 2)

Unlike NPIs and NQs, Russian expressions that comprise a negative prefix *ni* and an interrogative pronoun show both (7a) and (7b), as given below.

(10) Russian:

Ja **ne** videl **nikogo**.

I Neg saw no-who

'I didn't see anyone.'

(Brown 1999: 30)

(11) Russian:

Q: Kogo ty videl?

who you saw

‘Who did you see?’

A: **Nikogo.**

no-who

‘No one.’

(Brown 1999: 24)

From (10) and (11), we can judge Russian *ni + wh* combination to be an NCI (see Brown 1999).

In this way, (7) serves as a criterion to distinguish NCIs from other negative elements such as NPIs and NQs (see also Bošković 2008a, 2008b; Giannakidou 2000, 2006; Surányi 2006; Watanabe 2004 for data on NCIs).

2.3. Summary

This chapter took up theoretical backgrounds about labeling and negative concord. Firstly, we dealt with the labeling mechanism in Chomsky (2013): it is a search operation which finds a head H between two SOs. We saw that when syntactic derivations face the {XP, YP} structure to which unambiguous search fails to apply, dislocation and feature sharing can function as labeling options. Subsequently, we outlined negative concord, which stands for cases where two negative elements collectively express single negation. Under Kuno’s (2007) definition of NCIs, a given negative constituent is identified as such only if: (i) it can induce the negative concord reading in company with a sentential negation marker, and (ii) it can be used as a fragment answer. We saw that Russian *ni + wh* expression is an NCI, because it exhibits both of the properties.

Chapter 3: Labeling and Negative Doubling

This chapter aims to derive major properties of NCIs from the labeling mechanism. It will be demonstrated that the failure to label an {XP, YP} structure is behind the fact that NCIs must co-occur with clause-mate sentential negation, but such a requirement does not hold true for ellipted contexts. The presented analysis gains empirical evidence from a fact in negative doubling, which cannot be captured by an Agree-based view like Watanabe (2004).

3.1. More on NCIs

In this section, we take up the syntactic properties of NCIs in detail. It is well known that the grammatical context that allows the occurrence of NCIs is very restrictive: NCIs have to co-occur with sentential negation (see e.g. Watanabe 2004). The representative examples are given below.

(1) Japanese:

a. **Daremo** ko-*(**nak**)-atta.

NCI_{person} come-Neg-Past

‘No one came.’

b. John-ga **nanimo** kawa-*(**nak**)-atta.

John-Nom NCI_{thing} buy-Neg-Past

‘John bought nothing.’

It has been observed in the literature (cf. Giannakidou 2000; Vallduvì 1994) that NCIs show some more distinctive properties. Watanabe (2004) summarizes them as in (2).⁵

⁵ It should be noted that (2b) is not universally correct, since it is irrelevant to head-final languages such as Japanese, as pointed out by Watanabe (2004).

- (2) a. Ability to appear in non-negative contexts
- b. Ability to appear in preverbal position
- c. Ability to be modified by expressions like *almost*
- d. Ability to be used as an elliptical answer
- e. Clause-boundedness

(Watanabe 2004: 562)

Below, we see how (2) works, comparing Japanese NCIs with English NPIs.

First, NCIs have no ability to occur in non-negative contexts (e.g. questions, conditionals, etc.), unlike NPIs. See the following contrast in (3) and (4):

- (3) a. Have you seen anything?
- b. *Nani-mo mi-mashi-ta ka?
- what-MO see-Neg-Polite-Past Q

(Watanabe 2004: 562)

- (4) a. If John steals anything, he'll be arrested.
- b. *John-ga (moshi) nani-mo nusun-dara, taihos-areru daroo.
- John-Nom if what-MO steal-Cond arrest-Pass be-will

(Watanabe 2004: 562)

Second, NCIs can appear preverbally, while NPIs cannot:

- (5) a. *Anybody didn't criticize John.

b. Dare-mo John-o hihanshi-nak-atta.
who-MO John-Acc criticize-Neg-Past
'Nobody criticized John.'

(Watanabe 2004: 563)

Third, it is possible to modify NCIs by *almost*, but such a modification leads to unacceptability in the case of NPIs:

(6) a. *John didn't eat almost anything.
b. John-wa hotondo nani-mo tabe-nak-atta.
John-Top almost what-MO eat-Neg-Past
'John ate almost nothing.'

(Watanabe 2004: 564)

Fourth, NCIs can offer a negative fragment answer, while NPIs lack such an ability:

(7) a. Q: What did you see?
A: *Anything.
b. Q: Nani-o mita no?
what-Acc saw Q
A: Nani-mo
what-MO
'Nothing.'

(Watanabe 2004: 564)

Fifth, a clause-mate condition is present between NCIs and the negation marker, while there is no such a requirement when licensing NPIs:

(8) a. I didn't say that John admired anyone.

b. ?*Boku-wa [John-ga dare-mo sonkeishiteiru to] iwa-nak-atta.

I-Top John-Nom who-MO admire C say-Neg-Past

(Watanabe 2004: 565)

The data taken up above are summarized in (9).

(9)

	NCIs	NPIs
Ability to appear in non-negative contexts	*	✓
Ability to appear in preverbal position	✓	*
Ability to be modified by expressions like <i>almost</i>	✓	*
Ability to be used as an elliptical answer	✓	*
Absence of clause-boundedness	*	✓

In brief, the syntactic properties of NCIs in (9) can be stated as in (10) (see also Kuno 2007).

(10) a. NCIs cannot appear without clause-mate sentential negation.

b. NCIs can be modified by expressions like *almost*.

c. NCIs can be used as an elliptical answer.

Now we face a theoretical problem: why do NCIs behave in such a way? In what follows, we will

show that (10) can be obtained from the Labeling Algorithm of Chomsky (2013).

3.2. Proposals

3.2.1. (neg, neg)

Firstly, we consider how the simplest derivation of negative doubling converges. The example is repeated in (11).

(11) Japanese:

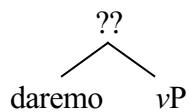
Daremo ko-*(**nak**)-atta.

NCI_{person} come-Neg-Past

‘No one came.’

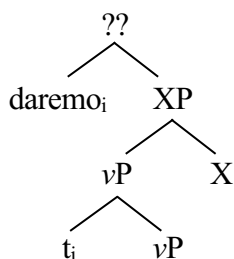
When an NCI is Merged with ν P in (11), the Labeling Algorithm fails to determine the label of the SO, because it consists of two phrasal elements, as given below.

(12)



Indeed $\{\text{NCI}, \nu\text{P}\}$ can be labeled νP if NCIs undergo movement out of the SO, but just resorting to the displacement produces the same $\{\text{XP}, \text{YP}\}$ situation at the landing site:

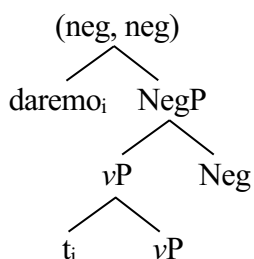
(13)



As a result, the unlabeled structure continues forever. Note that SOs without any labels receive no interpretation at the interfaces (Chomsky 2012, 2013, 2015); such an SO violates Full Interpretation (FI) (Epstein, Kitahara, and Seely 2014).

The only solution to cancel the labeling problem is to insert a head H with a neg-feature into the derivations; it is just sentential negation. Since the ability to offer the negative fragment answer is taken as evidence that the answer SO is inherently negative (Watanabe 2004; Zanuttini 1991), it is generally assumed that NCIs contain a neg-feature. We claim that after the Neg head is Merged with vP, NCIs move to NegP for labeling. Then $\{t_{NCl}, vP\}$ is labeled vP, and $\{NCl, NegP\}$ (neg, neg):

(14)



Notice that since other downward-entailing operators lack a neg-feature, no features can be shared between NCIs and them. This means that $\{NCl, XP\}$ cannot get labeled in non-negative contexts, which leads to a violation of FI. Thus, it follows from labeling that NCIs always require sentential

negation.

This view provides an answer to (10b), the ability to be modified by *almost*. Horn (2000: 161) notes that “the condition on the occurrence of *almost* is that the modified determiner be interpretable as a precise value,” which includes “end-of-scale values.” (15) shows the point:

(15) a. Almost {everyone/nobody/*someone/*not everybody} got there on time.

b. I could solve almost {all/any/half/none/50/*many/*most/*few} of the problems.

(Horn 2000: 161)

Note that since NCIs are inherently negative, they occupy the edge point of the scale, just like NQs. Thus, the presence of a neg-feature can account for the modifiability of NCIs by *almost* (see also Watanabe 2004).

The presented view simply imposes the clause-mate condition on the derivations that contain NCIs. The key point is that if NCIs fail to occur in the same clausal domain as sentential negation, the derivations always involve the unlabeled structure in the embedded clauses. For instance, (16), in which NCIs appear within the embedded CP, has the structure as in (17).

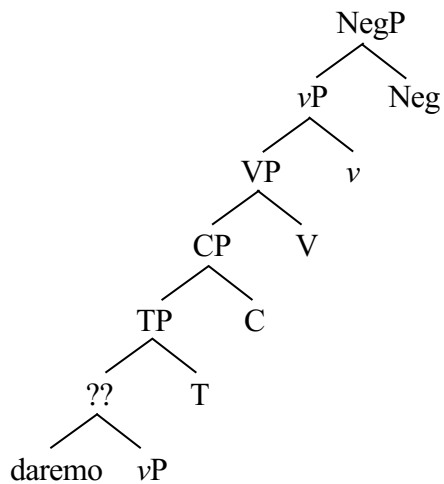
(16) Japanese:

?*John-ga [**daremo** kita to] iwa-**nak**-atta.

John-Nom NCI_{person} came that say-Neg-Past

‘(Int.) John did not say that anyone came.’

(17)



As is obvious from (17), negation in the higher clause cannot salvage the unlabeled structure. Thus, (16) is excluded as a violation of FI, and the clause-mate condition between NCIs and the negation marker follows straightforwardly from the Labeling Algorithm, too.

It is worth noting that our approach predicts that when scrambling dislocates NCIs from the embedded clause to NegP in the higher clause,⁶ the unacceptability like (16) disappears. This is because the feature sharing option is available to that structure. Crucially, it has been observed that scrambled NCIs lead the derivations to converge, as shown below.⁷

⁶ Following Fukui (1986), Kuroda (1988), and Saito (1985), we assume that scrambling can target Spec positions.

⁷ The same fact as Japanese is true for Serbo-Croatian as well.

(i) Serbo-Croatian:

Nikoga nisi tvrdio da je poljubio.

nobody.Acc Neg.are claimed that is kissed

‘You did not claim that he kissed anyone.’

(Bošković 2008b: 128)

(18) Nanimo Taro-ga [Ken-ga t katta to] iwa-nak-atta.
 NCI_{thing} Taro-Nom Ken-Nom bought that say-Neg-Past
 ‘Taro did not say that Ken bought anything.’

(Maeda 2003: 95)

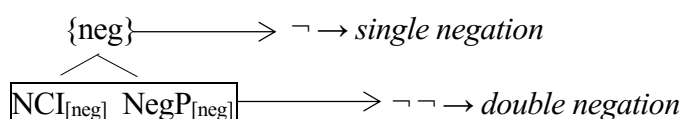
In this way, our labeling analysis can simply explain why NCIs must co-occur with the clause-mate sentential negation; under this view, the modifiability of NCIs by *almost* is just a consequence of the presence of a neg-feature.

3.2.2. {neg}

Before turning to ellipsis, we take up a question of how the negative concord reading can be obtained from the labeling approach.

We saw that Chomsky (2013) provides labeling by feature sharing: the same type of features can be used as a label. Notice crucially that the same idea was proposed in Chomsky (1995: 244), in which the intersection of $\{\alpha, \beta\}$ is used as a label.⁸ Given this, (neg, neg) is equivalent to the singleton set {neg}, since a neg-feature is the intersection between NCIs and NegP. Thus, {NCI, NegP} is identified as {neg}, which we argue yields the negative concord reading: two instances of neg-features cancel each other out, but single negation is expressed by the label of the SO. (19) illustrates the point at the semantic interpretation.

(19)



⁸ This is pointed out by Epstein, Kitahara, and Seely (2014: 465), too.

This approach can be applied to cases where two NCIs co-occur in the sentences, as in (20).

(20) Japanese:

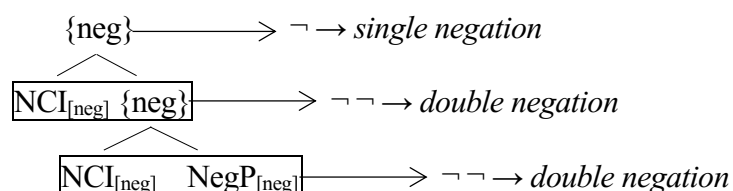
Daremo nanimo kawa-nak-atta.

NCI_{person} NCI_{thing} buy-Neg-Past

‘Nobody bought anything.’

In (20), when another NCI moves to an outer Spec of NegP for labeling, the following structure is established: {NCI_j, {NCI_i, NegP}}. Then, double negation occurs in each layer, but the whole SO is identified as {neg}, because a neg-feature is the intersection of NCI_j and {NCI_i, NegP}. Hence single negation. See (21) for the semantic interpretation.

(21)



In this way, the negative concord reading can be reduced to the notion of labeling.

Significantly, the presented approach of negative doubling leads to simplifying the model of grammar. To capture negative concord, Haegeman and Zanuttini (1996) present the Neg-Criterion and Neg-Factorization (see also Haegeman 1995):

(22) The Neg-Criterion:

- a. Each Neg X⁰ must be in a Spec-head relation with a Negative phrase.

b. Each Negative phrase must be in a Spec-head relation with a Neg X^0 .

(Haegeman and Zanuttini 1996: 153)

(23) $[\forall x^-][^-] = [\forall x]^-$

(Haegeman and Zanuttini 1996: 139)

The criterion in (22) requires NCIs to undergo movement to NegP, whereas (23) is the mechanism that reduces multiple negation in NegP into a single instance.

Under our approach, on the other hand, NCIs move to NegP by request from labeling, and the intersection that is used as a label yields single negation (i.e. the negative concord phenomena are not construction-specific). This leads us to conclude that both Neg-Criterion and Neg-Factorization can be eliminated from a theory of grammar, because they are reducible to labeling.

3.2.3. Labeling by Deletion

This section takes up the ability of NCIs to be used a fragment answer, a defining property that has puzzled not a few researchers. To set up a basis for the subsequent discussion, we firstly make clear a relation between labeling and deletion.

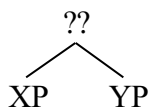
As far as we understand, Chomsky's intuition in the Labeling Algorithm is that unambiguous search is not available to a symmetric $\{XP, YP\}$ structure, and so as to make labeling possible in such a configuration, an asymmetry must be produced in one form or another.^{9, 10} In this respect, we can mention that dislocation yields an asymmetry by assuming that copies are invisible when

⁹ This can be inferred from the following passage from Chomsky (2013: 43): "The interesting case is $SO = \{XP, YP\}$, neither a head [...]. Here minimal search is ambiguous, *locating the heads X, Y of XP, YP, respectively.*" (emphasis added)

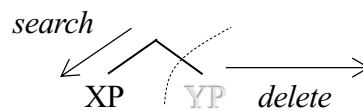
¹⁰ It has been occasionally argued in the literature (see e.g. Fukui 2011) that asymmetries can become a driving force for syntactic operations.

labeling applies. Here, we would like to propose that deletion also produces an asymmetry in the unlabeled structure. The reasoning is that there arises no longer a symmetric relation between two phrasal SOs, when one phrase gets deleted. Concretely, we claim that the labeling issue disappears after deletion, because unambiguous search can be applied to the asymmetric {XP, YP} structure. (24) illustrates the point.

(24) a. Symmetric relations:



b. Asymmetric relations:



Now we have three labeling options:

(25) a. displacement

b. feature sharing

c. deletion

Below, we will show that the view of labeling by deletion exerts a beneficial effect in an analysis of the negative fragment answer.

Watanabe (2004) points out that an elided answer with NCIs involves a potential problem: the deleted category contains a negation marker while its antecedent is non-negative. The example is repeated below.

(26) Q: Dare-ga kita no?

who-Nom came Q

‘Who came?’

A: **Daremo** (~~ko-nak-atta~~)

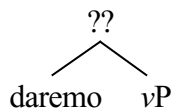
NCI_{person} come-Neg-Past

‘No one (came).’

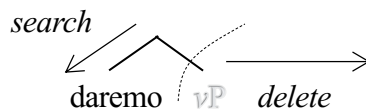
Since ellipsis requires semantic identity (see Merchant 2001),¹¹ it is incorrectly predicted that deletion is impossible in (26A). To solve this problem, several analyses have been suggested in the literature (see e.g. Giannakidou 2006; Kuno 2007; Watanabe 2004). What they have in common is that the elliptical site includes sentential negation.

The presented view of deletion provides a very simple answer to the elliptical problem: since deletion is one option for labeling, a sentential negation marker is not needed for the derivation.¹² To be more concrete, since deleting *vP* in {NCI, *vP*} makes Minimal Search apply unambiguously, no labeling problem is involved in (26A). This is illustrated below.

(27) a.



b.



This produces the result that sentential negation is absent in the deleted category, which allows the ellipsis under semantic identity.¹³

¹¹ In brief, semantic identity can be guaranteed in Merchant (2001) when the e-GIVENness condition, which is a mutual entailing relation between an antecedent and an elliptical material, is satisfied (cf. Merchant 2001).

¹² I would like to thank Masakazu Kuno (p.c.) for suggesting this to me.

¹³ It is worth noticing here that Watanabe (2004: 568) hints in footnote 11 that “the negation marker is not needed when ellipsis takes place.” This remark comes from the view that the semantic identity condition can be satisfied if the deleted constituent does not contain sentential negation. However, he proceeds to notice that “this possibility leaves it completely mysterious why the negation marker is needed when ellipsis does not take place.” To satisfy semantic identity, Watanabe (2004) provides an analysis that nullifies the negative import of the negation marker. We will return to his view later.

Crucially, the view of labeling by deletion obtains theoretical support from another theory of ellipsis: it requires (a kind of) syntactic identity as well (see e.g. Chung 2013; Merchant 2013).¹⁴ Note that in spite of the theory of ellipsis, there are no previous studies that can guarantee syntactic equivalence in (26A), to the best of my knowledge. This is because all of them assume that NCIs are licensed by a negation marker including the elliptical context. Due to this dilemma, the negative fragment answer has always been a critical empirical problem to the syntactic identity condition for ellipsis.

The undesirable situation is defused by the labeling approach, because it makes it possible to dispense with sentential negation in the elided category by suggesting that deletion is a symmetry-breaking option. It must be emphasized here that the desirable result can be obtained only when negative doubling is analyzed under labeling: a sentential negation marker is called for because of the labeling problem, but if it can be resolved other than the feature sharing option, the SO is not required any longer. Therefore, only our proposal can satisfy both semantic and syntactic identity conditions in (26).

Our labeling view obtains further evidence from an observation by Falaus and Nicolae (2016), according to which a short answer with NCIs involves both negative concord and double negation readings, when its antecedent has sentential negation.^{15, 16} The relevant example is shown in (28).

(28) Q: Sono siken-ni dare-ga ki-sae-si-**nak**-atta no?
 that exam-to who-Nom come-even-do-Neg-Past Q
 ‘Who did not even come to the exam?’

¹⁴ I would like to thank Masakazu Kuno (p.c.) for bringing my attention to this.

¹⁵ According to Falaus and Nicolae’s (2016) survey, the double negation reading is preferred when there arise ambiguous interpretations. They also notice that the reading involves pragmatic oddness in Japanese.

¹⁶ I would like to thank Yusuke Yagi (p.c.) for drawing my attention to this.

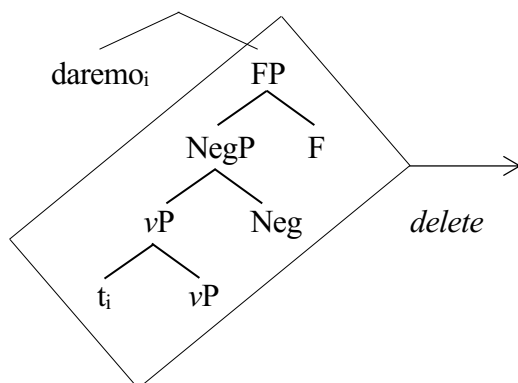
A: **Daremo.**

NCI_{person}

‘It is not the case that no one came.’

In (28A), a syntactic identity condition requires the elided material to include the negation marker, because its antecedent is negative (see also Falauts and Nicolae 2016). Note that it is possible for an NCI to be displaced to position higher than NegP in (28A), if the other SO is deleted at the landing site (i.e. deletion is a labeling option). (29) illustrates this.

(29)



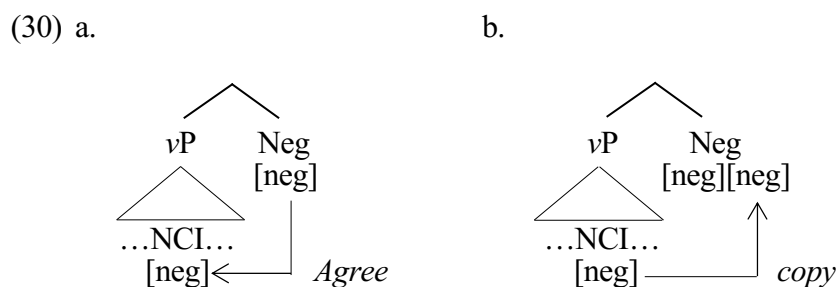
Since both NCIs and elided sentential negation can express the negative meaning in (29) (i.e. (neg, neg), which yields single negation, is not created), (28A) is interpreted as double negation.¹⁷

Note that the presence of double negation cannot be obtained if negative doubling is analyzed under an Agree-based theory. This is because when agreement holds between the negation marker and NCIs, the result always leads to single negation, irrespective of whether ellipsis is involved or

¹⁷ We tentatively assume that when the negative concord reading can be obtained in such a context as (28), NCIs move to NegP and the latter is deleted: {NCI, ~~NegP~~}. This structure involves single negation, because NCIs stay at Spec, NegP (i.e. (neg, neg) is available).

not. To see this, we briefly review proposals by Watanabe (2004) and Zeijlstra (2008).

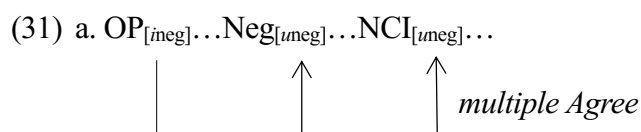
In Watanabe (2004), a feature copying approach is presented to negative doubling, according to which a neg-feature on NCIs is copied onto sentential negation after agreement that involves the feature copying mechanism (cf. Chomsky 1995). Under his view, the checking relation that holds between NCIs and the negation marker yields (30b) from (30a).



In (30b), Watanabe (2004) argues that two instances of the neg-features cancel each other out at the Neg head, which makes it semantically nullified. Hence the negative concord reading.

Notice that since the same process as (30) occurs in the elliptical context as well, Watanabe's (2004) theory always involves single negation alone. Thus, his analysis has no room to capture the double negation reading in (28A).

The same problem holds for Zeijlstra (2008), too. Under his analysis of negative doubling, the covert negative operator that has an interpretable neg-feature enters into the multiple Agree relation with the negation marker and NCIs whose neg-features are uninterpretable, and then it deletes all instances of uninterpretable neg-features.¹⁸ (31) illustrates the point.



¹⁸ Zeijlstra (2008) argues that a negation marker is the overt form of the negative operator and contains an interpretable neg-feature in languages such as Italian (cf. Zeijlstra 2008).

b. OP_[neg]...Neg_[neg]...NCI_[neg]...

As a result of the multiple Agree, single negation is expressed by the covert negative operator. In Zeijlstra's (2008) view as well, the negative concord reading is obligatory including the elliptical context, because what contains an interpretable neg-feature is the null negative operator alone.¹⁹

In this way, the presence of doubling negation is an empirical issue to the previous studies.²⁰ By contrast, the labeling approach can simply capture the fact, because ellipsis is a context where NCIs do not have to stay at Spec, NegP.

Consequently, our labeling view receives both theoretical and empirical support from ellipsis: (i) syntactic identity, and (ii) double negation. We are thus led to conclude that it is superior to any other hypotheses on negative doubling.

3.2.4. Some Issues

In spite of its superiority, our labeling analysis involves some minor problems. The following sub-sections take up them in detail, and show that they can be resolved neatly.

3.2.4.1. Grammatical Functions

We have argued that NCIs require sentential negation for labeling. The preceding discussion,

¹⁹ Zeijlstra's (2008) view would be defended if another negative operator can be inserted to the derivations (see Zeijlstra 2008: 27 for relevant discussion on Italian double negation).

²⁰ It is worth noting that Kuno (2007) is an exception. He also provides an Agree-based theory to negative doubling, in which it is argued that the negative concord reading is obtained from a feature sharing operation: when agreement holds between NCIs and the negation marker, two separate neg-features are shared into a single neg-feature. He emphasizes that it is in principle possible in the feature sharing theory that more than one constituent can receive interpretations of shared features. Then, double negation can be obtained when the shared neg-features get interpreted on both NCIs and sentential negation (see Kuno 2007 for discussion). An issue that involves Kuno (2007) is that he follows Giannakidou's (2006) analysis of the short answer, which Watanabe (2004) argues faces some theoretical problems (cf. Watanabe 2004: 571-572).

however, is limited to subject NCIs, which undergo movement because of the inherent {XP, YP} structure (i.e. {Subj, vP}). We are therefore required to extend our argument to object NCIs that also need a sentential negation marker in spite of the {H, XP} structure. The example is repeated below.

(32) Japanese:

John-ga **nanimo** kawa-*(**nak**)-atta

John-Nom NCI_{thing} buy-Neg-Past

‘John bought nothing.’

Note that even though object NCIs require the negation marker for the same reason as subject NCIs, the {H, XP} structure indicates that a trigger for the obligatory raising comes from a different factor from labeling. Below, we will show that reasons of scope lie behind the obligatory movement.

Following event-based semantics (see e.g. Parsons 1990), Herburger (2001) argues that when negative elements take scope under events expressed by verbal constituents, the sentences (often) yield a pragmatically infelicitous interpretation. For the illustration, see the following contrast:

(33) Spanish:

a. **Nadie** vino.

n-body came

‘Nobody came.’

b. *Vino **nadie**.

came n-body

(Herburger 2001: 189, 301)

Under the assumption that scope domains of negative phrases are closely similar to their syntactic location in Spanish,²¹ Herburger (2001: 302) notices that (33b) is unacceptable, since “there cannot be an event of arriving where nobody arrives.” On the other hand, since *nadie* can take wide scope with respect to *vino* in (33a), there arises no such an unacceptable interpretation, hence the well-formedness. In this way, the negative constituents cannot survive unless they take scope over the event predicates.²²

Zanuttini (1989) contends that languages are parameterized with respect to at which level of the representation negative elements (must) take sentential scope: S-Structure or LF.²³ Under her view, NQs in English take sentential scope at LF,²⁴ because they can appear postverbally without recourse to any helps, as in (34).

(34) I saw **no one**.

²¹ This is reminiscent of the scope rigidity condition (e.g. Huang 1982).

²² Herburger (2001) observes that there are cases where negative elements can be included within the scope domain of events without producing an unacceptable interpretation. We will return to this matter in Chapter 4.

²³ To be more precise, Zanuttini (1989) argues that (i) is parameterized with respect to the representational level to which it applies:

(i) Negation can take sentential scope only if it is in a position from which it c-commands both the Tense Phrase and the Agreement Phrase.

(Zanuttini 1991: 153)

²⁴ Chomsky (2015) argues that labeling is an operation at Transfer, on the grounds that the same labels must be shared between LF and PF. Crucially, his view implies that Quantifier Raising, which is directly relevant to the meaning, is no longer available, because it takes place after labeling: if labels are needed for interpretations, movement after labeling such as Quantifier Raising is not allowed, because it yields unlabeled SOs that cannot be labeled any longer. This might cease to be problematic if we assume that labels are chiefly a requirement from PF. This is not so stipulative, since the semantic composition does not resort to syntactic categories such as N and V in the computation (cf. Heim and Kratzer 1998). By contrast, the phonological component uses them to produce its representation (cf. Chomsky and Halle 1968). If unlabeled SOs are excluded as a violation of FI at the PF interface alone, Quantifier Raising is still definable under Chomsky’s (2013, 2015) labeling theory.

By contrast, the same situation as (34) leads to the unacceptability in Italian and Spanish (see (33b)). Thus, she argues that the scope domain of n-words in the languages must be guaranteed earlier than LF.²⁵

Notice that NCIs in general behave just like the n-words in that they cannot also resort to LF movement so as to take sentential scope. This is validated by the following data:

(35) *Ja videl **nikogo**. (Russian)
I saw no-who
'(Int.) I saw no one.'

(adapted from Brown 1999: 24)

(36) *Milan vidi **ništa**. (Serbo-Croatian)
Milan sees nothing
'(Int.) Milan cannot see anything.'

(adapted from Progovac 1994: 40)

(37) *Ipa **TIPOTA**. (Modern Greek)
said.1sg n-thing
'(Int.) I didn't say anything.'

(adapted from Giannakidou 2000: 458)

This fact leads us to maintain that the scopal requirement of NCIs is the same as that of n-words in Italian and Spanish: they must take sentential scope before LF, too.

²⁵ In Zanuttini (1989), n-words can take sentential scope at S-Structure only when (i) they are positioned preverbally or (ii) sentential negation is inserted as a scope marker.

Then, the next question is: how do NCIs take sentential scope at Narrow Syntax? In this regard, it is worth noting that negative objects in some languages undergo obligatory syntactic raising (see e.g. Christensen 2005; Svenonius 2000). An example is shown in (38).

(38) Icelandic:

a. *Strákarnir höfðu hent engu grjóti í bílana.

the.boys had thrown no rock in the.cars

b. Strákarnir höfðu engu grjóti hent í bílana.

the.boys had no rock thrown in the.cars

‘The boys had thrown no rocks at the cars.’

(Svenonius 2000: 260)

In Svenonius (2000), overt Quantifier Raising is provided for capturing (Icelandic) quantifier movement (cf. Svenonius 2000); Dornisch (2001) also argues that Polish quantifiers including NCIs undergo overt Quantifier Raising. Following their views, we assume that overt phrasal movement is a scope-taking option at Narrow Syntax, and that object NCIs resort to it so as to take sentential scope.

We are now in a position to explain the obligatory presence of sentential negation in (32): to take sentential scope, object NCIs have to undergo overt raising from verbal predicates, and once they are displaced by the scope reason, the {XP, YP} situation arises at the landing site, so that the derivations have no choice other than inserting the negation marker for labeling, just as in subject NCIs.

The presented analysis, of course, holds true for NCIs that occur as indirect objects: they move out of verbal domains to take the wide scope, and then require sentential negation for labeling. It is noteworthy that unlike Japanese, Serbo-Croatian is helpful to observe the overt movement, because

the (basic) word order of the language is SVO (see Progovac 1994). See the following sentence:

(39) Serbo-Croatian:

Marija nikome nije predala nju.

‘Marija did not give her up to anyone.’

(Bošković 2008a: 4)

The linear order is indicative of the overt syntactic raising to NegP, because an indirect object NCI *nikome* comes before a verb *predala* (see Bošković 2008a, 2008b for relevant data).

Not surprisingly, NCIs that are part of PP must also co-occur with sentential negation. This is given in (40).

(40) Japanese:

John-ga **darenimo** iken-o iwa-*(**nak**)-atta.

John-Nom NCI_{person}-to opinion-Acc say-nak-Past

‘John did not say opinions to anyone.’

As usual, PP-NCIs undergo obligatory raising out of *vP*, and then require a negation marker to be inserted for labeling. The story does not end in the derivations that involve PP-NCIs, however; we should further consider what kind of movement is involved: P-stranding or pied-piping. To answer this question, we firstly have a close look at the morphology of NCIs.

It is well known that the morphological ingredient of NCIs is equivalent to that of universal quantifiers in Japanese: both of them consist of an interrogative pronoun and a focus particle. This is shown below.

(41) NCI / \forall :

dare-mo

wh-foc

In spite of the morphological identity, however, these quantified constituents can be distinguished by two tests: (i) a pitch accent pattern, and (ii) an (in)ability to be Case-marked (see e.g. Aoyagi and Ishii 1994; Hiraiwa 2013). Witness the contrast in (42) and (43).

(42) a. NCI: b. \forall :

daREMO

DAremo

(43) a. NCI: b. \forall :

*daREMO-ga

DAremo-ga

(42) shows that NCIs involve a high pitch accent on the second and third mora, whereas universal quantifiers bear it on the first mora; (43) indicates that universal quantifiers can appear with Case particles, while NCIs cannot.

Now there arises an issue: where do such differences come from? Notice that since Japanese interrogative pronouns have no inherent meaning and gain quantificational force from concurrent elements (Kuroda 1965),²⁶ we are left only with the possibility of attributing the difference to two kinds of focus particles: (i) *mo* with negative force, and (ii) *mo* with universal quantificational force (see also Aoyagi and Ishii 1994: fn.1). Namely, when interrogative pronouns are combined with the former, the SO is identified as an NCI; when associated with the latter, the SO becomes a universal

²⁶ This nature led Kuroda (1965) to call them *indeterminate pronouns*.

quantifier.

This view receives theoretical support from the inclusiveness condition of Chomsky (1995): if a neg-feature is not included lexically, it must be produced in the course of syntactic derivations, which violates the condition. The key point is that since universal quantifiers have no meaning of negation, just one instance of *mo* is insufficient. It is thus very reasonable to assume that the focus particle that lexically has a neg-feature is present.

It is also important to pay attention to the morphological makeup of NCIs in other languages. According to Haspelmath (1997), Polish NCIs consist of a negative prefix *ni* and an interrogative pronoun. (44) illustrates this.

(44) Polish:

Ni-kt **ni-c** nie wie.

NEG-who NEG-what not knows

‘Nobody knows anything.’

(Haspelmath 1997: 272)

Note that the negative element comes before interrogative pronouns in head-initial languages such as Polish,²⁷ while the ordering relation is reversed in head-final languages such as Japanese. Note too that since specific particles determine interpretations of quantifiers yielded by the indeterminate system, they should be regarded as so-called *projecting* elements (i.e. heads). It is worth noticing at this point that quantificational particles like *mo* and *ka* occupy a head position in Japanese nominal structures (see Hiraiwa 2013; Takahashi 2002; Watanabe 2006). The following table shows that the types of such quantifiers are entirely determined by the attached particles:

²⁷ See Szczegielniak (2001) for discussion on the head-directionality in Polish.

(45) Japanese indeterminate system:

	<i>wh</i>	NCIs	\forall	\exists	free choice
Person	dare	dare- mo	dare- mo	dare- ka	dare- demo
Thing	nani	nani- mo	nani- mo	nani- ka	nan- demo
Place	doko	doko- mo	doko- mo	doko- ka	doko- demo
Time	itsu	-	itsu- mo	itsu- ka	itsu- demo

(based on Kuno 2007: 29)

On the other hand, as is standardly assumed, bare interrogative pronouns are phrasal, because they can move to Spec, CP:

(46) Serbo-Croatian:

(T)Koga misliš [da Marija voli t]?

whom think-2sg that Mary loves

‘Who do you think that Mary loves?’

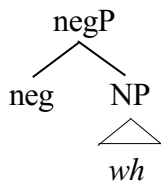
(Progovac 1994: 28)

Along the lines of Haegeman and Lohndal (2010),²⁸ we are now led to provide (47) as the internal structure of NCIs.

²⁸ Haegeman and Lohndal (2010) assume that West Flemish negative phrases contain negative projection: *niemand*, which induces negative concord, is structured as in (i), where *n* and *iemand* are combined by head movement (and the complex head finally moves to D).

(i) [DP [_{NegP} n [_{NP} iemand]]]

(47)



(head-directionality irrelevant)

It must be stressed that negative *mo* is always positioned at the word-final position in Japanese PP-NCI. This is shown in (48).²⁹

(48) a. dare-ni-**mo**

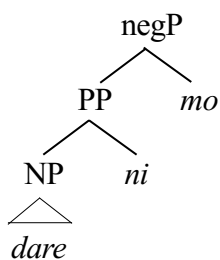
wh-to-foc

‘to nobody’

b. *dare-**mo**-ni

This means that the whole SO is the projection of negation, because *mo* is the structurally highest head. The PP-NCI structure (in Japanese) is therefore:

(49)



²⁹ (48b) is well-formed if it is interpreted as a universal quantifier.

Thus, what overtly moves in (40) is an NCI that structurally contains PP.

Now we can conclude that object NCIs move out of vP for reasons of scope and then require a sentential negation marker for labeling (just like subject NCIs).

3.2.4.2. Predicate-Fronting

In the preceding subsection, we showed that object NCIs are required to undergo movement from the verbal domain in order to take sentential scope. It should be noticed, however, that in the derivations of negative doubling, sentential negation is needed including cases where object NCIs are displaced by predicate-fronting.³⁰ The example is given below.

(50) Japanese:

[**Daremo** home-sae]_i John-ga t_i si-*(**nak**)-atta.

NCI_{person} praise-even John-Nom do-Neg-Past

‘John did not praise anyone.’

The obligatory presence of the negation marker has to be attributed to reasons other than labeling in (50), because it is impossible for an object NCI *daremo* to move from the fronted predicate to NegP (i.e. (neg, neg) is unavailable to that structure). What is going on?

Here, we would like to pay attention to Huang’s (1993) observation that when object quantifiers undergo predicate-fronting, they (always) take scope under subject quantifiers. See the following examples:

(51) a. No one will teach every student.

³⁰ I would like to thank Masakazu Kuno (p.c.) for pointing this out to me.

b. [t teach every student], no one will.

(Huang 1993: 125)

(52) a. Someone saw everyone.

b. [t see everyone], (I am sure) someone did

(Huang 1993: 125)

In (51) and (52), the (a) sentences involve scope ambiguity between two quantifiers, unlike the (b) sentences to which predicate-fronting applies. In this respect, Huang (1993: 125) notes:

“The lack of ambiguity in the (b) sentences can be explained under simple assumption that, in any sentence, the object NP can have wide scope over the subject if it is adjoined to IP [...], but must be interpreted as having narrow scope when adjoined to VP.”

It should be noted at this point that Japanese subject remains in-situ in the base-generated position under a standard assumption (cf. Fukui 1986; Kuroda 1988). Given this, predicate-fronting like (50) must target VP, since the fronted element does not include subjects. Therefore, it is reasonable to assume along with Huang (1993) that object NCIs cannot take sentential scope in (50), since their scope domain is limited to (at most) VP. However, the situation violates the requirement that the sentential scope of NCIs must be guaranteed at Narrow Syntax. It is thus natural to assume that the presence of the negation marker is relevant to the scope reason in (50). Here, we would like to pay attention to a proposal by Zanuttini (1989), according to which when n-words appear postverbally, sentential negation is inserted as a scope marker so as to guarantee the sentential scope. Following this view, we provide (53):

(53) In the derivations of negative doubling, sentential negation is inserted as a scope marker, only when NCIs cannot take sentential scope by means of overt phrasal movement.

Given (53), sentential negation as a scope marker is inserted in (50) so as to salvage the otherwise scope-less NCI; thanks to the salvation, object NCIs that undergo the predicate-fronting can take sentential scope, hence the well-formedness.

Crucially, the presented view predicts that when subjects as well as objects are NCIs in the structure to which predicate-fronting applies, the sentence is ruled out. This is because labeling by feature sharing is unavailable to $\{\text{NCI}_{\text{subj}}, \text{NegP}\}$ (i.e. a scope marker has no neg-feature). As (54) shows, the prediction is indeed borne out:

(54) Japanese:

*[**Nanimo** kai-sae]_i **daremo** t_i si-nak-atta.
 NCI_{thing} buy-even NCI_{person} do-Neg-Past
 ‘No one bought anything.’

In (54), $\{\text{NCI}_{\text{subj}}, \text{NegP}\}$ fails to be labeled, which leads the derivation to crash at the interfaces. In this way, the presence of sentential negation as a scope maker is validated by the ill-formedness of an example such as (54).

As a result, we have two instances of sentential negation: (i) a pure negative element, and (ii) a scope marker. It should be noticed, however, that if sentential negation has an option to be used as a scope marker, there is no theoretical need to dislocate object NCIs from vP to make them take sentential scope; it suffices to assume that sentential negation is always inserted as a scope marker when NCIs appear as objects.

Considering the presence of a scope marker, the validity of our raising approach for sentential scope can only be proved by whether or not object NCIs in fact undergo overt movement. Below, we will show that there is ample evidence to suggest that they are indeed displaced overtly.

We begin with Maeda’s (2003) observation which uses modifiers to show that object NCIs in

Japanese move out of the base-generated position. See the following contrast:

(55) Japanese:

- a. *John-wa yasashiku daremo home-nak-atta.
John-Top kindly NCI_{person} praise-Neg-Past
'John didn't praise anyone kindly.'
- b. John-wa daremo yasashiku home-nak-atta.

(Maeda 2003: 88)

In (55), object NCIs must linearly precede adverbials that modify verbal predicates, which indicates that they are located somewhere higher than *vP/VP*. Given labeling, there is no available position other than *Spec, NegP*.^{31, 32}

The same fact as Japanese is true of Serbo-Croatian as well. Bošković (2008a, 2008b) claims that NCIs in Serbo-Croatian move to *Spec, NegP* so as to obtain the negative morphology; if they are left in-situ, the sentences are degraded, because the structural requirement to be NCIs fails to be met. It is for this reason that the grammatical contrast between (a) and (b) more or less emerges in the following data:

³¹ Miyagawa et al. (2016) also use the same adverbial tests to pinpoint the position of NCIs, though their grammatical judgements are different from the ones in Maeda (2003).

³² Maeda (2003) observes that no contrast arises in the case of non-scope bearing phrases such as proper nouns:

- (i) a. John-wa yasashiku Mary-o home-nak-atta.
John-Top kindly Mary-Acc praise-Neg-Past
'John didn't praise Mary kindly.'
- b. John-wa Mary-o yasashiku home-nak-atta.

(Maeda 2003: 88)

(56) Serbo-Croatian:

a. Nikoga ne voli.

nobody.Acc Neg loves

‘He/she does not love anyone.’

b. ?Ne voli nikoga.

(Bošković 2008b: 126)

(57) Serbo-Croatian:

a. ??Marija nije predala nikome nju.

Marija Neg+is given.up nobody-Dat her-Acc

‘Marija did not give her up to anyone.’

b. Marija nikome nije predala nju.

(Bošković 2008a: 4)

(58) Serbo-Croatian:

a. ?*On nije dao ništa nikome nikad.

he Neg+is given nothing-Acc nobody-Dat never

‘He did not ever give anything to anyone.’

b. On ništa nikome nikad nije dao.

(Bošković 2008a: 4)

Brown (1999) argues that Russian NCIs with uninterpretable neg-features enter into checking relations with a sentential negation marker and undergo raising to NegP.³³ In Brown (2005), she

³³ In Brown (1999), neg-features in NCIs can undergo covert movement, which produces postverbal NCIs (see (59b)).

notices that NCIs which seem to remain in-situ move to NegP in the rightward fashion. The relevant examples are given below.

(59) Russian:

a. Ja **nikogo ne** videl.

I no-who Neg saw

‘I didn’t see anyone.’

b. Ja **ne** videl **nikogo**.

((a) from Brown 1999: 29, with a minor modification; (b) from Brown 1999: 30)

According to Dornisch (2001), object NCIs must be raised in Polish; however, the movement becomes less obligatory when they receive the focus stress, though the sentences get marked. This is shown in (60), where ^M stands for markedness.³⁴

(60) Polish:

a. Anna nikogo nie widziała.

Anna nobody Neg saw

‘Anna didn’t see anybody.’

b. ^MAnna nie widziała NIKOGO.

(Dornisch 2001: 201)

Though there are some variations in the grammatical judgments, these cross-linguistic data clearly

³⁴ Dornisch (2001) remarks that no grammatical contrast is present between (60a) and (60b) for some speakers.

indicate that object NCIs indeed undergo overt displacement.³⁵

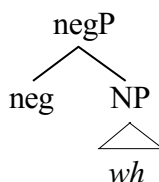
We are now led to conclude that a sentential negation marker is almost always called for by the labeling reason when NCIs occur as objects, but the SO is inserted as a scope marker only when there is no other way to lead the derivations to converge (e.g. predicate-fronting).

3.2.4.3. (φ , φ)...?

In the last topic of this chapter, we take up an issue about φ -feature sharing in the derivations of negative doubling. The point is that if φ -features can also play a role in labeling, (φ , φ) as well as (neg, neg) is available for the derivations that contain NCIs. If so, the presence of the negation marker will become optional, contrary to the fact.

Recall that NCIs are headed by the negative materials. The structure is repeated below.

(61)



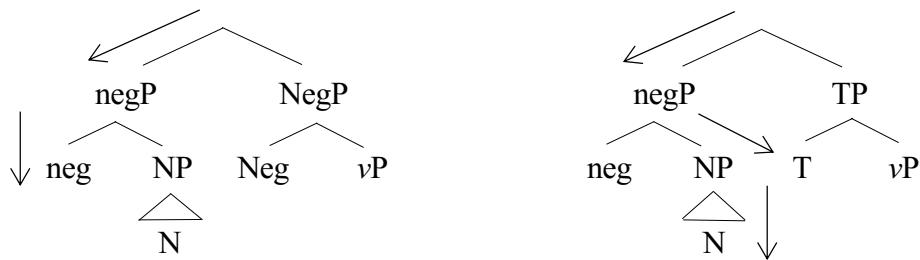
(head-directionality irrelevant)

We saw that labeling is a search operation that finds a head H under Minimal Computation. The essence is thus what Narita (2011) calls *Minimal Head-Detection*. Note crucially that this nature makes (φ , φ) unavailable to the derivations that contain NCIs, since N is embedded within negP:

³⁵ It should be noted, however, that raising object NCIs is optional in Modern Greek (cf. Giannakidou 2000). Here, we would like to pay attention to the fact that Modern Greek NCIs are made by adding the focus stress to NPIs: tipota (NPI) + stress → TIPOTA (NCI) (Giannakidou 2000, 2006). Given this, it seems that Modern Greek shows a similar property to Polish: focused NCIs can remain in-situ. We leave it to future research to consider why NCIs with the focus stress are exempted from the obligatory raising.

under Minimal Search, the neg head must play a role in labeling, because it is structurally higher than N that directly includes φ -features. See the following contrast:

(62) a. Minimal Head-Detection in (neg, neg): b. Non-Minimal Head-Detection in (φ , φ):



It is clear that Minimal Search can locate a head H immediately in (62a), while it must be deep in (62b), which is not allowed under Minimal Computation. Therefore, the unavailability of (φ , φ) leads to the obligatory presence of sentential negation for labeling in negative doubling.

The presented analysis gains support from the fact that NCIs show no effects of intervention. We have seen that Russian NCIs are displaced to Spec, *NegP* (Brown 1999, 2005). The example is repeated below.

(63) Russian:

Ja **nikogo** **ne** videl.

I no-who not saw

‘I didn’t see anyone.’

(Brown 1999: 29, with a minor modification)

Notice that as a result of the phrasal movement, object NCIs structurally precede subjects, when T

enters into ϕ -agreement.³⁶ (64) illustrates the point.

(64) [TP T [_{NegP} NCI_i Neg [_{vP} Subj v [_{VP} V t_i]]]]

This indicates that object NCIs are irrelevant to ϕ -valuation between T and subjects, because if they participate in that relation, a Case feature of the subjects cannot be valued due to minimality (Rizzi 1990), which leads the derivations to crash.³⁷

The same reasoning holds true for (65) as well, in which the intervention of object NCIs does not block first person singular inflection on T.³⁸

(65) Modern Greek:

KANENAN dhen idha.

n-person not saw.1sg

'I saw nobody.'

(Giannakidou 2000: 471)

According to Rezac (2003), when a nominal category that has ϕ -features is embedded within some other projection, it becomes no longer an intervener blocking ϕ -valuation (cf. Rezac 2003). Given this, the absence of minimality follows from (61), because NP that immediately contains ϕ -features has no structural relation with the subjects (i.e. it is embedded within the projection of negation). It is worth noting here that no conveyance of ϕ -features from NP to negP is allowed unless we assume an additional mechanism like feature percolation, which is against the spirit of minimalism. Since

³⁶ See also Chomsky (2001) for discussion on a relevant problem.

³⁷ This is generally called *A'-opacity* (Rezac 2003).

³⁸ In Giannakidou (2000), the fronted NCIs like (65) are analyzed as topicalization.

(61) makes the NP hidden in the structural sense, the absence of the intervening effects in (63) and (65) can be explained.

(61) is further supported by the fact that NCIs do not behave like nouns. The following data show that Japanese NCIs cannot be modified by adjectives (Hirose and Suzuki 2009) and relative clauses (Masakazu Kuno (p.c.)):

(66) Japanese:

a. Nanimō mie-nai.

anything visible-Neg

‘I cannot see anything.’

b. *Aoziroi nanimō mie-nai.

Pale anything visible-Neg

(Hirose and Suzuki 2009: 390-391)

(67) Japanese:

a. John-ga **nanimo** tabe-nak-atta.

John-Nom NCI_{thing} eat-Neg-Past

‘John did not eat anything.’

b. *John-ga [Mary-ga tsukutta] **nanimo** tabe-nak-atta.

John-Nom Mary-Nom cooked NCI_{thing} eat-Neg-Past

According to Hiraiwa (2013), a Japanese indefinite whose projection halts at the QP level lacks the ability to be modified by adjectives; he mentions that such a modification is allowed only to full-fledged nominal elements. Given this, the non-modifiability in (66b) and (67b) follows simply from the category of NCIs: the SO is neither DP nor NP, but negP.

In this way, (61) gains two pieces of evidence from the syntactic behaviors of NCIs. Now we can conclude that the obligatory use of neg-features is a consequence of Minimal Head-Detection in labeling.

3.3. Summary

This chapter proposed a labeling analysis to negative doubling. Specifically, we argued:

- (i) NCIs must co-occur with clause-mate sentential negation, because the unlabeled {XP, YP} structure can only be salvaged by the Neg head in the same clausal domain.
- (ii) NCIs can be used as a fragment answer to non-negative questions, because deletion that is a new labeling option makes it possible to dispense with the negation marker in the deleted category.

What we would like to emphasize is that the two major properties of NCIs can be simply explained by labeling under a unified fashion.

Chapter 4: Negative Elements and Their Variations

In the preceding discussion, we focused on negative doubling and suggested that our labeling analysis simply captures the syntactic behaviors of NCIs. As the next topic of this thesis, we take up the puzzling distribution of n-words and explain why they behave in such a way. Specifically, we will tackle two issues about n-words: (i) ambiguity between NPIs and NQs, and (ii) a preverbal-postverbal asymmetry. Besides, we will also show that the Japanese exceptive construction can be neatly dealt with by the deletion-based labeling view.

4.1. The Behavioral Difference

We saw in Chapter 1 that four types of negative elements are present in natural languages: (i) NCIs, (ii) NQs, (iii) NPIs, and (iv) n-words. It is well known that among the four negative phrases, NCIs and n-words are similar to each other in two respects: (i) an ability to yield negative concord, and (ii) an ability to provide a short answer (see e.g. Kuno 2007). First, witness the following data on n-words:

(1) Spanish:

a. No vino **nadie**.

not came n-body

‘Nobody came.’

b. No se olvidó de **ninguno** de ellos.

not cl. forgot of n of them

‘He forgot none of them.’

((a) from Herburger 2001: 289; (b) from Herburger 2001: 294, with a minor modification)

(2) Spanish:

Q: A quién viste?

whom saw-2s

‘Who did you see?’

A: A **nadie**.

n-body

‘Nobody.’

(Herburger 2001: 300)

In (1), the sentences express single negative force in spite of the fact that n-words co-occur with a sentential negation marker; (2) shows that n-words can appear in elliptical contexts. Recall that the same facts are true for NCIs as well. The examples are repeated below.

(3) Japanese:

a. **Daremo** ko-**nak**-atta.

NCI_{person} come-Neg-Past

‘Nobody came.’

b. John-ga **nanimo** kawa-**nak**-atta.

John-Nom NCI_{thing} buy-Neg-Past

‘John bought nothing.’

(4) Japanese:

Q: Dare-ga kita no?

who-Nom came Q

‘Who came?’

A: **Daremo.**

NCI_{person}

‘No one.’

In spite of the similarity, however, it has been pointed out in the literature (e.g. Kuno 2007) that n-words involve four properties distinct from NCIs. First, n-words can appear in preverbal position without the negation marker, unlike NCIs:

(5) Spanish:

Nadie vino.

n-body came

‘Nobody came.’

(Herburger 2001: 289)

(6) Japanese:

***Daremo** kita.

NCI_{person} came

‘(Int.) Nobody came.’

Second, n-words can occur in NPI-licensing contexts other than negation, while NCIs cannot:

(7) Spanish:

a. ¿Cuándo me has regalado nada?

when to-me have.2s given n-thing

‘When have you given anything to me?’

b. Antes de hacer **nada**, debes lavarle las manos.

before of do n-thing must.2s wash.cl. the hands

‘Before doing anything, you should wash his hands.’

c. Dudo que vayan a encontrar **nada**.

doubt.1s that 2ill.3s.Subj find n-thing

‘I doubt they’ll find anything.’

((a) from Herburger 2001: 299; (b/c) from Herburger 2001: 297)

(8) Japanese:

a. *Itsu John-ga Mary-ni **nanimo** ageta no?

when John-Nom Mary-to NCI_{thing} gave Q

‘(Int.) When did John give anything to Mary?’

b. *John-ga **nanimo** suru maeni satta.

John-Nom NCI_{thing} do before left

‘(Int.) John left before doing anything.’

c. *John-ga Mary-ga **nanimo** mitsukeru to utagatteiru.

John-Nom Mary-Nom NCI_{thing} find that doubt

‘(Int.) John doubts that Mary will find anything.’

Third, n-words can be licensed by sentential negation in a higher clausal domain, while NCIs obey the clause-mate condition:

(9) Italian:

non credo che verrà nessuno.

‘I don’t think that anyone will come.’

(Acquaviva 1999: 138)

(10) Japanese:

?*John-ga [**daremo** kita to] iwa-**nak**-atta.

John-Nom NCI_{person} came that say-Neg-Past

‘(Int.) John did not say that anyone came.’

Fourth, it is possible for preverbal n-words to license postverbal n-words (i.e. negative spread) in the same way that subject NQs can license object NPIs, whereas NCIs have no such an ability:

(11) Spanish:

Nadie miraba a **nadie**.

n-body looked at n-body

‘Nobody looked at anybody.’

(Herburger 2001: 290)

(12) Japanese:

***Daremo nanimo** mita.

NCI_{person} NCI_{thing} looked

‘(Int.) Nobody looked at anything.’

These behavioral differences are summarized in the following table:

(13)

	N-words	NCIs
Ability to induce negative doubling	✓	✓
Ability to be used as an elliptical answer	✓	✓
Ability to appear in preverbal position without a sentential negation marker	✓	*
Ability to appear in NPI-licensing contexts other than negation	✓	*
Ability to be licensed by sentential negation in a higher clause	✓	*
Ability to induce negative spread	✓	*

What (13) indicates is that n-words behave like both NPIs and NQs: they are NQ-like constituents in preverbal position and the elliptical context, while showing the NPI-hood elsewhere (see Kuno 2007). It should be noticed here that this fact led Herburger (2001) to propose a lexical ambiguity hypothesis: n-words exhibit both properties of NPIs and NQs, because they are lexically ambiguous expressions between them.³⁹

This hypothesis is attractive, because it can straightforwardly capture the duality of n-words. It is worth noting here that it can also simply explain ambiguous interpretations in sentences like

³⁹ It is noteworthy that there are two different hypotheses about n-words: (i) an NPI-based hypothesis (e.g. Laka 1990), and (ii) an NQ-based hypothesis (e.g. Zanuttini 1991). The former proposes that the properties of n-words originate from NPIs, while the latter argues that they are reducible to the nature of NQs. We do not take them up in detail, because our central concern here is the lexical ambiguity thesis. Readers are referred to Kuno (2007) for some problems about the two hypotheses.

(14) (Herburger 2001).

(14) Dudo que **nadie** lo sepa.

doubt.1s that n-body it know.Subj

‘I doubt that nobody knows it/I doubt that anybody knows it.’

(Herburger 2001: 307)

Since the embedded clause in (14) is a grammatical context where both NQs and NPIs can appear, the double meaning of *nadie* is trivial under the lexical ambiguity hypothesis.

4.2. Theoretical Problems

Attractive as Herburger’s (2001) proposal is, it faces a non-trivial issue: there is no theoretical backbone in the lexical ambiguity hypothesis. In this respect, Kuno (2007: 88) notes:⁴⁰

“It should be noted, however, that positing a lexical ambiguity is more a description of the puzzle raised by weak NCIs than a solution to it.”

This mentions that just reducing the dual nature of n-words to a lexical ambiguity is not an account for their perplexing behaviors.

Given the problem, what we need in the lexical ambiguous thesis is a principled basis: it needs to be supported by some theoretical reasons. In what follows, we will disclose the reasoning behind the duality of n-words.

⁴⁰ In his term, weak NCIs stand for n-words.

4.3. Proposals

4.3.1. A Typology of Negative Constituents

Based on several pieces of the earlier research (e.g. Giannakidou 2006; Herburger 2001; Kuno 2007; Lahiri 1998; Vallduvì 1994; Zanuttini 1991), we recast (13) into (15), to which the behavior of NPIs and NQs is added.

(15)

	NCIs	NPIs	NQs	N-words
Ability to yield single negation in combination with sentential negation	✓	✓	*	✓
Ability to appear without clause-mate sentential negation	*	✓	✓	✓
Ability to be exempt from a preverbal-postverbal asymmetry	✓	*	✓	*
Ability to be used as an elliptical answer	✓	*	✓	✓

The above table shows that these negative elements are different from one another in some respects. To capture the nature of n-words, we begin with the discussion on the types of the four negative constituents.

First, we take up NCIs. It has been occasionally observed in the literature (see e.g. Aoyagi and Ishii 1994; Kawashima and Kitahara 1992) that NCIs can co-occur with Case-marked arguments in Japanese. This is shown in (16).

(16) Japanese:

a. **Gakusei-ga daremo** ko-nak-atta.

student-Nom NCI_{person} come-Neg-Past

‘No students came.’

b. John-ga **nanimo kudamono-o** kawa-nak-atta.

John-Nom NCI_{thing} fruit-Acc buy-Neg-Past

‘John bought no fruits.’

This fact is puzzling, because predicates can take no more than one subject/object, given argument structures. The ability of NCIs to occur in sentences like (16) led Kawashima and Kitahara (1992) to propose that they are adjuncts (see also Aoyagi and Ishii 1994). Following this view, we assume that NCIs are categorized into adjunct-like elements.

It is important to notice here that the opposite behavior to NCIs is observed in both NQs and NPIs. This is given below.

(17) a. ***Nobody** the students came.

b. *John did not buy **anything** the books.

We take the fact as a piece of evidence to suggest that both NQs and NPIs are arguments. Note that if the two negative elements are indeed arguments, it is predicted that they behave like nouns. This prediction is correct, since both NQs and NPIs can be modified by adjectives and relative clauses:⁴¹

(18) a. There's nothing new here.

⁴¹ The following examples are cited from the Corpus of Contemporary American English (COCA).

b. Was there anything interesting in the secret compartments?

((a) from SPOK: ABC News: This Week, 2019; (b) from FIC: Look both ways, 2017)

(19) a. There is nothing that I would not do for Cristiano Ronaldo.

b. Is there anything that viewers haven't seen before?

((a) from SPOK: NBC News: Today, 2019; (b) from MAG: Vanity Fair, 2019)

Let us look at the nature of NPIs in more detail. According to Lahiri (1998), NPIs in Hindi are made up of an indefinite and a focus particle (e.g. *koi bhii* ‘anyone,’ *kuch bhii* ‘anything,’ etc.); the former is what he calls *a cardinality predicate **one*** (or *the weakest possible predicate*), and the latter produces a set of propositions (*focus-induced alternatives* in his term) that comprises a combination of an assertion and its alternatives in which **one** is switched to other cardinality predicates like **two** and **three**.

Besides, Lahiri (1998: 86) argues that the sentences with focus elements yield two implicatures as in (20a) and (20b), where “the assertion is *a* and *C* is the set of the focus-induced alternatives to *a*.”

(20) a. $\exists p[C(p) \wedge p \wedge p \neq \hat{a}]$.

b. $\forall p[[C(P) \wedge p \neq \hat{a}] \rightarrow \text{likelihood}(p) > \text{likelihood}(\hat{a})]$.

(Lahiri 1988: 86)

Given these, he derives the NPI-hood of an indefinite-focus combination from the compositional semantics. Firstly, he notices that (21a) in which Hindi NPIs appear in upward-entailing contexts denotes (21b) (i.e. indefinites express the predicate **one**).

(21) a. *koi bhii aayaa

anyone came

‘Anyone came.’

b. $\exists x[\mathbf{one}(x) \wedge x \text{ came}]$

(Lahiri 1998: 60, 86)

Since a focus particle *bhii* which is associated with an indefinite *koi* is present, (21a) involves (22a) and (22b).

(22) a. For some cardinality predicate other than **one**, say *Z*, $\exists x[Z(x) \wedge x \text{ came}]$.

b. For every cardinality predicate other than **one**, say *U*, if $\exists x[U(x) \wedge x \text{ came}]$, then

likelihood($\exists x[U(x) \wedge x \text{ came}]$) > likelihood($\exists x[\mathbf{one}(x) \wedge x \text{ came}]$).

(Lahiri 1998: 86)

The two implicatures produce (23).

(23) likelihood($\exists x[Z(x) \wedge x \text{ came}]$) > likelihood($\exists x[\mathbf{one}(x) \wedge x \text{ came}]$)

(Lahiri 1998: 86)

However, from the assumption that **one** is the weakest predicate (in the sense that it is entailed by all other predicates), (24) follows, which yields (25).

(24) $\exists x[Z(x) \wedge x \text{ came}] \rightarrow \exists x[\mathbf{one}(x) \wedge x \text{ came}]$

(Lahiri 1998: 87)

(25) $\text{likelihood}(\hat{\exists}x[Z(x) \wedge x \text{ came}]) \leq \text{likelihood}(\hat{\exists}x[\mathbf{one}(x) \wedge x \text{ came}])$

(Lahiri 1998: 87)

(25) contradicts (23), hence the unacceptability of (21a). In this way, expressions consisting of an indefinite and a focus particle involve contradictory implicatures in upward-entailing contexts.

Such contradiction does not arise in downward-entailing contexts, according to Lahiri (1998). To see this, firstly, witness that (26a) where NPIs co-occur with sentential negation denotes (26b).

(26) a. *koi bhii nahiiN aayaa*

anyone didn't come

'No one came.'

b. $\neg\exists x[\mathbf{one}(x) \wedge x \text{ came}]$

(Lahiri 1998: 87)

In (26a), the association of *koi* with *bhii* implies the following:

(27) a. For some cardinality predicate other than **one**, say *Z*, $\neg\exists x[Z(x) \wedge x \text{ came}]$.

b. For every cardinality predicate other than **one**, say *U*, if $\neg\exists x[U(x) \wedge x \text{ came}]$, then

$\text{likelihood}(\hat{\neg}\exists x[U(x) \wedge x \text{ came}]) > \text{likelihood}(\hat{\neg}\exists x[\mathbf{one}(x) \wedge x \text{ came}])$.

(Lahiri 1988: 87)

(28) follows from the two implicatures.

(28) $\text{likelihood}(\hat{\neg}\exists x[Z(x) \wedge x \text{ came}]) > \text{likelihood}(\hat{\neg}\exists x[\mathbf{one}(x) \wedge x \text{ came}])$

(Lahiri 1988: 87)

The law of contraposition yields (29) from (24).

(29) $\neg\exists x[\mathbf{one}(x) \wedge x \text{ came}] \rightarrow \neg\exists x[Z(x) \wedge x \text{ came}]$

(Lahiri 1988: 87)

This produces (30), which is consistent with (28), hence the well-formedness of (26a).

(30) $\text{likelihood}(\neg\exists x[\mathbf{one}(x) \wedge x \text{ came}]) \leq \text{likelihood}(\neg\exists x[Z(x) \wedge x \text{ came}])$

(Lahiri 1988: 88)

Lahiri (1998) notes that a series of the processes can be carried over to all other downward-entailing contexts. Here, we follow his approach and assume that the distribution of NPIs is derived from the compositional semantics of an indefinite and a focus element.⁴²

Next, we deal with the properties of NQs. We have seen in Chapter 1 that NQs do not require licensors, unlike other three negative elements; the autonomy is validated by the fact that they can appear freely regardless of the grammatical position (without requesting a licensor like a negation marker), as repeated in (31).

(31) a. **No one** came.

b. I bought **nothing**.

It is worth noting here that the inability of NQs to yield the negative concord reading follows from

⁴² In Kuno (2007), the impossibility of NPIs to appear in ellipsis is attributed to the assumption that they have to move out of the scope domain of negation so as to obtain the fragment answer (e.g. *Anything; John did ~~not~~ buy it*) (see also Giannakidou 2000: fn.6 for relevant discussion).

our labeling view: in English, subject NQs are overtly displaced to TP for satisfying the Extended Projection Principle (EPP) and object NQs remain in-situ in *v*P at Narrow Syntax,⁴³ both of which do not form (neg, neg) that gives rise to single negation.

What we would like to stress here is that the behavioral differences between NPIs and NQs in (15) are derived from the independent factors from their category (e.g. the semantic composition). Now we obtain (32).

(32)

Negative elements	Types
NCIs	Adjuncts
NQs / NPIs	Arguments
N-words	

Then what is the type of n-words? We saw in (15) that n-words behave differently from other three negative constituents, which are either arguments or adjuncts. Here, we assume that the behavioral difference reflects the non-argument/adjunct-hood of n-words: if n-words are either arguments or adjuncts, they would exhibit exactly the same behavior as at least one of the other three negative constituents. Given the typology in (32), we are now left only with the possibility that n-words are predicate-like elements. If this view is on the right track, n-words involve the functional nature. Note that functions are defined as a set of ordered pairs (see e.g. Heim and Kratzer 1998). Then, we need the following:

(33) a. Ingredients of ordered pairs

⁴³ This implies that subject NCIs also move to Spec, TP to meet the EPP. We will return to this matter in Chapter 6.

b. Operations that make ordered pairs

We claim that Hungarian provides us with (33a). It is observed in the language that there arises a preverbal-postverbal asymmetry when NCIs are combined with a particle *sem*, which comprises a combination of focus and negative materials (Surányi 2006). (34) illustrates the point, in which a preverbal *senki* + *sem* expression can appear without sentential negation, whereas it requires the negation marker when occurring in postverbal position.

(34) Hungarian:

- a. **Senki** **sem** (***nem**) jött el
NCI_{person} SEM Neg came Pref
'Nobody came along'
- b. *(**Nem**) jött el **senki** **sem**
Neg came Pref NCI_{person} SEM
'Nobody came along'

(Surányi 2006, cited from Kuno 2007: 75)

As we will take up in the following section, it is well known that n-words show the same preverbal-postverbal asymmetry as Hungarian NCI + *sem* expressions. This is shown below.

(35) Spanish:

- a. **Nadie** vino.
n-body came
'Nobody came.'

b. No vino **nadie**.
 not came n-body
 ‘Nobody came.’

(Herburger 2001: 289)

This fact led Kuno (2007) to propose that n-words are created by adding *sem* to the ingredients of NCIs. Then, the next question is: what constitutes NCIs? In this respect, he pays attention to the morphology of NCIs, and notices that Slavic plays an important role in clarifying the makeup of them, because the language shows transparent morphological structures. See the following table:

(36) Russian:

	<i>wh</i>	NCIs
Person	kto	ni-kto
Thing	čto	ni-čto
Place	gde	ni-gde
Time	kogda	ni-kogda

(based on Haspelmath 1997: 273)

(36) shows that Russian NCIs comprise *ni* and an interrogative pronoun. According to Haspelmath (1997), a prefix *ni* is derived by combining a negative element *ne* with a focus element *i*. From the morphological fact like (36), Kuno (2007) concludes that NCIs are made up of an indefinite, focus, and negation. Now the ingredients of n-words can be represented as in (37) (cf. Kuno 2007).

(37) The ingredients of n-words (Kuno 2007):

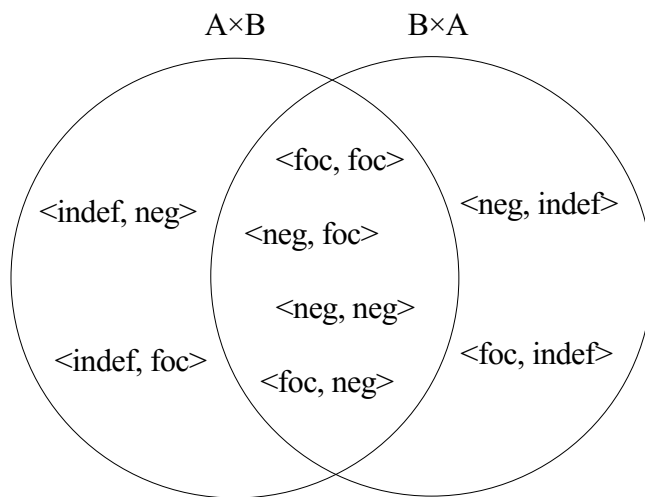
{foc, neg, indef} + {foc, neg}

As to (33b), we use the Cartesian product: $A \times B =_{\text{def}} \{ \langle x, y \rangle \mid x \in A \text{ and } y \in B \}$.⁴⁴ Notice that the operation produces two distinct sets, since $A \times B$ is distinguished from $B \times A$. The resulting sets are given in (38), where A is $\{\text{foc}, \text{neg}, \text{indef}\}$ and B $\{\text{foc}, \text{neg}\}$.

- (38) a. $A \times B = \{ \langle \text{foc}, \text{foc} \rangle, \langle \text{foc}, \text{neg} \rangle, \langle \text{neg}, \text{foc} \rangle, \langle \text{neg}, \text{neg} \rangle, \langle \text{indef}, \text{foc} \rangle, \langle \text{indef}, \text{neg} \rangle \}$
 b. $B \times A = \{ \langle \text{foc}, \text{foc} \rangle, \langle \text{foc}, \text{neg} \rangle, \langle \text{foc}, \text{indef} \rangle, \langle \text{neg}, \text{foc} \rangle, \langle \text{neg}, \text{neg} \rangle, \langle \text{neg}, \text{indef} \rangle \}$

The Venn diagram is illustrated below.

(39)



From (38), we next extract the set difference in order to narrow down the over-generated ordered pairs: $A - B =_{\text{def}} \{ x \mid x \in A \text{ and } x \notin B \}$.⁴⁵ In this case as well, two different sets are generated, since the return value of $A - B$ is distinct from that of $B - A$. These are shown in (40).

- (40) a. $(38a) - (38b) = \{ \langle \text{indef}, \text{neg} \rangle, \langle \text{indef}, \text{foc} \rangle \}$

⁴⁴ This is cited from Partee et al. (1990: 28).

⁴⁵ This is cited from Partee et al. (1990: 15).

$$b. (38b) - (38a) = \{ \langle \text{neg}, \text{indef} \rangle, \langle \text{foc}, \text{indef} \rangle \}$$

Given the ordering in (40b), we can take $\langle \text{neg}, \text{indef} \rangle$ as an indefinite within the scope domains of negation and $\langle \text{foc}, \text{indef} \rangle$ as a Dutch NPI (e.g. *ook maar + iemand* (cf. Rullmann 1996)).⁴⁶ What this means is that (40b) is equivalent to the set of NQs and NPIs, which is just n-words.

On the other hand, there appears to be nothing corresponding to the set of $\langle \text{indef}, \text{neg} \rangle$ and $\langle \text{indef}, \text{foc} \rangle$ in natural languages; here we simply look upon (40a) as an over-generated set in the Cartesian product that has no linguistic entity.⁴⁷ We are thus left only with the possibility to take (40b), the set consisting of NQs and NPIs.

In this way, the two set-theoretic operations provide us with the dual nature of n-words. Now we can conclude that the lexical ambiguity hypothesis proposed by Herburger (2001) is not just a description of the facts, because it can be supported by a theoretical backbone.

⁴⁶ The following data show the polarity sensitivity of a Dutch indefinite preceded by a focus element:

- (i) Hij heeft met (*ook maar) een student gesproken.
 he has with (EVEN_{NPI}) a student spoken
 ‘He has spoken with a student.’
- (ii) Hij verdient meer dan ook maar IEMAND gedacht had.
 he earns more than EVEN_{NPI} anyone/someone thought had
 ‘He’s earning more than anyone has thought.’
- (iii) Heb je met ook maar IEMAND gesproken?
 have you with EVEN_{NPI} anyone/someone spoken
 ‘Did you speak with anyone?’
- (iv) Als hij met ook maar EEN student heeft gesproken, weet hij dat dit niet kan.
 if he with EVEN_{NPI} one student has spoken knows he that this not can
 ‘If he has spoken with any student, he knows that this is impossible.’

(Rullmann 1996: 338)

⁴⁷ The ordering in (40a) would lead us to assume that $\langle \text{indef}, \text{neg} \rangle$ is an indefinite which takes wide scope with respect to negation and $\langle \text{indef}, \text{foc} \rangle$ is a Hindi NPI (e.g. *koi + bhii* (cf. Lahiri 1998)). If the interpretation of indefinites taking scope over negation is (roughly) equivalent to that of indefinites taking scope under negation (Kuno 2007), we could judge (40a) to be the set of NPIs and indefinites. We leave it to future research to find out whether there exists such a hybrid element in natural languages.

4.3.2. A Preverbal-Postverbal Asymmetry

We claimed that Herburger's (2001) hypothesis obtains support from our typological view on negative elements. This section turns to another formal property of n-words: a preverbal-postverbal asymmetry. Namely, preverbal n-words can occur without a sentential negation marker, while they require it when appearing in postverbal position. See the following data:

(41) Spanish:

a. **Nadie** vino.

n-body came

'Nobody came.'

b. No vino **nadie**.

not came n-body

'Nobody came.'

c. A **ninguno** de ellos los olvidó.

to n of them them.cl forgot.3s

'He forgot none of them.'

d. No se olvidó de **ninguno** de ellos.

not cl. forgot of n of them

'He forgot none of them.'

((a/b) from Herburger 2001: 289; (c) from Herburger 2001: 293;

(d) from Herburger 2001: 294, with a minor modification)

In (41), n-words behave like NQs in preverbal position, while showing the NPI-hood in postverbal position. To explain why they involve such a preverbal-postverbal asymmetry, we firstly elucidate the structure of n-words.

As noted in Kuno (2007), many *n*-words have the negative morphology *n* and an indefinite;⁴⁸ Laka (1990) named *n*-words after the systematic presence of the negative element.

Given the morphological fact, one might argue that *n*-words have the same structure as NCIs: they are also headed by negation. Notice, however, that a systematic difference is present between the two negative constituents: the presence/absence of the indeterminate system. To see this, let us compare Italian with Serbo-Croatian. Witness the following difference:

(42) Italian:

	<i>wh</i>	N-words
person	chi	nessuno
thing	che	niente, nulla
place	dove	in nessun luogo
time	quando	(mai)

(based on Haspelmath 1997: 262)

(43) Serbo-Croatian:

	<i>wh</i>	NCIs
person	ko	ni-(t)ko
thing	što	ni-što
place	gdje	ni-gdje
time	kada	ni-kada

(based on Haspelmath 1997: 269)

⁴⁸ For example, *nessuno* in Italian originates from a negative element *nec* and *uno* 'one' (Haspelmath 1997: 262).

As is obvious from (42), n-words do not involve the indeterminate system, whereas (43) shows that NCIs are quantifiers produced by such a system.

We have seen in Chapter 3 that in the indeterminate system, interrogative pronouns lack their own meaning and obtain quantificational force from co-occurring materials (Kuroda 1965). Here, we admit the property as evidence to suggest that quantifiers generated by the system are outputs from Narrow Syntax. The reasoning is that if they are lexically fixed expressions, the productivity that is the essence of the indeterminate system loses much of the meaning. In other words, Merge is the most suitable for capturing the productive nature.⁴⁹ By contrast, n-words should be formed at the stage earlier than syntactic derivations, because they are lexically fixed expressions (i.e. no productive pattern is present in the word formation).

It should be noticed here that the two negative constituents show the transparency/opacity in their morphology: n-words are fused (e.g. *nessuno, niente, nadie, nada*), while NCIs are separable (e.g. *ni-ko, ni-šta, dare-mo, nani-mo*). Our speculation here is that the morphological fact reflects the level at which the word formation is performed. That is to say, since n-words are made in the lexicon, they are morphologically one word; by contrast, NCIs comprise lexically decomposable materials (or the degree of coupling of their ingredients is not as strong as n-words), because they are combined at Narrow Syntax.

Crucially, the presented line of reasoning suggests that n-words are flatly structured, because they are outputs from the lexicon. Therefore, unlike NCIs, φ -features are not roofed with negation within the internal structure of n-words. (44) illustrates the difference:

(44) a. $\{\text{negP neg}, \{\text{NP } \varphi\}\} = \text{NCIs}$

b. $\{\text{neg}, \varphi\} = \text{n-words}$

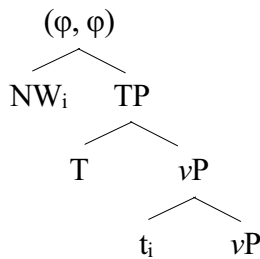
⁴⁹ It has been argued in the literature (e.g. Chomsky 1957) that syntax is the single generative system.

Under (44b), n-words contain two labeling features: (i) neg-features, and (ii) φ -features.⁵⁰ Now we are in a position to explore the reasoning behind the preverbal-postverbal asymmetry in (41).

4.3.2.1. Subject N-words

Firstly, we deal with the derivations of subject n-words. It is trivial to obtain preverbal subject n-words, because Italian and Spanish are SVO languages: they undergo raising to TP for labeling, as is usually assumed for subjects. Then $\{t_{NW}, vP\}$ is labeled vP , and $\{NW, TP\}$ (φ, φ). The order in (41a) is therefore derived by the phrasal movement. (45) shows the point.

(45)



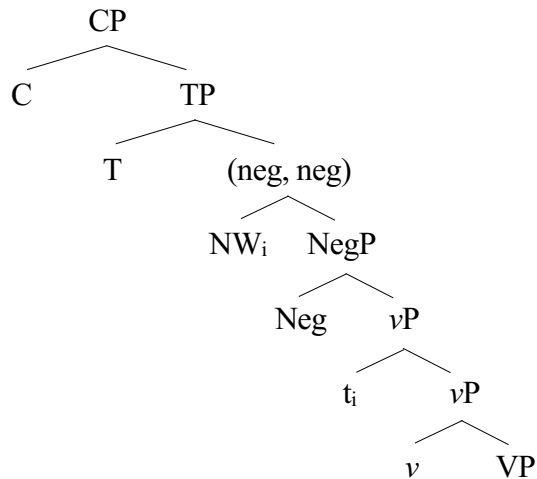
It should be noted that preverbal subject n-words must appear as NQs, since NPIs are not licensed in that position.

When neg-features play a labeling role, subject n-words move to Spec, NegP. Then $\{t_{NW}, vP\}$ is labeled vP , and $\{NW, NegP\}$ (neg, neg). Notice that since they are now at the criterial position, no further movement is allowed (cf. Rizzi 2016); if this goes on, the EPP property of T cannot be satisfied. Here, we follow a suggestion by Alexiadou and Anagnostopoulou (1998) and assume that head movement can meet the EPP in some languages that involve (rich) verbal morphology. We further assume following Chomsky (2000, 2001) that head movement occurs at PF. Given these

⁵⁰ We assume that neg-features are available only when n-words appear NQs, since NPIs are non-negative.

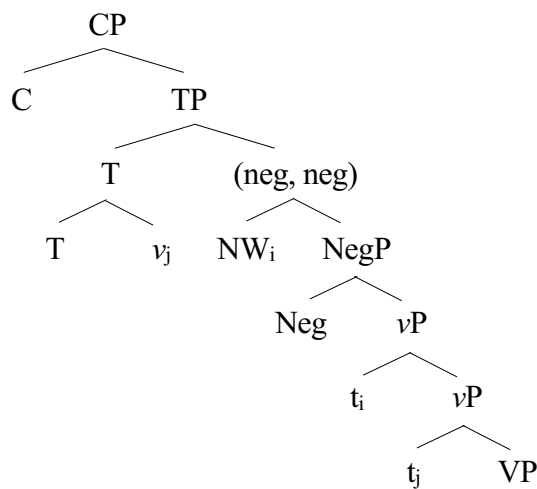
assumptions, (46) is obtained at the syntactic derivations when neg-features are used as a label:

(46) Syntactic representations:



The Labeling Algorithm applies at Transfer (Chomsky 2103, 2015), and then all nodes are labeled as in (46). After labeling, v is raised to T at PF so as to salvage the otherwise unsatisfied EPP. The PF representation is therefore:

(47) PF representations:



In this way, head movement from v to T produces postverbal subject n-words in (41b). It should be

noted that when subject n-words are positioned postverbally, they must occur as NQs, because (neg, neg) is unavailable for NPIs.

It is noteworthy that the negative concord reading in (41b) can be obtained from (46): two neg-features in {NW, NegP} cancel each other out, but single negative force is expressed by the label of the SO (i.e. {neg}).

One might argue, however, that sentential negation is structurally too low in (47): it is at the sentence-initial position in (41b). In this respect, we would like to pay attention to an observation by Zanuttini (1991), according to which the negation marker is always located on the left side of materials that have Tense in Spanish and Italian. Then, the descriptive generalization leads us to assume that Neg has an option to be displaced to C at the PF component.^{51, 52} It thus follows from the head-raising that a sentential negation marker comes before the verb in (41b).

The presence of a negative complementizer provides a piece of evidence for the raising of the negation marker to C. According to Laka (1990), predicates like *deny* select complementizers to be negative, which can license NPIs:

(48) Negative complementizer:

- a. *The witnesses denied anything
- b. I deny that the witnesses denied anything

(Laka 1990: 173)

Given this fact, it is reasonable to assume that there is a structural relation between C and Neg.

⁵¹ This option would gain support from the presence of so-called *Neg-raising* (see e.g. Fillmore 1963; Collins and Postal 2014).

⁵² Another possibility would be that what moves to T is the complex head that consists of *v* and Neg in (41b), because head movement can be applied iteratively (see Travis 1984).

The presented view predicts that when preverbal subject n-words co-occur with a negation marker, the sentences get interpreted as double negation. This is because when subject n-words move to TP for labeling, both TP and NegP express the meaning of negation. This prediction is indeed borne out:

(49) Spanish:

nadie no vino

nobody not came

‘nobody didn’t come’

(Laka 1990: 107)

It is worth noting here that if subject n-words undergo raising to Spec, NegP, they will be always postverbal, since *v* is displaced to T for the EPP at PF in that derivations. In this way, our approach can precisely account for the fact that the sentences that involve preverbal subject n-words and a negation marker do not receive single negation.

4.3.2.2. Object N-words

Let us next take up object n-words. Given the SVO order, the derivation of postverbal object n-words is trivial: the absence of an unlabeled structure allows them to be left in-situ. It must be noted here that postverbal position is a grammatical context where both NQs and NPIs can occur, unlike preverbal position. It is therefore predicted that postverbal (object) n-words are ambiguous between NQs and NPIs (Herburger 2001).

We saw in Chapter 3 that negative elements must take scope over events expressed by verbs: there arises a pragmatically unacceptable interpretation in cases where they take scope under the event predicates (Herburger 2001). This implies that n-words cannot appear as NQs in postverbal

position.⁵³ Notice, however, that since what is problematic is a pragmatic factor, it is in principle possible for Narrow Syntax to generate the structures that involve postverbal (object) n-words as NQs. In fact, it is observed in Herburger (2001) that they can survive as NQs without inducing an infelicitous interpretation. See the following contrast:

(50) Spanish:

- a. Temen que el bebé sea autista. Se pasa el tiempo mirando a **nada**.
fear.3p that the baby is.Subj autistic cl. spends the time looking at n-thing
'They fear the baby is autistic. He spends his time looking at nothing.'
- b. *El bebé se pasa el tiempo viendo **nada**.
the baby cl. spends the time seeing n-thing
'The baby spends his time seeing nothing.'

(Herburger 2001: 303-304)

According to Herburger (2001: 303), "the contrast [...] arises because though it is possible to look without looking at anything (i.e., to stare in the air), it is impossible to see but fail to see anything." In this way, (object) n-words can appear as NQs in postverbal position, though such an occurrence is largely subject to pragmatic restrictions (see Herburger 2001 for relevant data).

On the other hand, when object n-words are used as NPIs, the semantic composition of what makes them (i.e. an indefinite and focus) requires the presence of a negation maker (Lahiri 1998); this is what happens in (41d).⁵⁴ Now we can assume along with Herburger (2001) that postverbal (object) n-words are indeed ambiguous between NQs and NPIs.

⁵³ The presented derivation of postverbal subject n-words is not problematic, because the LF component receives (46), in which the n-words can take wide scope with respect to verbs.

⁵⁴ It is for this reason that (41d) receives single negation (i.e. the n-word is non-negative).

Next, we turn to preverbal object n-words. Given the basic linear order, it is very reasonable to argue that they are derived via some optional operation. It should be noted here that object n-words must appear as NQs in preverbal position, because object NPIs cannot be licensed in such a context (e.g. **Anything I didn't say*).⁵⁵ Then, what operation is involved?

According to Frascarelli (2000: 127), preverbal (object) n-words undergo phrasal movement to the Focus projection in the sense of Rizzi (1997) so as to be “contrastively focused” in a Spec-head configuration with raised verbs. This claim comes from the fact that they clearly receive the focus stress in Italian, whose position is adjacent to verbs. An example is given in (51).

(51) Italian:

Lei cosa ci guadagna? NULLA ci guadagna.

‘What does she get out of it?’ She gets NOTHING.’

(Frascarelli 2000: 127)

Crucially, the same fact as Italian is observed in Spanish as well:

(52) Spanish:

a. NÁDA le devolvió el gobierno

NOTHING him returned the government

‘The government did not return anything to him’

b. A NADIE le devolvió María su manuscrito.

to nobody Dat.cl returned María his manuscript

‘María returned his manuscript to nobody.’

⁵⁵ The data is cited from Giannakidou (2000: 469).

c. Con NADIE compartió María su secreto.

with nobody shared María her secret

‘María shared her secret with nobody.’

((a) from Franco and Landa 2006: 36; (b/c) from Zubizarreta 1998: 103)

It is worth noting here that V-raising is obligatory in Hungarian, whenever Spec, FocP is occupied (Puskás 2000). (53) illustrates this.

(53) Hungarian:

a. ATTILÁT szereti Emöke.

Attila-Acc love.Pres.3sg Emöke-Nom

‘It is Attila that Emöke loves.’

b. *ATTILÁT Emöke szereti.

c. *Emöke szereti ATTILÁT.

(Puskás 2000: 68)

We are thus led to conclude that preverbal object n-words involve focus movement.⁵⁶ Given this,

⁵⁶ One might mention that preverbal subject n-words are also subject to focus movement. In fact, Frascarelli (2000) cites an observation to suggest that they also receive the focus stress in Italian:

(i) Italian:

Sto in mani sicure ahah peccché meglio ‘e voi NISCIUNO le capisce ‘sti cose.

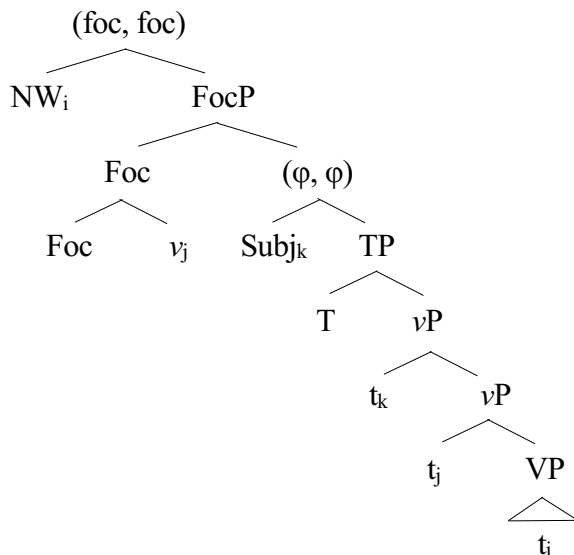
‘I am in safe hands because NOBODY understands these things better than you.’

(Frascarelli 2000: 127)

If it is correct, however, the EPP property of T fails to be satisfied, because V-raising takes place at the same timing (i.e. both Spec, TP and T receive no elements). Thus, we are led to assume that only object n-words move to Spec, FocP. It is worth recalling here that movement without PF effects does not occur at syntactic derivations (cf. Chomsky 1986). It is not problematic to provide an n-word in (i) with the stress without moving it to the Focus projection, given the fact that in-situ materials can also receive the focus stress (i.e. focus movement is not a prerequisite for obtaining the stress).

the derivations have the structure in (54) after head movement at PF.

(54)



Assuming that focus movement involves focus features (e.g. Rizzi 1997), the top node in (54) can be labeled (foc, foc). In this way, preverbal object n-words are derived from the focus movement followed by V-raising.⁵⁷

As a result, our labeling approach produces the following diagram:

⁵⁷ It is well known that phrases other than n-words can also undergo focus movement:

(i) Italian:

IL TUO LIBRO ho letto (, non il suo)

‘Your book I read (, not his)’

(Rizzi 1997: 286)

It should be noticed that if focus features are absent, it seems to be impossible to label the top node in (i). On the other hand, however, no features can be added in the course of the derivations, given the inclusiveness condition (Chomsky 1995). We leave it to future research to consider how constituents in general have focus features in focus movement.

(55)

Positions & Grammatical Relations	Types of N-words
Preverbal subject	NQs
Postverbal subject	NQs
Preverbal object	NQs
Postverbal object	NQs / NPIs

This indicates that n-words are broadly similar to NQs: they can occur as NPIs only when used as postverbal objects.⁵⁸ Notice that (55) is consistent with Herburger's (2001) view which follows the Jespersen cycle: n-words begin as NPIs and gradually shift to NQs. Given this shift, she claims that n-words undergo the five steps in (56), where NEs stand for NQs.

(56) a. N-words are NPIs.

b. N-words are NPIs and also NEs in contexts where NPIs are not licensed.

c. N-words can be used as NEs in preverbal contexts (unstable NPI context).

d. N-words start to be used in postverbal context, but only with narrow scope.

e. N-words start to be used as NEs in postverbal position with wide scope and cease to also be NPIs.

(Herburger 2001: 326)

Herburger (2001) notices that Spanish n-word is now at the stage of (56d): since the n-words reach the fourth stage, they are almost NQ-like elements. In this way, the result that is obtained from the labeling analysis supports her diachronic picture of n-words.

⁵⁸ N-words can be used as NPIs when appearing in non-negative contexts as well.

4.3.3. The Exceptive Construction in Japanese

Thus far, we have concentrated on the negative constituents in Italian and Spanish. Here, it is worth paying attention to the well-known fact that Japanese has negative elements other than NCIs: exceptive phrases. As the last topic of this chapter, we take up the Japanese exceptive construction.

4.3.3.1. Basic Data

The Japanese exceptive expression, which comprises a nominal phrase and the particle *sika*, is shown in (57).

(57) a. **John-sika** ko-nak-atta.

John-SIKA come-Neg-Past

‘Nobody except John came.’

b. John-ga **hon-sika** kawa-nak-atta.

John-Nom book-SIKA buy-Neg-Past

‘John bought nothing except books.’

As pointed out by Kuno (2007), the distribution of the exceptive phrases is very similar to that of NCIs: they must co-occur with clause-mate sentential negation. This is validated by the following data:

(58) a. *John-sika ki-ta.

(Affirmative)

John-SIKA come-Past

‘(Int.) Only John came’

b. *John-**sika** kita-no? (Question)

John-SIKA come-Q

‘(Int.) Did only John come?’

c. *John-**sika** kita-ra, osiete-kudasai. (Conditional)

John-SIKA come-Condi tell-please

‘(Int.) If only John comes, let me know.’

d. ?*John-wa [Hanako-ga banana-**sika** tabe-ta to] (Higher negation)

John-Top Hanako-Nom banana-SIKA eat-Past Comp

iwa-**nakat**-ta.

say-Neg-Past

‘(Int.) John did not say that Hanako ate only banana.’

(Kuno 2007: 122)

In spite of the striking similarity, however, it has been observed in the literature that *sika*-phrases behave differently from NCIs in two respects: (i) they cannot provide a short answer, and (ii) they cannot co-occur with another exceptive phrase (see e.g. Aoyagi and Ishii 1994; Miyagawa 2016 et al.). These are shown below.

(59) Q: Dare-ga kita no?

who-Nom came Q

‘Who came?’

A: ***John-sika**.

John-SIKA

‘(Int.) Only John.’

(60) ***John-sika** **hon-sika** kawa-nak-atta.

John-SIKA book-SIKA buy-Neg-Past

‘(Int.) Only John bought only books.’

Given the behavior taken up above, the defining properties of the Japanese exceptive expressions can be summarized into (61):

- (61) a. Obligatory presence of clause-mate sentential negation.
b. Inability to be used as an elliptical answer.
c. Inability to co-occur with another exceptive phrase.

In what follows, we will show that (61) is derived from a deletion-based labeling approach.

4.3.3.2. Proposal

In the Japanese exceptive construction, what we would like to emphasize is that *sika*-phrases receive an interpretation as if they were irrelevant to a negation marker; these materials lie outside the meaning of negation (i.e. an exception). Here, we take the fact as evidence to suggest that they are present in the derivations that are independent of negation. Specifically, we argue that the Japanese exceptive construction involves (62a) and (62b).

- (62) a. Negative derivations that contain sentential negation (or express a zero interpretation).
b. Positive derivations that contain exceptive expressions.

This captures our intuition that the exceptive materials do not have a direct relation with sentential negation, because they are base-generated at the positive derivations. Under this view, (57a), which

is repeated in (63), involves (64a) and (64b).

(63) **John-sika** ko-nak-atta.

John-SIKA come-Neg-Past

‘Nobody except John came.’

(64) a. Daremo ko-nak-atta.

(Negative derivation)

NCI_{person} come-Neg-Past

‘No one came.’

b. John-ga kita.

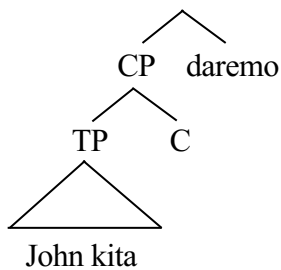
(Positive derivation)

John-Nom came

‘John came.’

We would like to propose that the (a) and (b) sentences in (64) are derivationally combined, so that (63) is produced. To be more concrete, we contend that (63) involves (65) as its base-structure, and that (64b) is adjoined to the NCI of (64a):

(65)



This structure is validated by two facts in English: (i) an exceptive marker ‘but’ can be followed by a nominative subject, and (ii) negative elements and exceptive materials are adjacent to each other.

(66) shows the two points:⁵⁹

(66) No one but I could have done it.

(FIC: Lion in the valley, 2008)

It is therefore very reasonable to assume that Japanese exceptive material is also clausal and forms a constituent with NCIs as in (65).

The fact that English ‘but’ involves TP leads us to assume that the C head in (65) is the locus of an exceptive marker. Then, a question is: what constituent occupies that position? In this regard, it is important to pay attention to English, where an exceptive marker ‘but’ can also be used as a conjunction: *John likes Mary, but she likes Bill*. Notice crucially that the same conjunction as ‘but’ is expressed by *sikasi* in Japanese. This is shown in (67).

(67) John-wa kita. **Sikasi** Mary-wa ko-nak-atta.

John-Top came but Mary-Top come-Neg-Past

‘John came. But Mary didn’t come.’

What we would like to stress here is that the expression in question morphologically includes an exceptive marker *sika*.⁶⁰ Since English ‘but’ can also denote an exception, it is no accident that Japanese exceptive marker is morphologically similar to the conjunction. Thus, we claim that the C head is filled by *sikasi* in (65).

To capture the morphological fact, we assume here that there is a PF rule as in (68), which instructs the third mora in *si-ka-si* to undergo deletion when Spec, CP is occupied.

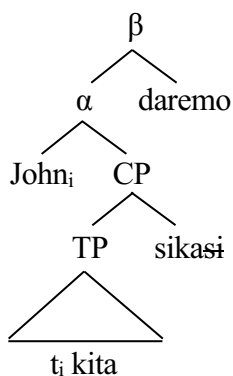
⁵⁹ The data is cited from the COCA.

⁶⁰ I would like to thank Masakazu Kuno (p.c.) for pointing this out to me.

(68) $sikasi \rightarrow sikasi / XP_{[Spec, CP]} _$

Our suggestion here is that *sika*-phrases are raised from TP to Spec, CP. Given this, (65) can be represented as in (69), where *sikasi* is reduced to *sika* by the application of (68).

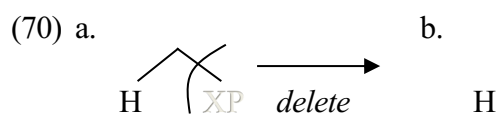
(69)



Note that (69) involves two unlabeled structures that are marked by α and β , both of which consist of two phrasal SOs. Thus, some labeling options must be applied to (69); otherwise the derivation crashes at the interfaces.

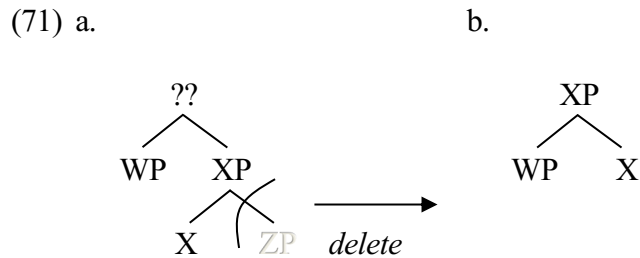
Here, we would like to claim that deletion applies twice in (69). Specifically, we suggest that (69) involves TP-deletion and NCI-deletion.

Let us first see why TP-deletion is needed. According to Narita (2011), an $\{H, XP\}$ constituent is reduced to a head H, after Transfer of XP. Following his view, we argue that the same process holds true for deletion.⁶¹ Namely, it produces (70b) from (70a).

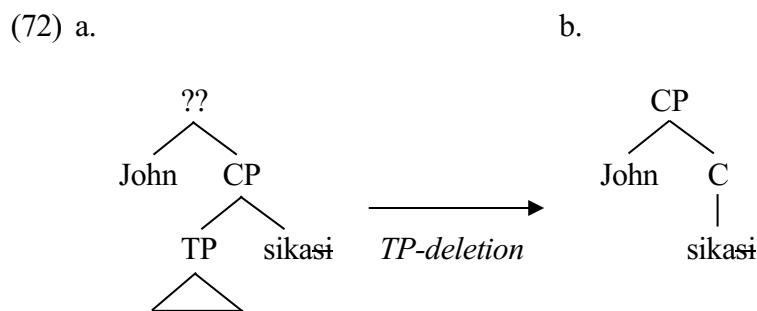


⁶¹ This will be carefully taken up in Chapter 5.

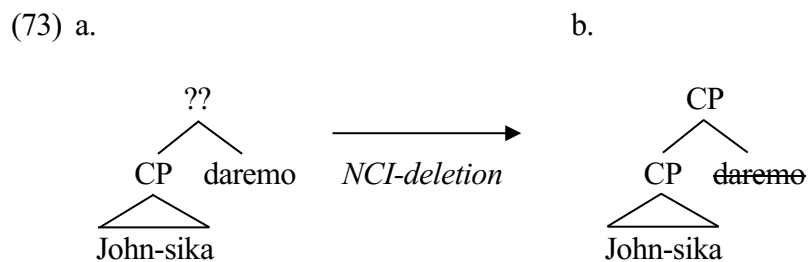
Under (70), the deletion of the complement can salvage the labeling problem that is caused by the presence of a Spec-element. This is illustrated below.



Given (71), one labeling issue in (69) can be resolved after TP-deletion, as shown in (72).

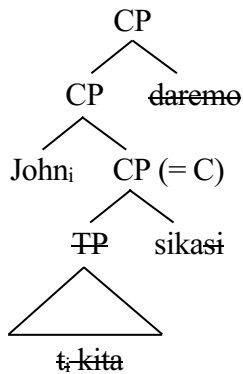


Next, we turn to NCI-deletion. We have proposed in Chapter 3 that deletion can also salvage an {XP, YP} structure: the labeling problem disappears after deletion, since unambiguous search is available to an asymmetric structure (i.e. X can be found unambiguously in {XP, ~~YP~~}). Given this, deleting NCIs can resolve the other labeling issue in (69). See the following process:



As a result, the entire structure can be represented as follows:

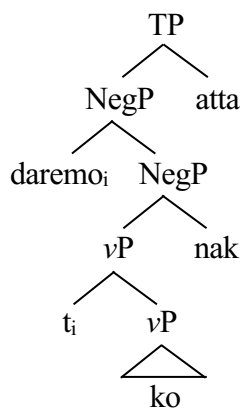
(74)



In this way, *sika*-phrases are derived from TP-deletion and NCI-deletion, both of which are required to salvage the unlabeled structure.

We have seen in Chapter 3 that ellipsis requires semantic identity (Merchant 2001). Given this condition, the deleted TP must have a semantically identical antecedent in (74). Here, we argue that *vP* in the negative derivation acts as an antecedent for the ellipsis. Recall that NCIs undergo raising to Spec, NegP for labeling. Thus, the negative sentence in (63), which is the main derivation of the exceptive constructions, has the following structure:

(75) *Daremo ko-nak-atta* ‘No one came’:



Following Merchant (2001), we assume that unfilled arguments (or traces) are existentially bound.

Then, ν P in (75) can be represented as in:

(76) $\exists x. x$ comes

In (74), deleted TP also contains a trace at the subject position. The representation is therefore:

(77) $\exists x. x$ comes

Since a mutual entailment which guarantees semantic identity (cf. Merchant 2001) holds between (76) and (77), TP has a semantically identical antecedent. Thus, the TP-deletion is licensed under a standard theory of ellipsis.⁶²

Let us take up one more sentence for illustration, which is repeated below.

⁶² Since (74) involves NCI-deletion as well, some antecedent that expresses negativity must be present. In this respect, it is important to pay attention to the fact that English ‘but’ yields the negative import when used as a relative pronoun:

- (i) There was *no one* **but** thought he was guilty.
 = There was *no one* **that** didn’t think he was guilty.

(Ishiguro 2013: 315)

Besides, based on Kataoka’s (2006) observation that the scope relation between negation and quantifiers is sensitive to the position of *sika*-phrases, Kuno (2007) argues that they produce the meaning of negation:

- (ii) a. [_{QP} Niju-nin-ijyo-no gakusei-ga] gakusei-shokudou-de ramen-**sika** tabe-**nai**.
 20-CL-more.than-Gen student-Nom student-dining.hall-at noodle-SIKA eat-Neg
 ‘More than twenty students eat nothing except noodles at the student dining hall.’

(more than 20 > Neg, *Neg > more than 20)

- b. Hanako-**sika** [_{QP} sanjus-sasu-ijyo-no hon-o] tosyokan-kara karidasa-**nakat**-ta.
 Hanako-SIKA 30-CL-more.than-Gen book-Acc library-from check.out-Neg-Past
 ‘Nobody except Hanako checked out more than 30 books from the library.’

(*more than 30 > Neg, Neg > more than 30)

(Kataoka 2006, cited from Kuno 2007: 128)

Considering these facts, it can be assumed that the exceptive phrases act as an antecedent for NCI-deletion.

(78) John-ga **hon-sika** kawa-nak-atta.

John-Nom book-SIKA buy-Neg-Past

‘John bought nothing except books.’

Under the presented view, (78) involves (79a) and (79b) as its negative and positive derivations.

(79) a. John-ga nanimo kawa-nak-atta. (Negative derivation)

John-Nom NCI_{thing} buy-Neg-Past

‘John bought nothing.’

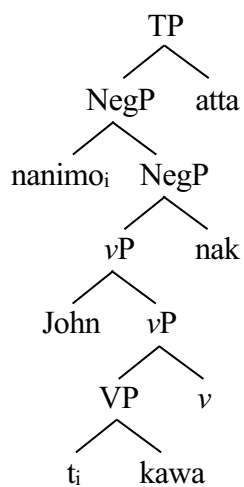
b. John-ga hon-o katta. (Positive derivation)

John-Nom book-Acc bought

‘John bought a book.’

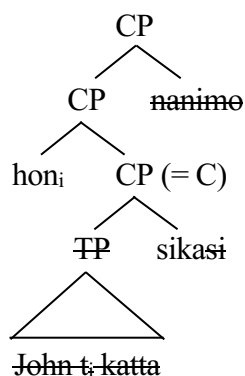
It is widely assumed in the literature (cf. Fukui 1986; Kuroda 1988) that the subject remains in-situ at the base-generated position in Japanese. Given this, (79a) has the following structure:

(80)



After the two applications of deletion, *hon-sika* receives the structure as in (81).

(81)



Since both ν P and TP have object traces in (80) and (81), they can be represented as in:

(82) a. ν P: $\exists x$. John buys x

b. TP: $\exists x$. John buys x

A mutual entailing relation holds between (82a) and (82b), hence the availability of TP-deletion.⁶³

The next section will show that the formal properties of the exceptive phrases can be obtained from the deletion-based proposal.

4.3.3.3. Analysis

At the beginning of this section, we saw that Japanese exceptive expression involves the three defining properties, which are repeated below.

⁶³ In Chapter 3, we saw that ellipsis requires a kind of syntactic identity as well. Then, the presented view would involve an issue: TP does not match ν P in the structural sense. Here, we tentatively assume that a syntactic identity condition for ellipsis does not necessarily require an elliptical portion to be the same projection as its antecedent. Providing an exact definition of the syntactic identity is left to future research, however.

- (83) a. Obligatory presence of clause-mate sentential negation.
 b. Inability to be used as an elliptical answer.
 c. Inability to co-occur with another exceptive phrase.

Firstly, we take up (83a), which is straightforward, considering the presence of NCIs. Namely, since the derivation of *sika*-phrases always involves NCIs, the obligatory presence of the clause-mate negation marker can be reduced to a property of NCIs.⁶⁴ Therefore, (83a) follows from our labeling approach of negative doubling.

Let us next consider (83b). We have argued in Chapter 3 that the short answer is derived from ν P-deletion. Therefore, the structure that has undergone deletion in (59), which is repeated in (84), is represented as in (85).

(84) Q: Dare-ga kita no?

who-Nom came Q

‘Who came?’

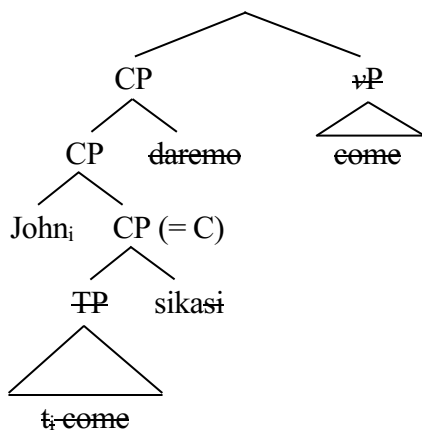
A: ***John-sika.**

John-SIKA

‘(Int.) Only John.’

⁶⁴ It also appears to be reasonable to mention that NCIs cannot play any role in labeling, because they are deleted in the derivations of the exceptive constructions: since deletion has to apply before labeling in order to salvage an unlabeled structure, deleted NCIs are invisible to the search operation, so that they cannot provide a neg-feature for labeling. We claim that the situation is not problematic, since *sika*-phrases are also inherently negative (cf. footnote 62): even though deleted NCIs fail to play a role in (neg, neg), the exceptive expressions that are situated in the same depth as NCIs can provide a neg-feature instead of them.

(85)



What is problematic in (85) is that vP must be deleted for obtaining the short answer: vP which acts as part of the antecedent for TP-deletion is deleted for another ellipsis. Since TP-deletion requires the presence of vP as its antecedent, we can assume that vP-deletion in (85) gives rise to a kind of recoverability problems for ellipsis.⁶⁵ Hence the unacceptability of (84A).

Finally, we deal with (83c), an example of which is repeated below.

(86) ***John-sika hon-sika kaw-nak-atta.**

John-SIKA book-SIKA buy-Neg-Past

‘(Int.) Only John bought only books.’

Under our approach, the negative derivation of (86), which is given in (87a), involves the structure as in (87b).

⁶⁵ We could also mention that (85) involves another problem: since vP which contains subjects is the antecedent for TP-deletion, the structure is an instance of antecedent-contained deletion (i.e. antecedent vP, which corresponds to the entire structure of (85), contains deleted TP). Then, we could assume that (85) gives rise to so called *an infinite regress*, which makes (84A) unacceptable.

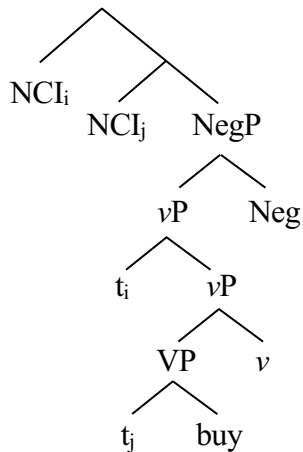
(87) a. Daremo nanimo kawa-nak-atta.

(Negative derivation)

NCI_{person} NCI_{thing} buy-Neg-Past

‘Nobody bought anything.’

b.



Each exceptive material in (86), which has (88a) as its positive derivation, is obtained from (88b) and (88c).⁶⁶

(88) a. John-ga hon-o katta.

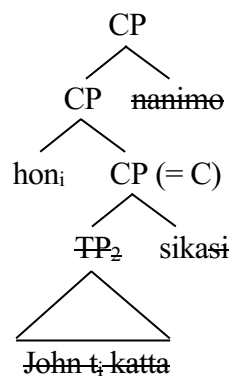
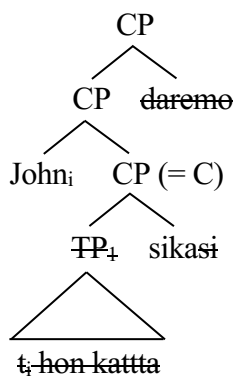
(Positive derivation)

John-Nom book-Acc bought

‘John bought a book.’

b.

c.



⁶⁶ To be more precise, two positive derivations must be present in (86) so as to obtain two occurrences of *sika*.

Under these structures, antecedent ν P and deleted TP have the following representations:

- (89) a. ν P: $\exists x.\exists y. x \text{ buys } y$
b. TP₁: $\exists x. x \text{ buys a book}$
c. TP₂: $\exists x. \text{John buys } x$

Crucially, no mutual entailing relations can be made between ν P and TP₁/TP₂ (i.e. (89a) does not entail (89b) and (89c)). Thus, (86) is excluded as a violation of a semantic identity condition for ellipsis.

In this way, these formal properties of the exceptive phrases can be obtained from the deletion-based labeling analysis.

4.4. Summary

Building on our labeling analysis to negative doubling, this chapter has provided the following three arguments:

- (i) Lexical ambiguity is the most convincing thesis about n-words, because the dual nature can be supported by a principled reason.
- (ii) Two kinds of labeling features and the ability to be used as both NPIs and NQs produce a preverbal-postverbal asymmetry of n-words.
- (iii) Japanese exceptive construction is the combination of a negative derivation with a positive derivation, and *sika*-phrases are derived by deletion and movement.

From these suggestions, we can conclude that the mechanism of labeling lies behind the syntactic behaviors of n-words in Italian and Spanish and the exceptive expressions in Japanese.

Chapter 5: Deletion and Labeling⁶⁷

In the preceding discussion, we proposed that deletion is a labeling option that can salvage an unlabeled structure. This chapter extends the proposal and shows that the major instances of ellipsis can be captured in terms of the Labeling Algorithm. Specifically, it will be argued that Lobeck's (1990, 1995) generalization with respect to ellipsis is derived from a requirement for labeling under Minimal Computation imposed by the third factor of Chomsky (2005).

5.1. Backgrounds on Ellipsis

We begin with a structural condition for the majority of ellipsis (i.e. N'-ellipsis, VP-ellipsis, and sluicing). Concrete examples are given in (1), (2), and (3).

(1) N'-ellipsis:

- a. I like Bill's wine, but Mary's is even better.
- b. Although John's friends were late to the rally, [_{NP} Mary's [e]] came on time.
- c. [_{NP} John's [e]] was short, but Mary's talk was way too long.

((a) from Jackendoff 1971: 28; (b) from Lobeck 1990: 348; (c) from Lobeck 1990: 350)

(2) VP-ellipsis:

- a. Bill ate the peaches, and Harry did, too.
- b. Either Ivan will write the play, or Boris will.
- c. Because Mary might [_{VP} e], John will attend the rally.

((a/b) from Jackendoff 1971: 27; (c) from Lobeck 1990: 348)

⁶⁷ The most part of this chapter is reproduced from Nakajima (2019) with modifications.

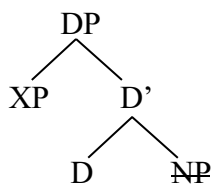
(3) Sluicing:

- a. Mary knew someone was speaking at the rally, but she didn't know [_S' who [_S e]].
- b. We want to invite someone, but we don't know [_S' who [_S e]].
- c. Though he doesn't know exactly [_S' how [_S e]], John will answer questions raised by his talk.

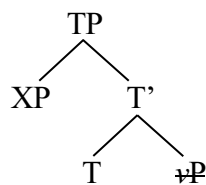
((a) from Lobeck 1990: 348; (b/c) from Lobeck 1990: 355)

According to Lobeck (1990, 1995), these instances of ellipsis involve the deletion of the functional head-complement, and they share the same structural requirement: it is allowed only if a specifier receives some constituents (see also Saito and Murasugi 1990; Saito et al. 2008). (4) illustrates this point.

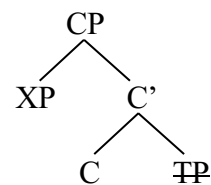
(4) a. N'-ellipsis



b. VP-ellipsis



c. Sluicing



(Saito et al. 2008: 252)

In (4), the Spec position is occupied and the head-complement is allowed to undergo deletion; each sentence from (1) to (3) has a structure like (4). In this way, the major instances of ellipsis go along the same syntactic condition.

5.2. Theoretical Problems

We have just seen that the prime examples of ellipsis obey the same structural constraint. To be more precise, Lobeck (1990) offers (5) as the descriptive generalization with respect to ellipsis,

which is conditioned by the Empty Category Principle (ECP) as in (6).^{68, 69}

(5) a. [T]he ellipited constituent is a maximal projection

b. [T]he ellipited constituent must be introduced by a functional head

(Lobeck 1990: 358)

(6) [O]nly functional heads which assign Kase properly govern their ellipited complements

(Lobeck 1990: 358)

In her theory of ellipsis, the function feature Kase, which includes structural Case and *wh*-features (see Fukui and Speas 1986), plays an important role, since only Kase assigners such as $C_{[+wh]}$ allow their complements to be deleted (cf. **Even though she hoped [s:that [s e]], Mary doubted that the bus would be on time.*).⁷⁰

Notice, however, that the ECP (or the notion of government) is abandoned in the minimalist program (cf. Chomsky 1995); (6) is thus no longer available for explaining the ellipited data. After all, the generalization by Lobeck (1990, 1995) is aggregated into the following question:

(7) Why does ellipsis in principle involve the deletion of the complement?

In what follows, we will tackle (7) in terms of labeling.

⁶⁸ Lobeck (1990) borrows the term Kase from Fukui and Speas (1986), where it is proposed that functional heads can have a specifier only when they assign Kase to the position.

⁶⁹ To be more precise, (6) undergoes a slight refinement, building on the fact that non-Kase assigners such as quantifiers and plural determiners can also license ellipsis in English (cf. Lobeck 1990: 360).

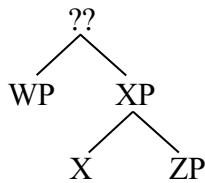
⁷⁰ The data is cited from Lobeck (1990: 355).

5.3. Proposals

5.3.1. Ellipsis and Labeling

We would like to stress that an unlabeled {XP, YP} situation is involved in the structures that license ellipsis. Namely, all of the examples from (1) to (3) have (8) in common.

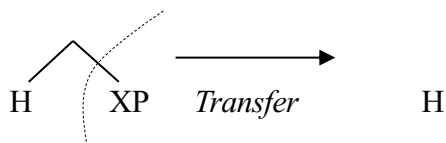
(8)



This implies that the labeling issue is behind the deletion of the complement. Here, it is important to pay attention to a proposal by Narita (2011), which has been taken up in the preceding chapter: when Transfer applies to XP in an {H, XP} structure, the SO is reduced to a head H. (9) illustrates this.

(9) a.

b.



Following his suggestion, we offer (10):⁷¹

(10) Head-reduction by deletion:

Deleting XP in an {H, XP} structure reduces the SO to a head H.

⁷¹ This is what we have already provided in Chapter 4.

It should be noted that (10) implies that a singleton set is equivalent to its member: $\{\alpha\} = \alpha$. This might be problematic, since it is generally known that such equivalence is not correct under a set theory (see e.g. Chierchia and McConnell-Ginet 2000: 530 for discussion). However, we do not necessarily have to assume that mathematical constraints are true for natural languages. This is evident from the well-known fact that Merge does not meet the associative law (see e.g. Kuno (to appear)).⁷² In addition, it is worth recalling here that a bare single constituent is automatically projected onto an XP level in the X-bar theory.⁷³ This was based on the fact that it shows the same distribution as a phrasal constituent. Consider the following data:

(11) Adjectives:

- a. She is very keen on sport/keen.
- b. I've always found her very keen on sport/keen.
- c. Very keen on sport/Keen though she is, she's hopeless.

(Radford 1988: 86)

In this respect, Radford (1988: 87) notes:

“[W]henver a *simple category* (like N, V, P, A, ADV, etc.) in a given sentence can be replaced by the corresponding *phrasal category* (e.g. NP, VP, PP, AP ADVP, etc.), then the simple category is to be regarded as an instance of the corresponding phrasal category.”

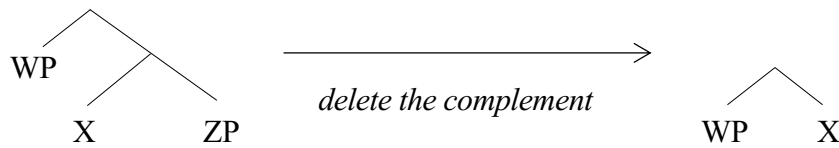
These backgrounds lead us to assume that the reduction of a singleton set to its member is indeed practical in natural languages (see Chomsky 2012; Takita et al. 2016).

Notice crucially that (10) can salvage the unlabeled structure, because the $\{XP, YP\}$ situation between WP and XP disappears by deletion of ZP. This is shown below.

⁷² For example, $\{\{\text{new, influenza}\}, \text{vaccine}\}$ is different from $\{\text{new}, \{\text{influenza, vaccine}\}\}$.

⁷³ I would like to thank Toru Ishii (p.c.) for pointing this out to me.

(12)



Thus, it follows from labeling that deletion in principle targets the head-complement.⁷⁴

The presented view predicts that deletion of a phrase in the Spec position can also provide an {H, XP} structure. (13) illustrates the point.

(13)



This type of ellipsis seems to be almost unnoticed in the literature, but its presence is validated by what is called *particle-stranding ellipsis* (see e.g. Sato 2008, 2012), which can be defined as cases where Japanese phrases that consist of nouns and some particles undergo the deletion of the former. In (14d), for example, the NP part gets elided and the attached nominative Case is stranded:

(14) a. A: Hanako-wa kuukoo-ni tsuki-masi-ta ka?

Hanako-Top airport-to arrive-Pol-Past Q

‘Did Hanako arrive into the airport?’

⁷⁴ See Goto (2013) for a somewhat relevant view: he also follows the reductive analysis of Narita (2011), and claims in Japanese that unlabeled {XP, CP}, in which XP is a scrambled element, is saved by Transfer of TP. See also Takita et al. (2016) for extension of Goto’s (2013) view.

b. B: Hai, tsuki-masi-ta.

yes arrive-Pol-Past

‘Yes, (she) arrived.’

c. A: Mary-mo tsuki-masi-ta ka?

Mary-also arrive-Pol-Past Q

‘Did Mary also arrive (into the airport)?’

d. B: [_{NP} e]-*ga* mada tsuki-mase-n.

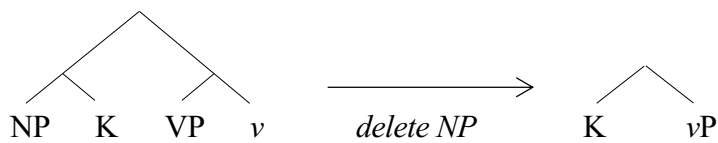
-Nom yet arrive-Pol-Neg

‘(She) has not arrived yet.’

(Sato 2008: 9, with a minor modification)

Here, we follow a nominal structure proposed by Fukui and Takano (1998), according to which NP is headed by K: [_{KP} [_{NP} N] K]. In this structure, when NP gets deleted, K alone is left, which offers an {H, XP} structure. This is illustrated in (15).

(15)



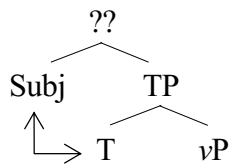
Since the NP-ellipsis in (14d) fills a logical possibility, Japanese particle-stranding ellipsis offers a piece of evidence to our labeling view.

5.3.2. Agreement and Ellipsis

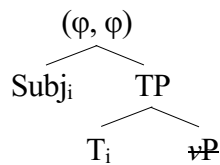
In the preceding discussion, we claimed that a formal relation is present between ellipsis and labeling: an unlabeled {XP, YP} structure triggers head-complement deletion. It should be noted,

however, that ellipsis is just a possible option; when deletable constituents are pronounced, this does not lead to ungrammaticality. Therefore, it is predicted that there is some other strategy that can salvage the {XP, YP} situation. In this respect, Lobeck (1990, 1995) contends that the head-complement is subject to ellipsis only when agreement holds between the Spec position and the head. This means that the feature sharing option is also available to the structures that involve ellipsis. See (16) for an illustration.

(16) a. ϕ -agreement:

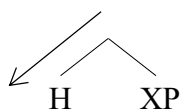


b. vP-deletion:

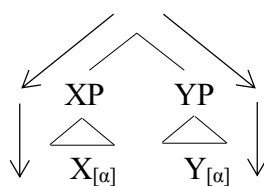


One might argue that since the structures that license ellipsis involve agreement, there is no need to resort to head-reduction for labeling. We would like to emphasize here that the {H, XP} structure fulfills Minimal Computation in the best fashion, since the Labeling Algorithm can find a head H immediately in that configuration. By contrast, the feature sharing option requires Minimal Search to be deep, because it fails to locate a head H unambiguously: the search operation has to look into phrases for finding two heads that have the same type of features. (17) schematically illustrates the difference:

(17) a. Shallow Search:



b. Deep Search:



As is obvious from the contrast between (17a) and (17b), it is the {H, XP} structure that makes it

possible to execute *Minimal Search*. This suggests that under Minimal Computation, labeling must have the configuration of {H, XP} to a maximum extent. In other words, feature sharing is the last resort for labeling. It is worth noticing at this point that characterizing feature sharing as such is consistent with the traditional view that movement is the last resort: it was assumed in the GB era and early minimalism that movement is inseparably combined with agreement, since the former is induced to have the latter in the Spec-head configuration (i.e. agreement has the last resort property, too).^{75, 76}

Now the situation leads us to argue that to yield the {H, XP} situation, Minimal Computation requests head-reduction in contexts where ellipsis is possible (e.g. there exist proper antecedents, etc.), irrespective of whether agreement is involved or not. It is important to note that if no deletion applies to such a context, labeling must resort to feature sharing that requires deeper search. Thus, we propose (18):

(18) One factor in ellipsis is a requirement from Minimal Computation for labeling.

Under this view, a motivation for ellipsis can be attributed to the third factor.

5.3.3. Deaccenting and Ellipsis

One might argue that under (18), ellipsis is obligatory by request from Minimal Computation whenever its condition is satisfied. This is, however, incompatible with the fact that ellipsis is just a possible option. Here, we would like to pay attention to the well-known relation between ellipsis

⁷⁵ I would like to thank Toru Ishii (p.c.) for pointing this out to me.

⁷⁶ We can also argue that the preference for deletion instead of agreement in labeling comes from an economy principle as well (Toru Ishii (p.c.)): in labeling, deletion is more economical than feature sharing, because the former will do for the shallow depth of the search process.

and deaccenting (see e.g. Tancredi 1992): the materials that are supposed to be deleted are flatly pronounced, if no ellipsis takes place. For instance, it is observed in a sentence such as (19a) that the bracketed constituent receives the flat intonation.

- (19) a. John said that he was looking for a cat, and so did Bill [say that he was looking for a cat]
b. John said that he was looking for a cat, and so did Bill

(Chomsky 1995: 125)

Then, why does deaccentuation occur when no ellipsis applies? We argue here that the concept of computational complexity lies behind the relationship. According to Chomsky (2000), there is a decrease in the burden of computation in parallel with the size of the domain to which operations apply: the smaller the computational domain is, the more its complexity/cost goes down. Namely, there exists a direct relation between reducing a computational domain and efficient computation: the former results in the latter. It should be noted here that Chomsky's (2000) phase theory aims to achieve Minimal Computation by keeping a search domain to a bare minimum. Note crucially that deaccenting reduces the domain of computation in the rules of stress assignment at PF, since they do not have to read off the deaccented constituents. Namely, it lessens the burden of computation by making the domain to which the PF rules apply smaller than normal. This means that when no ellipsis takes place, Minimal Computation is guaranteed by deaccentuation. Thus, we provide (20):

- (20) Deaccenting and ellipsis can each satisfy Minimal Computation in a different fashion.

This is the claim that when ellipsis applies, the computational complexity is reduced in labeling (i.e. it will do for the shallow depth of Minimal Search in the {H, XP} configuration), while it decreases in the stress assignment rules at PF, when deletable materials are pronounced.

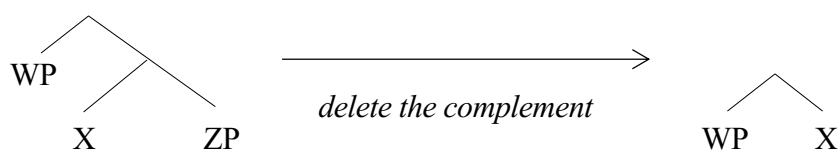
Thus, we can conclude that ellipsis does not have to be obligatory, because deaccenting is the other option that can fulfill Minimal Computation.

5.4. Theoretical Implications

The preceding section proposed that the labeling problem requires the head-complement to be deleted; under Minimal Computation, the head-reduction by deletion is needed, since the {H, XP} structure involves the shallow depth of the search operation.

Crucially, the presented analysis theoretically implies that ellipsis is structural deletion. This is because we cannot obtain the head-reduction in ellipsis if phrase structures are present; the same result as the Transfer-based theory of Narita (2011) can be obtained only if they disappear from the derivations (or the workspace). It is worth noting here that what produces the labeling issue in an {XP, YP} structure is the same depth of Minimal Search (i.e. X and Y are found simultaneously). Therefore, if {X, ~~ZP~~} keeps the phrasal status in (12), which is repeated in (21), the deletion of ZP cannot save {WP, XP}, because in such a case, labeling must find W and X in {WP, {X, ~~ZP~~}}.

(21)



Since the presence of phrase structures makes the Labeling Algorithm apply ambiguously, deletion must be defined as an operation that removes them from the syntactic derivations. Does this view receive some theoretical support? The answer is positive.

It is well known that a theoretical base of a PF-deletion analysis of ellipsis (see e.g. Merchant 2001) comes from a syntactic effect like agreement between expressed and unexpressed elements.

See (22a) and (22b), where the auxiliary verbs in the second conjuncts agree with the unexpressed associate nouns within the elided parts: *many linguists* or *a linguist*.

- (22) a. I didn't think there would be many linguists at the party, but there were/*was.
b. I didn't think there would be a linguist at the party, but there *were/ was.

(van Craenenbroeck and Merchant 2013: 704)

It should be noticed that our reductive view is consistent with the PF-deletion approach, because we assume phrase structures at the syntactic derivations. Then, a question is: when does deletion apply?

Note that ϕ -agreement in (22) can be captured if we assume that deletion applies after Agree: Agree \rightarrow delete. Note too that deletion has to precede labeling to salvage the unlabeled {XP, YP} structure, because it is too late to do so after labeling applies: delete \rightarrow labeling. The order of these operations is therefore:⁷⁷

(23) Agree \rightarrow delete \rightarrow labeling

According to Chomsky (2015: 6), “since the same labeling is required at CI and for the processes of externalization,” labeling is an operation taking place at Transfer. In addition, it is important to

⁷⁷ It would also be possible to argue that no fixed ordering is present, but instead, ordering relations other than (23) lead the derivations to crash at the interfaces:

- (i) If deletion precedes Agree, no valuation is possible to unvalued features which must enter into Agree with valued counterparts within deleted materials (e.g. unvalued ϕ -features of T in the second conjuncts in (22a) and (22b)).
- (ii) If labeling applies before deletion, an unlabeled {XP, YP} structure that is supposed to be saved by ellipsis is sent to the interfaces.

In this way, only the derivations that respect (23), after all, survive at the interface level.

pay attention to an argument by Richards (2007), according to which Agree occurs at the same timing as Transfer. See the following quotation from Richards (2007: 566):

“Given Full Interpretation (FI), uninterpretable features (uFs) must be deleted before they reach the semantic component (Sem); however, once valued by Agree, they are indistinguishable from interpretable (i.e., lexically valued) features, without reconstructing the derivation. It follows that uFs must be spelled out (transferred) as soon as they are valued if the system is to avoid lookback. If Value takes place before Transfer, the derivation will crash at Sem; if Value takes place after Transfer, then the derivation will crash at both interfaces (since unvalued features cannot be interpreted). Value must therefore be *part of* Transfer [...]”

Now the situation leads us to conclude that deletion must also be an operation at Transfer,⁷⁸ since it is sandwiched between Agree and labeling. Notice crucially that what is visible at Transfer is a syntactic entity such as phrase structures; phonological features, which are detectable only at the phonological component, are invisible at that timing. This suggests that what deletion can target is a phrase structure. We are thus led to conclude that ellipsis is structural deletion (see also Müller 2017 for discussion on what he calls *structure removal*).⁷⁹

5.5. Summary

The insight that labeling and deletion are closely related with each other led us to propose the

⁷⁸ This implies that identity conditions for ellipsis undergo checking in the process of Transfer. It appears to be valid to assume that syntactic identity is checked at Transfer, because phrase structures are visible at that timing. However, it remains to be seen how semantic identity can be checked before the semantic component. This problem is left to future research.

⁷⁹ In this approach, however, the LF component receives no syntactic structures; we are therefore required to clarify how the meaning of elliptical parts is recoverable without them. We leave this issue to future research, but readers are referred to Dalrymple et al. (1991), Hardt (1992), Hendriks and de Hoop (2001), Jacobson (1992), and Oku (1998) for relevant discussions.

following:

- (i) The labeling analysis can provide a principled explanation to the question of why ellipsis in general involves the deletion of the complement.
- (ii) Minimal Computation is one factor that induces ellipsis, because the configuration of {H, XP} is best suitable for executing Minimal Search.
- (iii) Ellipsis is inextricably linked to deaccentuation in that each of them reduces the burden of computation.
- (iv) Elided expressions have no phrase structures, because deletion is definable as a Transfer operation.

Since the view of labeling by deletion can be motivated by the independent factor from the contexts of negation, the discussion presented here underpins our deletion-based proposals in Chapter 3 and Chapter 4.

Chapter 6: Conclusion

6.1. Summary

In this thesis, we focused on the formal properties of NCIs and n-words, and showed that they can be obtained from the mechanism of labeling. In so doing, it was proposed that deletion is a new labeling option. This provided a simple answer to the potential issue that involves the short answer with NCIs and a theoretical basis to the generalization by Lobeck (1990, 1995). Below, we briefly summarize the contents of each chapter.

Chapter 3 took up negative doubling and argued that the major properties of NCIs are derived from the Labeling Algorithm. Specifically, we proposed that the presence of an unlabeled structure requires sentential negation to appear in the same clause as NCIs, and that deletion can resolve such a labeling problem without inserting the negation marker into the derivation. Besides, we claimed that NCIs are headed by negation, on the grounds that they involve the indeterminate system. It was then demonstrated that the internal structure resists labeling by φ -feature sharing by request from Minimal Head-Detection.

Chapter 4 turned to the duality of n-words and their preverbal-postverbal asymmetry. As for the former, we claimed that the functional nature provides n-words with the hybrid status between NQs and NPIs, which offered theoretical support to the lexical ambiguity hypothesis of Herburger (2001). As for the latter, we proposed that such an asymmetry can be obtained from labeling, based on the assumption that n-words are flatly structured (i.e. two kinds of formal features are available for labeling). The chapter also dealt with the exceptive constructions in Japanese, which we argued involve two different derivations, on the grounds that *sika*-phrases are irrelevant to the meaning of negation. It was then shown that their syntactic properties can be accounted for by the deletion-based labeling view.

Chapter 5 elucidated the formal relation between ellipsis and labeling to provide independent evidence for labeling by deletion. Specifically, we maintained that labeling lies behind the reason

why ellipsis in principle involves the deletion of the complement. We also proposed that Minimal Head-Detection requires ellipsis to have the {H, XP} configuration to a maximum extent, and that one factor for ellipsis is reducible to Minimal Computation. The presented view of deletion led to a theoretical implication that ellipsis is structural deletion, because it is an operation that happens at Transfer.

6.2. Future Research

Before closing the thesis, we take up three remaining issues, one of which concerns the EPP. In Chapter 4, we proposed that when n-words undergo movement to Spec, NegP for labeling, ν is displaced to T at PF in order to salvage the otherwise unsatisfied EPP. Crucially, this predicts that subject NCIs always appear postverbally, because the EPP should require the movement from ν to T in the derivations as well. The prediction is not borne out, however, as shown below.

(1) Serbo-Croatian:

Niko ne poznaje Marij-u.
no-one not knows Mary-Acc
'No one knows Mary.'

(Progovac 1994: 35)

In (1), ν does not undergo movement to T, since it comes after the negation marker. Why does such a difference arise between NCIs and n-words? Our speculation here is that linguistic variations are allowed at PF. The recent literature of minimalism proposes that natural languages are uniform at Narrow Syntax, and that linguistic variations are restricted to the PF component of grammar (or externalization) (see e.g. Berwick and Chomsky 2011). See the following quotation from Berwick and Chomsky (2011: 37-38):

“Externalization is not a simple task. It has to relate two quite distinct systems: one is a sensorimotor system that appears to have been basically intact for hundreds of thousands of years; the second is a newly emerged computational system for thought, which is perfect insofar as the strong minimalist thesis is correct. We would expect, then, that morphology and phonology—the linguistic processes that convert internal syntactic objects to the entities accessible to the sensory-motor system—might turn out to be quite intricate, varied, and subject to accidental historical events. Parameterization and diversity, then, would be mostly—possibly entirely—restricted to externalization. That is pretty much what we seem to find: a computational system efficiently generating expressions interpretable at the semantic–pragmatic interface, with diversity resulting from complex and highly varied modes of externalization, which, furthermore, are readily susceptible to historical change.”

Given this conjuncture, the EPP does not have to be a universal constraint, since it can be satisfied at PF. Then, it would be possible for NCI-languages to be exempted from the EPP. This view can tentatively provide an explanation for the immobility of *v* in (1), but further discussion on the EPP is left to future research.

The second problem concerns the modifiability of postverbal n-words by expressions such as *almost*. This is shown in (2).

- (2) **No** he visto *casi* **nada**
 not have.1sg seen almost nothing
 ‘I have seen almost nothing’

(Déprez 2000: 308)

In (2), since n-words appear as NPIs under our approach, it is incorrectly predicted that *casi* cannot

modify *nada*. In this regard, we would like to pay attention to Herburger (2001), in which she cites Horn's (to appear) observation that such a modification is indeed possible. See the following data:

(3) a. I don't think there's a jury almost anywhere in this country that would convict the President on this if he would come clean.

b. I've never been part of anything like this. I am not a rabid fan of almost anything.

(Herburger 2001: 315)

Given the facts in (3), Herburger (2001: 315) notes that "it is no longer clear that modification by approximatives is a good diagnostic for universal rather than existential quantification." If it is on the right track, (2) does not pose a serious problem on our analysis. It should be noticed, however, that just providing counterexamples is not sufficient to defend the presented theory. It is a topic to future research to tackle the issue about the (in)modifiability of n-words by *almost*.

The last problem is about the Japanese exceptive construction. We have seen in Chapter 4 that the exceptive expressions behave differently from NCIs in that they cannot be used as a fragment answer. However, it has been occasionally observed in the literature (e.g. Kuno 1995; Miyagawa et al. 2016) that they can appear in some elliptical contexts. An example is given in (4).

(4) Q: Okinawa-de-wa haru-to natu(-ni) oyog-eru no?

Okinawa-in-Top spring-and summer(-in) swim-can Q

'Can you swim in spring and summer in Okinawa?'

A: (Iya,) natu(-ni)-sika.

no summer(-in)-SIKA

'No, only in summer.'

(Miyagawa et al. 2016: 9)

Since ν P-deletion for obtaining the short answer yields a problem for TP-deletion, our analysis fails to explain the acceptability of (4A).

We would like to mention here that whether *sika*-phrases can be used as a short answer (largely) depends on to what extent possible answers are restricted. Namely, when a given context allows many of answers to be used, the exceptive expressions cannot provide the short answer; they can occur in the elliptical context, when possible answers are limited to a large extent. It seems to be for this reason that the contexts such as (4) that allow *sika*-phrases to appear involve yes/no-questions. It is worth recalling at this point that the elliptical contexts which do not allow the occurrence of the exceptive materials involve *wh*-questions. The example is repeated below.

(5) Q: Dare-ga kita no?

who-Nom came Q

‘Who came?’

A: ***John-sika.**

John-SIKA

‘(Int.) Only John.’

Under our speculation, it is impossible for *John-sika* to appear in (5A), because (5Q) allows a lot of answers to be used.⁸⁰ This view seems to be promising, but we leave it to future research to consider how it is compatible with our deletion-based account.

⁸⁰ However, see Miyagawa et al. (2016) for data showing that even yes/no-questions give rise to unacceptability, when *sika*-phrases are used as a short answer.

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