

Stony Brook University



OFFICIAL COPY

The official electronic file of this thesis or dissertation is maintained by the University Libraries on behalf of The Graduate School at Stony Brook University.

© All Rights Reserved by Author.

Some Interactions of Focus and Focus Sensitive Elements

A Dissertation Presented

by

Tomoko Kawamura

to

The Graduate School

in Partial Fulfillment of the

Requirements

for the Degree of

Doctor of Philosophy

in

Linguistics

Stony Brook University

August 2007

Stony Brook University

The Graduate School

Tomoko Kawamura

We, the dissertation committee for the above candidate for the degree of

Doctor of Philosophy

Hereby recommend acceptance of this dissertation

**Richard K. Larson, Ph.D. Dissertation Advisor
Professor, Department of Linguistics**

**Daniel L. Finer, Ph.D. Chairperson of Defense
Professor, Department of Linguistics**

**Heejeong Ko, Ph.D.
Assistant Professor, Department of Linguistics
Lecturer, Department of Linguistics, Seoul National University**

**Marcel den Dikken, Ph.D.
Professor, Department of Linguistics, CUNY Graduate Center**

This dissertation is accepted by the Graduate School

**Lawrence Martin
Dean of the Graduate School**

Abstract of the Dissertation

Some Interactions of Focus and Focus Sensitive Elements

by

Tomoko Kawamura

Doctor of Philosophy

in

Linguistics

Stony Brook University

2007

It has been observed that focus affects the meaning of the sentence; different statements of surprise, different assertions, and different inquiries are expressed simply by shifting the position of focus. This indicates that the meanings of a sentence are determined by more than combinations of the meaning of lexical elements. This dissertation examines how focus contributes to the meaning of the sentence, exploring a compositional analysis of focus. Specifically, I investigate syntactic structures of focus constructions and their mappings to logical representations.

According to Herburger (2000), focus imposes structure on event quantification, where the focused elements are interpreted in the scope of the event quantifier, and background information expressed by unfocused elements restricts the event quantifier. I extend this structured event quantificational analysis, arguing that focus introduces an additional event quantifier and an \mathfrak{R} -

predicate which relates the original event and the event introduced by focus. This analysis explains otherwise mysterious entailment patterns found in *cause*-constructions. I then propose a syntactic structure of focus constructions, adopting Larson's (2002) mapping system of quantifiers, and examine how focus association takes place. Among several focus sensitive elements, I specially discuss negation and frequency adverbs (*always, mostly, usually*), which induce ambiguity in focus constructions, yielding a focus-associated reading and a non-associated reading, and examine the mechanism and conditions of association with focus.

Based on the analysis of focus association, I discuss *because*-constructions and their interrogative forms, *why*-questions. I show that adverbial *because*-clauses not only behave as a focused element, but also associate with other focused elements. I propose that when it acts as a focus sensitive element, the *because*-phrase and the focused element form a syntactic and semantic unit. The focus sensitive property of the *because*-clause is preserved and inherited in its interrogative forms, and hence the answers to *why*-questions are affected by the position of focus. I suggest that *why*-questions quantify over predicates and explain focal effects on the interpretation of *why*-questions by arguing that the focused element and the predicate variable form a constituent in focus sensitive *why*-questions. I show that this analysis explains several unique properties of *why*-questions observed cross-linguistically.

Table of Contents

List of Tables	ix
Acknowledgement	x
Chapter 1: INTRODUCTION	1
1.1. Several Types of Focus	4
1.2. Outline of the Thesis	12
Chapter 2: ANALYSES OF FOCUS	15
2.1. Interpretation of Focal Constructions	16
2.1.1. Structured Meaning Semantics	16
2.1.2. Alternative Semantics	19
2.1.3. Quantificational Approach	23
2.2. Structured Event Quantification	29
2.3. \mathfrak{R} -relation	37
2.3.1. A Puzzle of Adverbial Modification	37
2.3.2. Some Discussion on the \mathfrak{R} -relation	44
2.4. Mapping from Syntax to Semantics	46
2.4.1. Syntax of the Structured Quantifiers	47
2.4.2. Focus Projections	57
2.5. Focus Sensitive Elements and Association with Focus	67

Chapter 3:	NEGATION AND FREQUENCY ADVERBS	72
3.1.	Negation and Focus	73
3.1.1.	Logical Negation and Meta-linguistic Negation	73
3.1.2.	Association with Focus	75
3.1.3.	Negative Polarity Items in Negated Focal Constructions	88
3.1.4.	NPI-connectivity in Specificational Pseudo-clefts	92
3.2.	Frequency Adverbs and Focus	105
3.2.1.	Association with Focus and Ambiguity	105
3.2.2.	Bound and Free Readings in Clefts	112
3.2.3.	Some Discussion of <i>Only</i>	115
3.2.3.1.	<i>Only</i> as an Event Quantifier	115
3.2.3.2.	Secondary Occurrence Focus	119
3.2.3.3.	Adverbial and Adnominal <i>Only</i>	121
3.3.	Summary	125
Chapter 4:	<i>BECAUSE</i> -CLAUSE AS A FOCAL ELEMENT AND AS A FOCUS SENSITIVE ELEMENT	127
4.1.	The <i>Because</i> -clause as a Focal Element	127
4.1.1.	Two Readings of Negated <i>Because</i> -constructions	127
4.1.2.	Correlation between the Information structure and the Ambiguity	129
4.1.3.	Logical Representation and Syntactic Structure	134
4.1.4.	Focal Analysis of the Ambiguity	138

4.1.5.	Evidence from Cross-linguistic Data	143
4.1.6.	<i>Because</i> -clause and Frequency Adverbs	145
4.2.	<i>Because</i> -clause as a Focus Sensitive Element	153
4.2.1.	Focus Sensitivity of <i>Because</i> -clause	154
4.2.2.	Syntactic Structure	157
4.2.3.	PF-position of the Focus Sensitive <i>Because</i> -clause	160
4.2.4.	Non-Focus Sensitive Reading	165
4.2.5.	Focus Sensitivity of Other Adverbial-clauses	167
4.3.	Summary	169
Chapter 5:	FOCUS SENSITIVE <i>WHY</i> -QUESTIONS	171
5.1.	Interpretation of <i>Why</i> -questions	173
5.1.1.	Logical Representations	173
5.1.2.	Answers of <i>Wh</i> -questions	177
5.1.3.	Implicature Patterns	180
5.1.4.	<i>Why</i> -questions with Secondary Occurrence Focus Structure	182
5.2.	Syntactic Structure of Focus Sensitive <i>Why</i> -questions	185
5.2.1.	Simple <i>Why</i> -questions	185
5.2.2.	Focus Sensitive <i>Why</i> -questions	190
5.2.3.	<i>Why</i> -questions with a Secondary Focused Element	195
5.3.	Consequences	196
5.3.1.	Japanese Combination Clefts	197
5.3.2.	Italian <i>Perché</i> -questions	200

5.4.	Remaining Questions	204
5.4.1.	Intervention Effects and Anti-superiority Effects	204
5.4.2.	<i>How-come</i> and <i>For-what-reason</i>	208
5.4.3.	Bare-binary Combination Constructions and Acquisition of <i>Why</i>	212
5.5.	Summary	213
	References	215

List of Tables

Table 1. Common Ground

Table 2. Focus Sensitive Elements

Acknowledgements

I would like to thank all the people that helped me writing this dissertation. I could not finish writing, actually, even start writing this dissertation without their help.

I first would like to thank the members of my dissertation committee. My adviser Richard Larson was very patient and constantly encouraged me. Whenever I encountered a research and non-research problems, he changed problems to attractive puzzles and showed me how to enjoy the challenges. I appreciate Dan Finer, Marcel den Dikken and Heejeong Ko for their incisive and valuable insights and comments to the previous versions of this dissertation.

Thanks to people in the linguistics department at Stony Brook. Alice Harris, and Mark Aronoff made my life at Stony Brook easier and comfortable. Ellen Broselow and John Bailyn, Edith Aldridge boarded my research interest. Sandra Brennan made my life as a graduate student stress-free with her continuous support and big smile. Susan Mitchell and Diane Pescatore helped bureaucratic issues. The fellow students, Yukiko Asano, Carlos de Cuba, Franc Marušič, Jonathan MacDonald, Marianne Borroff, Ruiqin Miao, Andrei Antonenko, Yunju Suh, Susana Huidobro, Jiwon Hwang, Mi Ran Kim, Chih-hsiang Shu, Katharina Schuhmann, Yu An Lu, and all others helped me a lot and brought great fun to my life at Stony Brook. I also thank to teammates of the AFC soccer team to make my life healthy both mentally and physically.

I appreciate linguists who helped me working on focus and related issues. Mamoru Saito, Elena Herburger, and Naomi Harada constantly helped me and showed how interesting and complex human languages are. Anna Szabolcsi, Satoshi Tomioka, Shigeru Miyagawa, Aritz Irurtzun, Joachim Sabel, Yasuaki Abe, Akira Watanabe, and many others, inspired new ideas and it was great fun talking about linguistics with them.

People who are not in linguistics also helped me a lot. I appreciate Francisco Javier Alvarez for his great patience, and Sho Kataoka for his advice. My sister, Keiko Hasegawa, always made me laugh and reminded me that life is fun. And last but not least, I would like to thank my parents, Masuhiko Kawamura and Kazuyo Kawamura for their love and their support that they showed to me in many ways. Thanks to their understanding and warm encouragement, I could do and learn what I didn't even dream that I could.

CHAPTER 1

INTRODUCTION

In spring 2003, Noam Chomsky gave a weekly seminar at Stony Brook. The plan was announced approximately one year in advance and was a great surprise to the graduate students in the Linguistic department. The following utterances express some reactions, where capitals indicate focus.

- (1) A: CHOMSKY will give a weekly seminar at Stony Brook next spring!
B: Chomsky will give A WEEKLY SEMINAR at Stony Brook next spring!
C: Chomsky will give a weekly seminar AT STONY BROOK next spring!
D: Chomsky will give a weekly seminar at Stony Brook NEXT SPRING!

The speaker A expresses his surprise at the fact that Chomsky is the one who give the seminar. There will presumably be various "weekly seminars at Stony Brook next spring"; he is pleased at the fact that the seminar will be by Chomsky. The speaker B is excited by a different point. He is surprised at the fact that Chomsky's lecture format will be a weekly seminar. Perhaps the speaker anticipated that Chomsky would come for one or two large-class setting lectures, but didn't think that it would be a small class setting weekly seminar. The speaker C is not surprised at the fact that Chomsky will offer a weekly seminar; weekly seminars by Chomsky are a common place at MIT at that time. Rather, this speaker is surprised by the fact that Chomsky's seminar will be offered at his home institution: Stony Brook. Finally, the speaker D is pleased with the fact that

Chomsky's lecture is not scheduled for the future, but rather in the near future. The four versions of *Chomsky will give a weekly seminar at Stony Brook next spring* are used to express different surprise, showing that focus contributes crucially to the interpretation of the sentence.

It has been observed that some elements tend to associate with focus and that, with these elements, the meaning of the sentence heavily relies on the position of focus. Negation is one of those elements.

- (2) a. We do **not** cover PRAGMATICS in the lecture this semester.
- b. We do **not** cover pragmatics IN THE LECTURE this semester.
- c. We do **not** cover pragmatics in the lecture THIS SEMESTER.

(2a) expresses that the lecture of this semester covers other fields of linguistics, but not pragmatics. (2b), on the other hand, expresses that pragmatics is covered in the discussion sessions, homework, and exams, but not in the lecture. Finally, (2c) states that the lecture usually covers pragmatics, but not this semester. Although the same string of words is used, (2a)-(2c) express different information.

Moreover, there are cases where the focus position even affects the truth value of the sentence. When a frequency adverb appears in the sentence, the focus position is important to decide the truth value. The following are some examples from Rooth (1985).

- (3) a. In Saint Petersburg, officers **always** escorted BALLERINAS.
- b. In Saint Petersburg, OFFICERS **always** escorted ballerinas.

(3a) asserts that whenever officers escort someone, they escort ballerinas. (3b) asserts that whenever ballerinas are escorted, they are escorted by officers. If an

officer escorts someone who is not a ballerina, (3a) is false, while (3b) is true. In the situation where someone who is not an officer escorts some ballerinas, then (3a) is true, but (3b) is false.

Information of focus is important not only to interpret declarative sentences, but also to answer interrogative sentences appropriately. Bromberger (1991) observes that focus shift in *why*-questions affects their answers.

(4) a. **Why** did JOHN report the accident to the police yesterday?

-- Because he was the victim of the accident.

b. **Why** did John report the accident TO THE POLICE yesterday?

-- Because only the police can issue the proof.

c. **Why** did John report the accident to the police YESTERDAY?

-- Because he was unconscious last week.

(4a) asks the reason for John being the reporter. Its answer should explain why John is the agent of the reporting event. (4b) asks the reason for the police being the recipient of the report and (4c) asks the reason for the timing being yesterday. The appropriate answer to one question is not appropriate for another.

Thus, we can express different surprise, different assertions, different truth conditions, and different inquires only by shifting the position of focus. This fact indicates that the meanings of the sentence are determined more than combination of the meaning of lexical elements. According to Frege's Principle of Compositionality, the meaning of a complex expression is determined by its internal structure and the meanings of its parts. Does this imply that we cannot analyze the sentences with focus compositionally and we need some independent mechanism for the interpretation of focus? In this thesis, I pursue the idea of

compositionality and explore a compositional analysis of focus, investigating syntactic structures of focus constructions and their mapping to the logical representations. I begin by clarifying what I mean "focus".

1.1. Several Types of Focus

Researchers agree that "focus" concerns informational structure, but the term "focus" has been used in the literature in different ways to describe different phenomena. In successful communication, the participants of the conversation share a certain amount of information which may be called "the common ground". Utterances typically contain old information, which is already in the common ground, and new information, which is new to the common ground. The information within the common ground is sometimes called "psychological focus" (Bosch 1988, Gundel 1999), since that information may be viewed as having the attention of the speech participants. In the common ground, old information is categorized under several "topics". A topic tells us what the sentence is about (Reinhart 1981) and it functions rather like an index card for the common ground, specifying where new information should be stored (Vallduví 1990).

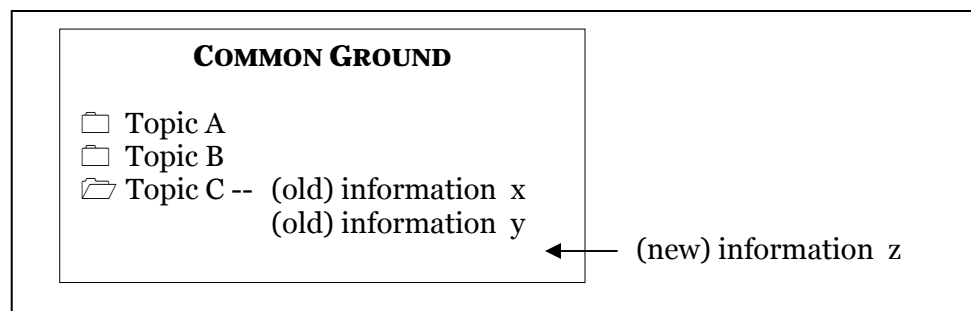


Table 1: Common Ground

A simple case is illustrated in (5).

(5) A: What did you buy on 59th street?

B: On 59th street, I bought THE SHOES. (Büring 1999)
TOPIC NEW INFORMATION

In utterance (5B), the phrase *on 59th street* specifies what the rest of the sentence is about and the new information *the shoes* is stored in the common ground under the file "on 59th street".

In real conversation, the situation might well be more complex. Sometimes the topic is intentionally shifted from the one given in the previous discourse, as found in (6).

(6) A: Do you think that Fritz would buy this suit?

B: Well, I certainly WOULDN'T. (Büring 1999)
TOPIC NEW INFORMATION

The topic may also be narrowed from the topic given in the previous discourse. In (7), the file "Bill's sister" has a sub-file called "youngest" and the new information *John* is stored in that sub-file.

(7) A: What did Bill's sisters do?

B: Bill's youngest sister KISSED JOHN. (Krifka 1991)
TOPIC NEW INFORMATION

Finally, a speaker may take over the topic of the previous discourse, but actually implicate a different topic. (8B) implies that the speaker A's wife or someone else's wife kissed other men.

(8) A: Did your wife kiss other men?

B: My wife DIDN'T kiss other men. (Büring 1999)
TOPIC NEW INFORMATION

Büring (1999) considers that these are special types of topics, calling "contrastive topic" for (6), "partial topic" for (7) and "purely implicational topic" for (8), whereas others sometimes call them "contrastive focus" (Gundel 1999).

Turning now to the information outside of the common ground, new information corresponds to what linguists usually call "focus" (Chomsky 1971, Jackendoff 1972, Rooth 1985, de Swart and de Hoop 1995, Hajičová, Partee and Sgall 1998 and others). It is also called "rheme" (Vallduví and Vilkuna 1998), "presentational focus" (Rochemont 1986, Drubig 2000), "semantic focus" (Gundel 1999), or "informational focus" (Kiss 1998). Typically, answers to *wh*-questions provide new information, so answer to *wh*-questions usually contains focused material.

(9) A: What did John buy with his grant?

B: He bought A COMPÚTER with his grant.
NEW INFORMATION/FOCUS

Focused elements are typically prominent in ways that attract hearer's attention to the new information. They may be marked phonologically, morphologically or syntactically. In (9), the object *a computer* provides new information and in natural conversation, it is marked phonologically with the main stress of the sentence. The focus might also be marked syntactically, using a cleft construction.

(10) It was A COMPUTER that John bought with his grant.
NEW INFORMATION/FOCUS

Some languages have a designated position for focus. In Spanish, focused elements appear in sentence final position, while the canonical word order is SVO.

- (11) A: Quién compró el periódico ayer?
 who bought the newspaper yesterday
 'Who bought the newspaper yesterday?'
 B: Ayer compró el periódico **JUAN**.
 yesterday bought the newspaper Juan
 'JUAN bought the newspaper yesterday.' (Büiring 2006)

In Hausa, an SVO language, the focused element appears at the sentence initial position.

- (12) **TEELÀ** Binta zaa tà biyaa.
 tailor Binta fut. 3sg.f. pay
 'Binta will pay the TAILOR.' (Hartmann and Zimmermann, 2004)

The focused element may be marked morphologically with a focus marking particle. In Chickasaw (a Western Muskogean language), the focused arguments have *-akot/-akō*.

- (13) hat:ak-at KONI-**akō**: pisa.
 man-sub skunk-Foc.obj sees
 'The man sees THE SKUNK.' (Büiring 2006)

Another case of morphological marking is found in Tupuri, a language spoken in Niger-Congo. In Tupuri, focus may be marked by reduplication (14).

- (14) A **JUUUU** gi, a ri súu ga.
 he drink-drink he ate yesterday neg
 'He DRANK, but he didn't eat yesterday.'
 (Hartmann and Zimmermann 2004)

While focus can be realized in several different ways, Kiss (1998) observes that some special semantic properties are added when it is marked syntactically. In Hungarian, focused elements may appear in-situ with phonological prominence (15a), or pre-verbally, the designated focus position (15b).

(15) a. Mari ki nézett magának EGY KALAPOT. [phonological realization]

Mary out picked herself.acc a hat.acc

'Mary picked for herself A HAT.'

b. Mari **EGY KALAPOT** nézett magának. [syntactical realization]

Mary a hat.acc picked herself.acc

'It was a hat that Mary picked for herself.'

According to Kiss, the in-situ focused element in (15a) presents merely new information, but the focused element in the pre-verbal position in (15b) expresses exhaustive identification. She confirms the presence of exhaustiveness in (15b) using tests provided by Szabolcsi (1981). Logically, if *Mary picked a hat and a coat* is true, then *Mary picked a hat* must be true given the conjunction. However, when something forces the exhaustiveness of the object, the truth of the second sentence does not follow from the truth of the first sentence.

(16) a. Mary picked a hat and a coat. b. Mary picked a hat and a coat.

Mary picked a hat.

Mary picked only a hat.

Now, in (17), focus is realized phonologically and the logical entailment of conjunction is observed.

(17) a. Mari ki nézett magának [EGY KALAPOT] ÉS [EGY KABÁTOT].

Mary out picked herself.dat a hat.acc and a coat.acc

'Mary picked A HAT AND A COAT for herself.'

b. Mari ki nézett magának [EGY KALAPOT].

Mary out picked herself.acc a hat.acc

'Mary picked for herself A HAT.' (Kiss 1998)

When (17a) is true, (17b) is true. This indicates that phonologically marked focus does not have the property of exhaustive identification. Contrary, when focus is marked syntactically, the logical entailment of conjunction disappears.

(18) a. Mari [**EGY KALAPOT**] **ÉS** [**EGY KABÁTOT**] nézett magának.

Mary a hat.acc and a coat.acc picked herself.acc

'It was a hat and a coat that Mary picked for herself.'

b. Mari [**EGY KALAPOT**] nézett magának.

Mary a hat.acc picked herself.acc

'It was a hat that Mary picked for herself.' (Kiss 1998)

Kiss observes that when (18a) is true, (18b) is always false. This shows that when focus is realized syntactically, focus adds some exhaustive meaning. She calls this second type of focus "identificational focus" (Drubig (2000) calls it "exhaustive focus") and distinguishes it from the regular (informational) focus, which expresses merely new information.

Identificational focus is not limited to Hungarian and it is also found in English. When cleft constructions are used, the exhaustive meaning is added to the focused element. (19a) and (19b) do not share the same meaning.

(19) a. Mary picked A HÁT. [phonological realization]

b. It was **A HAT** that Mary picked. [syntactic realization]

If Mary picked both a hat and a coat, (19b) is false, whereas (19a) is true. Kiss (1998) observes that a similar distinction is found in Rumanian, Italian, and

Catalan. Focus in these languages may be realized phonologically or syntactically, and the syntactically realized focus is regarded as identificational focus. Unlike Hungarian and English, however, Kiss claims that identificational focus in these languages is not only exhaustive, but also contrastive, requiring a closed set of individuals for interpretation (Drubig (2000) calls this type "contrastive focus"). She observes that the sentence with syntactically marked focus can be used as the answer of *which*-type questions, but not as the answer of open domain *wh*-questions. (20) is an Italian example of *which*-type questions and (21) is an example of open domain *wh*-questions.

(20) A: **Chi di voi due** ha rotto il vaso?

which of you two has broken the vase

'Which of you two broke the vase?'

B: **MARIA** ha rotto il vaso.

Maria has broken the vase

'It was MARIA who broke the vase.'

(21) A: **Chi** ha rotto il vaso?

who has broken the vase

'Who broke the vase?'

B: **#MARIA** ha rotto il vaso.

Maria has broken the vase

'It was MARIA who broke the vase'

(Kiss 1998)

The *which*-type questions are discourse-liked (Petestky 1987) and it is used when the range of felicitous answers is presupposed. Thus (20A) presupposes a closed set of individuals who are under suspicion, and the speaker B chooses an

individual from the closed set. Thus the focused element in (20B) is contrastive and it can be marked syntactically. In (21), the speaker of B chooses an individual from an open set. The focused element in (21B) is not counted as contrastive and it cannot be marked syntactically. These cases show that new information may be categorized in several types depending on how it is marked. In some languages, when focus is marked syntactically, it receives [+exhaustive] and/or [+contrastive] meanings as "identificational focus".

As we have seen so far, the term "focus" has been used to express several different notions. In this dissertation, I use the term "focus" for new information, following Chomsky (1971), Jackendoff (1972), de Swart and de Hoop (1995), and many other linguists. One type of new information I will not discuss in this dissertation is the one called "verum focus", which asserts the truth polarity of the sentence (Hoehle 1992).

(22) A: I wonder whether Mary has defended her dissertation.

B: She HAS defended her dissertation.

The speaker A does not know the truth value of "Mary has defended her dissertation" and the speaker B provides its truth-value to the common ground as new information. Similarly, negation may get the main stress, asserting the false value of the sentence.

(23) A: I wonder whether Mary has defended her dissertation.

B: She hasN'T defended her dissertation yet.

Modals and frequency adverbs may receive the main stress of the sentence, as shown in (24B) and (25B) respectively.

(24) A: Can I start writing my thesis?

B: You **MUST** start writing it.

(25) A: John sometimes comes late to the meeting.

B: Well, John **ALWAYS** comes late to the meeting.

These cases are plausibly related to *verum focus*. *Verum focus* itself is an interesting phenomenon, especially in the connection with *yes-no* questions (Han and Romero 2004). However, I will not address this type of focus in this dissertation.

1.2. Outline of the Thesis

Given focus as new information, how does it contribute the meaning of the sentence, and can we calculate the meaning of focus constructions compositionally from their parts? In the chapters that follow I examine the effect of focus on the interpretation of the sentence, proposing a way of mapping from syntactic structures to logical representations, and discuss the interaction of syntactic phenomena with semantic interpretations.

Chapter 2 introduces several semantic analyses of focus and examines how sentence with focus can be logically represented. I discuss cases that were problematic to earlier analyses of focus and propose a revised analysis. I follow Herburger's (2000) basic idea that focus imposes a structure on event quantification, but I further expand it arguing that focus introduces an additional event quantifier and a predicate (\mathcal{F} -predicate) which relates the original event and the event introduced by focus. I then examine how the target logical representations are mapped from syntactic structures. According to Generalized

Quantifier Theory (Barwise and Cooper 1981, Keenan and Stavi 1983), quantifiers relate set predicates. Larson (1991) proposes a projection scheme for DP quantifiers, which allows mapping from a syntactic structure to the logical representation. I extend Larson's mapping system of DP quantifier to event quantifiers and propose a syntactic structure for focus constructions.

Chapter 3 examines how focus sensitive elements associate with focus. While many focus sensitive elements have been observed in the literature, I specially discuss negation and frequency quantifiers (*always, mostly, usually, sometimes* etc.). The well-discussed typical focus sensitive elements, such as *only, even, also, and either-or*, always require association with focus and if they do not associate with focus, the sentences are ungrammatical. Negation and frequency adverbs, however, are distinctive from this type and allow an option of not associating with focus. Thus, focus constructions with negation or frequency adverbs are usually ambiguous with a focus-associated reading and a non-associated reading. These cases are ideal to examine the mechanism and conditions of association with focus. I first discuss several readings of negated focus constructions, propose a syntactic requirement for association with focus, and examine some interaction between focus association and NPI licensing. I then discuss the readings of focus constructions with frequency adverbs showing how frequency adverbs associate with focus when they do.

Chapter 4 concerns adverbial *because*-clauses. Sentences with a post-verbal adverbial *because*-phrase are interesting in two respects: i) adverbial *because*-phases behave like focused elements, though they are phonologically or syntactically unmarked for this, and ii) adverbial *because*-clauses may themselves

associate with other focused elements in the sentence, as a focus sensitive element. Thus, adverbial *because*-clauses behave like a focused element and simultaneously, they sometimes function as a focus sensitive element. I first show that post-verbal adverbial *because*-phrases express the main assertion of the sentence. I also demonstrate that the focus sensitive elements discussed in chapter 3 associate with the *because*-clause, as if the latter is itself focused. I then discuss the focus sensitive property of the *because*-clause. I show that the *because*-clause associates with other focused element and the interpretation of the sentence with a *because*-clause is affected by the position of focus. I propose the semantic and syntactic analysis of focus sensitivity of *because*-clauses.

Based on the analysis of adverbial *because*-clause in chapter 4, I discuss *why*-questions in chapter 5. The focus sensitive property of *because*-clause is inherited in *why*-questions and the answer of *why*-question is affected by the position of focus. Proposing that *why*-questions quantify over predicates, I explain focus effects on the interpretation of *why*-questions. Furthermore, comparing English *why*-questions and corresponding Japanese questions, I argue that the predicate variable and the focused element form a constituent syntactically in focus sensitive *why*-questions. Finally, I examine causal-questions cross-linguistically and observe several systematic peculiarities that distinguish them from other types of *wh*-questions. I show that some of these peculiarities are explained under an analysis in which the predicate variable and the focused element form a syntactic unit.

CHAPTER 2

ANALYSES OF FOCUS

In generative grammar, knowledge of language is taken to consist of several different modules, whose interaction (along with other factors) yields actual linguistic performance. Among the modules relevant to linguistic performance, semantics provides a system that assigns meaning to a sentence, and pragmatics calculates context-related elements that determine whether that sentence is used in the appropriate way. To see the difference between semantics and pragmatics, consider the following example:

(1) A: Everyone was expected to submit a paper by last Monday.

When did John submit his paper?

B: a. John submitted his paper YESTERDAY.

b. JOHN submitted his paper yesterday.

Pragmatics is in charge of choosing (1Ba) over (1Bb) as a natural continuation of (1A). To evaluate the appropriateness, however, we first need to know how each of (1Ba) and (1Bb) is interpreted. Semantics is responsible for this task and assigns logical representations to each sentence. In this chapter, I discuss semantics of focus, examining how a sentence with focus is described logically and how that logical representation is derived with the information in the syntax module.

2.1. Interpretation of Focal Constructions

To interpret a sentence with focus, we must divide the sentence into old and new information. Many different separation schemes have been proposed in the literature, but they fall into three major types: 1) Structured Meaning Semantics, 2) Alternative Semantics, and 3) Quantificational Approach. I adopt the Quantificational Approach in this dissertation, but I introduce all types in this section.

2.1.1. Structured Meaning Semantics

Jackendoff (1972) considers that focused element has a focus feature to trigger creation of a new predicate-argument structure. He proposes that the sentence with a focused element has a presupposition set, which is formed by replacing the focused element with a variable bound by a lambda operator.¹

(2) John introduced MARY to Tom.

Presupposition-set: λx (introduce (John, x , Tom))

This presupposition-set expresses a set of individuals which are introduced by John to Tom. The sentence asserts that Mary is an element of this set as in (3).

(3) Assertion: $Mary \in \lambda x$ (introduce (John, x , Tom))

The presupposition-set functions like a one-place predicate with the focused element as its argument. This (psychological) predicate-argument structure is created based on the distinction of old vs. new information, independently from the argument structure of the predicate *introduce*.

¹ Throughout this dissertation, I ignore tense in the logical representations.

- (8) a. JOHN [t criticized his mother]
 ↑
 b. * JOHN [his mother criticized t]
 ↑

(8a) and (8b) are parallel to (4a) and (4b) respectively and according to Chomsky, they are mapped to the following logical representations:

- (9) a. the x such that $\mathbf{x_{vbl}}$ criticize $\underline{x_{pronoun}}$'s mother – is John.
 b. #the x such that $\underline{x_{pronoun}}$'s mother criticize $\mathbf{x_{vbl}}$ – is John

With these representations, the unacceptability of (7b) is explained with the constraint in (6). In (9a), the variable (trace of created by focus movement) is the antecedent of the pronoun on its right, but in (9b), the variable is the antecedent of the pronoun on its left. Thus, (7a) is acceptable, but (7b) is not. The presence of weak crossover effect in (7b) indicates that the focused phrase move syntactically just like *wh*-phrases.

If the focused element moves, the presupposition set can be derived straightforwardly. The non-focused elements form a constituent as a remnant of focus movement. This constituent can be regarded as a one-place predicate, as illustrated in (10).

- (10) a. MARY [John introduced t to Tom]
 ↑
 b. MARY $\underline{\lambda x}$ (John introduced x to Tom)
 presupposition-set

Here, a new argument-predicate relation can be created by movement of the focused element. This predicate reconstruction approach has been further developed by Klein and von Stechow (1982), Jacobs (1983), Krifka (1991), and others.

2.1.2. Alternative Semantics

Rooth (1985, 1992, 1996) proposes another view of focus. He considers that focus introduces alternatives. For example, when we hear the sentence "John introduced MARY to Tom", several alternative sentences, for example, those in (11), come to mind. The hearer is expected to wonder why the target sentence is chosen.

- (11) Target sentence: John introduced MARY to Tom.
Alternatives: John introduced Lisa to Tom.
John introduced Bill to Tom.
John introduced Mary to Tom.
...

In his formal analysis, Rooth (1985, 1992) argues that sentences with a focused element have a focus semantic value, in addition to the ordinary semantic value. The focus semantic value is a set of propositions obtained by putting the alternatives in the position of the focused element. For example, *John introduced MARY to Tom* has the focus semantic value in (12b).

- (12) Target sentence: John introduced MARY to Tom.
a. $\llbracket \textit{John introduced MARY to Tom} \rrbracket^o = \textit{introduce (John, Mary, Tom)}$
b. $\llbracket \textit{John introduced MARY to Tom} \rrbracket^f = \{\textit{introduce (John, x, Tom)} \mid x \in E\}$,
where E is the domain of individuals.

(12a) represents the ordinary semantic value of the target sentence and (12b) represents the focus semantic value of the target sentence. If the domain E is $\{\textit{Lisa, Bill, Mary, John, Tom}\}$, the focus semantic value of *John introduced MARY to Tom* is as follows:

- (13) $\llbracket \text{John introduced MARY to Tom} \rrbracket^f = \{\text{introduce}(\text{John}, \text{Lisa}, \text{Tom}),$
 $\text{introduce}(\text{John}, \text{Bill}, \text{Tom}), \text{introduce}(\text{John}, \text{Mary}, \text{Tom}),$
 $\text{introduce}(\text{John}, \text{John}, \text{Tom}), \text{introduce}(\text{John}, \text{Tom}, \text{Tom})\}$

The sentence with a focused element is interpreted using both ordinary semantic value and focus semantic value, whereas the sentence without focus only has the ordinary semantic value.

The focus semantic value plays an important role especially in the interpretation of the sentence with *only*. The assertion of *only* ϕ is as follows:²

- (14) $\forall p [p \in \llbracket \phi \rrbracket^f \wedge \check{p} \rightarrow p = \llbracket \phi \rrbracket^o]$

The assertion of *John only introduced MARY to Tom* is then expressed as (15).

- (15) $\forall p [p \in \{\lambda x (\text{introduce}(\text{John}, x, \text{Tom})) \mid x \in E\} \wedge \check{p} \rightarrow p = \text{introduce}(\text{John},$
 $\text{Mary}, \text{Tom})]$

This logical representation says that if there is a true proposition which has the form *introduce* (*John*, α , *Tom*), then it must be *introduce* (*John*, *Mary*, *Tom*).

When the focus position shifts from *Mary* to *Tom*, then the different focus semantic value is assigned and consequently, the logical representation of the sentence with *only* has changed.

² Rooth's (1996) original rule is as follows:

- (i) *only* combining with a clause ϕ yields the assertion $\forall p [p \in \llbracket p \rrbracket^f \wedge \check{p} \rightarrow p = \llbracket \phi \rrbracket^o]$ and the presupposition p .

In my understanding of his approach, $\llbracket p \rrbracket^f$ should be $\llbracket \phi \rrbracket^f$. I consider that it is a typo and I use the revised one.

(16) Target sentence: John only introduced Mary to TOM.

$\llbracket \text{John introduced Mary to TOM} \rrbracket^o = \text{introduce}(\text{John}, \text{Mary}, \text{Tom})$

$\llbracket \text{John introduced Mary to TOM} \rrbracket^f = \{\lambda x (\text{introduce}(\text{John}, \text{Mary}, x)) \mid$

$x \in E\}$, where E is the domain of individuals.

(17) $\forall p [p \in \{\lambda x (\text{introduce}(\text{John}, \text{Mary}, x)) \mid x \in E\} \wedge \checkmark p \rightarrow$

$p = \text{introduce}(\text{John}, \text{Mary}, \text{Tom})]$

In (17), $\llbracket \phi \rrbracket^f$ and $\llbracket \phi \rrbracket^o$ in (14) are replaced with the focus semantic value and the ordinary semantic value in (16). The logical representation in (17) tells us that if there is a true proposition with the form *introduce (John, Mary, α)*, then it should be *introduce (John, Mary, Tom)*. Thus, by using the focus semantic values, we can represent two different logical forms correctly for the sentences with different focus positions.

Rooth (1985, 1996) argues that the focus semantic value may be assigned not only in the propositional level, but also in more local level. For example, we can assign the focus semantic values to $[\text{DP MARY}]$ and $[\text{VP introduce MARY to Tom}]$ as in (18) and (19) respectively, when the domain has the individuals Lisa, Bill, Mary, John, and Tom.

(18) $\llbracket \text{MARY} \rrbracket^o = \text{Mary}$

$\llbracket \text{MARY} \rrbracket^f = E$, the set of individuals = {Lisa, Bill, Mary, John, Tom}

(19) $\llbracket \textit{introduce MARY to Tom} \rrbracket^o = \lambda x (\textit{introduce} (x, \textit{Mary}, \textit{Tom}))$

$\llbracket \textit{introduce MARY to Tom} \rrbracket^f = \{\lambda x (\textit{introduce} (x, y, \textit{Tom})) \mid y \in E\}$, where E is the domain of individuals = $\{\lambda x (\textit{introduce} (x, \textit{Lisa}, \textit{Tom})), \lambda x (\textit{introduce} (x, \textit{Bill}, \textit{Tom})), \lambda x (\textit{introduce} (x, \textit{Mary}, \textit{Tom})), \lambda x (\textit{introduce} (x, \textit{John}, \textit{Tom})), \lambda x (\textit{introduce} (x, \textit{Tom}, \textit{Tom}))\}$

It is interesting to see how the focus semantic values are derived compositionally. According to Rooth, the focus semantic value of non-focused element is the unit set whose member is ordinary semantic value. Thus, the focus semantic values for each VP-internal lexical item are as follows:

(20) $\llbracket \textit{introduce} \rrbracket^f = \{\lambda z \lambda y \lambda x (\textit{introduce} (x, y, z))\}$

$\llbracket \textit{MARY} \rrbracket^f = \{\textit{Lisa}, \textit{Bill}, \textit{Mary}, \textit{John}, \textit{Tom}\}$

$\llbracket \textit{Tom} \rrbracket^f = \{\textit{Tom}\}$

Rooth proposes that the focus semantic value of the complex phrase, such as $\llbracket \textit{VP introduce MARY to Tom} \rrbracket$, is the set of things obtainable by functional application of the member of the focus semantic value of each component.³ Thus, using the $\llbracket \textit{introduce} \rrbracket^f$ and $\llbracket \textit{Tom} \rrbracket^f$ in (20), we can derive (21).⁴

(21) $\llbracket \textit{introduce to Tom} \rrbracket^f = \{\lambda y \lambda x (\textit{introduce} (x, y, \textit{Tom}))\}$

Using (21) and $\llbracket \textit{MARY} \rrbracket^f$ in (20), we can derive the semantic value of $\llbracket \textit{VP introduce MARY to Tom} \rrbracket$ as in (22), which is identical to the focus semantic value in (19).

³ Rooth's (1996) more technical definition is as follows:

(i) Let α be a non-focused complex phrase with component phrases $\alpha_1, \dots, \alpha_k$. and let Φ be the semantic rule for α , e.g. functional application. The focus semantic value of α is the set things obtainable as $\Phi(x_1, \dots, x_k)$, where $x_1 \in \llbracket \alpha_1 \rrbracket^f \wedge \dots \wedge x_k \in \llbracket \alpha_k \rrbracket^f$. (Rooth 1996)

⁴ I combine the goal phrase to the predicate before combining the direct object just for simplification.

- (22) $\llbracket \textit{introduce MARY to Tom} \rrbracket^f = \{\lambda x(\textit{introduce}(x, \textit{Lisa}, \textit{Tom})), \lambda x(\textit{introduce}(x, \textit{Bill}, \textit{Tom})), \lambda x(\textit{introduce}(x, \textit{Mary}, \textit{Tom})), \lambda x(\textit{introduce}(x, \textit{John}, \textit{Tom})), \lambda x(\textit{introduce}(x, \textit{Tom}, \textit{Tom}))\}$

Here, the focus semantic value of the complex expression is derived from the focus semantic values of its parts. This implies that we do not need syntactic focus movement to derive the interpretation under the approach of alternative semantics.⁵

2.1.3. Quantificational Approach

The third approach assimilates the old-new information distinction to the restriction-scope distinction of quantifiers. Quantificational expressions with restriction and scope are interpreted in two steps: 1) identify the domain of the quantificational expression with the information in the restriction and 2) evaluate the domain using the information in the scope.

- (23) Every bottle on the desk is empty.

$\llbracket \textit{every } x : \textit{bottle on the desk} (x) \rrbracket \textit{empty}(x)$
Q restriction scope

The restriction defines the domain of quantifier as *bottle on the desk* and the scope provides the description of those elements, namely being empty. Adopting the idea that the quantifier and its restriction act together as if they form a single quantifier (Gupta 1980), I use the standard bracketing notation to express the

⁵ To explain the Weak Crossover effect, Rooth (1985) argues that the focused element may adjoin to S (TP) to derive the bound reading. If it stays in-situ, the free reading is derived. Under the WCO configurations, movement of the focused element is blocked, and hence, the bound variable reading is not found in the WCO configurations. The focused phrase is interpreted in-situ, so the sentence only has the free reading.

restrictive quantifiers. The quantifier and its restriction appear inside of the brackets and its scope appears outside of the brackets. I use the bold brackets [] to distinguish it from the scope of negation, for which I use the simple brackets [], and the scope of the λ -operator, for which I use the curly brackets ().

The quantificational analysis of focus uses restrictive quantifiers for focus interpretation. When a sentence has both old and new information, the old information identifies what the sentence is about, which is very similar to what the restriction of quantifiers does, and the new information provides a comment on the old information, which corresponds to what the scope of the quantifiers does. Thus, intuitively, old information should appear in the restriction of some quantifier and new information should be in the scope of that quantifier.


(24) [Q: XP_{old information}] YP_{new information}
restriction **scope**

This correlation between the restriction-scope distinction and the old-new information distinction has been suggested from the investigation of adverbial quantifiers, such as *always*, *usually*, *often*, *sometimes*, and *never* by Lewis (1975), Kamp (1981), Heim (1982), Partee (1991), and others.

Lewis (1975) analyzes adverbial quantifiers as unselective binders. Unlike the typical (selective) DP-quantifiers, which bind a particular variable as in (25), the unselective quantifiers indiscriminately bind all unbound variables simultaneously as in (26). He treats indefinites and pronouns as variables.

(25) *Every* student takes *some* exams.

[$\forall x \exists y$: student (x) & exam (y)] take (x, y) *selective binding*



(26) A student *usually* takes an exam.

[*usually*: student (x) & exam (y)] take (x, y) *unselective binding*



When the sentence has an *if*-clause, Lewis maps it to the restriction of the adverbial quantifier.

(27) If a man owns a donkey, he *always* beats it.

[*Always* : man (x) & donkey (y) & own (x, y)] beat (x, y)



The *if*-clause defines the domain the adverbial quantifier and the main clause says that each case in the domain has a beating relation. Lewis considers that *if* itself is semantically vacuous and its main function is to identify the restriction of an adverbial quantifier. This idea is further extended by Heim (1982).

Partee (1991, 1999) suggests that adverbial quantifier is restricted not only by *if*-clauses, but also by any non-focused elements. Drawing on ideas from the Prague school view (Hajičová 1984, Sgall 1984, Sgall, Hajičová, and Panevová 1986, and others) that sentences are constructed respecting the theme-rheme structure, Partee considers that the distinction of old and new information is essential to decide the structure of adverbial quantifier. She proposes that the old-information restricts the adverbial quantifier, and hence that (28) and (29) have different quantificational structure.

(28) Mary always took JOHN to the movie.

[*Always* : Mary took x to the movie] Mary took John to the movie

(29) Mary always took John to THE MOVIE.

[*Always* : Mary took John to x] Mary took John to the movie

This analysis correctly predicts that (28) and (29) have different truth-values. (28) checks all cases of Mary's taking someone to the movie and the sentence is true if all of them are with John. (29) examines all cases of Mary's taking John to somewhere and the sentence is true if all of them are to the movie. Partee (1991, 1999) generalizes the correlation between the informational structure and quantificational structure as in (30).

(30) Background (old information) corresponds to restrictive clause, and focus (new information) corresponds to nuclear scope.

von Stechow (1994) extends this Partee's suggestion and formalizes it. He argues that quantificational adverbs quantify over situations and their domains are restricted by a hidden variable, which gets its value from the context. Examining Schubert and Pelletier's (1987, 1989) example in (31), Berman (1989, 1991) and von Stechow (1994) consider that not only non-focused elements of the sentence, but also unuttered presupposition restricts the adverbial quantifier.

(31) Robin Hood *never* misses.

For (31) to be true, there should be some shooting in the first place. It is thus interpreted as "for all the situations where Robin Hood shoots at something, he never misses it". The question here is how the implicit information supplies the restriction of the adverbial quantifier. von Stechow (1994) argues that the implicit information supplies the context set, which helps anchoring for anaphoric elements in the conversation by assigning referents to indexical elements, or restricting the scope of quantifiers. Specifically, he proposes that all adverbial quantifiers have a hidden domain argument C as a restrictor and its value

corresponds to the background information (or topic) of the discourse context.

(31) is then represented as (32).

(32) [*NEVER* s : C (s)] Robin Hood misses (s)

C = Robin Hood shoots at something

With the help of the context element C, the sentence is interpreted in certain context and the sentence can have the presupposition.

When the background information is expressed overtly, then the value of C corresponds to that information.

(33) Mary always took JOHN to the movie.

[*ALWAYS* s : C (s)] Mary takes John to the movie (s)

C = {p: $\exists x$ (p= Mary takes x to the movie)}

This expresses the meaning that for all situations where "Mary takes someone to the movie" is true, Mary takes John to the movie. By using the context sensitive variable C, von Stechow maps the old information into the restriction of the adverbial quantifier.

Stanley and Szabó (2000) closely examine how context contributes to the interpretation of DP-quantifier and they conclude that we need the context variable C as a restrictor for quantifiers in general, supporting von Stechow's analysis. They observe that (34) is not about all bottles in the universe, but it is usually about more restricted set of bottles in the context.

(34) Every bottle is empty.

Stanley and Szabó examine possible accounts for the restriction by context. Rejecting the pragmatic approach where the sentence with quantifier in (34) is always false and the hearer gets the speaker's intension by assuming that the

speaker should tell something true,⁶ they argue that there is a covert semantic variable *c* which restricts the domain of the quantifier.

(35) *Every bottle is empty* is true relative to the context *c* iff every bottle in the domain provided by *c* is empty.

The value of *c* is the set of contextually relevant elements and in (34) the restriction of the quantifier is formed intersecting the set of elements in the context and the set of bottles. Thus, Stanley and Szabó argue that the restriction of quantifier is the intersection of the set provided by the context and the set overtly expressed in the sentence.

Following the idea that old information restricts the quantifier, Herburger (2000) proposes that the non-focused element and the context variable *C* restrict the quantifier together, but more interestingly and importantly, she argues that quantificational structure is formed not only in the sentence with an adverbial quantifier, but in all kinds of sentences having a focused element. Consequently, she deals with the focus phenomena uniformly. She adopts Davidson's (1967) claim that all action sentences have an event quantifier and proposes that non-focused elements always restrict this event quantifier, even when focus does not affect the truth-condition of the sentence. Thus, in her analysis, the sentence *John left the room NOISILY* is roughly represented as (36).

(36) $[\exists e: C(e) \ \& \ \text{John-left-the-room}(e)] \text{noisily}(e)$

⁶ Stanley and Szabó (2000) also examine the syntactic approach according to which the restriction is fully given in the grammar, but it is elided or unpronounced as in (i).

(i) Every bottle ~~I just bought~~ is empty.

They reject this approach because unlike other ellipsis constructions, quantificational constructions do not require the over linguistic antecedent.

The event quantifier $\exists e$ is restricted by the intersection of the contextually defined set C and the set of John's leaving-the-room events. The focused element appears only in the scope of the event quantifier and expresses what is true of contextually defined event.

This analysis is simple and it assimilates the focus phenomenon to the well-studied phenomenon of quantifiers. At the same time, it also provides a way to deal with both truth-conditional and non truth-conditional focus phenomena uniformly. The main purpose of this dissertation is to extend Herburger's analysis and to propose a system of mapping from syntactic structure to logical representation. In the next section, I introduce Davidson's (1967) event analysis and discuss Herburger's (2000) analysis of focus in detail.

2.2. Structured Event Quantification

An interesting entailment relation was observed by Kenny (1963) in the adverbial modification paradigm. Compare the following Davidson's (1966) examples:

(37) a. Jones buttered the toast in the bathroom with a knife at midnight.

b. Jones buttered the toast in the bathroom with a knife.

c. Jones buttered the toast in the bathroom.

d. Jones buttered the toast. (Davidson 1966)

There are asymmetric entailment relations among these examples. If (a) is true, then all other sentences must be true. If (b) is true, (c, d) must be true and if (c) is true, then (d) must be true. Thus, (a) entails (b, c, d), (b) entails (c, d), and (c) entails (d). One potential analysis is to consider that adverbial modifiers, namely,

in the bathroom, with a knife, and at midnight, are arguments of *butter* and (37d) is the elliptical version of *Jones buttered the toast in x with y at z*. Both Kenny (1963) and Davidson (1966) reject this analysis since it requires uncountable number of arguments for each predicate and nobody can predict how many slots each predicate needs. Instead, Davidson (1966) proposes a more attractive solution to this puzzle. He considers that action sentences are descriptions of events and that adverbial modifiers are predicates of events. According to this analysis, each predicate has an additional event argument. So, *butter* in *Jones buttered the toast* has three arguments <John, the toast, *e*> and the meaning of the sentence is represented as (38).

(38) $[\exists e]$ butter (Jones, the toast, *e*)

(38) is read as " There is/was an event *e* such that *e* is a buttering of the toast by Jones". Thus, the typical intransitive predicates have not one, but two arguments as in (39a), the transitive predicates have three (39b), and the di-transitive predicates have four (39c).

(39) a. $[[snore]] = \lambda x \lambda e$ (snore (*x*, *e*))

b. $[[butter]] = \lambda y \lambda x \lambda e$ (butter (*x*, *y*, *e*))

c. $[[introduce]] = \lambda z \lambda y \lambda x \lambda e$ (introduce (*x*, *y*, *z*, *e*))

Adverbial modifiers are treated as one-place predicates of events, as in (40).

(40) a. $[[in\ the\ bathroom]] = \lambda e$ (in-the-bathroom (*e*))

b. $[[with\ a\ knife]] = \lambda e$ (with-a-knife (*e*))

c. $[[at\ midnight]] = \lambda e$ (at-midnight (*e*))

When these phrases modify the predicate, they share the event with the main predicate, co-predicating over the same event. The sentences in (37) are then represented as (41).

- (41) a. $[\exists e]$ butter (Jones, the toast, e) & in-the-bathroom (e) & with-a-knife (e)
& at-midnight (e)
b. $[\exists e]$ butter (Jones, the toast, e) & in-the-bathroom (e) & with-a-knife (e)
c. $[\exists e]$ butter (Jones, the toast, e) & in-the-bathroom (e)
d. $[\exists e]$ butter (Jones, the toast, e)

This analysis explains the asymmetric entailment relations in (37). In (41), the adverbial modifiers are represented as conjuncts. Conjunction has the following well-known logical entailment relation:

- (42) If φ & ψ are true, then φ is true and ψ is true.

(42) says that if the sentence with conjunction is true, then its conjuncts must be true. Thus, if (41a) is true, the sentence lacking one conjunct, namely (41b), should be true. Similarly, if (41b) is true, (41c) should be true, and if (41c) is true, then (41d) should be true, as well. The entailment pattern in (37) is thus assimilated to the entailment pattern of logical conjunction and the asymmetric entailment relations in (37) are accounted for.

Castañada (1967) and Parsons (1990) develop this event semantics suggesting decomposition of the predicate to smaller atomic units. In this neo-Davidsonian event semantics, the event and each argument are correlated in one-to-one relation using thematic roles. Under this analysis, the example *Jones buttered toast at midnight* is represented as in (43).

- (43) $[\exists e]$ butter (e) & Agent (e, Jones) & Theme (e, the toast) & at-midnight (e)
There was an event which was buttering whose agent was Jones and whose theme was the toast and which was at midnight.

In this approach, the verb is always a unary predicate of events. The thematic relations are understood as two-place predicates that relate an event and an entity. They are also semantically analyzed as conjuncts, like adverbial modifiers. So, semantically, the difference between argument and adjunct is only whether or not the element is correlated to the event using a thematic relation.

This event decomposition analysis enables us to separate arguments from the predicate. Under this analysis, the argument and the predicate may be interpreted in different positions; It is possible to interpret one argument in the scope of the event quantifier, while interpreting others in the restriction of the same event quantifier. Herburger (2000) argues that this is what is happening in focus constructions. Herburger proposes that the distinction of old information and new information imposes a structure on event quantification with the old information forming the restriction and the focused (new) information constituting the scope. Using the contextual predicative variable C , which is a set implicitly defined by context, the simple declarative *Jones buttered the toast in the bathroom* with no focus is represented logically as in (44).

- (44) *Jones buttered the toast at midnight.*

$[\exists e: C(e)]$ butter (e) & Agent (e, Jones) & Theme (e, the-toast) & at-midnight (e)
There was some contextually relevant event such that it was buttering whose Agent was Jones and whose Theme was the toast and it happened at midnight.

Since no element is marked with focus, every element in the sentence is considered as new information and is interpreted in the scope of the event quantifier. Thus, the event quantifier $\exists e$ and its restriction, namely contextual predicative variable $C(e)$, appear in the brackets and every other elements expressed in the sentence appears outside of the bold brackets as the scope of the event quantifier.

When a part of the sentence is marked as focused, the non-focused element restricts the event quantifier together with the contextual predicative variable. Thus, the contextual predicate variable and non-focused elements appear within the bold brackets and the focused element appears outside of the brackets as scope of the event quantifier. Two sentences in (45a) and (45b) have different logical representations.

(45) a. Jones buttered the toast **AT MIDNIGHT**.

[$\exists e$: $C(e)$ & butter (e) & Agent (e, Jones) & Theme (e, the toast)]
 at-midnight (e)

For some contextually relevant event of Jones' buttering event of the toast, it happened at midnight.

b. Jones buttered **THE TOAST** at midnight.

[$\exists e$: $C(e)$ & butter (e) & Agent (e, Jones) & at-midnight (e)]
 Theme (e, the toast)

For some contextually relevant event of Jones' buttering event at midnight, its theme was the toast.

In (45a) and (45b), focus shift does not affect the truth-condition, but intuitively, two sentences are interpreted differently. The logical representations in (45a) and

(45b) express the difference of the meaning successfully without changing the truth-condition.

As Herburger(2000) pointed out, this analysis of focus explains the case where the quantificational DP is focused.

(46) NOBODY met Bill.

Usually when the presupposition fails, the sentence becomes valueless. If we consider that the non-focused elements are interpreted as presupposition, (46) can never be true in any situation. Herburger's system evades this problem. She considers this to be an instance of scope interaction. The logical representation of (46) is as follows:

(47) [Nobody x] [$\exists e$: C(e) & meet (e) & Theme (e, Bill)] Agent (e, x)

Nobody is such that some event of meeting Bill had him or her as its agent.

The non-focused elements *met Bill* restricts the event quantifier, showing that the sentence is about the event of meeting Bill. Since the quantificational DP *nobody* takes scope over the event quantifier, the existence of an event of meeting Bill is denied. When *nobody* takes the lower scope, we predict that the presence of the event is not denied. It is difficult to find this narrow scope reading of the argument decreasing DP-quantifier, but when the decreasing quantifier appears in the adjunct position, it can take the narrow scope.

(48) Regina sang a song. But she sang it TO NOBODY. (Herburger 2000)

The first sentence ensures the presence of the singing event and the second sentence asserts that this singing event was not intended for anybody. In this reading, the event quantifier takes scope over the decreasing DP-quantifier *nobody*.

It has been claimed that the correct analysis of focus constructions should capture basic question-answer patterns. As discussed by Chomsky (1971), Jackendoff (1972), Rooth (1985) and others, focus plays important role in deciding the natural answers for the *wh*-questions.

(49) A: Who did John introduce to Tom?

B: a. John introduced MARY to Tom.

b. # John introduced Mary to TOM.

As the response to the *wh*-question in (49A), (49Ba) is a natural one, but (49Bb) is not. Herburger's analysis of focus provides a simple way of choosing the natural answer. It has been observed cross-linguistically that *wh*-phrases in *wh*-questions are focused (Calabrese 1984, Erteschik-shir 1986, and others). The *wh*-question (49A) might be then logically represented as (50).⁷

(50) WHx [$\exists e$: C(e) & introduce (e) & Agent (e, John) & Goal (e, Tom)]
Theme (e, x)

The two answers in (49B) are represented as (51a) and (51b) respectively.

(51) a. [$\exists e$: C(e) & introduce (e) & Agent (e, John) & Goal (e, Tom)]
Theme (e, Mary)

b. # [$\exists e$: C(e) & introduce (e) & Agent (e, John) & Theme (e, Mary)]
Goal (e, Tom)

When (50) and (51) are compared, we notice that (51a), which is the logical representation of the natural answer, matches the logical structure of the question; they have parallel scope and restriction content. However, the structure

⁷ These logical representations must be revised later when the analysis of focus is revised. I discuss the logical representation of *wh*-questions again in Chapter 5.

of the event quantification in (51b) is different from that of question in (50). Under the structured event quantification analysis of focus, the requirement of the natural answer can be simply stated as "the question and its answer must have the same quantificational structure". This is a requirement of pragmatics, so if it is violated, some implicature is expected to be present (Grice 1975).⁸

It should be noted that there are some predicates which do not describe events. The predicates in (52) report states, instead.

(52) Tom *likes* Mary.

Mary *knows* Fred.

John *is happy*.

The sentences with these predicates are potentially problematic for any analysis using event quantification. However, Parsons (1990) argues that these are cases where an event holds for certain periods and he proposes these predicates always appear together with the predicate *Hold*. *Tom likes Mary* is represented as (53).

(53) $[\exists e: C(e)]$ like (e) & Agent (e, Tom) & Theme (e, Mary) & Hold (e)

Given this idea, *Tom likes MARY* is logically represented as (54).

(54) $[\exists e: C(e) \& \text{like} (e) \& \text{Agent} (e, \text{Tom}) \& \text{Hold} (e)]$ Theme (e, Mary)

With this proposal, we can use the system of focus uniformly to the sentence with a state predicate.⁹

⁸ The following case violates the requirement of pragmatics and the implication is involved:

(i) A: What did John cook?
B: MARY cooked everything. (*So, John cooked nothing.*)

⁹ The sentence which expresses state has the predicate *Hold*. We may consider this predicate *Hold* is a part of the meaning of the predicate *like*, *know*, etc. or we may consider that the predicate *Hold* appears in the Aspectual head and the stative predicates are allowed only in the scope of the Aspectual head with *Hold*. In either analysis, the predicate *Hold* does not require the biclausal

2.3. \mathfrak{R} -relation

2.3.1. A Puzzle of Adverbial Modification

There is an interesting puzzle arising from event quantification, that was originally pointed out by Davidson (1966) and subsequently discussed by Bennett (1988), Pietroski (2000), Mackie (1980) and others. The entailment relation observed in the adverbial modification disappears when the sentence has a causal predicate. As discussed above, (55a) entails (55b).

(55) a. John talked about the news quietly.

b. John talked about the news.

(55a) and (55b) have the logical representations in (56).

(56) a. $[\exists e: C(e)]$ talk (e) & Agent (e, John) & Theme (e, the news) & quietly (e)

b. $[\exists e: C(e)]$ talk (e) & Agent (e, John) & Theme (e, the news)

These logical representations correctly capture the entailment relation in (55).

Now, consider the situation where the topic of the news is scandalous and that is why John's talking about the news was quiet. In this situation, (57a) is true, but (57b) is false.

(57) a. The sensitivity of the topic caused [John to talk about the news quietly].

b. The sensitivity of the topic caused [John to talk about the news].

This entailment failure of (57) is not predicated under the current event analysis; According to Davidson (1967), *cause* relates two events and presumably the two sentences in (57) should be logically represented as (58).

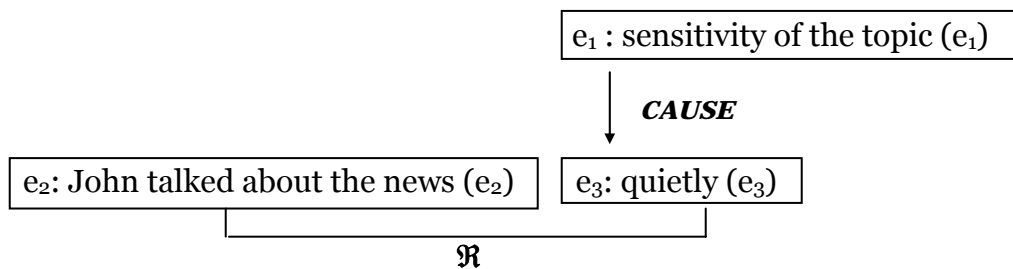
structure. For simplicity, I adopt the first analysis and assume that the predicate *Hold* arise from the meaning of the stative predicate.

- (58) a. $[\exists e_1: C(e_1)]$ sensitivity-of-the-topic (e_1) & $[\exists e_2: C(e_2)]$ talk (e_2) & Agent (e_2 , John) & Theme (e_2 , the topic) & quietly (e_2) & cause (e_1, e_2)
- b. $[\exists e_1: C(e_1)]$ sensitivity-of-the-topic (e_1) & $[\exists e_2: C(e_2)]$ talk (e_2) & Agent (e_2 , John) & Theme (e_2 , the topic) & cause (e_1, e_2)

The predicate *cause* has two event variables which are bound by the event quantifier $\exists e_1$ and $\exists e_2$. In (58b), one of the conjuncts, namely *quietly* (e_2), is removed from (58a). Thus, given the logical entailment pattern of conjuncts, the logical representations in (58) wrongly predict that (57a) entails (57b).¹⁰

When we consider the meaning of the sentence in (57a) and the way we reason with it, we notice that the sensitivity of the topic caused not some talking event, but rather some event of being quiet. In other words, it seems that three events are involved in (57a): an event of being sensitive to the topic, an event of John's talking of the news, and an event of being quiet. The relations among these three events are illustrated as follows:

- (59) *The sensitivity of the topic caused [John to talk about the news quietly].*

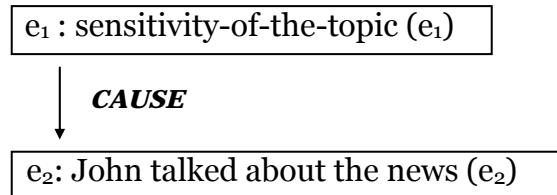


¹⁰ To explain this puzzle, Bennett (1988), Pietroski (2000), Neale (2001) argue that *cause* relates two facts (true propositions). With this fact analysis, we predict that we do not find the entailment relation at all. However, this is not true, as shown later in the paradigms in (61)-(63).

The sensitivity of the topic is the cause of the event being quiet and the quietness is in some relation (\mathfrak{R}) with the event of John's talking about the news.¹¹

When the adverbial modifier *quietly* is missing, only two events are involved as illustrated in (60).

(60) *The sensitivity of the topic caused [John to talk about the news].*



When (59) and (60) are compared, we find that the entailment relation is not logically induced anymore, since the predicate *cause* relates different events in (59) and (60).

Now, the question is how the \mathfrak{R} -relation and the additional event are introduced to the derivation. Interestingly, as noted by Bennett (1988), when the adverbial modifier appears in a different position, the entailment relation comes back. Compare the following three sentences:¹²

(61) *The sensitivity of the topic caused [John to talk about the news quietly].*

(62) *The sensitivity of the topic caused [John to quietly talk about the news].*

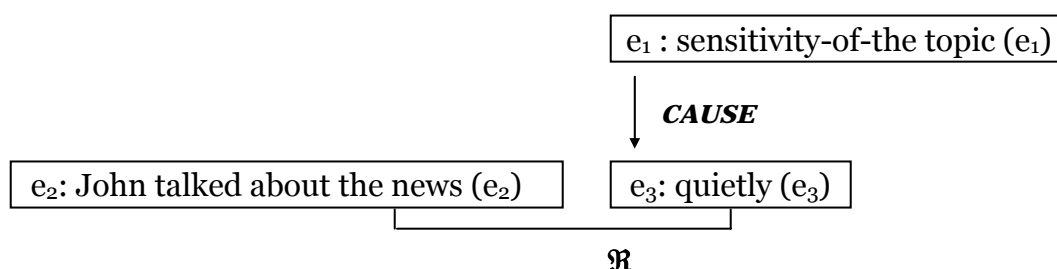
(63) *The sensitivity of the topic caused [John to talk about the news].*

In (61), the manner adverb *quietly* appears at the post-verbal position, while it appears pre-verbal position in (62). In (63), the manner adverb is missing. As shown above, in the situation where John talked about the news and the

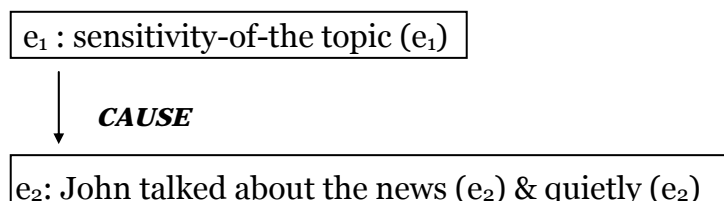
¹¹ Thanks to Richard Larson for suggesting this possibility of using the \mathfrak{R} -relation. We discuss the property of this \mathfrak{R} -relation in the next sub-section. A similar idea is proposed by Ludlow (1994) for conditionals. He uses a predicate which relates one event to another event.

sensitivity of the topic made it quietly, (61) is true and (63) is false and no entailment relation is observed between them. Interestingly, unless the modifier *quietly* gets phonological stress, (62) is false in the given situation and it entails (63). This indicates that (61) and (62) are interpreted differently. The relations among events in (61)-(63) are illustrated in (64)-(66) respectively.

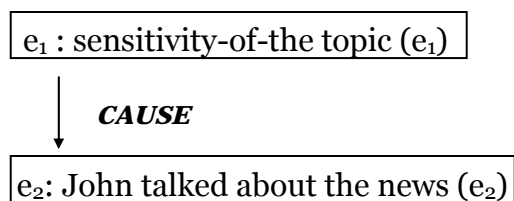
(64) *The sensitivity of the topic caused [John to talk about the news quietly].*



(65) *The sensitivity of the topic caused [John to quietly talk about the news].*



(66) *The sensitivity of the topic caused [John to talk about the news].*



The major difference between (64) and (65) is that (64) has the \mathfrak{R} -relation, whereas (65) does not. This provides a hint to the question where the \mathfrak{R} -relation comes from. In (64), the manner adverb *quietly* appears at the post-verbal position, but it appears at the pre-verbal position in (65). According to Hajičová

¹² Thank Marian Boroff and Carlos de Cuba for these examples and their judgments.

(1984), Sgall, Hajičová, and Panevová (1986), the sentence final position is typically the position for the new information (focused elements). Larson (2004) also observes that the post-verbal manner adverbs tend to express the main assertion of the sentence and they are usually interpreted in the scope of the event quantifier as focused elements. Given these observations, *quietly* in (64) is considered to be automatically focused, while *quietly* in (65) is not. This suggests that the \mathfrak{R} -relation and additional event are introduced by focus.

This idea that the \mathfrak{R} -relation and additional event are introduced by focus is supported by the fact that (62) may be interpreted just like (63) when the pre-verbal adverb *quietly* is focused.

(67) The sensitivity of the topic caused [John to QUIETLY talk about the news]. Unlike (62), (67) is true in the situation that John talked about the news and it was done quietly because of the sensitivity of the topic. The only difference between (62) and (67) is that the manner adverb *quietly* is focused in (67), but not in (62). This indicates that focus plays an important role to introduce the \mathfrak{R} -relation and additional event.¹³

Not only focused manner adverbs introduce the \mathfrak{R} -relation and additional event. They also appear when the temporal phrases and arguments are focused.

¹³ The syntactic analysis of this type of *cause*-constructions involves rich and complicated issues and it is out of the scope of this dissertation. Marcel den Dikken (personal communication) pointed out that the same phenomena are observed in *make*-constructions:

(i) a. The sensitivity of the topic made John talk about the news quietly.
b. The sensitivity of the topic made John quietly talk about the news.

Richard K. Larson (personal communication) suggested that the *make*-constructions may have a structure with two internal arguments and the same is true in the *cause*-constructions.

In the situation where John is working at a power company and he had to write a report on each occasion of power failure, (68a) entails (68b).¹⁴

- (68) a. The power failure caused [John to submit the report today].
 b. The power failure caused [John to submit the report].

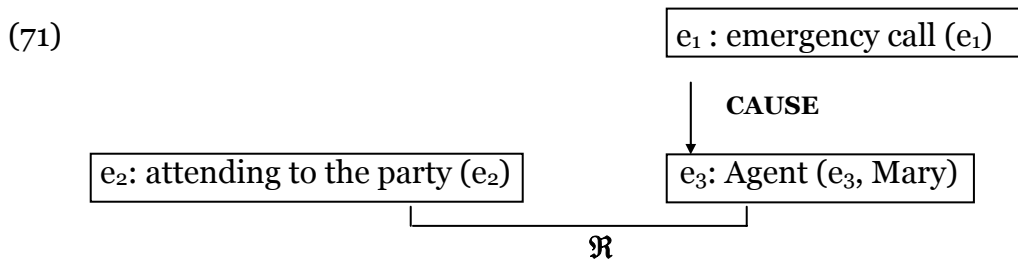
However, in the situation where John, a graduate student, was expected to submit the research report by yesterday, but he failed to do so for the power failure and he submitted his report today, the temporal phrase *today* is focused. Once it is focused, the entailment relation disappears; (69a) is true, but (69b) is false.

- (69) a. The power failure caused [John to submit the report TODAY].
 b. The power failure caused [John to submit the report].

Furthermore, in the situation where Peter was invited to the party, but because of the emergency call he got, he had to go to the hospital for a patient and his wife Mary went to the party instead of him, it is natural to put focus on *Mary* in (70).

- (70) The emergency call caused [MARY to attend at the party].

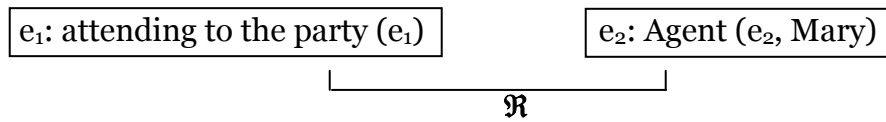
Here, the emergency call does not cause the event of attending the party, but it caused the agency of Mary, which is in some relation with the event of the attending of the party. Thus, the relations of events involved in (70) are schematized as (71).



¹⁴ Thank Sandra Brennan for the examples and their judgments.

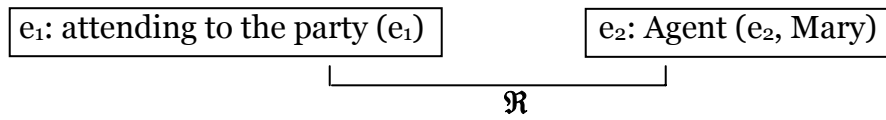
These facts indicate that not only the manner adverbs, but any types of focused element introduce the \mathfrak{R} -relation and an additional event. I propose that focus always introduces the \mathfrak{R} -relation and the additional event quantifier, and this is one of the main functions of focus. The two sentences in (72) and (73) are then logically represented as follows:

(72) MARY attended the party.



$[\exists e_1: C(e_1) \ \& \ \text{attend} (e_1) \ \& \ \text{Goal} (e_1, \text{the party})]$ $[\exists e_2: C(e_2) \ \& \ \mathfrak{R} (e_2, e_1)]$
 Agent (e₂, Mary)

(73) Mary attended THE PARTY.



$[\exists e_1: C(e_1) \ \& \ \text{attend} (e_1) \ \& \ \text{Agent} (e_1, \text{Mary})]$ $[\exists e_2: C(e_2) \ \& \ \mathfrak{R} (e_2, e_1)]$
 Goal (e₂, the party)

Here, the non-focused elements (background information) appear in the restriction of the event quantifier $\exists e_1$ and the elements introduced by focus, which are the additional event quantifier $\exists e_2$ and the \mathfrak{R} -predicate, appear in the scope of the original event quantifier $\exists e_1$ together with the focused element.

2.3.2. Some Discussion on the \mathfrak{R} -relation

So far, by examining the causal constructions, I have shown that focus introduces an additional event and the \mathfrak{R} -relation. The meaning of (74a), thus, should be logically represented as (74b).

(74) a. John left QUIETLY.

b. $[\exists e_1: C(e_1) \ \& \ \text{leave}(e_1) \ \& \ \text{Agent}(e_1, \text{John})] \ [\exists e_2: C(e_2) \ \& \ \mathfrak{R}(e_2, e_1)]$
quietly(e_2)

In (74b), *leave* and *quietly* predicate over different events: *leave* predicates over e_1 , while *quietly* predicates over e_2 . Predicating over different events is essential to the analysis of causal constructions. However, at the same time, we need a mechanism that ensures leaving event being quiet. How can we solve this paradox?

I suggest that the \mathfrak{R} -relation is one-to-one relation and it ensures that two events are closely connected each other. Given that the \mathfrak{R} -relation is one-to-one relation, the logical representation in (74b) is read as "for some contextually relevant event e_1 of leaving by John, there is a one-to-one related contextually relevant event e_2 that has the property of being quiet." This reading indicates that John's leaving event and the event of being quiet is in one-to-one relation and by using the \mathfrak{R} -relation and the context variable C, it ensures that John's leaving was quiet. In this analysis, the leaving event and the quiet event are related, but they are logically regarded as two different events. Thus, it is compatible with the above analysis of causal constructions.

When an argument is focused, another interesting puzzle arises. The meaning of the sentence in (75a) is logically represented as (75b).

(75) a. MARY attended the party.

b. $[\exists e_1: C(e_1) \ \& \ \text{attend}(e_1) \ \& \ \text{Theme}(e_1, \text{the party})]$ $[\exists e_2: C(e_2) \ \& \ \mathfrak{R}(e_2, e_1)]$

Agent (e_2 , Mary)

In (75b), *Mary* is the Agent of the event e_2 , not e_1 . I consider that this is not a problem if the \mathfrak{R} -relation is regarded as one-to-one relation. The logical representation in (75b) is read as "for some contextually relevant event e_1 of attending of the party, there is a contextually relevant event e_2 which is in one-to-one relation with e_1 . This event e_2 has the property that the agent being Mary". This implies that if there is an event of attending the party, there is an event of the agent being Mary. Since two events are correlated with one-to-one relation, which I named " \mathfrak{R} -relation", and the second event is restricted to the context relevant one, Mary in (75a) is understood as the attendee of the party.

When the sentence does not have a focal element, one action is described with one event, but when a focal element appears, one action is described using two events. One might think that this is a problem, but under the definition of the event by Davidson (1969), it is not. Davidson argues that two events are identical if and only if they have exactly same causes and effects. As discussed above, the event of attending of the party and the event of agent being Mary may have different cause. Thus, the event of attending of the party and the event of agent

being Mary should be counted as different events, whereas they refer to the same action.¹⁵

In this section, I have shown how the sentence with a focused element is interpreted. Adopting Herburger's (2000) basic structured event quantificational analysis where the focused element appears in the scope of the event quantifier and the background information appears in its restriction, I have proposed that focus introduces the additional event quantifier and the \mathfrak{R} -relation. In the next section, I examine how the logical representations discussed in this section are derived from the syntactic structures.

2.4. Mapping from Syntax to Semantics

Sentences with a focused element are different from sentences without a focused element in two respects: 1) the structure of event quantification, and 2) the presence of the \mathfrak{R} -relation and an additional event. Now, where do these differences originate? In generative grammar (both the Extended Standard Theory (Chomsky 1981, 1986) and the Minimalist Program (Chomsky 1995)), a sentence is constructed by merging lexical items in syntax and the derived structure is mapped to the LF, where logical representation is assigned. Thus,

¹⁵ Elena Herburger (personal communication) suggested that lack of locality of focus relation may be captured by using the additional event and \mathfrak{R} -relation. (i) may be interpreted as (ia) or (ib).

- (i) Mary thinks that John ate THE CAKE.
a. Mary thinks the following: It was THE CAKE that John ate. (local reading)
b. It is THE CAKE that Mary thinks that John ate. (non-local reading)

In (ib), the focus affects the structure of matrix event quantifier. To describe this reading, Herburger (2000) repeats the non-focused materials in the scope to make the embedded event quantifier can bind the event variable of the focused phrase. However, if we use the additional event quantifier and the \mathfrak{R} -relation, the repetition of the non-focused materials in the scope would not required, since the event variable of the focused phrase is bound by the event quantifier introduced by focus. This is an interesting consequence of using the additional event quantifier and the \mathfrak{R} -relation. I leave a more detailed examination of non-local cases for further research.

different logical representations are originated from different syntactic structures. I first examine how the event quantifier is structured syntactically, and then discuss the syntactic source of the \mathfrak{R} -predicate and the additional event quantifier.

2.4.1. Syntax of the Structured Quantifiers

The Generalized Quantifier Theory (Barwise and Cooper 1981, Davies 1981, Keenan and Stavi 1986) analyzes quantifiers in natural language as denoting relations between sets. For example, in (76), the quantifier *some* expresses the intersection relation between the set of birds and the set of swimmers; the sentence is true if these two sets intersect.

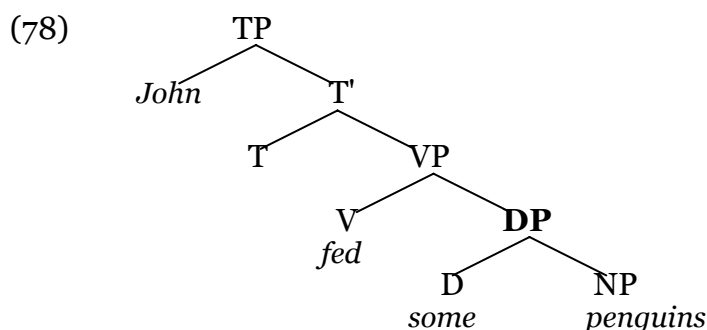
(76) Some birds swim.

In this approach, quantifiers introduce the relations between sets, and the sets so-related are regarded as arguments of the quantifier.

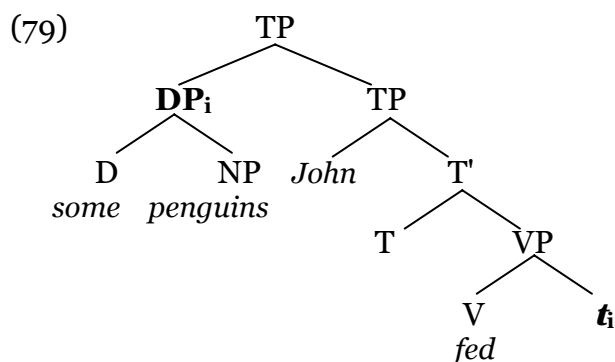
The relational view of quantifiers does not have direct reflection in syntax. The set argument sometimes does not form a surface syntactic constituent. In (77), the quantifier *some* relates the set of penguins and the set of individuals John fed.

(77) John fed some penguins.

In the syntactic structure in (78), *John fed* does not form a constituent.



For making a set of individuals that John fed, we have to assume that the phrases which are syntactically non-constituent are able to form a single unit semantically, which is problematic to the compositional approach of semantics. May (1977, 1985) proposes a solution to this problem. He argues that the quantificational phrases undergo Quantifier Raising (QR) at LF and adjoin to some higher projection. If the quantificational DP adjoins to TP, we get the structure in (79).



In (79), the TP expresses the set of the individuals John fed, NP inside the DP expresses the set of penguins and the quantifier in D relates these two sets.

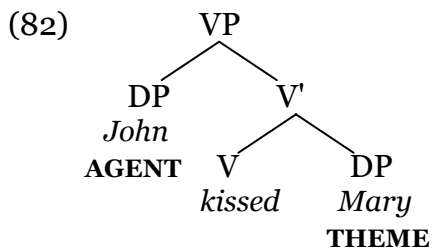
Larson (1991) develops the idea that quantifiers as predicates of sets, arguing that quantifiers also have their own argument structures. He proposes that the notions "restriction" and "scope" are theta-roles of quantifiers, which are assigned to sets in certain order. Parallel to the Baker's (1988) thematic-hierarchy of verbal predicates in (80), Larson proposes the thematic hierarchy in (81) for quantifiers.¹⁶

¹⁶ This theta-hierarchy requires that the restriction of the quantifier appears closer to the quantifier head than the scope of that quantifier. This idea is compatible to Gupta's (1980) suggestion that the quantifier and its restriction act together as if they form a single quantifier and the derived complex quantifier, which consists of the pure quantifier head and its restriction, predicates over the scoped element.

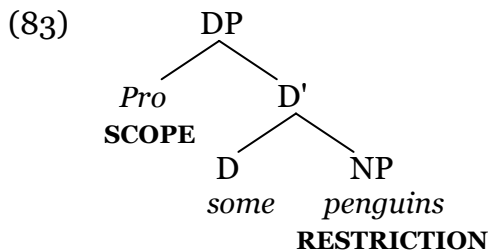
(80) $\theta_{\text{AGENT}} > \theta_{\text{THEME}} > \theta_{\text{GOAL}} > \dots$ [thematic hierarchy of verbal predicates]

(81) $\theta_{\text{SCOPE}} > \theta_{\text{RESTRICTION}} > \dots$ [thematic hierarchy of quantifiers]

The thematic hierarchy decides the syntactic relation of arguments. The argument which receives a higher role in the hierarchy should be projected higher in syntactic structures. It has also been observed that theta-roles of a predicate are discharged inside the projection of that predicate (Principle of Argument Realization by Larson (1988)). Thus, when a predicate has the Agent theta-role and the Theme theta-role, the Agent argument must be projected in the position which c-commands the theme argument and both of them must appear inside VP.

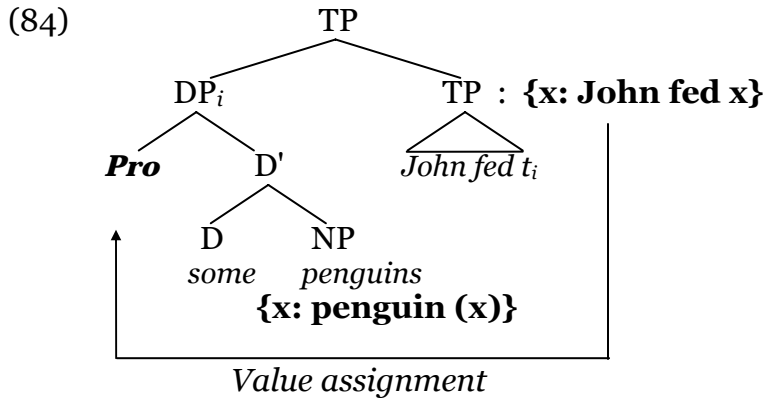


The thematic hierarchy in (81) requires that the phrase with the scope theta-role should c-command the phrased with the restriction theta-role. The Principle of Argument Realization requires that those phrases appear in the projection of the quantifier. Larson proposes the following structure for the quantificational DPs:



The NP in the complement of D gets the restriction theta-role from the quantifier in D and the set of penguins is interpreted in the restriction of *some* in the logical

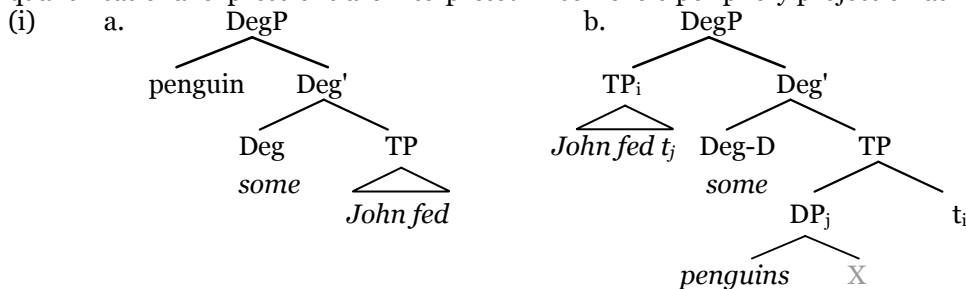
representation. *Pro* in DP spec gets the scope theta-role from the quantifier in D. Larson suggests that *Pro* gets its value from the sister of DP. If the DP adjoins to TP at LF, then the value of *Pro* is identified by that TP, as illustrated in (84).



In (84), both restriction theta-role and scope theta-role are discharged within the projection of the quantifier *some* and the phrase with the scope theta-role c-commands the phrase with the restriction theta-role. So, it satisfies both the thematic hierarchy in (81) and the Principle of Argument Realization.¹⁷

With this thematic approach, the structure in syntax is directly mapped to semantics. The phrase which gets the restriction role is mapped to the restriction

¹⁷ Several alternative analyses might be possible. For examples, we may assume that quantificational expressions are interpreted in some left-periphery projection as in (ia) or (ib).



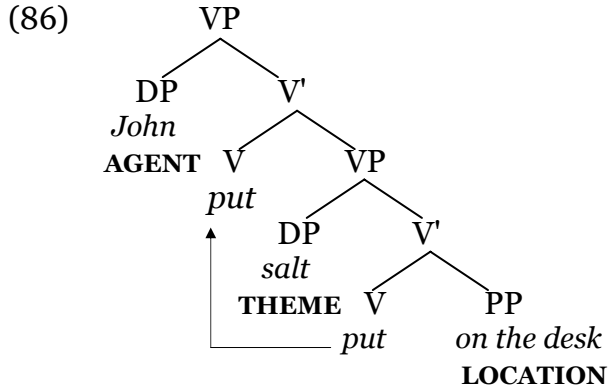
In (ia), the quantifier appears in the Deg-head and the restriction appears in its spec. (ib) is more complex version. The quantifier DP adjoins to TP with the D-head moving to Deg-head, and the TP moves to DegP spec (cf. Beghelli and Stowell 1997, Kayne 1998). In these analyses, the quantificational phrase (DegP) appears over TP. Unlike the structure in (84), these structures do not use *Pro* to mediate the relationship between D and TP, and hence, they look simple. However, they violate the Principle of Argument Realization, failing to satisfy the projection requirement of the verb *feed*. So, I do not take these analyses and I take Larson's (1991) structure of DP quantifiers in (84).

of the quantifier and the phrase which gets the scope role is mapped to the scope of the quantifier. This implies that the information of "restriction" and "scope" must be given in the lexical meaning of each quantifier. Assuming that the context variable predicate *C* restricts the DP-quantifier together with the phrase with the restriction theta-role, the meaning of the two-place quantifier *some*, for example, is represented as (85). The curly bracket () represents the scope of the λ -operator.

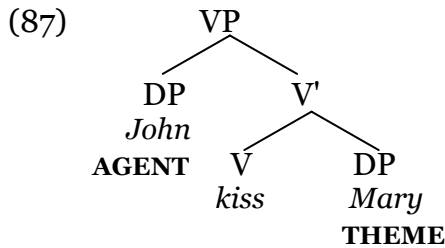
$$(85) \quad \llbracket \text{some} \rrbracket = \lambda P \lambda Q ([\exists x: C(x) \ \& \ P(x)] \ Q(x))$$

The phrase which appears in the complement of D gets the restriction theta-role and replaces P in (85). The phrase (*Pro*) which appears in DP spec gets the scope-role and replaces Q in (85). This analysis entails that the meaning of the complex quantificational expression is derived by combining the meaning of its parts in the parallel way that syntax forms that expression.

One note should be added regarding the thematic-hierarchy. The thematic hierarchies in (80) and (81) are fixed and they tell us the hierarchical relation among arguments, but they do not specify the absolute position of each theta argument. A certain theta-role may be realized in different positions depending on the type of the theta-assigner. For example, the predicate *put* has three theta-roles <AGENT, THEME, LOCATION>. According to the hierarchy in (80), the theme argument should appear hierarchy higher than the locative argument. With the VP-shell structure by Larson (1988), the structure of *John put salt on the desk* is represented as (86).



This structure satisfies the theta-hierarchy of the verbal predicate, which is $\theta_{\text{AGENT}} > \theta_{\text{THEME}} > \theta_{\text{LOC}}$. Given that the verb *put* undergoes head-movement to the upper V of the VP-shell and assigns its agent theta-role to *John* in the upper VP spec, it also satisfies the Principle of Argument Realization. Here, the theme argument appears in the spec of lower VP. Compare this structure with the transitive construction in (87).

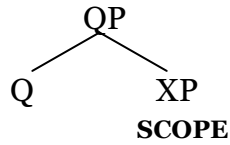


The transitive predicate *kiss* does not have the locative theta-role and it only has the agent and theme theta-roles. The structure in (87) satisfies the theta-hierarchy of (80); the agent argument c-commands the theme argument. Note that the theme-argument appears in the VP complement position, unlike the theme-argument in (86). This indicates that each predicate decides the position of certain theta-role based only its argument structure.¹⁸

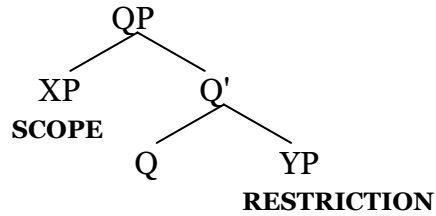
¹⁸ Unlike Larson's (1988) relative theta-positions, Hale and Keyser (1993) propose that the theme phrase constantly appears in the VP spec. Here, I take the position that theta-positions are not constant.

If this is true for the quantifiers as well, one-place quantifiers and two-place quantifiers have the following configurations:

(88) a. One-place Quantifier



b. Two-place Quantifier



When a quantifier has only one theta-role, it would be the scope theta-role and it is assigned to the phrase in the complement of Q, as shown in (88a). When a quantifier has two theta-roles, the restriction theta-role would be realized in the phrase in the complement of Q and the scope theta-role would be assigned to the phrase in QP spec, as in (88b).

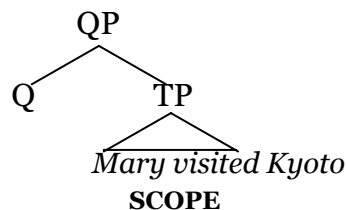
I propose that event quantifiers have the similar argument structures with the DP-quantifiers and assign the restriction theta-role and the scope theta-role to their arguments. When the sentence does not have the focused phrase, all elements in the sentence express new information and they are interpreted in the scope of the event quantifier as in (89).

(89) Mary visited Kyoto.

$[\exists e_1: C(e_1)]$ visit (e_1) & Agent (e_1 , Mary) & Theme (e_1 , Kyoto)

Here, the event quantifier has only one theta-role, namely scope theta-role, and it is assigned to the TP, as illustrated in (90).

(90)



The semantic values of the event quantifier in Q head and its complement (TP) are represented as (91a) and (91b) respectively.

- (91) a. $\llbracket Q \rrbracket = \lambda P (\llbracket \exists e_1: C(e_1) \rrbracket P(e_1))$
 b. $\llbracket \llbracket_{TP} \text{Mary visited Kyoto} \rrbracket \rrbracket = \lambda e (\text{visit}(e) \ \& \ \text{Agent}(e, \text{Mary}) \ \& \ \text{Theme}(e, \text{Kyoto}))$

The logical representation in (89) is then derived as a result of functional application of (91a) to (91b).¹⁹

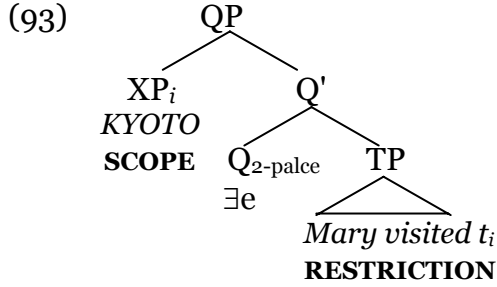
When a sentence has a focused element, the unfocused elements restrict the event quantifier and the focused element is interpreted in its scope.

- (92) Mary visited KYOTO.
 $\llbracket \exists e_1: C(e_1) \ \& \ \text{visit}(e_1) \ \& \ \text{Agent}(e_1, \text{Mary}) \rrbracket \llbracket \exists e_2: C(e_2) \ \& \ \mathfrak{R}(e_2, e_1) \rrbracket$
 Theme (e_2 , Kyoto)

I propose that the event quantifier in (92) has two theta-roles, the scope theta-role and the restriction theta-role. Assuming that this two-place event quantifier has a feature which attracts the focused element to QP spec covertly, (92) has the following LF structure:²⁰

¹⁹ We can use the same syntactic structure even if we assume that the Q-head is the unselective binder. If we take this the unselective binding approach, we have to assume that focus shifts the type of the event quantifier: Without focus, the event quantifier functions as an unselective binder, but with focus, it is interpreted as a generalized quantifier. Instead of taking this unselective binding approach, I follow the generalized quantificational approach in this dissertation and consider that the Q-head always introduces a generalized quantifier.

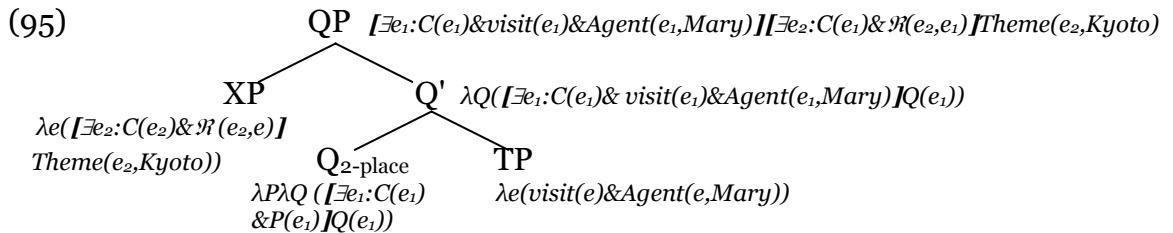
²⁰ I do not assume *Pro* for the event quantifiers, since only the projection requirement of Q is relevant here and QP itself is not the argument of other predicate.



The restriction theta-role of the two-place event quantifier is assigned to TP in its complement and the scope role is assigned to the focused element in the QP spec. The two-place event quantifier has the semantic value of (94a) and its two arguments are described as (94b) and (94c) respectively.

- (94) a. $\llbracket Q_{2-place} \rrbracket = \lambda P \lambda Q (\llbracket \exists e_1: C(e_1) \ \& \ P(e_1) \rrbracket Q(e_1))$
 b. $\llbracket [TP \textit{Mary visited}] \rrbracket = \lambda e (\textit{visit}(e) \ \& \ \textit{Agent}(e, \textit{Mary}))$
 c. $\llbracket [XP \textit{KYOTO}] \rrbracket = \lambda e (\llbracket \exists e_2: C(e_2) \ \& \ \mathfrak{R}(e_2, e) \rrbracket \textit{Theme}(e_2, \textit{Kyoto}))$

The semantic value of TP replaces *P* in (94a) and the semantic value of the focused phrase replaces *Q* in (94a). The logical representation in (92) is, thus, derived from its part as illustrated below:



Here, the phrase which appears in the Q-complement position is mapped to the restriction of the event quantifier. The focused phrase which appears in the QP spec at LF is mapped to the scope of the event quantifier. This analysis systematically maps the LF syntactic structure to a logical representation.

Regarding the nature of covert movement of the focused element, I employ the copy theory of movement (Chomsky 1993) and consider that Move consists of Copy, Merge, and Delete. The derivation thus involves the following steps:

- (96) a. [TP Mary visited [XP Kyoto]]
 b. [QP [XP **Kyoto**] Q_{2-place} [TP Mary visited [XP **Kyoto**]]] (copy & merge)
 c. PF: [QP [XP **Kyoto**] Q_{2-place} [TP Mary visited [XP **Kyoto**]]] (delete)
 LF: [QP [XP **Kyoto**] Q_{2-place} [TP Mary visited [XP **Kyoto**]]] (delete)

The focused phrase is first generated within TP (96a). Then, when the Q_{2-place} attracts it, the focused phrase creates its own copy at QP spec (96b). Later, deletion applies at each interface (96c).²¹ Since different copies are deleted at PF and LF, the focused element is interpreted in a position different from where it is pronounced.

If the upper copy stays and the lower copy is deleted at PF, "movement" appears to be overt. Hungarian has this option. The focused element may be pronounced within TP just like English case (97a) or it may be pronounced at a designated position for focus (97b).²²

- (97) a. Tegnáp este [be mutattam Pétert **MARINAK**].
 last night I introduced Peter Mary.dat
 b. Tegnáp este [**MARINAK** mutattam be Pétert **t**].
 last night Mary.dat introduced perf. Peter.acc
 'Last night, I introduced Peter to MARY.' (Kiss 1998)

²¹ Johnson (2007) suggests that the purely phonological spell-out condition decides which copy is realized overtly. The exact phonological spell-condition for the focus constructions are undefined yet and open for the further detailed research.

²² I consider that the designated position is QP spec, though Kiss (1998) does not specify so.

Recall the point by Kiss (1998) that (97a) and (97b) have different meanings. In (97a), focus merely marks the new information. However in (97b), it additionally expresses exhaustive identification. What determine the active PF copy is still unclear, but it seems plausible that whatever feature is requiring the active PF copy in QP spec, is also responsible for introducing the exhaustive meaning (at least) in Hungarian. This is an interesting topic in the copy theory of movement, but I won't discuss it further here and will simply leave it for further research.²³ Instead, in the next subsection, I discuss the internal structure of the focused phrase.

2.4.2. Focus Projections

In event semantics, adverbial modifiers are analyzed as a predicate of events. The adverb *quietly* in *Chris quietly left the room* is interpreted as (98).

$$(98) \quad \llbracket \textit{quietly} \rrbracket = \lambda e (\textit{quietly}(e))$$

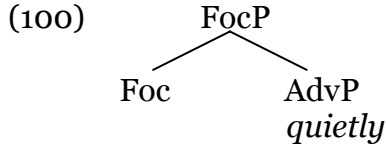
When the adverb is focused, it introduces the \mathfrak{R} -predicate and the additional event to the derivation. The adverb in *Chris left the room QUIETLY* is interpreted as (99).

$$(99) \quad \llbracket \textit{QUIETLY} \rrbracket = \lambda e (\llbracket \exists e_1: C(e_1) \ \& \ \mathfrak{R}(e_1, e) \rrbracket \textit{quietly}(e_1))$$

I propose that focused elements always appear with a focus projection. While "focus projections" have been proposed in the left periphery of the sentence structure as a landing site of focus movement (Rizzi 1997, Kiss 1998, and others),

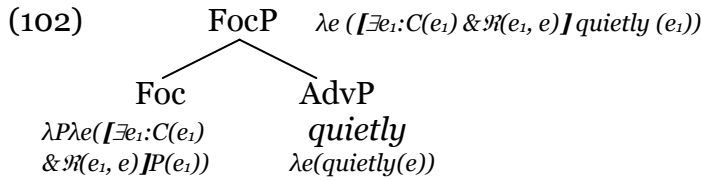
²³ There are constraints which apply to only overt movement. If the difference between overt and covert movement is derived from the feature setting, we have to consider that these constraints are sensitive to some particular features. This issue is also left for further research.

which corresponds to QP in my system, I propose that FocP appears just above the focused element, as in (100), and it provides the additional event quantifier and the \mathfrak{R} -relation. The Foc-head has the semantic value in (101).



(101) $[[\text{Foc}]] = \lambda P \lambda e ([\exists e_1: C(e_1) \ \& \ \mathfrak{R}(e_1, e)] P(e_1))$

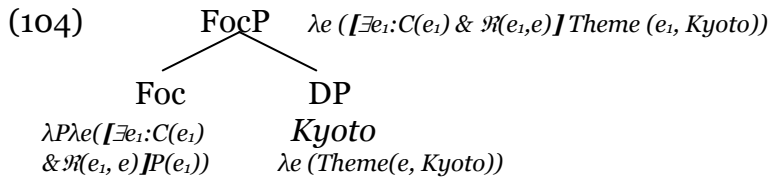
Applying the function of Foc head to AdvP, the interpretation of the whole FocP is derived as in (102).



Parallel to the focused adverbial modifiers, the focused arguments also have the \mathfrak{R} -predicate and the additional event quantifier. The focused argument *KYOTO* in *John visited KYOTO* is interpreted as follows:

(103) $[[\text{KYOTO}]] = \lambda e ([\exists e_1: C(e_1) \ \& \ \mathfrak{R}(e_1, e)] \text{Theme}(e_1, \text{Kyoto}))$

Given that the focused argument also has the FocP just like focused adverbial modifiers, the meaning of the focused phrase is constructed as follows:



This analysis requires that the argument DP in (104) have the information of the theta-role when the meaning of the focused phrase is constructed. In Frege's (1879) system, the thematic information is introduced with the predicate.

Davidson (1966) and Parson (1990) adopt this system and they argue that the predicate *visit* has the following semantic value:

(105) $\llbracket \textit{visit} \rrbracket = \lambda y \lambda x \lambda e (\textit{visit} (e) \ \& \ \textit{Agent} (e, x) \ \& \ \textit{Theme} (e, y))$

However, as discussed above, in Parson's logical representation of the sentence *Mary visited Kyoto yesterday*, the argument-adjunct distinction is unclear:

(106) $\llbracket \textit{Mary visited Kyoto yesterday} \rrbracket = [\exists e: C(e)] \textit{visit} (e) \ \& \ \textit{Agent} (e, \textit{Mary}) \ \& \ \textit{Theme} (e, \textit{Kyoto}) \ \& \ \textit{At} (e, \textit{yesterday})$

Both arguments and adjunct are represented with conjuncts and they are regarded as a predicate of event. In this Parsonian decomposed event semantics, it is possible to consider *visit* as a one-place predicate of events, as in (104a), and the theta-role information comes with the argument as in (104b-c).²⁴

(104) a. $\llbracket \textit{visit} \rrbracket = \lambda e (\textit{visit} (e))$

b. $\llbracket \textit{Mary} \rrbracket = \lambda e (\textit{Agent} (e, \textit{Mary}))$

c. $\llbracket \textit{Kyoto} \rrbracket = \lambda e (\textit{Theme} (e, \textit{Kyoto}))$

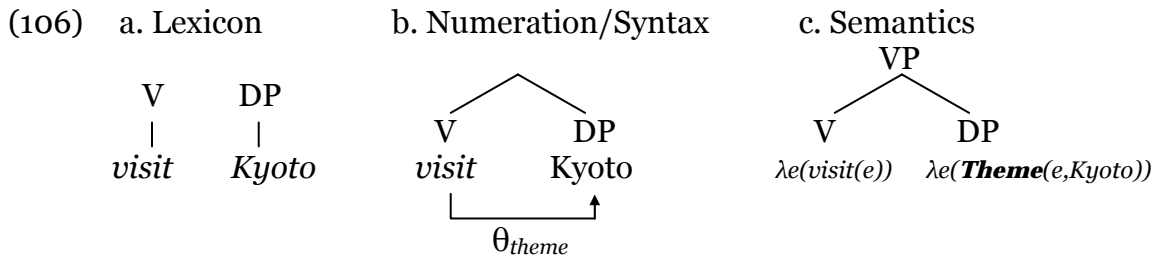
This analysis implies that the DP has different semantic values when they have different theta-roles. If *Mary* has the agent theta-role, its meaning is represented as (105a), while if *Mary* has the theme theta-role, it is represented as (105b).

(105) a. $\llbracket \textit{Mary} \rrbracket = \lambda e (\textit{Agent} (e, \textit{Mary}))$

b. $\llbracket \textit{Mary} \rrbracket = \lambda e (\textit{Theme} (e, \textit{Mary}))$

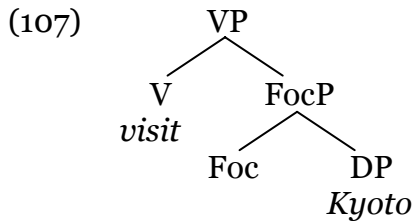
Chomsky (1995) tries to avoid this multiple lexical entry system. He considers that theta-roles are not features, but it is one of the conditions of merge. I assume that the arguments do not have the information of theta-role in the lexicon (106a), but the theta-roles are assigned to the argument when it merges to the predicate,

as in (106b).²⁵ At LF, the argument is interpreted with the information of the theta-role, as in (106c).



Thus, the argument does not have the information of theta-roles in the lexicon, and it gets a theta-role from the predicate in the numeration and thus at LF, the semantic value of the argument has the information of the theta-role.

When an argument phrase is focused, the argument phrase has the FocP layer as in (107).



In this configuration, can the predicate *visit* assign the theta-role to the argument DP *Kyoto*? If "direct merge" is required for theta-role assignment, it is difficult for V to assign the theta-role to the DP *Kyoto*.

There would be two possibilities to accommodate this problem.²⁶ One possibility would be to assume that FocP is transparent for theta-role assignment. This assumption is not special to FocP and it is required in coordination

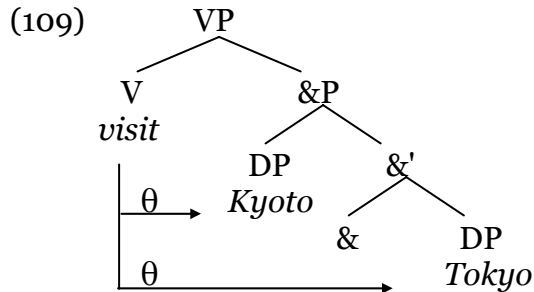
²⁴ I would like to thank Richard K. Larson (personal communication) for suggesting this analysis.

²⁵ Thank to Marcel den Dikken (personal communication) for suggesting this analysis of theta-role assignment and its interpretation.

²⁶ Thank Marcel den Dikken for suggesting these possibilities.

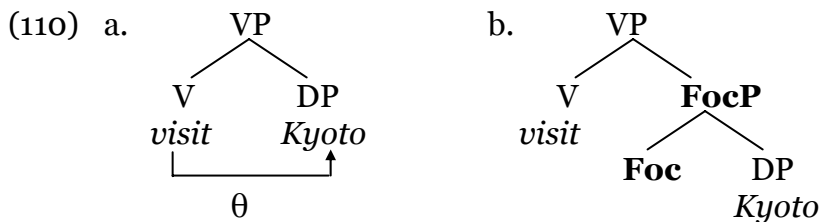
constructions. The coordination construction in (108) has the VP-internal structure in (109) with the &-projection (Zoerner 1995).

(108) Mary visited Kyoto and Tokyo.



The predicate *visit* should assign its theta-role to two DPs, namely, *Kyoto* and *Tokyo*. For this theta-role assignment to be possible we must assume that &P is transparent to theta-role assignment. Though it is unclear yet what kind of projections can be transparent and why they can be transparent whereas others cannot, it would be possible to consider that FocP is also transparent for theta-role assignment.

Another possibility would be to assume that FocP is inserted after the theta-role assignment to the argument. The argument first directly merges to the predicate and theta-role is assigned as its by-product (110a). Later, Foc-projection is inserted over the argument phrase (110b).

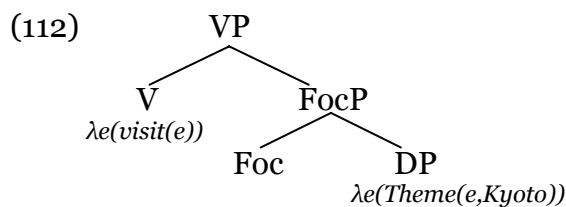


A similar analysis is found in Kayne (2004) for the analysis of *of*-insertion in (111).

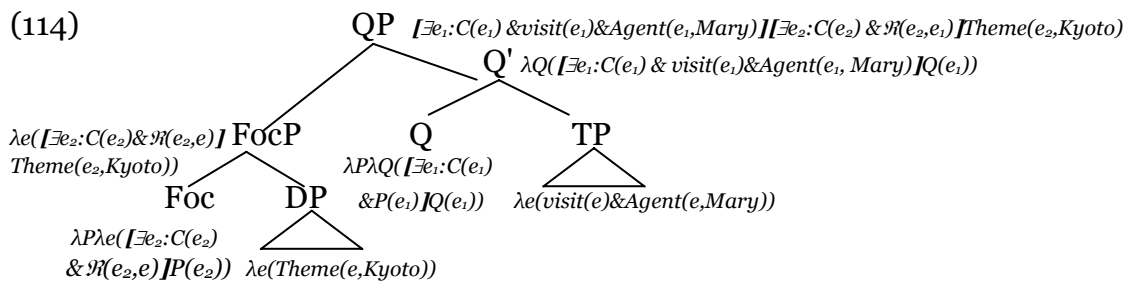
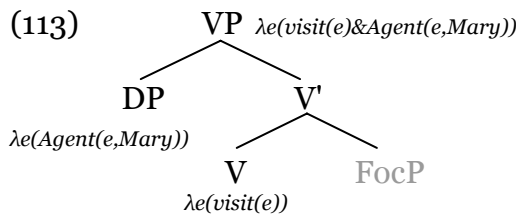
(111) John is proud [of the result].

The predicate *proud* selects *the result*, and *of* is inserted later to satisfy the case-requirement. It is again an open question what kind of phrases can be inserted counter cyclically and whether the computational system allows the counter-cyclic operation itself.

I must leave the choice among these possibilities open here. In either case, the DP within FocP has a theta-role at LF and it is interpreted with the information of the theta-role.²⁷



Recall that FocP moves to QP spec at LF. Thus, FocP does not appear in the VP-internal structure in (113) and the meaning of the focus constructions are combined as in (114).



²⁷ As shown in its semantic value, the verb *visit* denotes a set of visiting event. Likewise, the DP *Kyoto* denotes a set of event such that its theme is *Kyoto*. While the theta-role of the object *Kyoto* is assigned from the verb *visit*, it does not mean that the verb and its argument must predicate of the same event. The event variable of the focused element is bound by the event quantifier introduced by Foc-head, while the event variable of the V is bound by the main event quantifier.

Note that while theta-role assignment takes place both in the predicate-argument relation and the quantifier relation, their ways of combining the meaning are different. In the former case, as shown in (113), the meaning of the predicate and the meaning of the argument are combined by conjunction. In the latter case, as in (114), the meaning of the quantifier and the meaning of its restriction/scope are combined by functional application.

Before closing this section, I briefly discuss some restrictions of the position of FocP. While FocP is usually phonologically null in English, it sometimes has phonological content. According to Bayer (1986, 1999) *only* appears in the position which corresponds to Foc-head (He calls it as PRT-head). The semantic contribution of *only* will be discussed later in Chapter 3, but besides that, it is interesting to see where *only* can appear; Its syntactic distribution shows where the Foc-head can appear. Bayer (1986) observes that *only* cannot appear inside adjunct PPs or Complex DP.

(115) a. *The library is closed [**PP** on [_{FocP} **only** [SUNDAY]]].

b. The library is closed [_{FocP} **only** [**PP** on SUNDAY]].

(116) a. ***[DP** The entrance [_{FocP} **only** to THE SANTA MONICA FREEWAY]] was blocked.

b. [_{FocP} **Only** [**DP** the entrance to THE SANTA MONICA FREEWAY]] was blocked.

In (115), the PP [*on Sunday*] forms an adjunct island. In (116), the DP [*the entrance to the Santa Monica freeway*] forms a complex DP island. The ungrammaticality of (115a) and (116a) indicates that FocP cannot appear inside islands and it supports the analysis that FocP moves to QP spec. The

grammaticality of (115b) and (116b) shows that whole island appears inside FocP and moves to QP spec when the element inside the island is focused.²⁸ A similar observation is given by Krifka (2006) and this analysis is parallel to what Nishigauchi (1990) proposes to explain absence of island effects in *wh*-in situ languages.

Hungarian data also indicates the same conclusion. In Hungarian, as discussed above, the focused element moves to QP spec overtly for the exhaustive reading. When a portion of DP is focused, the whole DP moves to QP spec. The following Hungarian examples are from Kiss (1998).²⁹

(117) a. János [_{FocP} egy ANGOL könyvet] kappot ajándékba.

John a English book.acc got as.present

'John got an ENGLISH book as a present.'

b. János [_{FocP} egy angol KÖNYVET] kappot ajándékba.

John a English book.acc got as.present

'John got an English BOOK as a present.'

(117a) and (117b) are interpreted differently. (117a) presupposes that John got a book written in some language and it asserts that that book is written in English. On the other hand, (117b) presupposes that John got some English item and the

²⁸ Bayer (1999) observes that *only* does not appear inside any PP if the language does not allow P-stranding. German is the typical case. German does not allow P-stranding and *nur* (*only*) cannot appear inside any PPs.

(i) a. *Sie haben [_{PP} an [**nur** ANNA]] gedacht.
the have at only Anna thought
b. Sie haben [**nur** [_{PP} an ANNA]] gedacht.
the have only at Anna thought
(They thought only about Anna.)

(Bayer 1999)

Kayne (1998) assumes that *only* merges with VP and it attracts the focused phrase overtly. In this analysis, P-stranding structure would not be derived. den Dikken (2006) points out that the similar restriction is observed in *either*-constructions.

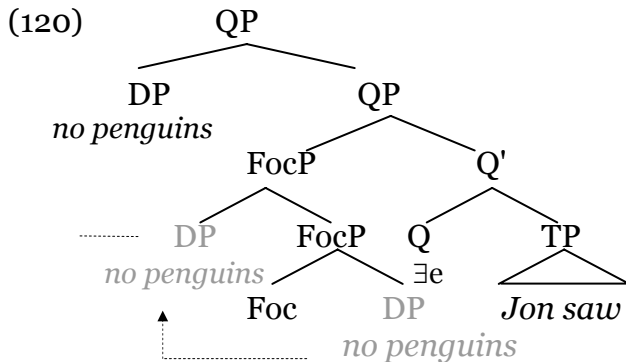
sentence identifies that some English item was book. It seems that the DP quantifiers are structured just like event quantifiers are structured, but the exact mechanism which gives the above interpretations is unclear and it is left open for further research.³⁰

When the whole quantified DP is focused, it may take scope over the main event quantifier. (118) may have the reading that there were no penguins such that John saw. This reading is logically represented as in (119).

(118) John saw NO PENGUINS.

(119) $[\text{No } x: C(x) \ \& \ \text{penguin}(x)] \ [\exists e_1: C(e_1) \ \& \ \text{see}(e_1) \ \& \ \text{Agent}(e_1, \text{John})] \ [\exists e_2: C(e_2) \ \& \ \mathfrak{R}(e_2, e_1)] \ \text{Theme}(e_2, x)$

For this reading, the DP quantifier *no penguins* moves out of FocP and adjoins to QP as quantifier-raising (QR). I assume that the DP first adjoins to FocP and then adjoins to QP as in (120).



²⁹ The phrase which precedes the focused phrase is considered to locate in TopP spec.

³⁰ I didn't discuss multiple focus constructions. When a sentence has two focused phrases as in (i), both of them are considered to move to QP spec.

(i) JOHN met MARY.

Interestingly, it is possible to have one focused element outside of the island and another inside of the island (Daniel Finer, personal communication).

(iii) JOHN ate the cookies that MARY baked.

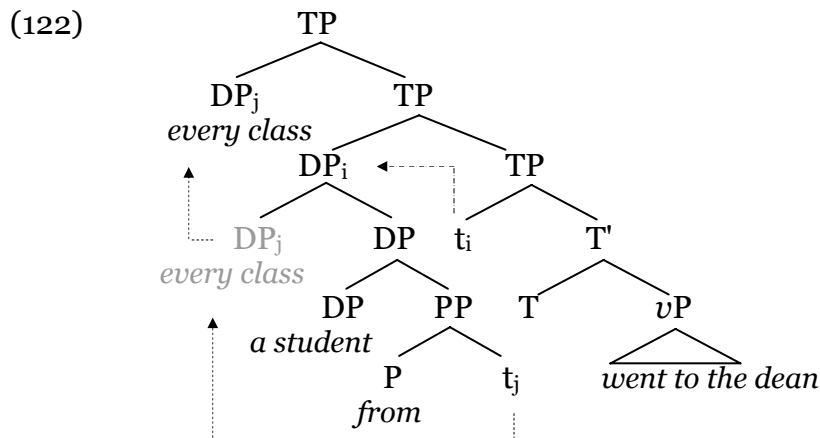
Those cases of multiple focus is left for further research.

In (120), the DP *no penguins* c-commands the Q-head. Thus, the quantifier *no penguins* takes scope over the event quantifier and the reading in (119) is derived. QR out of FocP potentially violates some syntactic constraints of movement, such as CED (Condition on Extraction Domain) discussed by Huang (1982) or island constraints observed by Ross (1969). However, this operation is required not only in the focal constructions, but also for so called "inverse-linking" phenomena observed by May (1977, 1985). In (121), *every class* is embedded to another quantified DP, but it has the reading where *every class* takes scope over *a student*.

(121) [A student from [every class]] went to the dean.

(Bobaljik and Wurmbrand 2007)

The presence of inverse-linking reading indicates that *every class* may c-command *a student* at LF. To derive this structure, we have to extract the quantified DP *every class* out of the other quantified phrase as illustrated in (122).



Here, the *every class* moves out of the TP adjoined phrase, namely DP, and it takes scope over *a student*. This operation is parallel to the operation we used in

(120).³¹ Thus, whatever mechanism used for inverse-linking reading would apply to the case in (118) and they would be explained uniformly.

Another interesting case which I cannot deal with in the current system is given below:

(123) a. John MADE the cake.

b. Mary found the book UNDER the table.

c. Tom MAY come to the party.

In these examples, the head of the phrase is focused. Since the Foc-head takes a phrase as its complement, it is difficult to apply the proposed analysis to these cases. For the case where a head is focused, we need more complex system.

Though there are several remaining cases the current system cannot cover, the structured event quantifier analysis and the mapping system proposed above provide very broad coverage of focus and explain how focus affects the meaning and where those focus meanings are derived from.

2.5. Focus Sensitive Elements and Association with Focus

It has been observed that there are cases where different choices of focus sometimes result in different truth values. This semantic effect is observed when so called focus sensitive elements appear in the sentence. Many focus sensitive elements are listed by Partee (1991) and they can be divided into two types: i) elements which requires a focused element for its interpretation, and ii) elements that can appear without a focused element, whose absence produces a different

³¹ Thank Daniel Finer and Richard K. Larson for suggesting that the sentence with a focused quantified DP would have a parallel structure with a sentence with the inverse linking reading.

interpretation. The first type includes *only*, *even*, *either*, and *also*. The elements in the second type are further categorized into two types: iia) elements which create ambiguity with a focused element, and iib) elements that simply shift truth conditions with a focused element. The former includes negation and frequency adverbs, such as *usually*, *often*, *always*. *Why* also falls into this group. The latter includes modals, superlatives, and counterfactual elements, such as *if*.

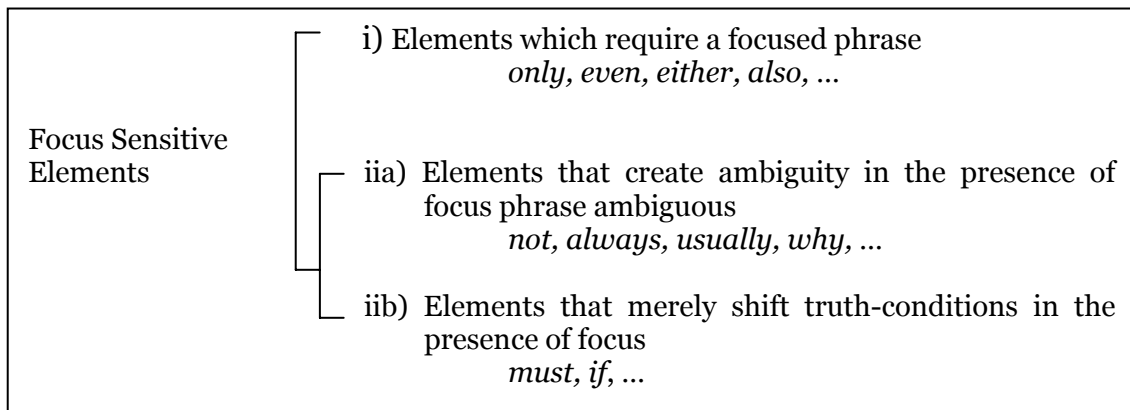


Table 2: Focus Sensitive Elements

The first type of focus sensitive element has been investigated in the greatest detail. The well-known phenomenon is found in (124).

(124) a. John **only** reads books IN THE BATHROOM.

b. John **only** reads BOOKS in the bathroom.

If John reads books at some place besides the bathroom, (124a) is false, while (124b) can be true. If John read something besides books at the bathroom, (124a) can be true, but (124b) is false. Thus, the truth-conditions of two sentences are different. Note that if there is no focused element in the sentence with *only*, the truth-value of the sentence cannot be calculated and the sentence is uninterpretable. Under the alternative semantics (Rooth 1985, 1996 and Krifka 2006), the meaning of *only* is described using the focus semantic value. Thus a

focus element is required for interpreting a sentence with *only*. In the event quantificational approach (Herburger 2000, Beaver and Clark 2003), *only* is regarded as an event quantifier and the focused element is interpreted in its scope.³²

The second type also has been discussed extensively. Negated sentences become ambiguous when a part of the sentence is focused. Compare (125) and (126).

(125) John didn't criticize Mary at the conference.

(126) John didn't criticize Mary AT THE CONFERENCE.

a. John criticized Mary. It was not at the conference.

b. John did something other than criticizing Mary. It happened at the conference.

While (125) is unambiguous, (126) can be interpreted in two different ways and those readings in (126) have different truth conditions. Furthermore, the truth-condition of the first reading changes when the focus shifts.

(127) John didn't criticize MARY at the conference.

a. John criticized someone at the conference. It was not Mary, but he criticized some else.

b. John did something other than criticizing at the conference. He did so to Mary.

The ambiguity has been regarded as a result of the scope interaction of focus and negation (Jackendoff 1972, Krifka 2006, Herburger 2000). It has been observed

³² The event quantificational analysis of *only* is further discussed in Section 3.2.3.

that the sentence with a frequency adverb is also ambiguous with a focused element.

(128) John always grades EXAMS in the morning.

a. Whenever John grades something in the morning, it is an exam.

b. John always grades something in the morning. It is exams.

Just as in negation case, the truth-condition changes when a different phrase is focused.

(129) John always grades exams IN THE MORNING.

a. Whenever John grades exams, he does so in the morning.

b. He always grades exams. It happens in the morning.

In the first readings in (128a) and (129a), *always* associates with the focused element. Rooth (1985) follows Stump's (1981) analysis of frequency adverbs as quantifiers over time and he derives the focus sensitive reading by using both the focus semantic value and the ordinary semantic value. Herburger (2000), on the other hand, proposes that the frequency adverbs are event quantifiers and the unfocused elements restrict them. For the second reading in (128b) and (129b), Beaver and Clark (2003) claim that the frequency adverb associates with the presupposition, while Herburger (2000) argues that more than one event quantifier are involved for the interpretation of this reading.

Several focus sensitive elements are grouped in the third type. Halliday (1970) presents the following famous example:

(130) Dogs **must** be CARRIED.

(130) intends the meaning "if someone has a dog, it must be carried." In this reading, *must* associates with the focused element. Another case is found in the counter-factual constructions pointed out by Dretske (1972).

(131) a. **If** Clyde hadn't married BERTHA, he would not have been eligible for the inheritance.

b. **If** Clyde hadn't MARRIED Bertha, he would not have been eligible for the inheritance.

In the situation where Bertha's mother was rich and her will was that Bertha's husband would inherit her money, (131a) would be true. In the situation where Clyde's father was rich and his will says that Clyde must get married to receive the inheritance, (131b) would be true. These cases have been discussed by Rooth (1985), Heim (1990), von Stechow (1994), and Herburger (2000).

Among those focus sensitive elements, I mainly discuss the second type of focus sensitive elements in the next chapter. The elements in this type make the focus constructions ambiguous. Since we can observe both focus sensitive readings and non-focus sensitive readings without making the sentence ungrammatical, these cases are ideal to investigate the mechanisms and conditions of focus association. I specially examine negation and frequency adverbs, and their interactions with focus.

CHAPTER 3

NEGATION AND FREQUENCY ADVERBS

Focus affects a meaning of the sentence, and sometimes makes the sentence ambiguous. A negated sentence is one of those cases.

- (1) John didn't criticize Mary at the conference.
- (2) John didn't criticize Mary AT THE CONFERENCE.

The sentence (1) merely expresses the meaning where there was no criticizing of Mary by John at the conference. The sentence in (2), however, has more than one reading. The most salient reading is "John criticized Mary, but it was not at the conference." The less salient reading is "It was at the conference that John didn't criticize Mary." The first reading presupposes the presence of some criticizing event, but the second reading presupposes the presence of some event such that John didn't criticize Mary.

The sentence with a frequency adverb (*always, usually, sometimes, rarely* etc.) also becomes ambiguous when a part of the sentence is focused.

- (3) Mary always calls Tom at night.
- (4) Mary always calls Tom AT NIGHT.

The sentence (3), without assigning stress on *at night*, expresses the meaning where it is always the case that Mary calls Tom at night. In (4), with focus on *at night*, the sentence is ambiguous. The most salient reading is that all of Mary's

calling of Tom happens at night. Another reading is Mary is always calling Tom, which is by the way at night.

In this chapter, I examine why negated sentences and sentences with a frequency adverb become ambiguous with a focused phrase and how these readings are derived. I first discuss the interaction of focus and the negation and then discuss the interaction of focus and frequency adverbs.

3.1. Negation and Focus

3.1.1. Logical Negation and Meta-linguistic Negation

Horn (1989) distinguishes logical negation and meta-linguistic negation.

Compare the following two examples:

- (5) John's house is **not** big. It is small.
- (6) John's house is **not** big. It is huge.

While the negation in (5) and the negation in (6) both contradict a description of John's house as big, they function differently. In (5), the negation denies the truth of John's house being big, expressing that John's house is opposite to big. This type of negation is called "Logical Negation". In (6), the negation denies the implication of using the term *big*. According to the Cooperative Principle proposed by Grice (1975), the conversational contribution must be as informative as possible. If John's house is better described as *huge*, the less informative expression *big* should not be used. If the speaker uses the term *big*, then it implies that John's building is not huge. The negation in (6) denies this implication of using *big*. This type of negation is called "Meta-linguistic Negation". A similar case is found in sentences with a scalar quantifier expression.

(7) Chris does **not** have two daughters. He has one.

(8) Chris does **not** have two daughters. He has three.

In (7), the negation simply denies the truth of Chris having two daughters and the negation functions as logical negation. In (8), the negation denies the implicature of using the term "two". The negation in this example is used meta-linguistically.

When we examine the sentences with a focused element, we notice that both logical and meta-linguistic negations can associate with a focused element.

(9) Mary didn't hand in the homework LATE. She did so ON TIME.

(10) Mary didn't hand in the homework (just) LATE. She did so A WEEK LATE.

In (9), the negation associates with the focused element and it denies the truth of Mary's submission of the homework being late. Here, *not* logically negates the focused element *late*. In (10), on the other hand, *not* associates with the focused element *late*, but it denies the implication of using the term *late*, functioning as a meta-linguistics negation. These cases indicate that both logical and meta-linguistics negations are sensitive to focus. In the following sections, I examine how the negation interacts with the focused element, but I only discuss logical negation since focus sensitive property of meta-linguistic negation would require more complicated system than the logical negation case. This does not mean that we need a totally independent mechanism for the focus sensitivity of meta-linguistic negation. Rather I speculate that a similar mechanism applies to the meta-linguistic negation constructions, too, though I cannot discuss the focus sensitive property of meta-linguistic negation any further.

3.1.2. Association with Focus

Jackendoff (1972) observes that a sentence with a focused element is ambiguous with negation. Let us first look at the sentence without negation.

(11) John buttered THE BAGEL yesterday.

The sentence presupposes the presence of yesterday's event of butting by John and it asserts that it was on the bagel. This reading is logically represented as (12).

(12) $[\exists e_1: C(e_1) \& \text{butter}(e_1) \& \text{Agent}(e_1, \text{John}) \& \text{At}(e_1, \text{yesterday})] [\exists e_2: C(e_2) \& \mathcal{R}(e_2, e_1)] \text{Theme}(e_2, \text{the bagel})$

When negation appears in (11), the sentence becomes ambiguous.

(13) John didn't butter THE BAGEL yesterday.

a. It was not the bagel that John buttered yesterday. [bound]

b. It was the bagel that John didn't butter yesterday. [free]

In the first reading, John buttered something, but it was not the bagel. The negation associate with focus and this reading is called "bound" reading. In the second reading, John didn't butter something and it was the bagel. The negation does not associate with focus, so this reading is called "free" reading.¹

Herburger (2000) argues that these two readings are result of the scope difference of negation. She claims that the negation is interpreted in the scope of the event quantifier in the bound reading, and it is interpreted in the restriction of the event quantifier in the free reading. The two readings in (13) are logically represented as (14) and (15) respectively.

¹ One may think that *the bagel* behaves like a contrastive topic in the free reading. However, *the bagel* in the free reading expresses the new information and hence, it is considered different from "topic". Furthermore, it is unclear what the contrastive topic is. In section 3.2.3.2, I briefly suggest that contrastive topic corresponds to what we call "secondary occurrence focus".

(14) $[\exists e_1: C(e_1) \& \text{butter}(e_1) \& \text{Agent}(e_1, \text{John}) \& \text{At}(e_1, \text{yesterday})] [\exists e_2: C(e_2) \& \mathfrak{R}(e_2, e_1)] \sim [\text{Theme}(e_2, \text{the bagel})]$ *bound reading*

(15) $[\exists e_1: C(e_1) \& \sim [\text{butter}(e_1) \& \text{Agent}(e_1, \text{John}) \& \text{At}(e_1, \text{yesterday})]] [\exists e_2: C(e_2) \& \mathfrak{R}(e_2, e_1)] \text{Theme}(e_2, \text{the bagel})$ *free reading*

In (14), the negation takes scope over the focused element *the bagel*. In (15), the negation takes scope over the verbal conjuncts. In addition to these readings, Herburger (2000) observes the third, less salient reading, which is called "wide-reading" and the negation is translated as *it is not the case that*. The wide-reading of *John didn't butter THE BAGEL yesterday* is translated as "it was not the case that there was an event of buttering by John yesterday such that its theme was the bagel". This reading is logically represented as (16).

(16) $\sim [[\exists e_1: C(e_1) \& \text{butter}(e_1) \& \text{Agent}(e_1, \text{John}) \& \text{At}(e_1, \text{yesterday})] [\exists e_2: C(e_2) \& \mathfrak{R}(e_2, e_1)] \text{Theme}(e_2, \text{the bagel})]$ *wide reading*

In this reading, the negation takes scope over the main event quantifier and the presence of the buttering event is denied. This reading is found in the context given in (17), where the speaker A presupposes the John's buttering and the second speaker B denies the presupposition of A's utterance.

(17) A: John buttered THE BAGEL yesterday.

B: No, he didn't butter THE BAGEL yesterday. He said that he could not find any butter.

While negated sentences with a focused element are ambiguous in their written form, it has been pointed out that the bound reading and the free reading are phonologically marked differently (Jackendoff 1972, Taglicht 1984,

Herburger 2000). When the bound intended, the sentence has the fall-rise intonation contour (~).

(18) John didn't butter The ~Bagel yesterday. *bound reading*

The pitch drops after the focused element, but it rises again at the end of the sentence. This intonation contour induces the continuation of the sentence "but he buttered THE TOAST" (Carlson 1984). When the free reading is intended, in contrast, the sentence has the fall contour (').

(19) John didn't butter THE 'BAGEL yesterday. *free reading*

The pitch which falls after the focused element remains low at the end of the sentence. This intonation contour signals the completion of the sentence. Finally, Herburger (2000) notes that when the wider reading is intended, the sentence has the fall-rise intonation contour, just like the bound reading.

(20) A: John buttered THE 'BAGEL yesterday.

B: No, he didn't butter THE~BAGEL yesterday. He said that he could not find any butter. *wide reading*

In the wide reading in (20B), the negation denies the presupposition of the previous utterance. For the utterance to be informative, the speaker should provide the correct information in the continuing sentence. Thus, the fall-rise intonation contour, which signals the utterance continuation, is preferred in the wide reading.

While the bound and the free readings are distinguished with phonological cue in English, they are distinguished syntactically in Hungarian (Kiss 1994). Without the focused element, the negation appears pre-verbal position.

(21) Mari [**nem** főzött ebéd-et].

Mary not cooked lunch-acc

'Mary didn't cook lunch.'

without focus (Kiss 1994)

In Hungarian, the focused element appears in a designated position, which follows the topic phrase. In the bound reading, the negation *nem* (*not*) precedes the focused element (22a). In the free reading, it precedes the predicate (22b).

(22) a. Mari [**nem** EBÉDET_i [főzött *t_i*]]

Mary not lunch cooked

'It was not LUNCH that Mary cooked.'

bound reading

b. Mari [EBÉDET_i [**nem** főzött *t_i*]]

Mary lunch not cooked

'It was LUNCH that Mary did not cook.'

free reading (Kiss 1994)

This difference between (22a) and (22b) in Hungarian suggests that the scope difference of negation arises from the difference of syntactic positions of the negation.

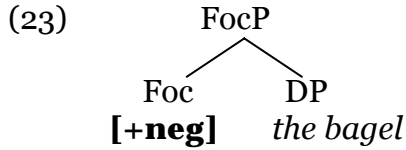
I argue that the negation may be interpreted in the position different from the Neg-projection and the LF position of the interpretable [+neg] feature decides the scope of the negation. I propose that the [+neg] feature appears in the Foc-head in the bound reading (23), while it appears in the Neg-head in the free reading (24).²

² It looks possible to consider that the [+neg] feature appears on the predicate. Under this analysis, the negated predicate $visit_{[+neg]}$ would have the following semantic value:

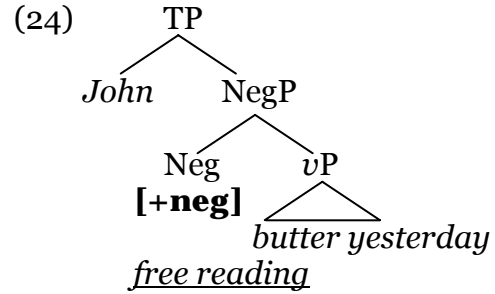
(i) $[[visit_{[+neg]}]] = \lambda e[\sim visit(e)]$

Richard K. Larson (personal communication), however, pointed out that this analysis wrongly predicts that the sentence in (ii) lacks the free reading.

(ii) John didn't submit any report YESTERDAY.

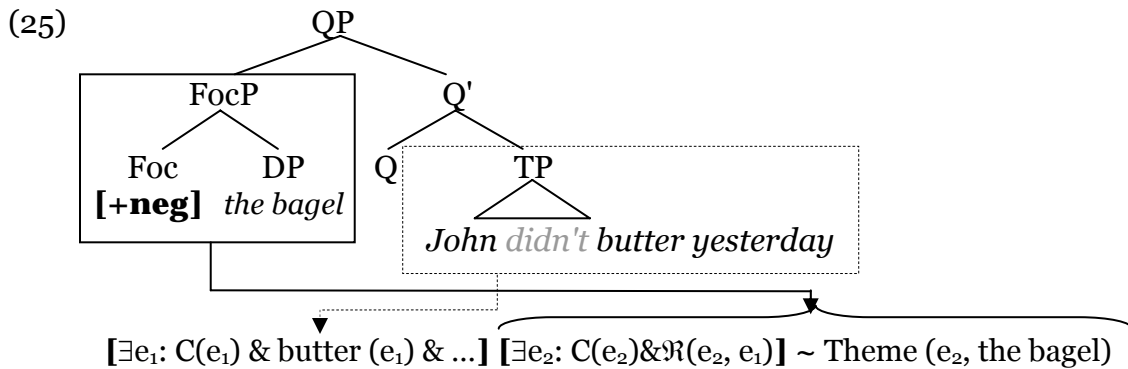


bound reading



free reading

Since the FocP is interpreted in the scope of the event quantifier, if the [+neg] feature appears in the Foc-head, it is mapped to the scope of the event quantifier together with the focused element, as illustrated in (25).

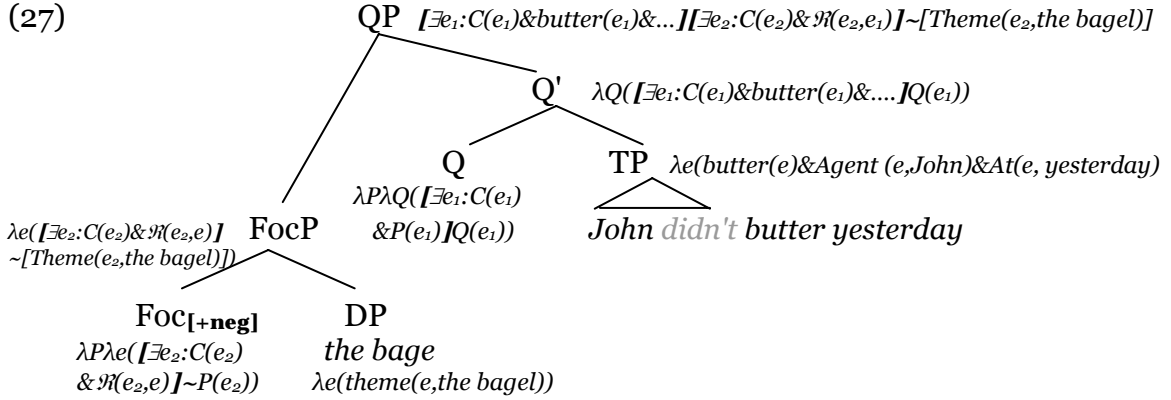


As discussed in the previous chapter, the Foc-head without the [+neg] feature has the semantic value in (26a). I propose that the Foc-head with the [+neg] feature has the semantic value in (26b).

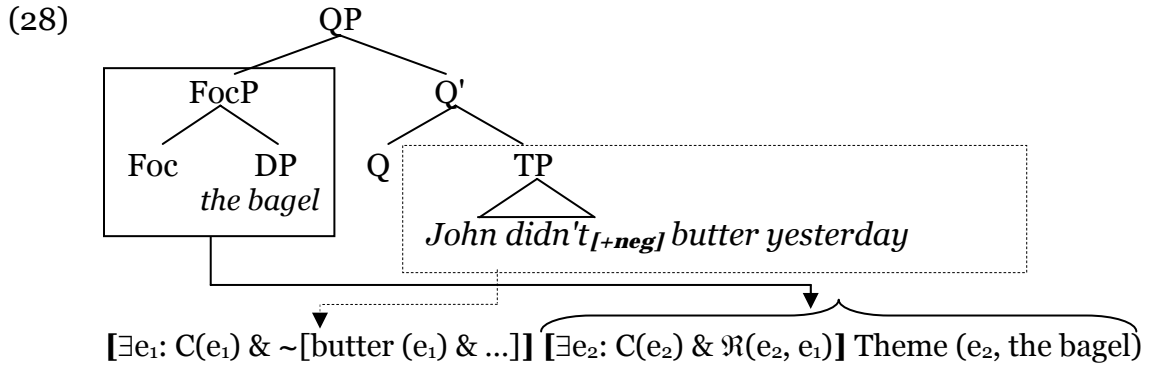
- (26) a. $[[Foc]] = \lambda P \lambda e ([\exists e_1: C(e_1) \ \& \ \mathcal{R}(e_1, e)] P(e_1))$
 b. $[[Foc_{[+neg]}]] = \lambda P \lambda e ([\exists e_1: C(e_1) \ \& \ \mathcal{R}(e_1, e)] \sim P(e_1))$

With the semantic value in (26b), the logical representation of the bound reading is derived compositionally as follows:

Given that the [+neg] feature licenses NPIs at LF, if the [+neg] feature appears on the predicate as in (i), it would not be able to license the NPI and we predict that (ii) lacks the free reading. If the [+neg] feature appears on the Neg-head, we correctly predict the presence of free reading in (ii). I thus take the latter analysis.



In contrast, if the [+neg] feature appears in Neg-head, it is mapped into the restriction of the event quantifier.



Given that the [+neg] feature is in the Neg-head, which appears under TP (Pollock 1989, Laka 1989, and Zanuttini 1989),³ the Neg-head with the [+neg] feature has the semantic value in (29).⁴

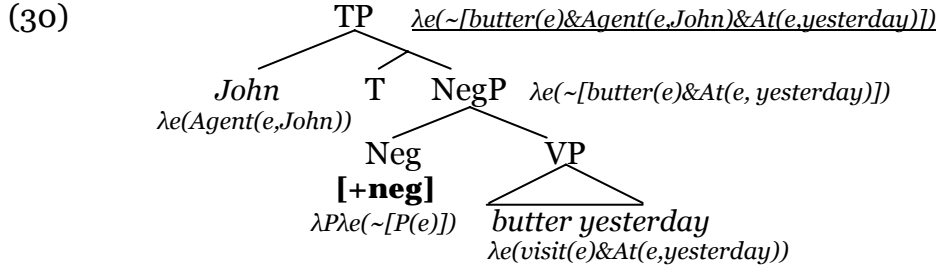
(29) $[[Neg_{[+neg]}]] = \lambda P \lambda e (\sim [P(e)])$

With the semantic value of the Neg-head in (29), the interpretation of the TP is derived as in (30).

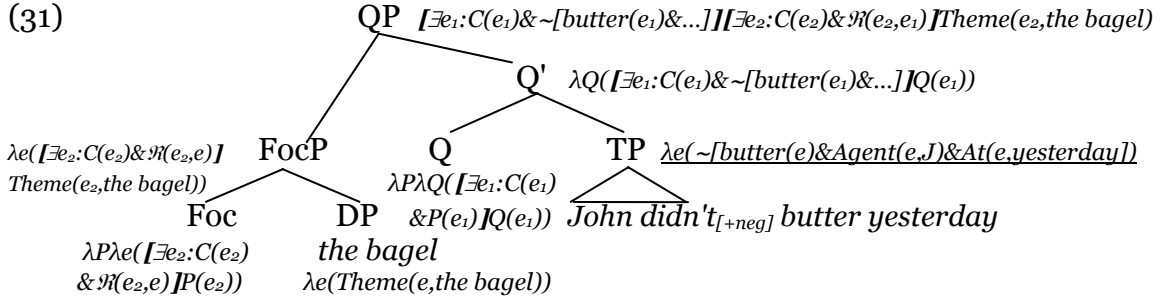
³ I consider that Neg-projection appears under IP/TP, following Pollok (1989), Laka (1989), and Zanuttini (1989).

⁴ In the bound reading, the Neg-head lacks the [+neg] feature and it does not have any semantic contribution. The Neg-head without the [+neg] feature would have the following semantic values:

(i) $[[Neg]] = \lambda P \lambda e (P(e))$



Using the derived semantic value of TP, the free reading is derived as follows:



Thus, using the [+neg] feature for the interpretation of negation, both bound and free readings are derived compositionally.

In this analysis, the [+neg] feature appears in the position different from where the negation is actually pronounced in the bound reading. The Neg-head is overtly realized as *not* in English.⁵ I assume that if the [+neg] feature appears at the position different from the Neg-head, the [+neg] feature must be c-commanded by the Neg-head at the point that the Neg-head is introduced into

⁵ Macel den Dikken (personal communication) pointed out that the asymmetry of contracted and non-contracted forms in (i) would not be explained with the idea that *not* is the Neg-head.

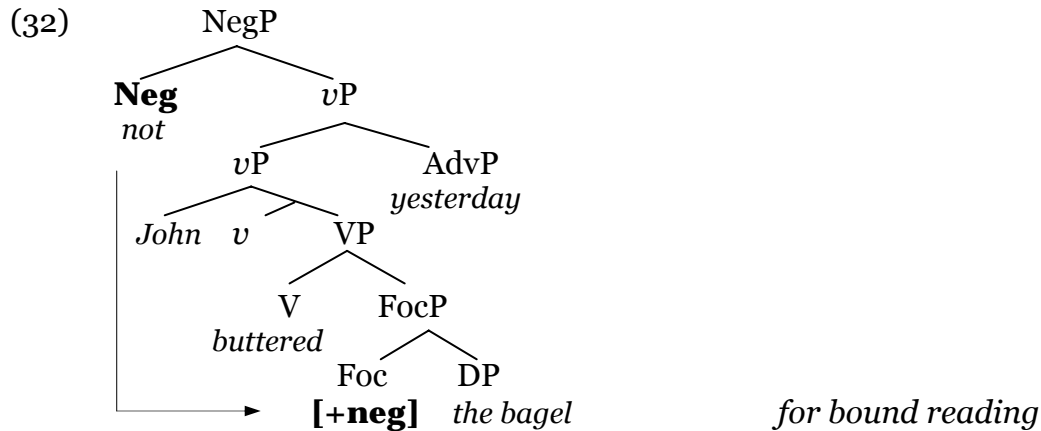
- (i) a. Didn't he butter the bagel?
 b. *Did not he butter the bagel?
 c. Did he not butter the bagel?

Pollock (1989) considers that *do* originally appear in Agr-head, as in (ii).

- (ii) [_{CP} [_{TP} he [_{NegP} *not* [_{AgrP} *do* [_{VP} butter the bagel]]]]]

Pollock assumes that contraction must take place when *do* adjoins to the Neg-head as a result of Head-movement. To explain the grammaticality of (ic), he assumes that *not* of non-contracted form appears in NegP spec. Instead, I assume that *do* appears in T-head, not in Agr-head. (ia) is grammatical because contraction take place as a result of adjunction of the Neg-head to the T-head. (ib) is ruled out because contraction does not happen while the Neg-head adjoins to the T-head. (ic) is grammatical without head-adjunction of the Neg-head to the T-head. Under this analysis, *not* appears in the Neg-head in both contracted and non-contracted forms. No

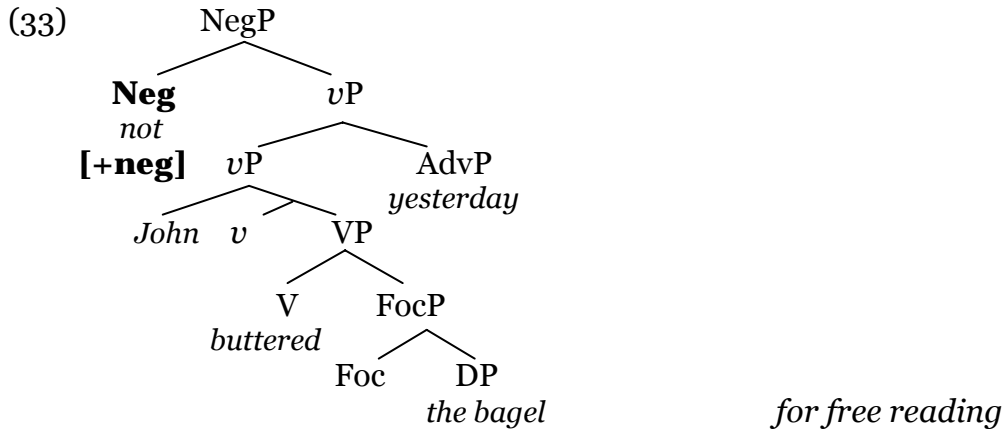
the derivation forming a probe-goal relation (Chomsky 2001).⁶ In the bound reading, the [+neg] feature appears in the Foc-head. While the FocP moves to the QP spec later, at the stage of introducing the Neg-head to the derivation, the FocP is still inside of the *v*P and the [+neg] feature in the Foc-head can be licensed by the Neg-head under the c-command configuration.



In the free reading, the [+neg] feature appears at the Neg-head at the beginning and no licensing is required.

significant differences are found between contracted and non-contracted forms in the respect of the availability of bound and free readings.

⁶ Marcel den Dikken (personal communication) suggested that "license" would be considered as "checking" if we assume that the Neg-head of the structure for the bound reading has an uninterpretable [+neg] feature and it is checked off under the feature-checking relation with the interpretable [+neg] feature on the Foc-head. For the free reading, I assume that the [+neg] feature in the Neg-head is interpretable. In English, the interpretable [+neg] feature cannot appear twice in the same structure at the Foc-head and the Neg-head. This indicates that the Neg-head with the interpretable [+neg] feature cannot license/check other interpretable [+neg] features. It would be interesting to see what kind of pattern is allowed in negative concord languages. I leave it for further research.



In the bound reading, the [+neg] feature and the Neg-head appear in the different positions. The bipartite analysis of negation is not new and in fact, two parts of negation are observed overtly in several languages. The *ne...pas* construction in French (34) and the *nie...en* construction in West Flemish (34) are famous examples.

- (34) Jean (**ne**) mange **pas** de chocolat. *French*
 Jean *neg* eat not of chocolate
 'Jean does not eat any chocolate.' (Haegeman 1995)

- (35) da Valère woarschijnlijk **nie** nor is (**en**)-goat *West Flemish*
 that Valère probably not to us *neg*-goes
 'that Valère probably does not go home' (Haegeman 1995)

Jäger (2005) discusses German Old High German data. In Old High German, the negation is expressed with the particle *ni*, which cliticises on the verb.

- (36) **N**ist si so gisúngan *Old High German*
 not-is she thus sung
 'She is not sung thus.' (Jäger 2005)

Jäger (2005) analyzes the negative particle *ni* as a Neg-head. Interestingly, he reports that when the sentence has a focused element, the free negation particle *nalles* co-occurs with the negative particle *ni*.

(37) **Nalles** IOGIUUELIH THER MIR QUIDIT/ TRUHTIN TRUHTIN **nigat**
neg everyone who me says load load not-goes
 in himilo rihhi;/ ouh ther the tuot mines fater uuillon/ ther in
 in heaven kingdom but who REL does my father's will who in
 himile ist hér gát/ In himilo rihhi.
 heave is he goes in heaven kingdom

'Not everyone who calls to me "Lord, lord" will go to heaven but he who does the wil of my father, who is in heaven, will go to heaven'

(*Die lateinisch-althochdeutsche Tatianbilingue Stiftsbibliothek St. Gallen Cod.* 56, cited by Jäger 2005, boldface and capitalization are mine)

The negative element *nalles* attaches to the focused phrase, expressing the bound reading. Given these cross-linguistic data, it would not be unnatural to consider that there to be two negative elements in English, the Neg-projection and the [+neg] feature. This bi-partite analysis of the negation makes it possible to interpret the negation in the position different from where it is phonologically realized.

Though the Neg-head is usually pronounced in English, it seems that the [+neg] feature is the one which is overtly realized in Hungarian. The examples in (22) by Kiss (1994) are repeated here as (38).

- (38) a. Mari [**nem** EBÉDET_i [főzött t_i]] *Hungarian*
 Mary not lunch cooked
 'It was not LUNCH that Mary cooked.)' [bound]
- b. Mari [EBÉDET_i [**nem** főzött t_i]]
 Mary lunch not cooked
 'It was LUNCH that Mary did not cook.' [free]

In the bound reading, *nem* attaches to the focused element, while in the free reading, it attaches to the predicate phrase. The same pattern is observed in Russian.⁷ In Russian, the negative element *ne* may appear in different positions in negated focal constructions, and this difference of position correlates with difference of reading.

- (39) a. John vstretil **ne** MARY. *Russian*
 John met neg Mary
 'John met someone. It was not Mary, but someone else.' [bound]
- b. John **ne** vstretil MARY.
 John neg met Mary
 'It was Mary that John didn't meet.' [free]

The negation *ne* attaches to the focused element in the bound reading and it attaches to the predicate phrase in the free reading. Thus it seems that the [+neg] feature is overtly realized in Hungarian and Russian.

⁷ Thanks Andrei Antonenko for the Russian data.

Even in English, the [+neg] feature, instead of the Neg-head, is sometimes overtly realized. Klima (1964) discusses the *not A but B* constructions. The bound reading of the sentence in (40) can be expressed as (41) using this construction.

(40) John didn't butter THE BAGEL, but THE TOAST.

(41) John buttered **not** THE BAGEL, but THE TOAST.

In (41), the negation applies over the focused element *the bagel* and the sentence expresses the same meaning with the bound reading of (40). Under the current analysis of the bipartite negation, we can consider (40) and (41) to have the same syntactic structure and the same logical representation. The Neg-head is phonologically realized in (40), and the [+neg] feature in the Foc-head is phonologically realized in (41).⁸

Furthermore, negation may be combined directly with a focused phrase.

(42) A: John buttered THE BAGEL yesterday.

B: **Not** THE BAGEL! It was THE TOAST.

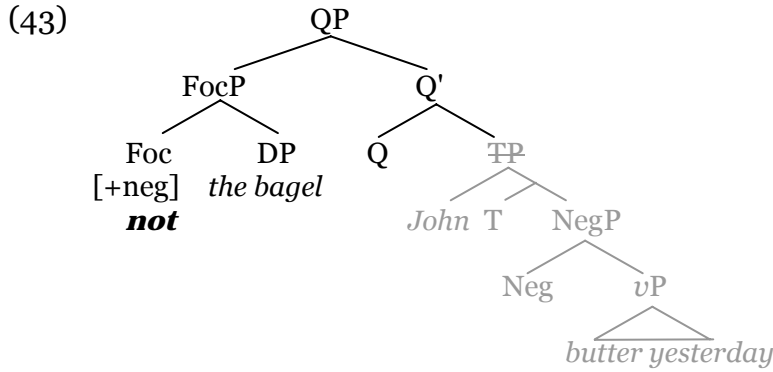
I propose that *not* in (42B) is the [+neg] feature in Foc-head and the bare binary combination form *Not THE BAGEL!* is derived with ellipsis of TP in the complement of Q.⁹

⁸ The negation used in (41) is sometimes called "constituent negation", in contrast with the "sentential (regular) negation" in (40). This analysis, however, treats (40) and (41) as two phonological variations of one syntactic structure. Interestingly, tag-question form supports this uniform analysis. The tag-forms are the same in both (i) and (ii).

(i) John didn't butter THE BAGEL, but THE TOAST, didn't he?

(ii) John buttered not THE BAGEL, but THE TOAST, didn't he?

⁹ When TP deletion takes place, the FocP must move to QP spec overtly. I suggest that this correlation between the presence of deletion and overt movement arises from economy constraints. Movement without phonological features (covert movement) is more economical than movement with phonological features (overt movement) (Chomsky 1995). I assume that the phonological features of the focused element must be overtly realized at LF. When deletion of TP takes place, FocP must move overtly, since otherwise FocP cannot be overtly realized. When deletion of TP does not take place, FocP movement does not pied-pipe the phonological features to make the movement more economical. Thus, bare-binary combination constructions, which



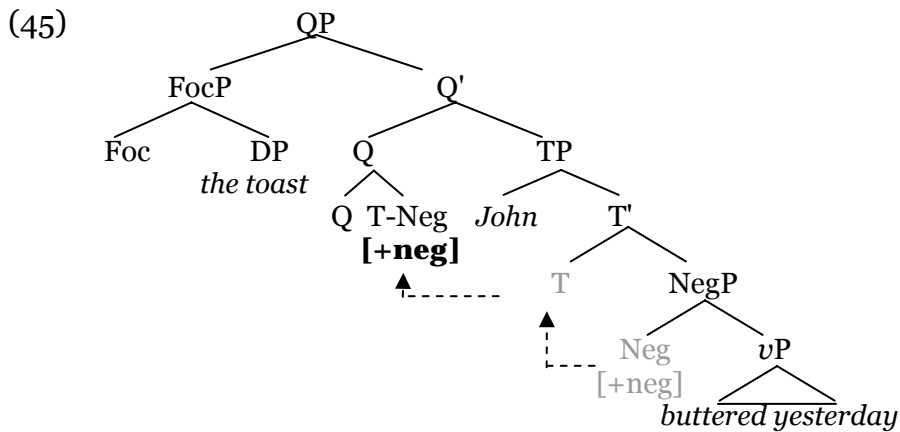
These facts support the presence of the [+neg] feature, which may be placed in the position different from the Neg-head.

Before discussing the implications of this [+neg] feature analysis, I briefly suggest the syntactic structure of the wide reading, in which the negation takes scope over the entire clause.

(44) John didn't butter THE BAGEL yesterday.

~ [[$\exists e_1$: C(e_1) & butter (e_1) & Agent (e_1 , John) & At (e_1 , yesterday)]] [$\exists e_2$: C(e_2) & $\mathcal{R}(e_2, e_1)$] Theme (e_2 , the toast)]

I assume that the Neg-head may move to the Q-head and the [+neg] feature in the Neg-head is interpreted at the landing site of the head-movement.¹⁰



involve TP deletion, require movement of FocP to be overt. The same explanation applies to pseudo-clefts which will be discussed later in 3.1.3.

The Q-head usually has the semantic value in (46a) without the [+neg] feature. When the Neg-head with the [+neg] feature adjoins to the Q-head, the Q-head is considered to have the semantic value in (46b).

- (46) a. $\llbracket Q \rrbracket = \lambda P (\llbracket \exists e_1: C(e_1) \rrbracket P(e_1))$
 b. $\llbracket Q\text{-T-Neg}_{[+neg]} \rrbracket = \lambda P (\sim \llbracket \exists e_1: C(e_1) \rrbracket P(e_1))$

Given the semantic value in (46b), the logical representation of the wide reading is successfully derived. How head-movement of the Neg-head and the T-head is motivated, and how the semantic value of the adjoined heads is derived, are not clear. While these questions are worth pursuing, I leave them open now. Instead, in the next subsection, I discuss interesting implications of the [+neg] feature analysis examining some interaction of focus and negative polarity items (NPIs).

3.1.3. Negative Polarity Items in Negated Focal Constructions

Negative Polarity Items (NPIs), such as *any N*, require a c-commanding negative licenser for their interpretation.¹¹ For example, while (47a) is ungrammatical, (47b) is grammatical.

- (47) a. *John buttered **any bagel**.
 b. John didn't butter **any bagel**.

¹⁰ I assume that movement of Neg-head to Q-head is optional and when it occurs, the wide-reading is derived. It is not clear what triggers this movement and leave it for further research.

¹¹ Some non-negative elements may also license NPIs. For the detailed requirement for the NPI licensers, see Ladusaw (1979) and Progovac (1994). In this chapter, I only deal with negation, which is clearly qualified as an NPI licenser.

(47a) does not have the negative element. The NPI *any bagel* is not licensed and the sentence is ungrammatical. In (47b), the negation licenses the NPI *any bagel*, and hence, the sentence is grammatical.

Linebarger (1980) and Uribe-Echevarria (1994) argue that there is a correlation between scope possibilities and NPI-licensing possibilities. They observe the contrast between (48) and (49).

(48) [A doctor who knew **anything** about acupuncture] was **not** available.

(49) *[Many doctors who knew **anything** about acupuncture] were **not** available. (Uribe-Echevarria 1994)

The NPI within the pre-verbal indefinite NP can be licensed by the negation, as in (48), but the NPI within the pre-verbal many-NP cannot, as in (49). Linebarger and Uribe-Echevarria argue that the contrast in (48) and (49) arises from the contrast of scope possibilities in (50) and (51). The negation may take scope over the preverbal indefinite NP, whereas it cannot take scope over the *many-NP*.

(50) A doctor was not available.

a. There was a doctor who was unavailable. (*a doctor* > *not*)

b. There was no doctor who was available. (*not* > *a doctor*)

(51) Many doctors were not available.

a. Many doctors were such that they were unavailable. (*many doctor* > *not*)

b. #There were not many doctors who were available. (#*not* > *many doctor*)

Kroch (1974) and May (1977) argue that scope relations are formed at LF. If so, the correlation between scope possibilities and NPI-licensing possibilities indicates that LF is the relevant level of NPI-licensing. Thus, Linebarger and Uribe-Echevarria conclude that NPI-licensing takes place at LF.

In the previous sub-section, I argued that the [+neg] feature is responsible for the semantic interpretation of the negation and the LF-position of the [+neg] feature decides the scope of the negation. Since scope possibilities and NPI-licensing possibilities are correlated, it is reasonable to consider that the [+neg] feature licenses the NPIs at LF. I propose that NPIs are licensed when they are c-commanded by the [+neg] feature at LF.¹² Recall that when the sentence has a focal element, the [+neg] feature may appear on the Foc-head (bound reading) or on the Neg-head (free reading). If the [+neg] feature appears on the Foc-head, it would license an NPI within the focused phrase, while if the [+neg] feature appears on the Neg-head, it won't. Thus, the current analysis predicts that the sentence with an NPI in the focused phrase is unambiguous and only bound reading is allowed. This prediction is born out. In (52), an NPI *any bagel* is focused and the sentence is unambiguous.¹³

(52) John didn't eat **ANY BAGEL**.

- a. It was not a bagel that John ate. (He ate something else) (bound)
- b. #It was a bagel that John didn't eat. (#free)

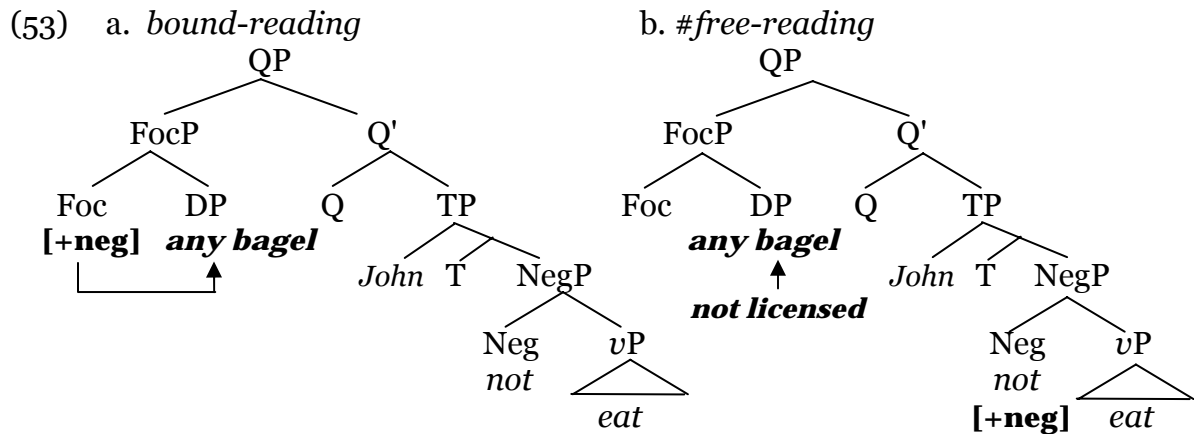
The LF-structures of the bound and the free reading are given below:

¹² When the NPI appears inside the subject and it is focused, the sentence is ungrammatical.

(i) *ANYONE didn't attend the conference.

Interestingly, Henry (1995) observes that NPI-subjects are licensed in Belfast English. I leave the analysis of (i) and the parameter setting of Standard English and Belfast English as an open question.

¹³ If S-structure c-commanding is enough for NPI-licensing, we wrongly predict that (52) allows both bound and free reading. Lack of the bound reading indicates that LF c-command is required for NPI-licensing.



The Foc-head c-commands the focused phrase, but the Neg-head does not c-command it at LF. Thus, the NPI is licensed in the bound reading (53a), but not in the free reading (53b).

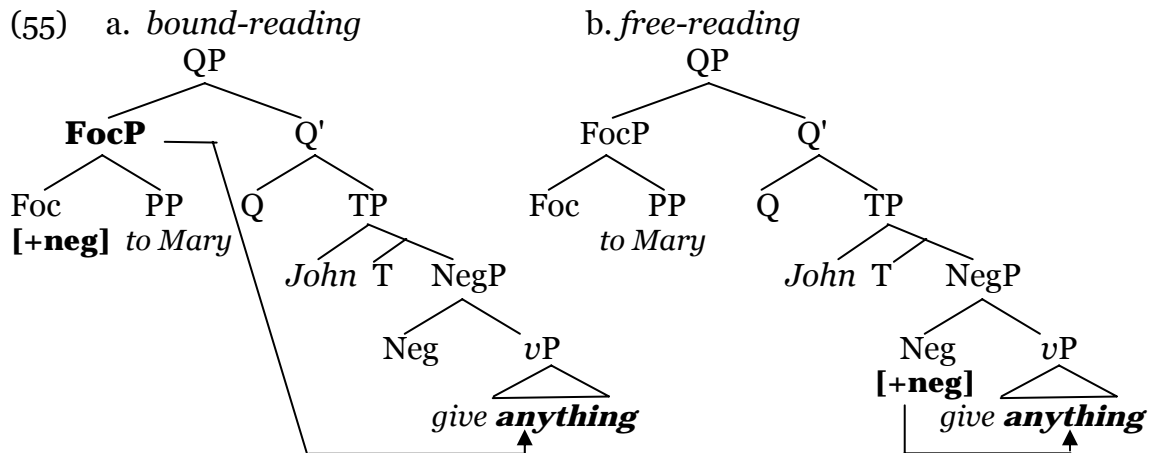
Interestingly, when an NPI appears outside of the FocP, the sentence stays ambiguous and it has both bound and free readings.

(54) John didn't give **anything** TO MARY.

- a. It was not to Mary that John gave something. (bound)
b. It was to Mary that John didn't give anything. (free)

The presence of the free reading is predicted, since the Neg-head c-commands the NPI in the presupposition. The availability of the bound reading may look to be a problem, since the Foc-head does not directly c-command the NPI outside of FocP. Under standard X-bar theory, however, the features of a head project up to its maximal projection and thus, the FocP inherits the [+neg] feature from its head. This FocP should be able to license the TP-internal NPI. In (55a), the FocP c-commands an NPI in TP. Thus, (54) has the bound reading, in addition to the free reading.¹⁴

¹⁴ Thank Marcel den Dikken for suggesting this possibility.



I have shown that there is a correlation between the NPI-position and the availability of bound/free readings. When an NPI appears in the focused phrase, the sentence only has the bound reading, while when the NPI is a part of presupposition, the negated sentence stays ambiguous with bound and free readings. This correlation supports the current analysis of the bound and free readings. In the next section, I show that the same pattern is observed in the specificational pseudo-clefts and NPI connectivity is explained in the parallel way.

3.1.4. NPI-connectivity in Specificational Pseudo-clefts

Heycock and Kroch (1999) observe that NPIs can exceptionally occur in pseudo-clefts without apparent c-commanding relations with the negation.

(56) *John ate a toast, a croissant, a muffin and cookies.*

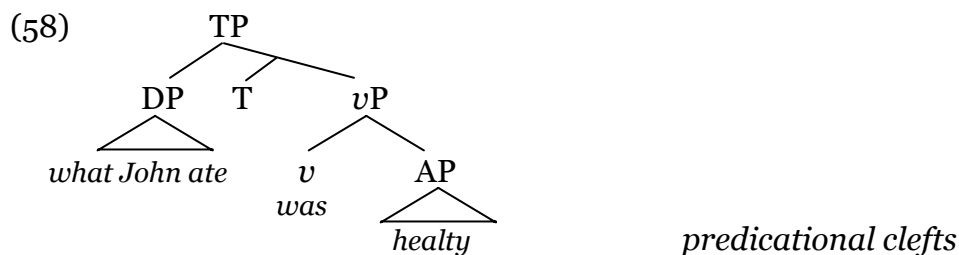
[What John didn't eat] was **any bagel**.

In (56), *not* in the *wh*-phrase does not c-command the NPI *any bagel*, but the sentence is grammatical. In this subsection, I argue that this peculiar NPI connectivity phenomenon is a focal phenomenon.

Higgins (1973) and Williams (1983) observe that there are two types of pseudo-clefts; predicational clefts and specificational clefts. The followings are examples of predicational and specificational pseudo-clefts:

- (57) a. [What John ate] was healthy. *predicational*
 b. [What John ate] was the bagel. *specificational*

(57a) is interpreted as "the thing that John ate has the property of being healthy." The clefted phrase *healthy* expresses the predicate and *wh*-phrase is the subject of that predicate. This type of cleft is called a "predicational cleft" and is considered to have the following syntactic structure:

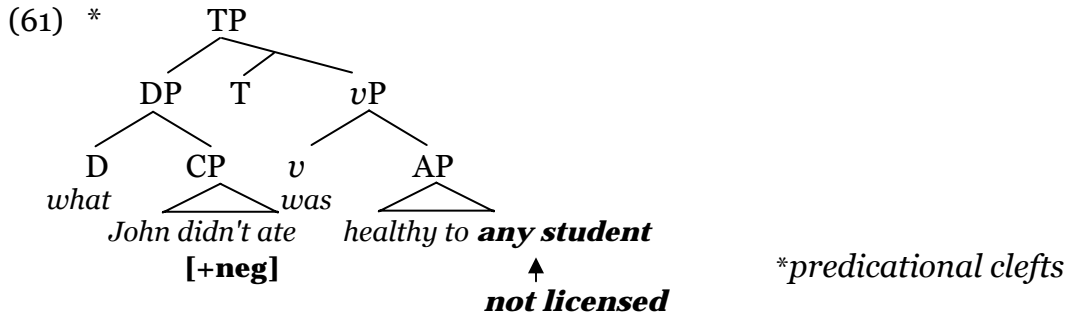


In contrast, (57b) is interpreted as "John ate x and x = the bagel". The *wh*-phrase expresses the predication and the clefted phrase specifies the element which the predication applies to. This type is called a "specificational cleft".

Interestingly, NPI connectivity is not found in the predicational clefts (59). It is found only in specificational clefts (60).

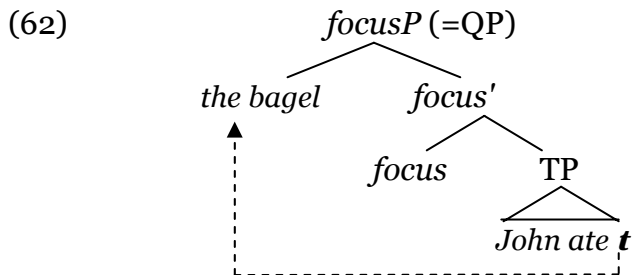
- (59) * [What John didn't eat] was healthy to **any student**. *predicational*
 (60) [What John didn't eat] was **any bagel**. (*What John ate was some toast.*)
specificational

The ungrammaticality of (59) is not surprising. The predicational cleft in (59) has the LF-structure in (61).



The negation within DP does not c-command the NPI within the *vP*. The NPI is not licensed and the sentence fails to be interpreted. The grammaticality of (60) is more puzzling. The negation does not c-command the NPI *any bagel*, but still the sentence is grammatical.

Higgins (1973) and Prince (1981) observe that the clefted phrase expresses the new information in specificational pseudo-clefts. Heycock and Kroch (2002) propose that specificational pseudo-clefts have the structure of the focus construction and argue that that clefted element is originally generated within the *wh*-phrase and moves to the spec of a functional projection over TP (Heycock and Kroch call this projection "focus projection", which corresponds to QP in my analysis) to receive the interpretation of focus. According to them, *What John ate was the bagel* has the following syntactic structure:



Heycock and Kroch claim that the elements in *focusP* spec expresses focus and the elements in the *focus P* complement expresses background information.¹⁵

This approach to specificational pseudo-clefts, however, has an empirical problem. As pointed out by den Dikken, Meinunger, and Wilder (2000), the clefted phrase can be clausal.

(63) [What John ate] was he ate THE BAGEL.

Under Heycock and Kroch's analysis of specificational pseudoc-clefts, it is unclear how to derive the form in (63).¹⁶ den Dikken, Meinunger, and Wilder (2000), instead, take an ellipsis approach. Showing the parallelism between the specificational pseudo-clefts and the question-answer-pairs, they argue that the pseudo-cleft in (63) has the structure of self-answering questions, with the *wh*-phrase as a question and the clefted phrase as its answer.¹⁷ They propose the full clausal pseudo-clefts (65) are formed parallel to the question answer pair (64).

(64) What did John ate? --- He ate THE BAGEL. [Question-Answer]

(65) [What John ate] was [TP he ate THE BAGEL].

[full clausal specificational pseudo-clefts]

When the clefted phrase does not have the full clause form, ellipsis takes place:

¹⁵ Heycock and Kroch (2002) do not discuss the status of *what*. It is also unclear how to derive the word order where the *wh*-phrase precedes the focused phrase.

¹⁶ Heycock and Kroch's (2002) analysis of connectivity also leaves an unclear point. Heycock and Kroch assume that the clefted element reconstructs at LF to explain connectivity effects. However, if reconstruction takes place, the information of focus structure is absent at LF.

¹⁷ Den Dikken, Meinunger and Wilder (2000) discuss other type of pseudo-clefts where the *wh*-phrase follows the focused phrase as in (i).

(i) The Bagels are [what John ate].

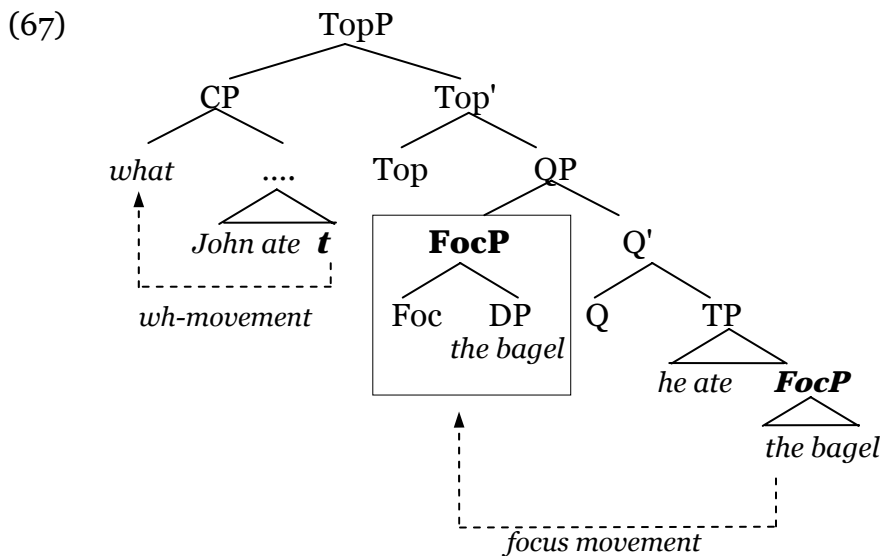
They argue that this type of pseudo-clefts does not have the structure of self-answering questions and it has the structure of small clause with a free relative.

(66) [What John ate] was [TP ~~he ate~~ THE BAGEL].

[non-clausal specificational pseudo-clefts]

A question remains on the ellipsis site of (66). While ellipsis typically targets a constituent (Lasnik 1995, Hornstein, Nunes and Grohmann 2005 and others), the elided phrases in (66) do not form a constituent.

To avoid this problem, I integrate the basic ideas of movement approach and ellipsis approach and propose the structure in (67) for specificational pseudo-clefts.



Following den Dikken, Meinunger, and Wilder (2000), I propose that CP appears within TopP spec with *wh*-movement inside of it.¹⁸ At the same time, following Heycock and Kroch (2002), I consider that focus movement takes place inside of QP. When the copy of FocP inside the TP is pronounced, we get the clausal

¹⁸ As for CP in TopP spec, I assume that this CP also has an independent event quantifier phrase and *wh*-movement of *what* undergoes through this QP spec before moving to CP spec.

(i) [TopP [CP *what*₁ [QP *t*₁' Q [TP John ate *t*₁]]] was [QP THE BAGEL₂ Q [TP John ate *t*₂]]]

While this analysis requires two independent event quantifiers (one for the *wh*-phrase and another one for the post-copular phrase), they refer to the same event, since both events are restricted by the same elements and the contextually relevant predicate *C*.

pseudo-cleft, namely, *What John ate was he ate THE BAGEL*. If the copy of FocP in the QP spec is overtly realized and TP in the complement of the Q-head is elided, the DP pseudo-cleft *What John ate was THE BAGEL* is derived. This analysis ensures that both clausal specificational pseudo-clefts and DP specificational pseudo-clefts have the informational structure of focus.¹⁹

Just like negated focus constructions discussed in the previous subsections, negated pseudo-clefts are ambiguous.

(68) [What John was not complaining about] was THE PROBLEM WITH THE ORGANIZATION.

a. It was not the problem with the organization that John was complaining about. (John complained about some other problem). (bound)

b. It was the problem with the organization that John was not complaining about. (free)

In (68), when the phonological stress is placed on the negation, the free reading is found and when the negation does not get the phonological stress, the bound reading is found. The presence of the bound-reading in (68) indicates that the Foc-head of the clefted phrase may have the [+neg] feature.

¹⁹ There is a correlation between the ellipsis and movement of FocP. In full specificational pseudo-clefts, where whole TP is pronounced, the FocP is pronounced within TP, whereas in non-clausal specificational pseudo-clefts, the FocP moves to QP spec overtly before the TP is deleted. Chomsky (1995) argues that movement which does not pied-pipe the phonological features is more economical than movement which pied-pipes the phonological features. This implies that covert movement is preferred to overt movement. In full specificational pseudo-clefts, there is a choice of moving FocP overtly or covertly and the more economical operation, namely covert movement, is always chosen. In non-clausal specificational pseudo-clefts, the TP is deleted. Given that the phonological features of the focused element must be overtly realized at PF, we do not have the choice of leaving the phonological feature of FocP inside of TP and movement of FocP must pied-pipe the phonological feature. Thus, overt movement of FocP is possible only in non-clausal specificational pseudo-clefts.

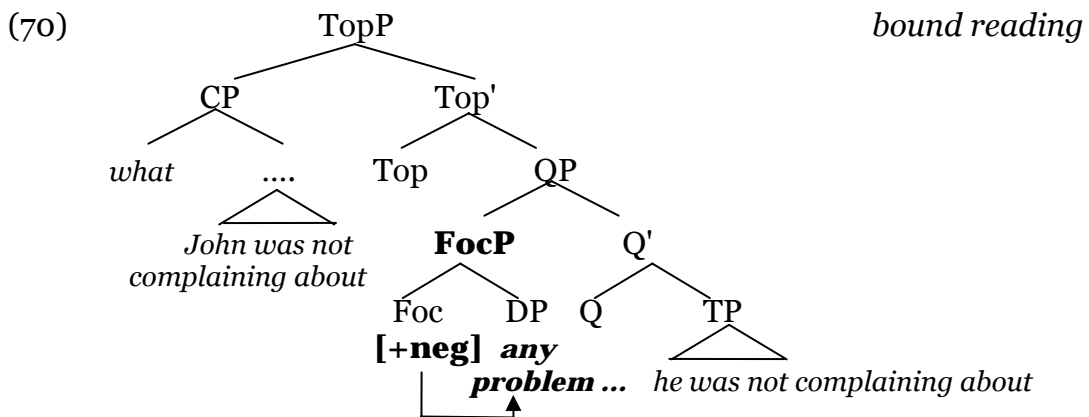
When an NPI appears in the clefted phrase, this bound reading stays, while the free reading disappears.

(69) [What John was not complaining about] was **ANY PROBLEM WITH THE ORGANIZATION**.

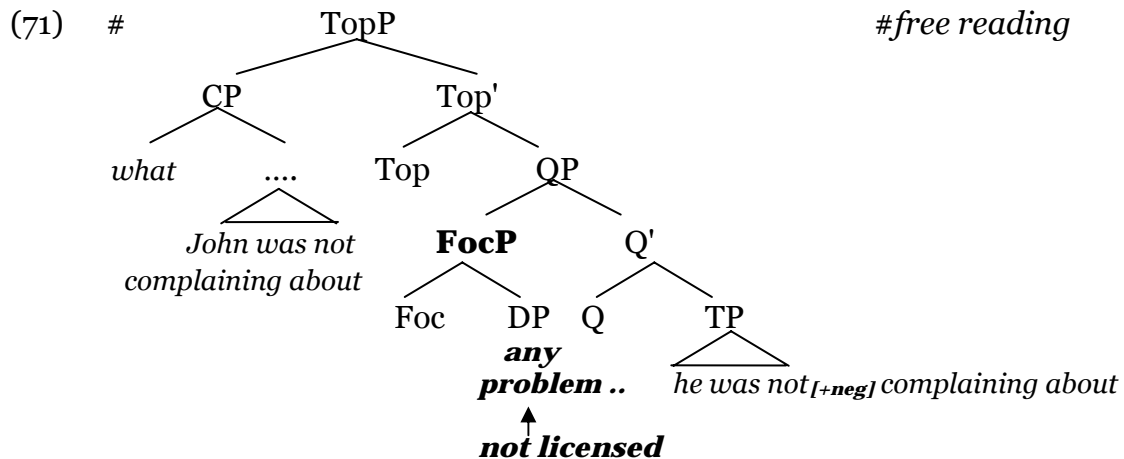
a. It was not a problem with the organization that John was complaining about. (John complained about some other problem). (bound)

b. # It was a problem with the organization that John was not complaining about. (free)

This is parallel to what we found for NPI-facts found in the negated focal constructions. When an NPI appears in the focused phrase, only the bound reading stays and the free reading disappears. In the bound reading, the [+neg] feature appears in the Foc-head and it c-commands the NPI *any food*, as shown in the LF- structure in (70).



In the free reading, the [+neg] feature does not appear on the Foc-head. Thus, the NPI in the clefted phrase is not licensed.



The sentence (69) is grammatical for the presence of the bound reading. This suggests that NPI connectivity is one of the focal phenomena and it supports the analysis that the Foc-head has the [+neg] feature in the bound reading.

Unlike the negated pseudo-clefts, which are ambiguous, the negated reversed pseudo-clefts (72) and negated *it*-clefts (73) are unambiguous allowing only free readings.

- (72) THE BAGEL was [what John did **not** eat]. reversed pseudo-cleft
 a. #John ate something. It was not a bagel. (#bound)
 b. John didn't eat one thing. It was a bagel. (free)
- (73) It was THE BAGEL [that John did **not** eat]. it-cleft
 a. #John ate something. It was not a bagel. (#bound)
 b. John didn't eat one thing. It was a bagel. (free)

These negated cleft constructions lack the bound reading, indicating that the [+neg] feature cannot appear in the Foc-head in these constructions. When the NPI appears in the clefted phrase in these cleft constructions, the sentences are ungrammatical.

- (74) ***ANY BAGEL** was [what John did **not** eat]. reversed pseudo-cleft

(75) *It was **ANY BAGEL** [that John did **not** eat]. *it-cleft*

While the bound reading is required for licensing the NPI in the clefted position, the negated reversed pseudo-clefts and negated *it*-clefts lack this reading. Consequently, the NPIs in the clefted position are not licensed and NPI connectivity is not observed. This supports the observation that NPI connectivity is tied to the presence of a bound reading.

Now, why do the negated reversed pseudo-clefts and the negated *it*-clefts lack the bound reading? den Dikken, Meinunger and Wilder (2000) observe that the copula in reversed pseudo-clefts and *it*-clefts behave differently from the copula in the regular pseudo-clefts. Whereas copulas in the regular pseudo-clefts cannot host negation (76a) and must agree in tense with the *wh*-phrase (76b), the copulas in reversed pseudo-clefts and *it*-clefts can host negation (77a) and independent tense (77b).

(76) a. *[What John ate] **was not** THE BAGEL.

b. *[What John ate] **is** THE BAGEL.

(77) a. THE BAGEL **was not** [what John ate].

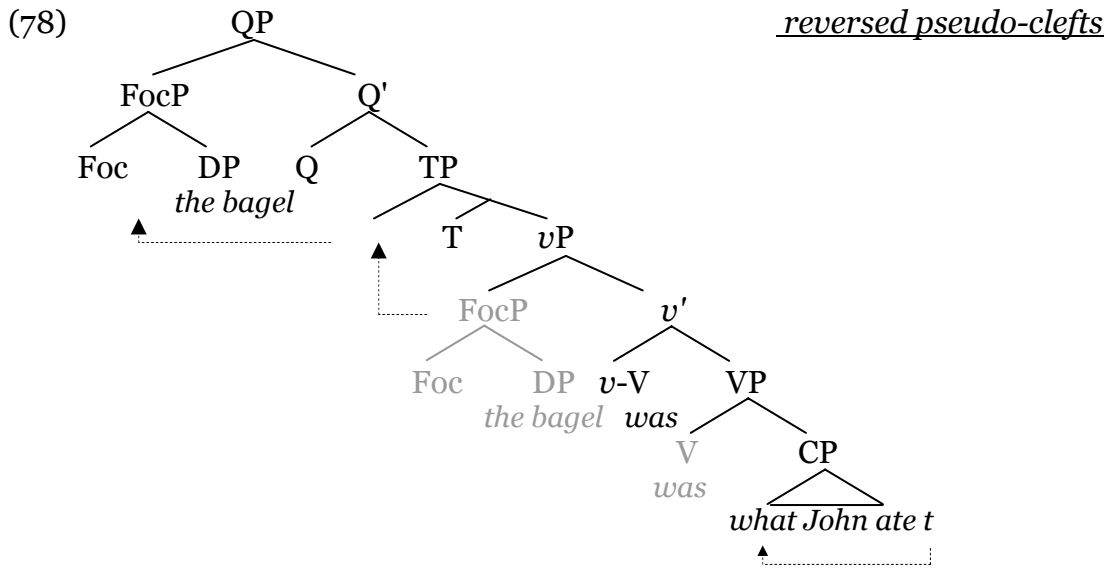
It **was** THE BAGEL [that John ate].

b. THE BAGEL **is** [what John ate].

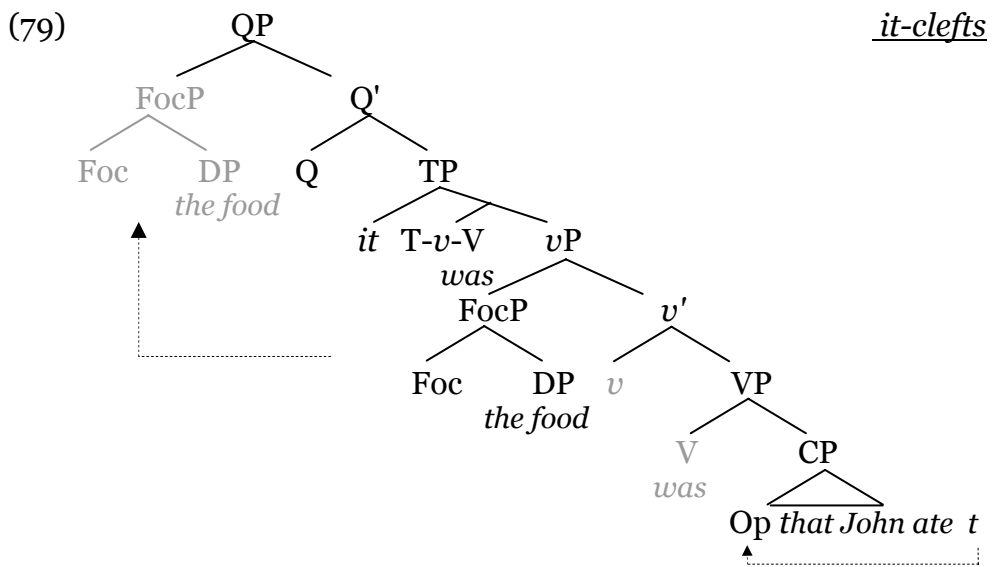
It **is** THE BAGEL [that John ate].

This shows that the copula of regular pseudo-clefts is defective (I follow den Dikken, Meinunger and Wilder's analysis that it is in the Top-head), but the copula of reversed pseudo-clefts and *it*-clefts behaves as a real predicate. Given that the clefted phrase is the subject of the copula in the reversed pseudo-cleft

and the *it*-cleft, the FocP first appears in *v*P spec and moves to the matrix QP spec.



Since the negation inside the *wh*-phrase would not c-command the Foc-head in *v*P spec at any stage of the derivation, the Foc-head cannot host the [+neg] feature. Consequently, the reversed pseudo-clefts cannot have the bound reading. The same analysis is applied to *it*-clefts. I propose the following structure for *it*-clefts:



Again, the Foc-head cannot be c-commanded by the CP internal element in this structure at any point of the derivation. The CP internal negation would not license the [+neg] feature in the Foc-head, and hence the bound reading is not attested.²⁰

NPIs in English are narrow-scope NPIs and they are licensed in the scope of negation, but other languages have a different type of NPIs. In Dutch, the regular NPIs are narrow-scope NPIs just like English NPIs, but *heel* (*whole*)-type NPIs are licensed in different conditions. According to den Dikken (2002), the *heel* type NPIs are wide-scope NPIs and licensed when they take scope over the clause-mate negation. The difference of these two types shows up clearly in pseudo-clefts. With the regular NPIs, NPI connectivity is observed in pseudo-clefts.

²⁰ It should be noted that NPI connectivity and binding connectivity are independent phenomena, contrary to their appearances. Just like the NPI in the clefted position looks to be licensed by the negation in the *wh*-phrase, the anaphor in the clefted position can be licensed by the antecedent in the *wh*-phrase.

(i) [What **John** found] was THE PICTURE OF **HIMSELF**.

When the negation appears in the *wh*-phrase, the sentence is ambiguous with bound and free reading. In both readings, *himself* can have *John* as its antecedent.

(ii) [What **John** didn't find] was THE PICTURE OF **HIMSELF**.

a. John found something, but it was not his picture. (bound, himself=*John*)

b. There was something that John didn't find. It was his picture. (free, himself=*John*)

This indicates that binding connectivity is independent of the bound and free reading distinction. As discussed before, the specificational pseudo-clefts have parallel structures inside the *wh*-phrase and clefted position before ellipsis takes place:

(iii) [What John found t] was [THE PICTURE OF **HIMSELF** that ~~John~~ found t]

Given that the elided *John* functions as the antecedent of the anaphor in the clefted position, binding connectivity is explained. Unlike NPI connectivity, binding connectivity is observed in *it*-clefts and reversed pseudo-clefts.

(iv) a. It was THE PICTURE OF **HIMSELF** that **John** found.

b. THE PICTURE OF **HIMSELF** was that **John** found.

These cases will be analyzed in the way parallel to other operator-movement constructions, such as a headed relative clause in (v).

(v) Mary hid the picture of **himself** [that **John** found].

Thus, following den Dikken, Meinunger, and Wilder, I analyze binding and NPI connectivity as independent phenomena, in contrast the uniform analysis by Heycock and Kroch (1999).

(80) [wat ik **nog nooit** opgemerk heb] is **OOK MAAR ENIG TEKEN VAN**
what I yet never noticed have is also buy any sign of
ONTERVREDENHEID.

dissatisfaction

'What I have never noticed is any sign of dissatisfaction.'

(den Dikken 2001)

The NPI *ook maar enig teken van ontervredenheid* (*any sign of dissatisfaction*) in the clefted phrase can be licensed by the [+neg] feature in the Foc-head and the sentence is grammatical. However, when the *heel*-type NPI appears in the clefted phrase, NPI connectivity disappears and the sentence is ungrammatical.²¹

(81) *[wat ik **niet** begrijp] is **DIE HELE CONSTRUCTIE.**

what I not understand is that whole construction

'What I don't understand is any constructions.' (Marcel den Dikken, p.c.)

In the bound readings, the [+neg] feature in the Foc-head takes scope over the clefted phrase. Thus, the *heel*-type NPI in the clefted phrase cannot be licensed in the bound reading. The *heel*-type NPI cannot be licensed in the free reading either, since the [+neg] feature and the clefted *heel*-type NPI are not in the same TP at LF. Neither bound nor free readings satisfy the licensing requirement of the *heel*-type NPI, and thus, NPI connectivity is absent in (81).

The NPIs in Korean are also wide-scope universal NPIs (Kim 1999) and they are licensed by taking scope over the clause-mate negation, just like Dutch

²¹ I would like to thank Marcel den Dikken for this interesting data.

heel-type NPIs.²² Korean has two-types of negation; long-form negation (L-negation) and short-form negation (S-negation). When the L-negation is used in the cleft construction, the sentence is ambiguous.²³

(82) [Mina-ka sa-ci **anh**-un kes]-un I CHAYK-i-ess-ta.

Mina-nom buy-*ci* Lneg-pst C-top this book-be-pst-dc

a. Mina bought not this book, but something else. (*bound*)

b. Mina skipped buying this book. (*free*)

When the wide-scope universal NPIs appear in the clefted phrase, the sentence is ungrammatical.

(83) *[Mina-ka sa-ci **anh**-un kes]-un **AMWU CHAYK**-i-ess-ta.

Mina-nom buy-*ci* Lneg-pst C-top any book-be-pst-dc

a. #Mina bought not this book, but something else. (*#bound*)

b. #Mina skipped buying this book. (*#free*)

In the bound reading, the [+neg] feature appears in the Foc-head and takes scope over the clefted element. For its wide-scope taking property, the NPI *amwu chayk* cannot be licensed in this reading. In the free reading, the [+neg] feature appears within VP. For the clause-mate requirement, the NPI *amwu chayk* cannot be licensed by the [+neg] feature in the different TP and this reading is

²² According to Carlson (1980), *almost* is a diagnostics for universal quantifiers. Kim (1999) shows that Korean NPIs can co-occur with *keuy* (*almost*), as in (i), in contrast to English NPIs in (ii).

(i) Con-un keuy **amwuketto** mek-ci mot-hayssta.
John-top almost anything eat-*ci* Lneg-do.pst
'Almost everything, John didn't eat.'

(ii) *John didn't eat almost **anything**.

This indicates that Korean NPIs are universal quantifier and it is interpreted by taking scope over the negation.

²³ Thank Yunju Suh for Korean examples and their judgment.

also blocked. Thus, when the universal wide scope NPI appears in the clefted phrase, NPI connectivity is not observed at all.

3.2. Frequency Adverbs and Focus

So far, I have discussed the interaction of focus and negation. I have proposed that the ambiguity of the negated sentence with a focal element arises from the several possible positions of the [+neg] feature. Similar to the negation case, the sentence with a frequency adverb becomes ambiguous with a focused element. However, the mechanism of focus association is quite different from the negation case. In this section, I discuss the interaction of focus and frequency adverbs.

3.2.1. Association with Focus and Ambiguity

As observed earlier, the focus position affects the truth-condition of the sentence with a frequency adverb.

(84) a. John **always** grades exams AT THE OFFICE.

b. John **always** grades EXAMS at the office.

(84a) is true if all events of John's grading exam happen at the office, not elsewhere. (84b) is true if all events of John's grading at office are about exams. If John grades exams at his house, (84a) is false, but (84b) can be true. If John grades assignments at the office, (84b) is false, while (84a) can be true.

The event quantifier is usually phonologically null and is existential.

(85) John grades exams AT THE OFFICE.

$[\exists e_1: C(e_1) \ \& \ \text{grade}(e_1) \ \& \ \text{Agent}(e_1, \text{John}) \ \& \ \text{Theme}(e_1, \text{exams})][\exists e_2: C(e_2)$
 $\ \& \ \mathcal{R}(e_2, e_1)] \text{Loc}(e_2, \text{THE OFFICE})$

Herburger (2000) argues that frequency adverbs are overt variants of the event quantifier. When the sentence has a frequency adverb, the default existential event quantifier is replaced with the event quantifier introduced by the frequency adverb, as in (86).

(86) John **always** grades exam AT THE OFFICE.

$[\text{Always } e_1: C(e_1) \ \& \ \text{grade}(e_1) \ \& \ \text{Agent}(e_1, \text{John}) \ \& \ \text{Theme}(e_1, \text{exams})]$
 $[\exists e_2: C(e_2) \ \& \ \mathcal{R}(e_2, e_1)] \text{Loc}(e_2, \text{the office})$

*For every event of John's grading, there is a one-to-one related event such that
being at the office. bound reading*

The unfocused elements restrict the event quantifier which was introduced by the frequency adverb and the focused element is interpreted as its scope. In (86), each event of John's grading exams is evaluated and if it happens somewhere other than the office, the sentence is judged as false. This reading is called "bound reading". When the position of focus shifts, the sentence has a different truth-condition.

(87) John **always** grades EXAMS at the office.

$[\text{Always } e_1: C(e_1) \ \& \ \text{grade}(e_1) \ \& \ \text{Agent}(e_1, \text{John}) \ \& \ \text{Loc}(e_1, \text{the office})]$
 $[\exists e_2: C(e_2) \ \& \ \mathcal{R}(e_2, e_1)] \text{Theme}(e_2, \text{exams})$

*For every event of John's grading at the office, there is a one-to-one related
event such that the theme being exams. bound reading*

Here, each event of John's grading at the office is evaluated and if something other than exams is graded by John at the office, the sentence is judged as false.

As discussed in Chapter 2, the default (unpronounced) existential event quantifier has the two variants in (88a) and (88b).

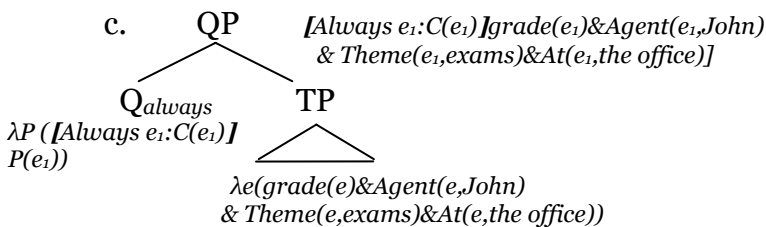
- (88) a. $\llbracket Q_{1\text{-place}} \rrbracket = \lambda P (\llbracket \exists e_1: C(e_1) \rrbracket P(e_1))$
 b. $\llbracket Q_{2\text{-place}} \rrbracket = \lambda P \lambda Q (\llbracket \exists e_1: C(e_1) \& P(e_1) \rrbracket Q(e_1))$

The one-place event quantifier in (88a) is used when the sentence is not divided into focal element and background information. The two-place event quantifier in (88b) is used when the sentence has a focal element. I propose that the overt event quantifiers also have the similar variations:

- (89) a. $\llbracket Q_{\text{always}:1\text{-place}} \rrbracket = \lambda P (\llbracket \text{Always } e_1: C(e_1) \rrbracket P(e_1))$
 b. $\llbracket Q_{\text{always}:2\text{-place}} \rrbracket = \lambda P \lambda Q (\llbracket \text{Always } e_1: C(e_1) \& P(e_1) \rrbracket Q(e_1))$

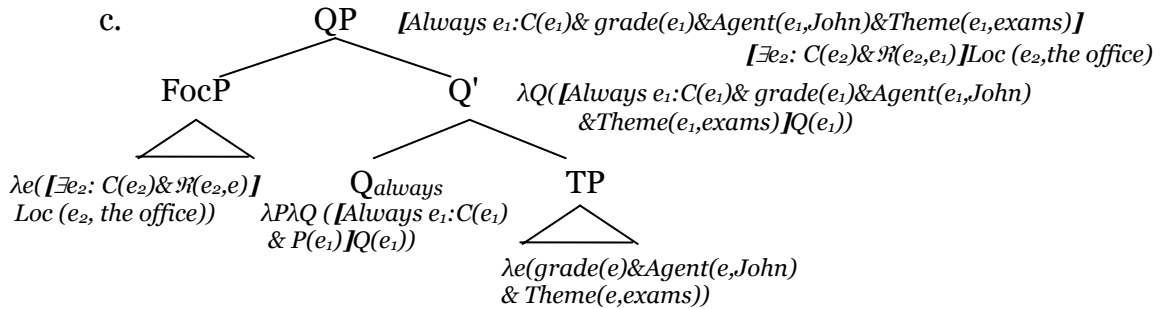
When the sentence with a frequency adverb is not divided into the focal element and the background information, every element in the sentence should be interpreted in the scope of the frequency adverb. In this case, the one-place event quantifier in (89a) is used and the logical representation in (90b) is compositionally derived as in (90c).

- (90) a. John **always** grades exams at the office.
 b. $\llbracket \text{Always } e_1: C(e_1) \rrbracket \text{grade}(e_1) \& \text{Agent}(e_1, \text{John}) \& \text{Theme}(e_1, \text{exams}) \& \text{At}(e_1, \text{the office})$
 At (e_1 , the office)



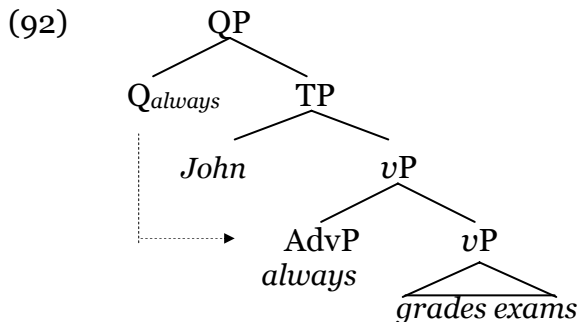
When a part of the sentence is focused, the two-place version of the frequency adverb in (89b) is employed.

- (91) a. John always grades exams AT THE OFFICE.
 b. [Always e_1 : C(e_1) & grade (e_1) & Agent (e_1 , John) & Theme (e_1 , exams)]
 [∃ e_2 : C(e_2) & $\mathfrak{R}(e_2, e_1)$] Loc (e_2 , the office)



With the semantic value in (89b), the TP, which appears in the complement of Q, is mapped to the restriction of the event quantifier, and the focused element, which is in QP spec, is mapped to the scope of the event quantifier. The logical representation in (91b) is thus derived compositionally.

While the frequency adverb is interpreted in the Q-head, it is overtly realized within the TP, following the subject. I assume that the Q-head with the semantic values of (89a) and (89b) licenses the overt form of *always* as an adverb under the c-commanding relation.



The frequency adverb is interpreted as an event quantifier regardless of the presence of the focused element. Thus, whenever the frequency adverb appears, the closest Q-head gets the semantic value the event quantifier which is introduced by that frequency adverb.²⁴

With the semantic value of the two-place event quantifier in (89b), the bound reading of the sentence with a frequency adverb is derived compositionally. This, however, is not the end of the story. Herburger (2000) points out that the sentence with a frequency adverb has another less salient reading, in addition to the bound reading. Suppose that John is a serious TA and he is in charge of the undergraduate Syntax class which has exams every week. As its result, everyone in the department knows that John is always grading exams. One day, a professor asked where John was.

(93) A: *Where is John?*

B: John is **always** grading exams AT THE OFFICE. (*for free reading*)

This reading is different from the bound reading: (93B) means that John is always grading exams and this time, it happens at the office. Since *always* does not associate with the focused element, Beaver and Clark (2003) argues that *always* associates with the presupposition. Under their analysis, the meaning of

²⁴ It is well-known that frequency adverbs are scope rigid and takes their scope in the clause where they appear. The following is potentially a problem for the current analysis that the *always* is interpreted in the Q-head:

(i) John does not **always** lie. (not > always)

If *always* is interpreted at the Q-head, we may wrongly predict that *always* takes scope over the negation. I assume that when the Q_{always} -head licenses the phonological form of *always*, licensing should not be intervened by other scope-bearing element. To get the interpretation of (i) without violating this requirement, (i) must have two event quantifiers with the embedded quantifier being Q_{always} as in (ii).

(ii) $[_{QP_1} \exists e_1 [_{TP} [_{NegP} \text{not} [_{QP_2} \text{Always } e_2 [_{TP} \text{John always lie}]]]]]$

In (ii), the negation may take scope over *always*. However, it is unclear how to derive the word order and what allows TP and NegP to appear over the QP_2 .

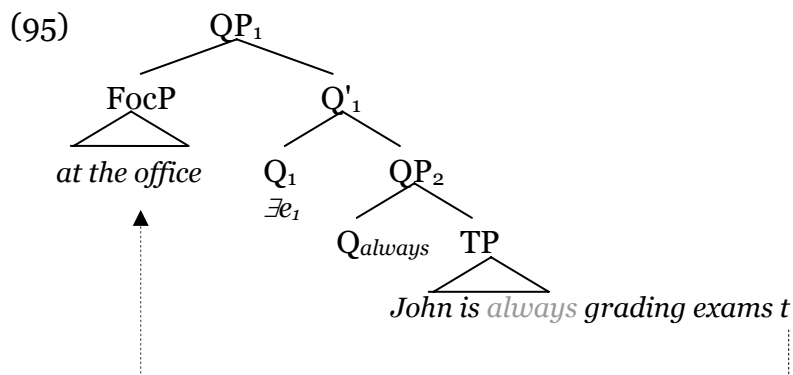
(93B) is described as "whenever John is at the office, he is grading exams." This analysis leaves a puzzle. The focused element is usually interpreted in the scope of the quantifiers, but why can it be interpreted as a restriction only when the frequency adverb appears? Herburger (2000) describes the meaning of (93B) differently. She argues that the event quantifier introduced by the adverb is embedded within the restriction of the higher event quantification and the focused element is interpreted in the scope of the higher event quantifier. With this proposal, the free reading of (93B) is logically represented as (94).

(94) $[\exists e_1: C(e_1) \ \& \ [Always \ e_2: C(e_2)] \ grade \ (e_2) \ \& \ Agent \ (e_2, \ John) \ \& \ Theme \ (e_2, \ exams) \ \& \ contain \ (e_2, \ e_1)] \ [\exists e_3: C(e_3) \ \& \ \mathcal{R}(e_3, \ e_1)] \ Loc \ (e_3, \ the \ office)$

For some event which contains all grading events of exams by John, there is one-to-one related event such that being at the office. free reading

Here, the event which happened at the office contains number of events of John's grading exam. The event quantifier expressed by the frequency adverb is interpreted as a one-place quantifier and it is a part of the restriction of the higher existential event quantifier.

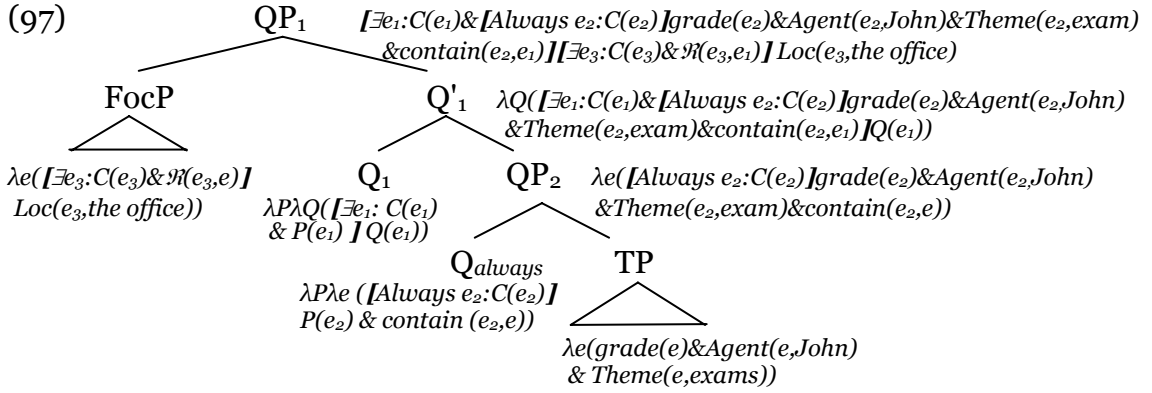
I propose that this logical representation is composed from the layered QP structure in (95) with the focused element in the higher QP spec.



Note that the higher event quantifier is two-place quantifier, while the lower event quantifier introduced by *always* is one-place quantifier. The semantic value of the higher event quantifier is in (96a). I suggest that the embedded one-place event quantifier is introduced with the predicate *contain* as shown in (96b).

- (96) a. $\llbracket Q_{2\text{-pace}} \rrbracket = \lambda P \lambda Q (\llbracket \exists e_1: C(e_1) \ \& \ P(e_1) \rrbracket Q(e_1))$
 b. $\llbracket Q_{\text{always: embedded 1-pace}} \rrbracket = \lambda P \lambda e (\llbracket \text{Always } e_2: C(e_2) \rrbracket P(e_2) \ \& \ \text{contain}(e_2, e))$

With the semantic values in (96), the logical representation in (94) is composed as follows:



The frequency adverb *always*, which is the lower one-place event quantifier Q_2 , takes TP as its scope argument. The whole QP_2 is embedded to the upper two-place event quantifier Q_1 and it is mapped to the restriction of the upper event quantifier. The focused phrase in the higher QP spec is interpreted in the scope of the upper event quantifier.²⁵

Without a focused element, the frequency adverb is always interpreted as a one-place quantifier and the sentence is unambiguous. When a focused element

²⁵ It seems that the relation between frequency adverb *always* and the event quantifier Q_{always} must be local and other event quantifier cannot intervene between them. So, in the free reading, the lower Q-head, not the higher one, has the semantic value of Q_{always} . It would be possible that the lower Q_{always} is interpreted as two-place event quantifier. This case is found in the secondary occurrence focus, which will be discussed later in Section 3.2.3.2.

appears in the sentence, the focused element must be in QP spec to check its scope theta-role. The frequency adverbs may be interpreted either as a one-place quantifier or as a two-place quantifier. These options induce the ambiguity of the sentence with a focused element. If the Q-head with the frequency adverb has a semantic value of the two-place quantifier, the focused element can move to the spec of this QP and the bound reading is derived. If the Q-head with the frequency adverb has the semantic value of the one-place quantifier, the focused element must move to the spec of higher QP spec and the free reading is derived.

3.2.2. Bound and Free Readings in Clefts

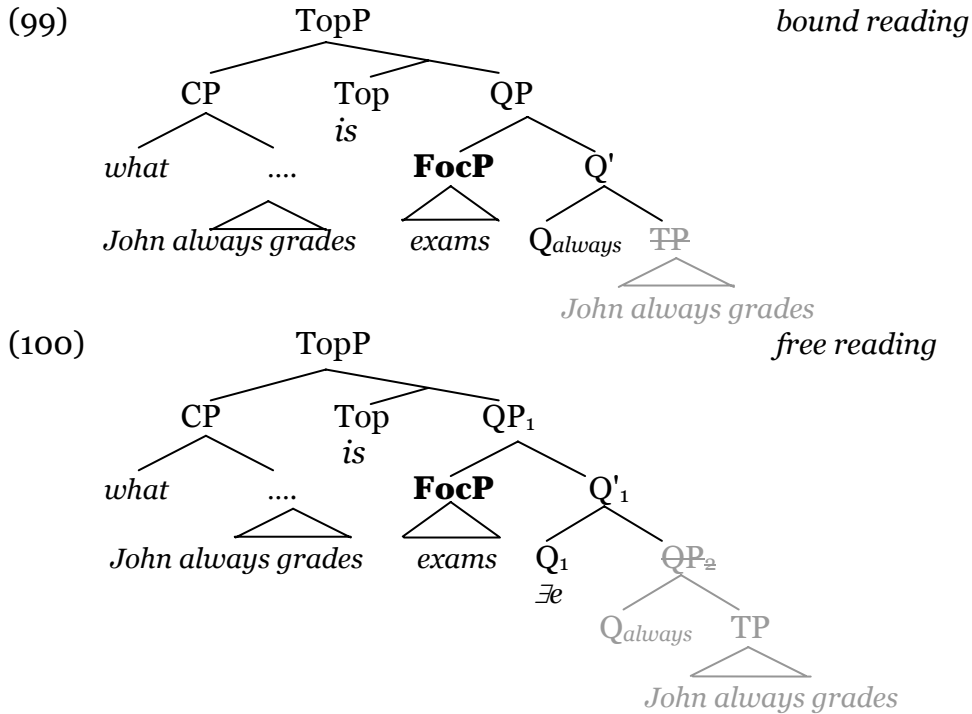
Just as bound and free readings are found in negated pseudo-clefts, the ambiguity is found in pseudo-clefts with a frequency adverb, as well.

(98) [What John **always** grades] is EXAMS.

a. Whenever John grades, he grades exams. (*bound*)

b. There is something John is always grading. It is exams. (*free*)

These two readings are expected under the analysis discussed above. The frequency adverb *always* may be interpreted as two-place event quantifier or one-place event quantifier. If it is interpreted as a two-place quantifier, the structure in (99) is derived. If it is interpreted as a one-place quantifier, the sentence has the structure in (100), where one event quantifier embedded under another.

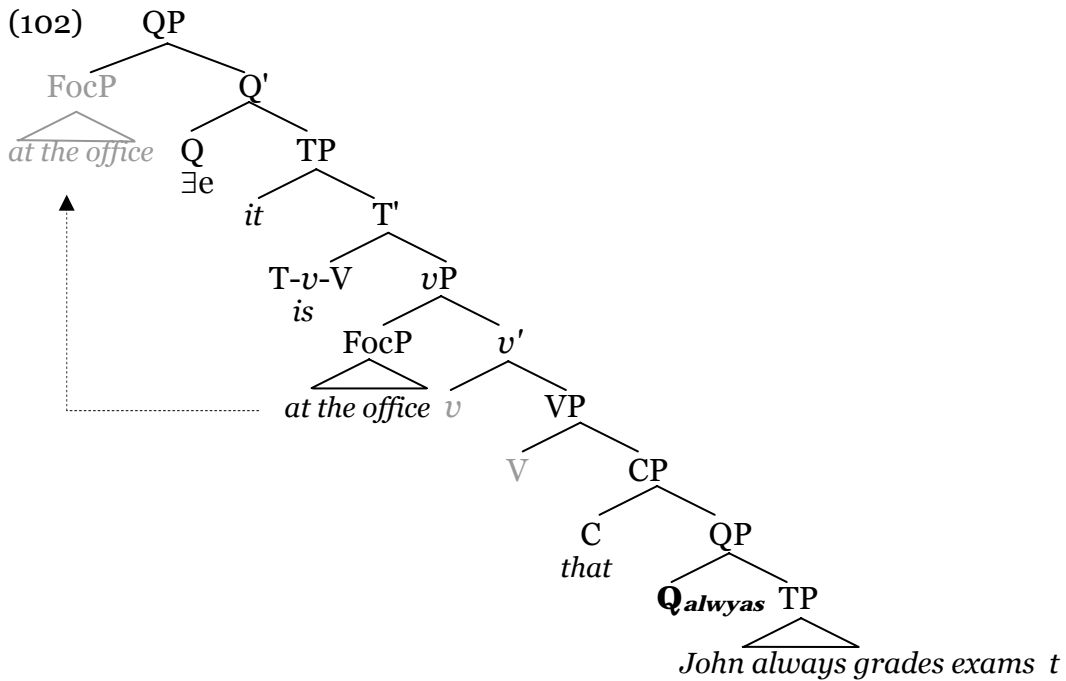


With the former structure in (99), the bound reading is derived; with the latter structure in (100), the free reading is derived. The two readings in pseudo-clefts with a frequency adverb are derived syntactically.

Interestingly, however, the ambiguity disappears in *it*-clefts. The example in (101) has only free reading.

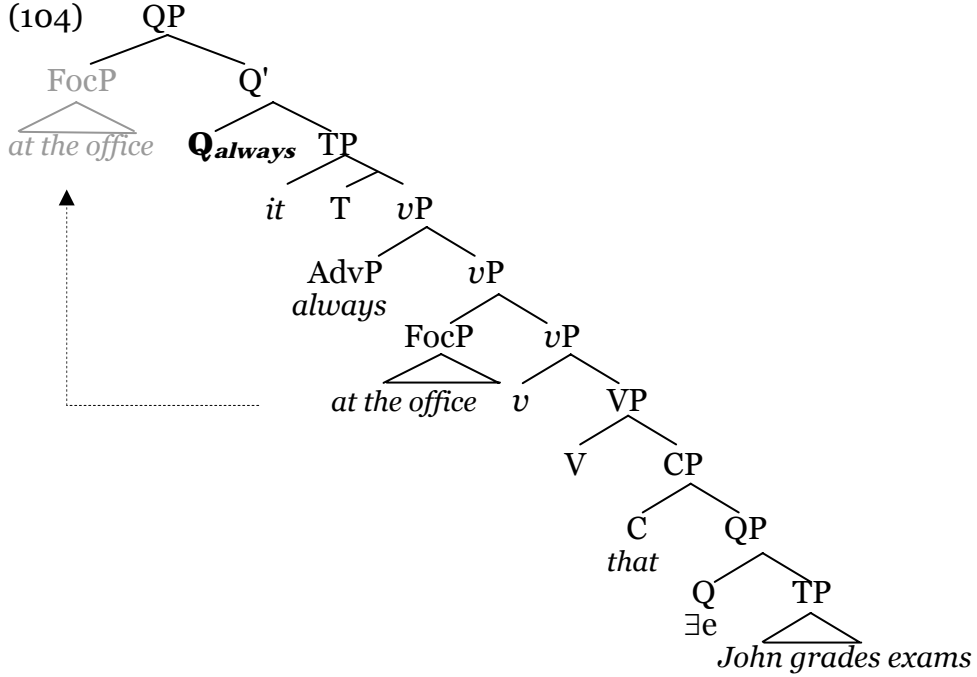
(101) It is AT THE OFFICE [that John **always** grades exams]. *free reading*

Recall that the copula in *it*-clefts is a full predicate, unlike the copula in specificational pseudo-clefts. Given the head movement constraint (Travis 1984), *always* does not move to the matrix Q-head and the focused element cannot be interpreted in the scope of *always*.



To express the bound reading, the frequency adverb must appear after the copula.

(103) It is **always** AT THE OFFICE [that John grades exams]. *bound reading*



Because of the property of the copula in *it*-clefts, *it*-clefts with a frequency adverb do not show ambiguity and two readings found in the pseudo-clefts are disambiguated by the position of the adverb.

3.2.3. Some Discussion of *Only*

So far I have proposed that frequency adverbs may be interpreted as two-place or one-place event quantifiers. I have shown that this choice of possible semantic values for the frequency adverb makes the sentence with a focused element ambiguous. Herburger (2000) analyzes *only* in a way similar to the frequency adverb *always* and argues that it is also a quantifier over events. I follow Herburger's analysis and suggest that *only* is always interpreted as a two-place event quantifier.

3.2.3.1. *Only* as an Event Quantifier

It has been observed that *only* in English can be adverbial as in (105a) or adnominal as in (105b).

(105) a. John **only** [_{VP} eats VEGETABLES at the kitchen].

b. John eats **only** [_{NP} VEGETABLES] at the kitchen.

When *only* appears at adnominal position, it looks like a DP quantifier, but differs from the regular DP-quantifiers. As discussed by Keenan and Stavi (1986), the regular DP-quantifiers are typically conservative, obeying (106).

(106) *Conservativity*

$$[Q \ A] \ B \text{ iff } [Q \ A] \ A \cap B$$

The conservativity of *all* is illustrated in the example (107).

(107) [*All* physicists] are rich iff [*all* physicists] are physicists and rich.

The left-hand side and the right-hand side of *iff* are truth conditionally equivalent.

This property of conservativity disappears when *only* replaces *all*.

(108) #[*Only* physicists] are rich iff [*only* physicists] are physicists and rich.

With *only*, (108) is invalid. Instead, *only* shows neoconservativity (de Mey 1991, Horn 1996, Herburger 2000), which is illustrated in (109).

(109) *Neoconservativity*

$$[Q \ A] B \text{ iff } [Q \ A \cap B] B$$

For example, the equivalence of the left-hand side and the right-hand side of *iff* clause holds in (110).

(110) [*Only* physicists] are rich iff [*only* rich physicists] are rich.

If conservativity characterizes natural language quantifier, neoconservativity indicates that the phrase which looks to be restricting the quantifier (*physicists* in *only physicists are rich*) is actually behaving as scope of the quantifier and the phrase which appears to be scope (*rich* in *only physicists are rich*) is actually behaving like the restriction of the quantifier.

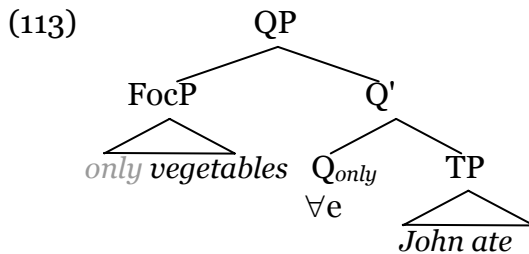
As pointed out by Fischer (1968) and Jackendoff (1972), *only* requires a focused element, as in (111).

(111) John eats **only** VEGETABLES.

Reflecting the neoconservative property and the requirement of the presence of the focused element, Herburger (2000) proposes that *only* is interpreted as a universal event quantifier and the focused element is mapped to the scope of this event quantifier. With this proposal, (111) is logically represented as (112).

(112) $[\forall e_1: C(e_1) \ \& \ \text{eat} \ (e_1) \ \& \ \text{Agent} \ (e_1, \text{John})]$ $[\exists e_2: C(e_2) \ \& \ \mathfrak{R} \ (e_2, e_1)]$
 Theme $(e_2, \text{vegetables})$

Here, the focused element which merges to *only* is interpreted in the scope of the event quantifier and other elements are interpreted in its restriction. This analysis explains the peculiar neoconservativity of *only* as the regular conservativity of the universal quantifier and furthermore, it captures the requirement of the focused element. Now that *only* is interpreted as an event quantifier, the LF syntactic structure of (111) is represented as follows:²⁶



Unlike the frequency adverbs, I assume that the event quantifier Q_{only} is always two-place quantifier, as in (114).

(114) $[[Q_{only}]] = \lambda P \lambda Q ([\forall e_1: C(e_1) \ \& \ P(e_1)] Q(e_1))$

With the semantic value in (114), the meaning of the *only*-sentence is derived compositionally in the way parallel to the bound reading of the focal construction with *always*.

As observed by Beaver and Clark (2003), *only* always has an exhaustive interpretation (115a), though *always* can have non-exhaustive interpretation (115b).

²⁶ I assume that the universal event quantifier in Q licenses the overt realization of *only*.

(115) A: What does John eat?

B: a. #John **only** eats VEGETABLES, and he eats fish, too.

b. John **always** eats VEGETABLES, and he eats fish, too.

Given that *only* must be interpreted as a two-place event quantifier, the only possible logical representation of *John only eats VEGETABLES* is (116).

(116) $[\forall e_1: C(e_1) \ \& \ \text{eat}(e_1) \ \& \ \text{Agent}(e_1, \text{John})] \ [\exists e_2: C(e_2) \ \& \ \mathfrak{R}(e_2, e_1)]$ Theme (e_2 , vegetables)

(116) is true if all events of John's eating has a one-to-one related event such that Theme being vegetables. Thus, if John also eats fish, (116) cannot be true. *Always*, on the other hand, can be interpreted as a two-place event quantifier or one-place event quantifier. When it is interpreted as a two-place event quantifier, the sentence has the bound reading and it has the exhaustive character. In the construction which allows only bound reading, non-exhaustive interpretation is disallowed, just like the sentence with *only*.

(117) A: What does John eat?

B: # It is always VEGETABLES that John eats. He eats fish, too.

When *always* is interpreted as one-place event quantifier, the non-exhaustive interpretation is allowed. In the construction which allows only free reading, exhaustive interpretation is allowed:

(118) A: What does John eat?

B: It is VEGETABLES that John always eats. He eats fish, too.

The contrast between (117) and (118) indicates that the presence of exhaustive character is due to the free reading. This implies that the exhaustive character of

only arises from the fact that *only* is always interpreted as two-place event quantifier and the sentence with *only* allows only bound reading.²⁷

3.2.3.2. Secondary Occurrence Focus

While *only* is always interpreted as two-place event quantifier, it does not mean that the event quantifier introduced by *only* cannot be embedded within another event quantifier. Herburger (2000) argues that so called secondary occurrence focus cases have layers of event quantification. The typical case of secondary occurrence focus discussed by Herburger is the following:

(119) A: Eva *only* gave xerox copies to THE GRADUATE STUDENTS.

B: No, PETER *only* gave xerox copies to the graduate students.

In (119A), *only* associates with the focused element *the graduate students*. In (119B), the subject *Peter* is phonological prominent and it provides the new information, but *only* associates with the repeated and phonologically weakened element *the graduate students*. Herburger (2000) observes this mismatch takes place only in the mimicking contexts. To allow *only* associating with *the graduate students* in (119B), the utterance in (119A) is required. Herburger argues that the event structure created in (119A) is retained in (119B) and *the graduate students* is interpreted as a secondary focused element. Since *only* associates with *the graduate students* in (119A), this association relation is preserved in (119B) as

²⁷ This analysis of exhaustive character does not cover the exhaustive characters of *it*-clefts and Hungarian focus constructions. I leave them open for further research.

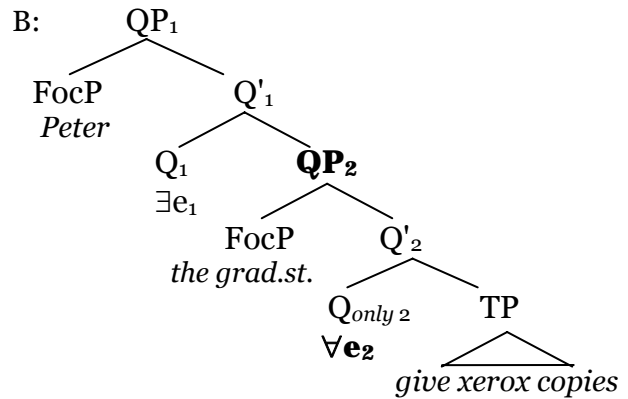
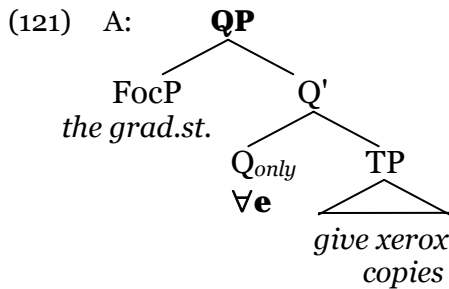
well. If so, (119A) and (119B) are logically represented as (120A) and (120B) respectively.²⁸

(120) A: $[\forall e_1: C(e_1) \& \text{give}(e_1) \& \text{Agent}(e_1, \text{Eva}) \& \text{Theme}(e_1, \text{xerox copies})][\exists e_2: C(e_2) \& \mathfrak{R}(e_2, e_1)] \text{Goal}(e_2, \text{the graduate students})$

B: $[\exists e_1: C(e_1) \& \underline{[\forall e_2: C(e_2) \& \text{give}(e_2) \& \text{Theme}(e_2, \text{xerox copies})]}][\exists e_3: C(e_3) \& \mathfrak{R}(e_3, e_2)] \underline{\text{Goal}(e_3, \text{the graduate students})} \& \text{contain}(e_1, e_2)]$
 $[\exists e_4: C(e_4) \& \mathfrak{R}(e_4, e_1)] \text{Agent}(e_1, \text{Peter})$

Regarding some event which contains all events of giving xerox copies which are to the graduate students, there was one-to-one related event of the Agent being Peter.

The underlined part in (120B) is parallel to (120A) and in (120B), the event quantifier introduced by *only* is embedded with the higher existential event quantifier. I propose the syntactic structure in (121B) for this secondary occurrence focus reading.



²⁸ Herburger (2000) does not use the \mathfrak{R} -predicate. So, her original representations are as follows:

(i) A: $[\forall e: C(e) \& \text{give}(e) \& \text{Agent}(e, \text{Eva}) \& \text{Theme}(e, \text{xerox copies})] \text{Goal}(e, \text{the graduate students})$
 B: $[\exists e: C(e) [\forall e': C(e') \& \text{give}(e') \& \text{Theme}(e', \text{xerox copies})] \text{Goal}(e', \text{the graduate students}) \& \text{contain}(e, e')] \text{Agent}(e, \text{Peter})$

The QP structure in (121A) is found in (121B) as an embedded QP₂. Here, both Q₁ and Q₂ are two-place event quantifiers and the one introduced by *only* is embedded under another two-place quantifier. The case of secondary occurrence focus, thus, shows that the event quantifier introduced by *only* can be embedded within other event quantifier, while it is always interpreted as a two-place quantifier.²⁹

3.2.3.3. Adverbial and Adnominal *Only*

While both adverbial and adnominal *only* introduce a two-place universal event quantifier, they show different syntactic behaviors. Taglicht (1984) points out that adverbial and adnominal *only* are different in their scope. When *only* attaches to the embedded object as an adnominal element, the sentence is ambiguous.

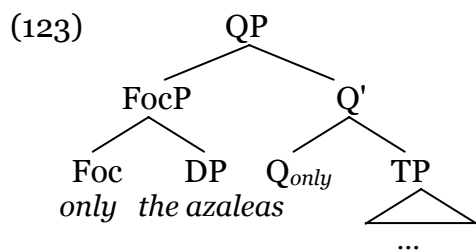
(122) John told us [to water [**only** THE AZALEAS]].

- a. The Azaleas is the only thing that John told us to water. He didn't mention anything about other plants. (matrix reading)
- b. John told us the following: Water only the Azaleas. He intended not to water anything else. (embedded reading)

In the first reading in (122a), the matrix event quantifier has the semantic value of (114). In the second reading in (122b), the embedded event quantifier has the semantic value of (114). Taglicht (1984), Rooth (1985), von Stechow (1991), and Herburger (2000) argue that adnominal *only* is parasitic to DP and it takes scope

²⁹ I cannot discuss the detail here, but it seems that contrastive topic is one instance of secondary occurrence focus.

where the DP is interpreted. I assume that the pre-nominal *only* appears in the Foc-head and the FocP with *only* covertly moves to the spec of QP whose head is Q_{only} .



The FocP moves to the matrix QP spec when the matrix event quantifier has the semantic value of Q_{only} . It moves to the embedded QP spec when the embedded event quantifier gets the semantic value of Q_{only} . The Foc-head without *only* and the Foc-head with *only* gets the same semantic value, but the FocP with *only* forms a spec-head relation with the Q_{only} -head and it affects the interpretation of the sentence.³⁰

Adverbial *only*, on the other hand, takes scope where it appears. Thus, the two readings in (122) are expressed differently when *only* is adverbial. For the matrix reading, *only* must attach to the matrix vP , and for the embedded reading, it must attach to the embedded vP .

- (124) a. John **only** told us [PRO to water THE AZALEAS]. *matrix reading*
 b. John told us [PRO to **only** water THE AZALEAS]. *embedded reading*

When the Q-head of the matrix clause gets the semantic value of Q_{only} , *only* appears in the matrix clause as in (124a). When the Q-head of the embedded

³⁰ It has been observed that there are some scope intervention effects between a phrase with adnominal *only* and other scope-bearing element (Hoji 1985, Kim 1989, Ko 2005, and others). Several different analyses of some intervention effects have been proposed (Beck and Him 1997, Hagstrom 1998, Lee and Tomioka 2000, Ko 2005, and others) and I cannot choose any here. I leave it for further research.

clause has the semantic value of Q_{only} , *only* appears in the embedded clause as in (124b). This implies that the relation between the Q-head and its corresponding adverbial *only* must be quite local.³¹

Büring and Hartmann (2001) argue that German *nur* (*only*) is always adverbial. Thus, we predict that the sentence with *only* is unambiguous. Contrary to this prediction, (125) is ambiguous, as noted by von Stechow (1991).

(125) (weil) ich **nur** GERDA geküsst zu haben bereue German

because I only Gerda kissed to have regret

a. GERDA is the only person that I regret to have kissed. *(matrix)*

b. I regret the following: I have kissed (nobody but) GERDA. *(embedded)*

(Büring and Hartmann 2001)

The ambiguity in (125) seems not to follow the adverbial and adnominal distinction observed in English examples. However, Büring and Hartmann (2001) explain this ambiguity by two possible adjunction sites for *nur*. Since the verb follows its complement in German, (125) may have the structure in (126a) or (126b).

(126) a. [ich [_{matrix}VP **nur** [_{CP}[_{emb}.VP GERDA geküsst zu haben] bereue] *(matrix)*

I only Gerda kissed to have regret

b. [ich [_{matrix}VP [_{CP}[_{emb}.VP **nur** GERDA geküsst zu haben] bereue] *(embedded)*

I only Gerda kissed to have regret

In (126a), *nur* attaches to the *vP* of the matrix clause, thus, the matrix event quantifier gets the semantic value of Q_{only} and the matrix reading is derived. In

³¹ The issue of the definition of locality requires a detailed examination of several patterns, which I cannot discuss here and leave it for further research.

(126b), *nur* attaches to the *vP* of the embedded clause. The embedded event quantifier is interpreted as Q_{only} and the embedded reading is derived. Thus, German data, which initially looks like a counter-example to the current analysis, actually follows the pattern of the adverbial *only*.

Sano (2001) discusses interesting facts regarding the Japanese focus particles *sae* (*even*), *made* (*even*), and *dake* (*only*). As observed by Aoyagi (1994), the DP with *sae* may take matrix scope or embedded scope.

(127) Taro-wa [Aiko-ga JIRO-NO OKANE-**sae** nusunda to] syuchooshita.

Taro-top Aiko-nom Jiro-gen money-even stole C claimed

a. Even Jiro's money, Taro claimed that Aiko stole it. (*matrix*)

b. Taro claimed the following: Aiko stole even Jiro's money. (*embedded*)

(Sano 2001)

However, Sano (2001) observes that when *sae* (*even*) is replaced with *made* (*even*) or *dake*(*only*), the sentence becomes unambiguous:

(128) a. Taro-wa [Aiko-ga JIRO-NO OKANE-**made** nusunda to] syuchooshita.

Taro-top Aiko-nom Jiro-gen money-even stole C claimed

'Taro claimed the following: Aiko stole even Jiro's money.' (*embedded*)

b. Taro-wa [Aiko-ga JIRO-NO OKANE-**dake** nusunda to] syuchooshita.

Taro-top Aiko-nom Jiro-gen money-only stole C claimed

'Taro claimed the following: Aiko stole only Jiro's money.' (*embedded*)

The matrix reading disappears and only the embedded reading remains. While Sano (2001) argues that the focus markers *sae*, *made*, and *dake* have some formal features and the difference between (127) and (128) arises because the formal features of *sae* and the formal features of *made* and *dake* are checked in

different heads. However, if the scope patterns of adnominal and adverbial phrases are the same in English and Japanese, the scope pattern of adverbial and adnominal *only* in English suggests that *sae* in (127) has adnominal status, whereas *made* and *dake* in (128) have adverbial status. This is just one speculation and how to analyze *made* and *dake* as adverbs is unclear at this point, but it may provide a new way to analyze this mysterious asymmetry in Japanese focus particles.

3.3. Summary

In this chapter, I have shown how negation and frequency adverbs interact with focus and I have demonstrated how focus affects the truth-condition of the sentence. Whereas both negation and frequency adverbs show association with focus, and sentences with those elements are ambiguous, I have proposed different mechanisms of focus association for the negation case and the frequency adverb case. For the negation case, I proposed that the scope of the negation is interpreted at the position of a [+neg] feature. When the negated sentence has a focal element, the [+neg] feature may appear in the Foc-head (for the focus sensitive reading, namely the bound reading) or on the Neg-head (for the non-focus sensitive reading, namely the free reading) and thus, the sentence is ambiguous. I have shown that the NPI-facts of pseudo-clefts support this analysis. In contrast, the frequency adverb is interpreted as an event quantifier. Just like the default existential event quantifier, the event quantifier introduced by the frequency adverb is interpreted as a two-place event quantifier or as a one-place event quantifier. On the focus association reading, the frequency adverb is

interpreted as a two-place quantifier. On the non-focus association reading, the frequency adverb is interpreted as a one-place quantifier. I have suggested that *only* is always interpreted as a two-place universal event quantifier and this explains some similarities and differences between *always* and *only*. There are many other types of focus sensitive elements and what I discussed in this chapter is only a small part of them, but I believe that the analyses of negation and frequency adverb proposed in this chapter will provide a hint to explain the focus association phenomena of other type of focus sensitive elements. In the next chapter, using the analysis of negation and frequency adverbs argued in this chapter, I discuss several interesting phenomena concerning *because*-clauses.

CHAPTER 4

***BECAUSE*-CLAUSE AS A FOCAL ELEMENT AND AS A FOCUS SENSITIVE ELEMENT**

In the preceding chapters, I showed how focus affects meaning and how negation and frequency adverbs associate with focus. Adverbial *because*-clauses have interesting properties in both of these respects: they sometimes behave like a focused element and sometimes like a focus sensitive element. In this chapter, I discuss each property of *because*-clauses, examining how focus sensitive elements associate with adverbial *because*-clauses, and how *because*-clauses associate with other focal elements.

4.1. The *Because*-clause as a Focal Element

4.1.1. Two Readings of Negated *Because*-constructions

Linebarger (1987) and Johnston (1994) observe that the sentence with a *because*-clause is ambiguous with a negation.

(1) John didn't call Mary [**because** he visited Kyoto].

a. John called Mary. The reason was not that he visited Kyoto.

(negative adjunction (NA) reading)

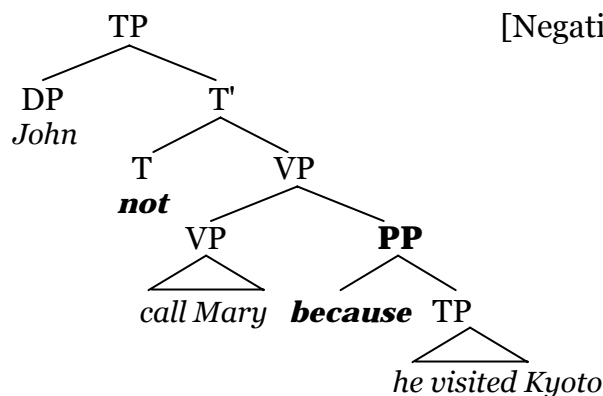
b. John didn't call Mary. The reason was that he visited Kyoto.

(negative head (NH) reading)

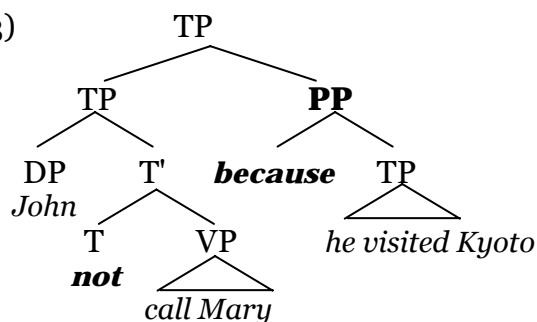
On the first reading, John visited Kyoto and he called Mary, but the reason for his call was not his visit, but some other reason. Johnston calls this the "negative adjunct (NA)" reading. On the second reading, John visited Kyoto (and he met Mary directly), so he didn't call her. Here, *not* negates the main predicate phrase. This reading is called the "negative head (NH)" reading.

Johnston (1994) proposes that these two readings arise from two possible adjunction sites of *because*-clauses, VP and TP. He argues that (2) represents the structure of the NA-reading and (3) represents the structure of the NH-reading.

(2) [Negative Adjunct (NA) reading]



(3) [Negative Head (NH) reading]



In (2), the *because*-clause adjoins to VP and the negation takes scope over the *because*-clause. Johnston assumes that *because* is an operator and if *because*-operator is hierarchically closer to the negation than the predicate, he claims that negation must associate with the *because*-operator and it cannot associate with the predicate. In (3), the *because*-clause adjoins to TP. Since *because*-operator

does not intervene between negation and predicate, negation takes scope over the predicate.

This analysis leaves some questions. According to Johnston (1994), not only restrictive *because*-clauses, but also temporal adverbial clauses can adjoin VP and TP. Thus, we predict that negated sentences with a temporal adverbial clause should be ambiguous, as well. However, unless some element in the *when*-clause is focused, the negated sentence is unambiguous.

(4) John didn't call Mary [when he visited Kyoto].

Without any phonological stress on the phrase in the *when*-clause, (4) is unambiguous and it only allows the reading that John visited Kyoto and during that time, he didn't call Mary. Johnston's analysis wrongly predicts that (4) is ambiguous as (1). Furthermore, there is an interesting correlation between the information structure and the ambiguity of negated sentence that Johnston's multiple adjunction sites analysis fails to capture it. In the next sub-section, I first discuss this correlation.

4.1.2. Correlation between the Information structure and the Ambiguity

Rutherford (1970) and Hooper and Thompson (1973) observe that there are two distinct types of adverbial *because*-clauses: restrictive *because*-clauses in (5) and non-restrictive *because*-clauses in (6).

(5) Sam is going out for dinner [because his wife is cooking Japanese food].

(restrictive because-clause)

(6) Sam is going out for dinner, [because I just talked to his wife].

(non-restrictive because-clause)

In (5), the *because*-clause provides the reason for Sam's actions. In contrast, the *because*-clause in (6) explains how the speaker came by the knowledge of Sam's actions. The reading in (6) is sometimes called "the epistemic reading" and is distinguished from the restrictive *because*-clause in (5).

Hopper and Thompson observe that the restrictive and non-restrictive *because*-clauses are different in their informational structures. According to them, the *because*-clause in (5) expresses the main assertion of the sentence, with the information in the main clause being presupposed.

(7) Sam is going out for dinner [because his wife is cooking Japanese food].

Presupposition: main-clause (*Sam is going out for dinner*)

Main assertion: restrictive *because*-clause

(*The cause was Sam's wife is cooking Japanese food*)

This main assertion-presupposition division is not found in (6).

This difference between restrictive and non-restrictive *because*-clauses is clear in their yes-no question forms. With restrictive *because*-clauses, a syntactical yes-no question asks about the content of the restrictive *because*-clause.

(8) Is Sam going out for dinner [because his wife is cooking Japanese food]?

(*restrictive*)

The main clause has the yes-no question form syntactically, but what (8) asks is whether his wife's cooking makes Sam go out for dinner or not. It does not ask whether Sam is going out for dinner. This indicates that the content of the main clause is presupposed. In contrast, with a non-restrictive *because*-clause, the

syntactic yes-no question of the main clause asks about the content of the main clause.

(9) Is Sam going out for dinner (?), [because I just talked to his wife].

(non-restrictive)

(9) asks whether Sam goes out for dinner. The *because*-clause now explains why the speaker asks this question about Sam. This suggests that the main clause of (9) is not presupposed and the presupposition-main assertion divisions do not exist.

Interestingly, the negation makes the sentence ambiguous only in the restrictive *because*-constructions, and not in the non-restrictive *because*-constructions.

(10) Sam is **not** going out for dinner [because his wife is cooking Japanese food].

a. *John called Mary. Its cause was **not** his visiting of Kyoto. (He called Mary for some other reason.)* (NA)

b. *John **didn't** call Mary. It was because he visited Kyoto.* (NH)

(11) John is **not** going out for dinner, [because I just talked with his wife].

Talking with his wife, I found that John is not going out for dinner. (NH)

This suggests that the *because*-constructions are ambiguous when the adverbial *because*-clause expresses the main assertion.

In-order-to phrases have the same informational structure as restrictive *because*-clauses.

(12) John sprayed an insecticide [**in order to** grow tomatoes].

Presupposition: main-clause (*John sprayed an insecticide*)

Main assertion: *in-order-to* clause (*The purpose was to grow tomatoes*)

Just like the restrictive *because*-clause, the negated *in-order-to* constructions are ambiguous:

(13) John didn't spray an insecticide [in order to grow tomatoes].

a. John splayed an insecticide. Its purpose was not to grow tomatoes, but to do something else. (NA)

b. John didn't splay an insecticide. Its purpose was to grow tomatoes. (NH)

The *in-order-to* phrase expresses the main assertion and the negated *in-order-to* phrase is ambiguous with NA and NH readings. This supports the correlation between the information structure and the ambiguity.

Do other adverbial constructions also show this correlation? Heinämäki (1978) examines temporal adverbial constructions and observes that their informational structures are different from what we find in restrictive *because*-constructions. She observes that temporal adverbial clauses typically express a presupposition of the sentence.

(14) Bob saw the pyramids [when he was in Egypt].

Presupposition: *when*-clause (Bob was in Egypt)

Main assertion: main clause (Bob saw the pyramids) (Heinämäki 1978)

The causal adverbial clauses introduced by *since* or *after* are also presupposed, just like a temporal adverbial clause.

(15) a. The room was cold [since the heater broke down].

Presupposition: *since*-clause (*the heater broke down*)

Main assertion: main clause (*the room was cold*)

b. The room was cold [after the heater broke down].

Presupposition: *after*-clause (*the heater broke down*)

Main assertion: main clause (*the room was cold*) (Heinämäki 1978)

In (15), the breaking of the heater *caused* the coldness of the room. Nonetheless, the information structure remains like that of temporal adverbial constructions: the adverbial clauses express the presupposition, and the main clause expresses the main assertion of the sentence.

As expected, those constructions with the negation are unambiguous, unless a part of the sentence is focused.¹

(16) John didn't call Mary [when he visited Kyoto].

John visited Kyoto. During his visit, he called Mary. (NH)

(17) John didn't visit Kyoto [since Mary presented the paper].

Mary presented the paper. So, John didn't visit Kyoto. (NH)

(18) The room is not warm [after the air condition broke].

The air condition broke. After that, the room is not warm. (NH)

In these constructions where the adverbial phrases express the presupposition, the negation does not make the sentence ambiguous. The correlation between the

¹ Those sentences become ambiguous when a part of adverbial clause is focused.

(i) John didn't call Mary [when he visited KYOTO].

a. John called Mary. It was not when he visited Kyoto, but when he visited somewhere else. (NA)

b. When he visited a place, John didn't call Mary. That place was Kyoto. (NH)

This is because the *when*-clause has a focus projection (FocP) when a part of it is focused and it is interpreted in QP spec as discussed in Chapter 2.

information structure and the ambiguity in the negated sentence is summarized as follows:

(19)

	main assertion	ambiguity with negation
restrictive <i>because</i> clause	yes	yes (NA/NH)
<i>in-order-to</i> phrase	yes	yes (NA/NH)
non-restrictive <i>because</i> clause	no	no (NH)
temporal phrase	no	no (NH)
causal <i>since</i> phrase	no	no (NH)
causal <i>after</i> phrase	no	no (NH)

(19) indicates that negation may associate with the adverbial clauses which express the main assertion, but it cannot associate with the phrase which expresses the presupposition. Johnston's analysis does not capture this correlation. In the next sub-section, I assimilate the ambiguities of negated *because*-constructions and negated *in-order-to* constructions to the ambiguity of negated focal constructions and explain them using their informational structures.

4.1.3. Logical Representation and Syntactic Structure

As we know, the elements in the restrictions of quantifiers are usually presupposed and the elements in the scope express the main assertion. Reflecting on Hooper and Thompson's (1973) observation that the restrictive *because*-clauses express the main assertion of the sentence, Larson (2004) argues that the content of the *because*-clause is interpreted in the scope of the event quantifier whose domain is restricted by the elements in the main clause. The simple case in (20) is logically represented as (21).

(20) John called Mary [because he visited Kyoto].

(21) $[\exists e_1: C(e_1) \& \text{call}(e_1) \& \text{Agent}(e_1, \text{John}) \& \text{Theme}(e_1, \text{Mary})]$ $[\exists e_2: C(e_2) \& \text{cause}(e_1, e_2)]$ visit (e_2) & Agent (e_2, John) & Theme (e_2, Kyoto)

For some calling event of Mary of John, its cause was some visiting event of Kyoto by John.

The sentence with an adverbial *because*-clause involves at least two events: the causing event and the result event. In (20), some calling event (e_1) and some visiting event (e_2) are involved and these two events are correlated by the causal predicate *cause*. In (21), the elements in the main clause restrict the event quantifier and are interpreted as presupposed material. The elements in the *because*-clause appear in the scope of the event quantifier and are interpreted as the main assertion.

Sentences with an *in-order-to* adverbial have the same informational structure. Sentence in (22) is logically represented as (23):

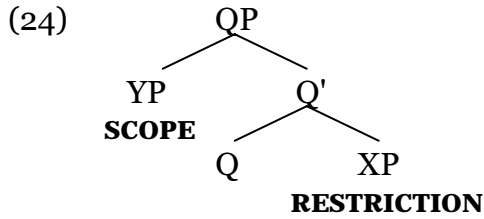
(22) John sprayed an insecticide [**in order to** grow tomatoes].

(23) $[\exists e_1: C(e_1) \& \text{spray}(e_1) \& \text{Agent}(e_1, \text{John}) \& \text{Theme}(e_1, \text{an insecticide})]$
 $[\exists e_2: C(e_2) \& \text{for}(e_1, e_2)]$ grow (e_2) & Agent (e_2, John) & Theme $(e_2, \text{tomatoes})$

For some event of spraying an insecticide by John, it was for the event of John's growing of tomatoes.

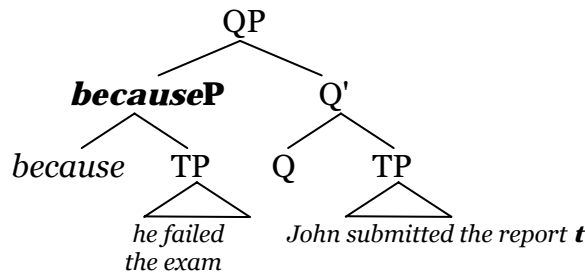
Like *because*, *in-order-to* relates two events, instantiated here by the event relation *for*. Again, the elements in the main clause restrict the event quantifier and are interpreted as presupposed, whereas the elements in the *in-order-to* phrase constitute the scope of the event quantifier, and are interpreted as asserted.

Recall that the elements in QP spec are mapped to the scope and the elements in Q-complement are mapped to the restriction of the event quantifier.



Thus, the restrictive *because*-phrase and the *in-order-to* phrase should appear in QP spec at LF and the elements in the main clause should appear in Q-complement.²

(25) John submitted the report [**because** he failed the exam].



The *because*-phrase is base-generated at some TP-internal position and moves to QP spec to satisfy the scope theta-role of the Q-head. Just as the Foc-head introduces an additional event quantifier, I propose that *because*-head introduces a new event quantifier with the semantic value in (26b).

(26) a. $\llbracket \text{Foc} \rrbracket = \lambda P \lambda e ([\exists e_1: C(e_1) \ \& \ \mathfrak{R}(e_1, e)] P(e_1))$

b. $\llbracket \textit{because} \rrbracket = \lambda P \lambda e ([\exists e_1: C(e_1) \ \& \ \textit{cause}(e_1, e)] P(e_1))$

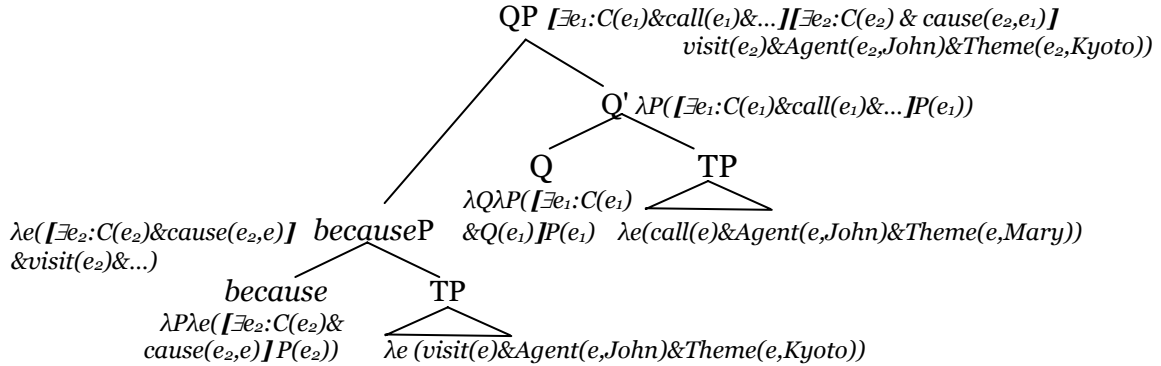
While the Foc-head introduces the two place event predicate \mathfrak{R} , the *because*-head introduces a two-place event predicate *cause* instead. With the structure in (25)

² I avoid arguing the categorical status of *because* and internal structure of the *because*-phrase. While several phenomena in Norwegian and Old English which seem to show that *because*-head selects a CP for its complement, I assume that the complement of *because* is TP for simplification.

and the semantic value of *because*-head in (26b), the logical representation is composed as follows:

(27) John called Mary [**because** he visited Kyoto].

$[\exists e_1: C(e_1) \& \text{call}(e_1) \& \text{Agent}(e_1, \text{John}) \& \text{Theme}(e_1, \text{Mary})]$ $[\exists e_2: C(e_2) \& \text{cause}(e_2, e_1)]$ $\text{visit}(e_2) \& \text{Agent}(e_2, \text{John}) \& \text{Theme}(e_2, \text{Kyoto})$



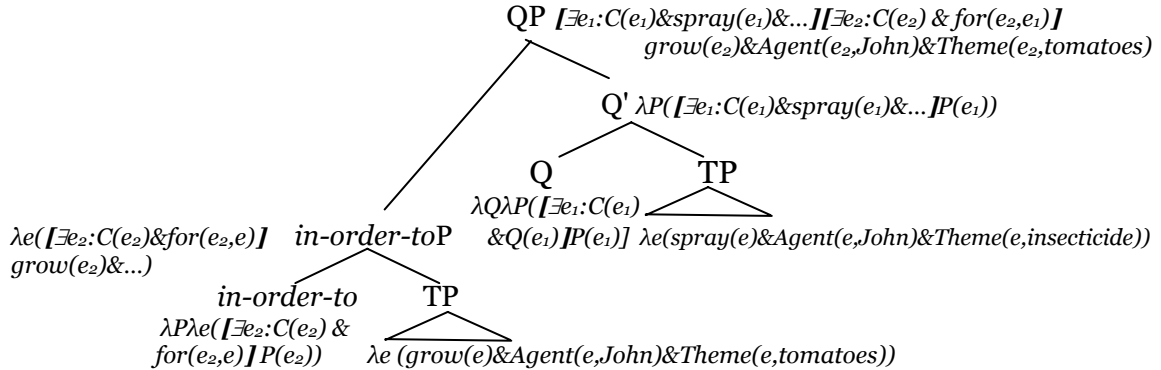
Sentences with an *in-order-to* phrase can be analyzed in the same way.

The *in-order-to* phrase, which is base-generated in some TP-internal position, moves to QP spec to satisfy the scope theta-role of the Q-head. With the semantic value in (28), the logical representation is composed as (29).

(28) $[\textit{in-order-to}] = \lambda P \lambda e([\exists e_1: C(e_1) \& \text{for}(e_1, e)] P(e_1))$

(29) John sprayed an insecticide [**in order to** grow tomatoes].

$[\exists e_1: C(e_1) \& \text{spray}(e_1) \& \text{Agent}(e_1, \text{John}) \& \text{Theme}(e_1, \text{an insecticide})]$
 $[\exists e_2: C(e_2) \& \text{for}(e_2, e_1)] \text{grow}(e_2) \& \text{Agent}(e_2, \text{John}) \& \text{Theme}(e_2, \text{tomatoes})$



On this proposal, *because*-phrases and *in-order-to*-phrases are treated just like a focused phrase.

4.1.4. Focal Analysis of the Ambiguity

Given that sentences with restrictive *because*-clauses have the informational structure of focus, the two readings of negated *because*-constructions can be directly assimilated to the two readings of negated focal construction. Recall that the negated focal constructions are ambiguous between bound and free readings:

(30) John didn't come to the class YESTERDAY.

a. John came to the class. It was **not** yesterday, but on some other day. (bound)

b. John didn't come to the class. It happened yesterday. (free)

On the bound reading, negation associates with the focused element; on the free reading, negation associates with the predicate phrase. Negated sentences with a restrictive *because*-clause also have two readings, an NA-reading and an NH-reading. Example in (1) is repeated below as (31).³

(31) John didn't call Mary [because he visited Kyoto].

a. *John called Mary. Its cause was **not** John's visit of Kyoto.* (NA)

b. *John didn't call Mary. Its cause was that he visited Kyoto.* (NH)

³The NA-reading and the NH-reading have different intonation pattern. The sentence has an NA-reading when the pitch rises at the end of the sentence. In contrast, the sentence has an NH-reading when the pitch falls at the end of the sentence. This distinction is parallel to what we observed in the difference between the bound and the free readings of the negated focal constructions.

On the NA-reading, negation associates with the *because*-clause. Since the restrictive *because*-clause expresses the main assertion and functions like a focused element, this NA-reading corresponds to the bound reading of negated focal constructions and it is logically represented as (32).

$$(32) \quad [\exists e: C(e_1) \& \text{call}(e_1) \& \text{Agent}(e_1, \text{John}) \& \text{Theme}(e_1, \text{Mary})] [\exists e_2: C(e_2) \& \text{cause}(e_2, e_1)] \sim [\text{visit}(e_2) \& \text{Agent}(e_2, \text{John}) \& \text{Theme}(e_2, \text{Kyoto})]$$

For some calling event of John of Mary, its cause was not some event of John's visiting of Kyoto. (NA)

On the NH-reading, the negation associates with the main predicate phrase. This reading corresponds to the free reading, and is logically represented as (33).

$$(33) \quad [\exists e: C(e_1) \& \sim [\text{call}(e_1) \& \text{Agent}(e_1, \text{John}) \& \text{Theme}(e_1, \text{Mary})]] [\exists e_2: C(e_2) \& \text{cause}(e_2, e_1)] \text{visit}(e_2) \& \text{Agent}(e_2, \text{John}) \& \text{Theme}(e_2, \text{Kyoto})]$$

For some non-calling event of John of Mary, its cause was some event of John's visiting of Kyoto. (NH)

Just as the [+neg] feature appears in the Foc-head with the semantic value in (34a), I propose that the [+neg] feature may appear on the *because*-head. If it appears on the *because*-head, the *because*-head has the semantic value in (34b).⁴

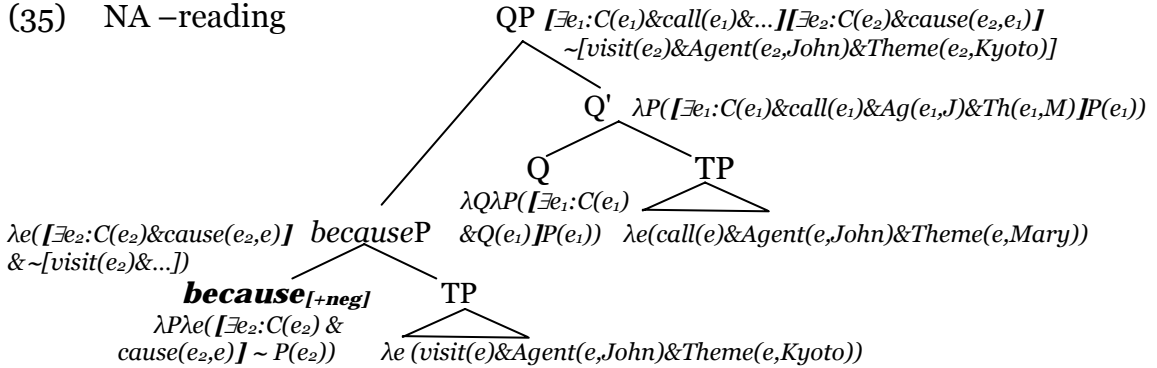
$$(34) \quad \text{a. } [\text{Foc}_{[+\text{neg}]}] = \lambda P \lambda e ([\exists e_1: C(e_1) \& \mathfrak{R}(e_1, e)] \sim P(e_1))$$

$$\text{b. } [\textit{because}_{[+\text{neg}]}] = \lambda P \lambda e ([\exists e_1: C(e_1) \& \text{cause}(e_1, e)] \sim P(e_1))$$

⁴ Negation does not take scope over the focal head or the *because*-head. The negated sentence *John didn't come to the class YESTERDAY* does not have the interpretation that an event of John's coming to the class is NOT some aspect of being yesterday. Likewise, the negated *because*-construction *John didn't call Mary because he visited Kyoto* does not have the reading that some event of John's calling of Mary and some event of John's visiting of Kyoto are not under causal relation. It is unclear why negation cannot take scope over the \mathfrak{R} -relation or *cause*-relation. Here, I simply assume that denotation of (34a) and (34b).

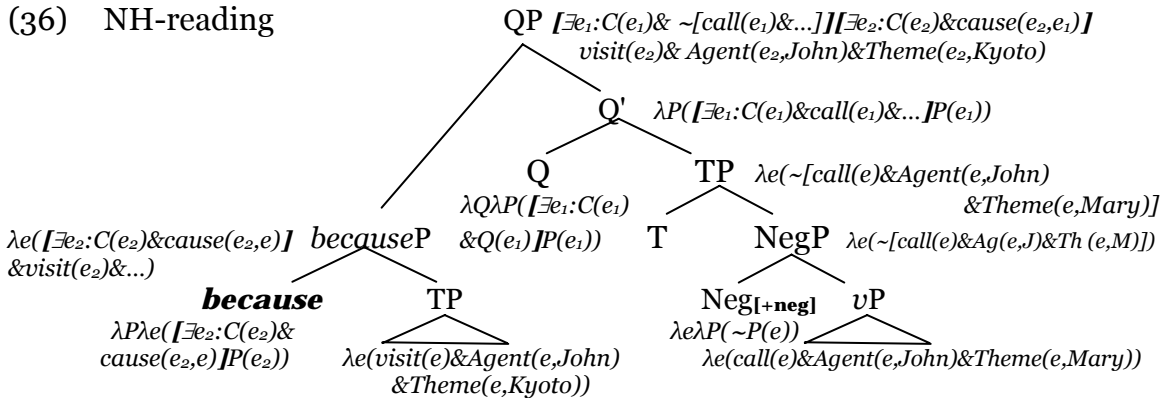
When the *because*-head has a [+neg] feature, this [+neg] feature is licensed by the Neg-head at TP internal position. Later, the whole *because*-phrase covertly moves to QP spec together with the [+neg] feature in the *because*-head. At LF, the meanings are combined as in (35) and the NA-reading is derived.

(35) NA –reading



By contrast, when the [+neg] feature appears on the Neg-head, negation is mapped to the restriction of the main event quantifier and we get the NH-reading.

(36) NH-reading



Parallel to negated focal constructions, the two possible sites of the [+neg] feature induce ambiguity in the negated *because*-constructions.

The ambiguity of the negated *in-order-to* phrase is explained in the same way. An *in-order-to* head with a [+neg] feature is interpreted as (37b).

- (37) a. $\llbracket in\text{-}order\text{-}to \rrbracket = \lambda P \lambda e (\llbracket \exists e_1: C(e_1) \ \& \ for \ (e_1, e) \rrbracket P(e_1))$
 b. $\llbracket in\text{-}order\text{-}to \llbracket +neg \rrbracket \rrbracket = \lambda P \lambda e (\llbracket \exists e_1: C(e_1) \ \& \ for \ (e_1, e) \rrbracket \sim P(e_1))$

With the semantic value in (37b), the logical representation of the NA-reading in (38) is derived in a way parallel to (35).

- (38) John didn't spray an insecticide [in order to grow tomatoes].
 $\llbracket \exists e_1: C(e_1) \ \& \ spray \ (e_1) \ \& \ Agent \ (e_1, John) \ \& \ Theme \ (e_1, \text{an insecticide}) \rrbracket$
 $\llbracket \exists e_2: C(e_2) \ \& \ for \ (e_2, e_1) \rrbracket \sim \llbracket grow \ (e_2) \ \& \ Agent \ (e_2, John) \ \& \ Theme \ (e_2, \text{tomatoes}) \rrbracket$ (NA)

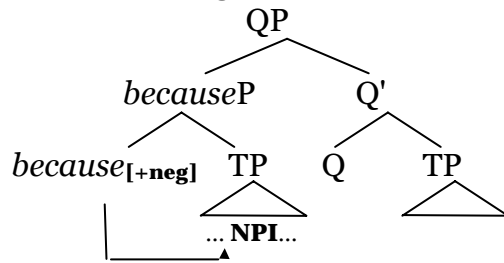
If the [+neg] feature appears on the Neg-head, the *in-order-to* head is interpreted as in (37a) and the NH-reading in (39) is derived.

- (39) John didn't spray an insecticide [in order to grow tomatoes].
 $\llbracket \exists e_1: C(e_1) \ \& \ \sim \llbracket spray \ (e_1) \ \& \ Agent \ (e_1, John) \ \& \ Theme \ (e_1, \text{an insecticide}) \rrbracket \rrbracket$
 $\llbracket \exists e_2: C(e_2) \ \& \ for \ (e_2, e_1) \rrbracket \llbracket grow \ (e_2) \ \& \ Agent \ (e_2, John) \ \& \ Theme \ (e_2, \text{tomatoes}) \rrbracket$ (NH)

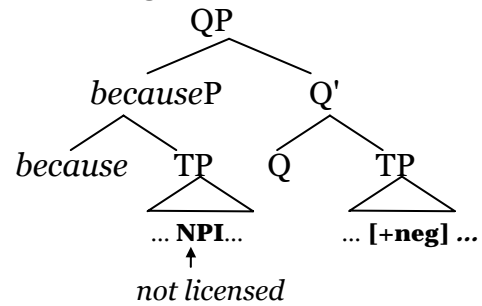
Again, the ambiguity arises from the two possible syntactic positions of the [+neg] feature and two readings are derived in a way parallel to the bound and free readings of negated focal constructions.

In Chapter 3, I argued that the [+neg] feature is responsible for licensing NPIs: NPIs are licensed when a head with a [+neg] feature c-commands an NPI. On the NA-reading, the [+neg] feature on the *because*-head should be able to license the NPI within the *because*-phrase (40a). On the NH-reading, the [+neg] feature appears on the Neg-head inside of TP, and it should fail to license NPIs within the *because*-phrase (40b).

(40) a. NA-reading



b. *NH-reading



So, we predict that negated *because*-constructions with an NPI in the *because*-phrase are unambiguous, allowing only the NA-reading. This prediction is born out. Linebarger (1987) observes that the ambiguity in (41) disappears when *a paper* in the *because*-clause is replaced with the NPI *any paper* (42).⁵

(41) a. John didn't visit Boston [because Mary presented a paper].

a. John visited Boston. The reason of his visit was **not** that Mary presented a paper. (NA)

b. John didn't visit Boston. The reason of his non-visiting was that Mary presented a paper. (NH)

⁵ Linebarger (1987) proposes the Immediate Scope Constraint in (i) to explain the lack of ambiguity in (ii).

(i) A negative polarity item is acceptable in a sentence S if in the LF of S the subformula representing the NPI is in the immediate scope of the negative operator. An element is in the immediate scope of NOT only if (1) it occurs in a proposition that is the entire scope of NOT, and (2) within this proposition there are no logical elements intervening between it and NOT. (Linebarger 1987)

(ii) He didn't move **budge an inch** [because he was pushed].

a. # His moving was not caused by his being pushed. (NA)

b. His not moving was caused by his being pushed. (NH) (Linebarger 1987)

Arguing that *because* is a logical scope taker which intervenes licensing of NPIs, Linebarger explains the unavailability of the NA-reading in (iia). Johnston (1994) follows this idea. However, the status of *because* as a logical scope taker is not clear, specially if it is interpreted as a predicate of events. To explain the possible reading in (42), Linebarger proposes that the negative implicature licenses the NPI in the NA-reading. Johnston argues that the NPIs quantifier-raise outside of the *because*-clause and they are licensed by the Neg-head.

- (42) John didn't visit Boston [because Mary presented **any paper**].
- a. John visited Boston. The reason of his visit was not that Mary presented the paper. (NA)
- b. #John didn't visit Boston. The reason of his non-visiting was that Mary presented the paper. (#NH)

As predicted, (42) allows only the NA-reading. This fact is predicted successfully and it supports the analysis that the [+neg] feature appear in the different positions on NA and NH readings.

4.1.5. Evidence from Cross-linguistic Data

far, I have argued that ambiguity in negated *because*-constructions arises from their information structure. I have proposed that the [+neg] feature may appear on the *because*-head or the Neg-head, and that, when it appears on the *because*-head, the NA-reading is derived, and when it appears on the Neg-head, the NH-reading is derived. In Russian, the [+neg] feature is overtly realized. As discussed in chapter 3, Russian negation *ne* appears in front of the focused element on the bound reading and it appears in front of the predicate on the free reading.

- (43) a. John vstretil **ne** MARY. [bound] *Russian*
 John met neg Mary
 'John met someone. It was not Mary, but someone else.'
- b. John **ne** vstretil MARY. [free]
 John neg met Mary
 'John skipped meeting Mary.'

Interestingly, the same distribution is found in the negated *because*-constructions.⁶

- (44) a. John ušol **ne** [potomu što prišla Mary]. [NA] *Russian*
 John left neg because that came Mary
 '[John left. Its reason was not that Mary came. He left for other reason.]'
- b. John **ne** ušol [potomu što prišla Mary]. [NH]
 John neg left because that came Mary
 'John didn't leave. Its reason was that Mary came.'

When the negative element *ne* appears just before the *because*-clause, the sentence has the NA-reading. When *ne* appears before the main predicate, it has the NH-reading. The parallel phenomena of (43) and (44) indicate that the negated focal constructions and negated *because*-constructions should be analyzed uniformly.

Japanese data also support the correlation between the negated focal constructions and the negated *because*-constructions. Takubo (1985) observes that Japanese negation does not associate with a focal element and the negated focal constructions do not have the bound reading at all.

- (45) Taro-wa EDOJO-O otazure-nak-atta.
 Taro-top Edo.castle-acc visit-neg-pst
 'Taro didn't visit EDO CASTLE.'
- a. #It was not Edo castle that John visited. (bound)
- b. It was Edo castle that John didn't visit. (free)

⁶ Thanks Andrei Antonenko for the Russian data.

Interestingly, the same pattern is observed in Japanese negated *because*-constructions.

(46) Taro-wa [Hanako-ga kita kara] deteik-anak-atta.

Taro-top Hanako-nom came because leave-neg-pst

'Taro didn't leave because Hanako came.'

a. #Taro left. The reason of it was not that Hanako came. (#NA)

b. Taro didn't leave. The reason of it was that Hanako came. (NH)

(46) indicates that the negation may associate with the main predicate, but it cannot associate with the *because*-clause.⁷ Johnston's analysis of negated *because*-constructions cannot capture this correlation between the negated intonation focus constructions and the negated *because*-constructions. The focal analysis, on the other hand, predicts this correlation correctly.

4.1.6. *Because*-clause and Frequency Adverbs

So far, I have proposed that *because*-clauses and *in-order-to*-clauses are interpreted analogously to focal phrases. If the *because*-phrase and the *in-order-to*-phrase behave like focal elements, we might further expect that ambiguity will occur with frequency adverbs. Johnston (1994) observes that *because*-constructions are in fact ambiguous with a frequency adverb.⁸

⁷ The negated *in-order-to* constructions are also unambiguous in Japanese.

(i) Taro-wa [tomato-o sodateru tameni] sacchuzai-o mak-anak-atta.
Taro-top tomatoes-acc grow *in-order-to* insecticide-acc spray-neg-pst
'Taro didn't spray the insecticide in order to grow tomatoes.'

a. #Taro splayed an insecticide. Its purpose was not to grow tomatoes. (#NA)

b. Taro didn't splay an insecticide. Its purpose was to grow tomatoes. (NH)

⁸ Johnston's (1994) original example is as follows:

(i) Leopold always sold shares because he needed money.

- (47) John **always** goes back home at eight [because Mary cooks dinner].
- a. Whenever John goes back home at eight, his reason for doing so is that Mary cooks dinner. (QA)
- b. On all relevant occasions, John goes back home at eight. The reason for this pattern of behavior is that Mary cooks dinner. (QH)

On the first reading, each event of the John's going back home at eight is evaluated and the sentence is true if John's reason is Mary's cooking of dinner in each case. Johnston calls this reading "Quantifier Adjunct (QA)" reading with the idea that *always* associates with the adjunct phrase, namely the *because*-clause. The second reading says that there is a pattern that John goes back home at eight and the sentence is true if this pattern is due to Mary's cooking of dinner. This reading is called "Quantifier Head (QH)" reading, since *always* associates with the main predicate phrase.⁹

-
- a. On all occasions that Leopold sold shares, his reason for doing so was that he needed money. (QA)
- b. On all occasions Leopold sold shares, and the reason for this pattern of behavior was that he needed money. (QH)

⁹ In *when*-constructions, the *when*-clause restricts the frequency adverb, unlike the *because*-clause case.

- (i) John always goes back home [when Mary cooks dinner].
- a. For all occasions such that Mary cooks dinner, John goes back home.
- Johnston (1994) observes that when the eventuality description of the main clause is telic, the elements in the main clause may restrict the frequency adverb as in (iib).
- (ii) Marty always shaves [when he is in the shower].
- a. For all occasions such that Marty is in the shower, he shaves. (*when*-clause restriction)
- b. For all occasions such that Marty shaves, he is in the shower. (main clause restriction)
- The reading in (iia) is expected, but the reading in (iib) is not expected under the focal analysis. Since a special aspectual condition must be satisfied to derive this reading, I consider that this second reading arises from an independent mechanism. Note that such aspectual requirement is not found for the ambiguity of the *because*-construction in (47).

I suggest that these two readings are parallel to what we found in the focal constructions. Recall that focal constructions with a frequency adverb are ambiguous between the bound and free readings.

(48) John always runs TO SCHOOL.

a. Whenever John runs, he goes to school. (bound)

b. John always runs. It happens when he goes to school. (free)

On the bound reading, *always* associates with the focused element; on the free reading, it associates with the predicate. As discussed in the previous chapter, these readings are logically represented as (49a) and (49b) respectively.

(49) a. $[\text{Always } e_1: C(e_1) \ \& \ \text{run } (e_1) \ \& \ \text{Agent } (e_1, \text{John})] \ [\exists e_2: C(e_2) \ \& \ \mathfrak{R}(e_2, e_1)]$
 Goal (e_2 , school) (bound)

For every event of John's running, there is a one-to-one related event such that the goal being the school.

b. $[\exists e_1: C(e_1) \ \& \ [\text{Always } e_2: C(e_2)] \ \text{run } (e_2) \ \& \ \text{Agent } (e_2, \text{John}) \ \& \ \text{contain}(e_2, e_1)] \ [\exists e_3: C(e_3) \ \& \ \mathfrak{R}(e_3, e_1)]$ Goal (e_3 , school) (free)

For some event which contains all events of John's running, there is a one-to-one related event such that the goal being the school.

Following Herburger (2000), I have argued the frequency adverbs are interpreted as event quantifiers. If it has the semantic value of a two-place event quantifier, the bound reading is derived. If it has the semantic value of the one-place event quantifier, the free reading is derived.

I propose that the QA-reading of the *because*-construction and the bound reading of the focal constructions have the similar logical representations, and that the QH-reading of the *because*-construction and the free reading of the focal

constructions have parallel logical representations. On the QA-reading, *always* associates with the *because*-clause; on the bound reading, it associates with the focal element. The QA-reading of (47) is thus logically represented as follows:

(50) John **always** goes back home at eight [because Mary cooks dinner].

[Always e_1 : C(e_1) & go-back (e_1) & Agent (e_1 , John) & Theme (e_1 , home) & At (e_1 , eight)] [$\exists e_2$: C(e_2) & cause (e_2 , e_1)] cook(e_2) & Agent (e_2 , Mary) & Theme (e_2 , dinner) (QA)

This logical representation says that for each event of John's going back home at eight, it is caused by the event of Mary's cooking dinner. Just like the bound reading case, the frequency adverb is interpreted as a two-place event quantifier and the presupposed elements, which are elements in the main clause, are interpreted in the restriction of *always*.

In contrast, on the QH-reading, frequency adverb associates with the main predicate phrase. This is true in the free-reading, too. So, I propose the following logical representation, which is parallel to the logical representation of the free reading of the focal constructions.

(51) John **always** goes back home at eight [because Mary cooks dinner].

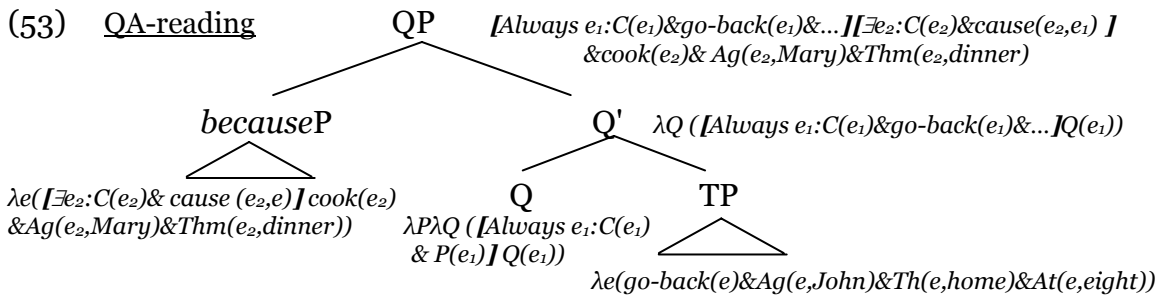
[$\exists e_1$: C(e_1) & [*Always* e_2 : C(e_2)] go-back (e_2) & Agent (e_2 , John) & Theme (e_2 , home) & At (e_2 , eight) & contain (e_2 , e_1)] [$\exists e_3$: C(e_3) & cause (e_3 , e_1)] cook (e_3) & Agent (e_3 , Mary) & Theme (e_3 , dinner) (QH)

Here, the event of Mary's cooking dinner induces serial events of John's going back home at eight. The event quantifier which is introduced by the frequency adverb is interpreted as one-place quantifier, and is embedded within the restriction of the higher existential event quantifier.

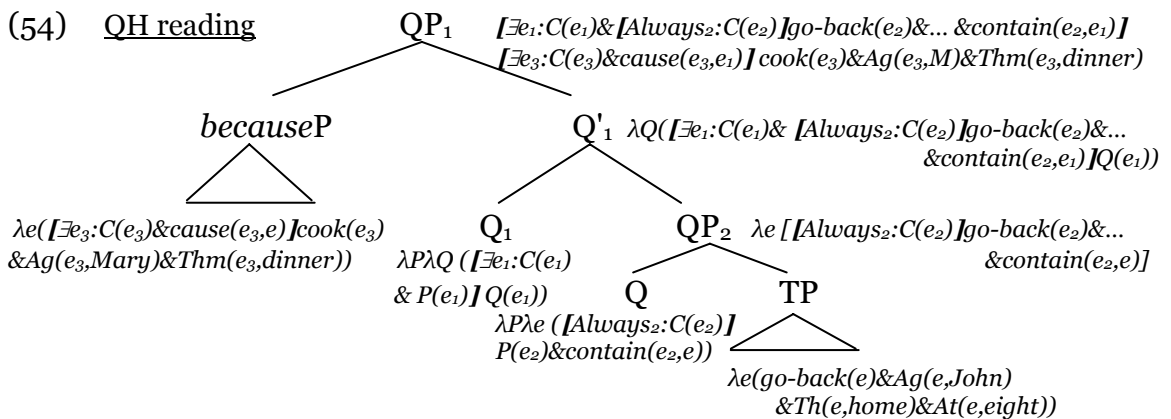
These logical representations are derived straightforwardly under the analysis of the *because*-phrase as moving to QP spec. Recall that frequency adverbs may denote two-place event quantifiers (52a) or one-place event quantifiers (52b).

- (52) a. $\llbracket Q_{always\ 2\text{-pace}} \rrbracket = \lambda P \lambda Q (\llbracket Always\ e_1: C(e_1) \ \& \ P(e_1) \rrbracket Q(e_1))$
 b. $\llbracket Q_{always: embedded\ 1\text{-pace}} \rrbracket = \lambda P \lambda e (\llbracket Always\ e_2: C(e_2) \rrbracket P(e_2) \ \& \ contain(e_2, e))$

When *always* is interpreted as a two-place event quantifier in (52a), we have the structure in (53):



Here, the *because*-phrase is interpreted in the scope of *always* and the QA-reading is derived. When *always* is interpreted as a one-place event quantifier in (52b), we get the structure in (54):



Under this focal approach of *because*-clause, the ambiguity of *because*-construction is derived from the two possible interpretations of *always*, just like the ambiguity of the focal constructions.¹⁰

In-order-to constructions also show ambiguity with a frequency adverb.

- (55) John **always** goes back home at eight [in order to please Mary].
- a. Whenever John goes back home at eight, it is for pleasing Mary. (QA)
- b. On all relevant occasions, John goes back home at eight. He has this pattern to makes Mary happy. (QH)

These two readings are logically translated as (56a) and (56b).

- (56) a. [Always e_1 : C(e_1) & go-back (e_1) & Agent (e_1 , John) & Theme (e_1 , home) & At (e_1 , eight)] [$\exists e_2$: C(e_2) & for (e_2, e_1)] please (e_2) & Agent (e_2 , John) & Theme (e_2 , Mary) (QA)
- b. [$\exists e_1$: C(e_1) & [Always e_2 : C(e_2)] go-back (e_2) & Agent (e_2 , John) & Theme (e_2 , home) & At (e_2 , eight) & contain (e_2 , e_1)] [$\exists e_3$: C(e_3) & for (e_3 , e_1)] please (e_3) & Agent (e_3 , John) & Theme (e_3 , Mary) (QH)

This ambiguity is also explained with the two possible semantic values of *always*.

Before closing this section, I would like to discuss the pre-posed *because*-clauses briefly. Unlike the sentence with a post-verbal *because*-clause, the

¹⁰ It would be interesting to see the interaction of negation, frequency adverb, and *because*-clause as in (i).

(i) John does not always go back home [because Mary cooks dinner].

In the word order in (i), the negation tends to take scope over *always*. Thus, we predict two possible readings for (i).

(ii) a. For not all occasions of John's going back home, he does so because Mary cooks dinner.
b. John does not always go back home. This pattern is because Mary cooks dinner.

Unfortunately, these cases seem to be difficult to judge and the judgment is not so clear. Thus, I avoid discussing it here.

sentence with a pre-posed *because*-clause is not ambiguous even when it co-occurs with a negation or a frequency adverb.

(57) Because Mary cooked dinner, John **didn't** go out.

a. #John went out. The reason of his going out was **not** that Mary cooked dinner. (#NA)

b. John **didn't** go out. The reason of John's staying home was that Mary cooked dinner. (NH)

(58) Because Mary cooks dinner, John **always** goes back home at eight.

a. #Whenever John goes back home at eight, his reason for doing so is that Mary cooks dinner. (#QA)

b. On all relevant occasions, John goes back home at eight. The reason for this pattern of behavior is that Mary cooks dinner. (QH)

In (57), the negation co-occurs with the pre-posed *because*-clause. In (58), the frequency adverb *always* co-occurs with the pre-posed *because*-clause. Lack of the NA-reading and the QA-reading indicates that the focus sensitive elements (negation and frequency adverb) cannot associate with the pre-posed *because*-clause. I argue that this is because the *because*-clause loses its status of main assertion when pre-posed.

Prince (1977) observes that the main clause, not the *because*-phrase, expresses the main assertion in the pre-posed *because*-constructions. For example, in (59), the main assertion is *Mary wrote Sam*.

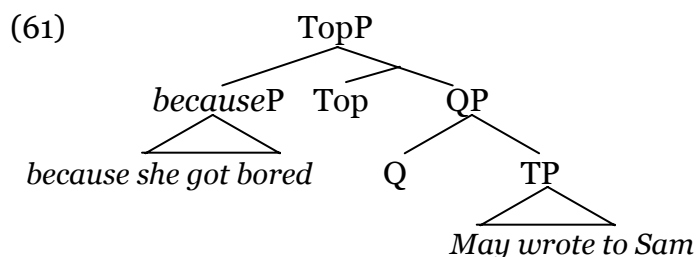
(59) Because she got bored, Mary wrote to Sam.

Main assertion: main clause (*Mary wrote to Sam*)

This is attested by the fact that (59) is natural for the answer of (60a), but it is less natural for the answer of (60b).¹¹

- (60) a. What Mary did do?
 b. Why did Mary write to Sam?

If the pre-posed *because*-clause can be the main assertion, (59) should be an appropriate answer for the *why*-question in (60b), but it is inappropriate as its answer. Prince, thus, claims that the pre-posed *because*-clause does not express the main assertion. Banfield (1973), van Riemsdijk and Zwarts (1974), and Reinhart (1984) suggest that certain presentational elements may be base-generated at a projection higher than TP. I assume that the pre-posed *because*-phrase is base-generated in TopP spec as in (61).



Since the *because*-phrase never appears within the TP, the *because*-head cannot host the [+neg] feature even when the NegP appears within the TP. Thus, the NA-reading is not found in (57).¹² Furthermore, since the *because*-phrase appears in

¹¹ The fragment answer "Because she got bored." is natural for the answer of the question in (60b). I consider that the *because*-phrase of this fragment form expresses the main assertion and this form is derived by moving the *because*-phrase to QP spec overtly and deleting the TP.

(i) [_{QP} [because she got bored]_i [_Q Q [_{TP} ~~Mary wrote to Sam~~ _{t_i}]]]
 Thus, it does not have the same structure with the sentence in (59).

¹² Richard K. Larson (personal communication) pointed out that the following sentence is unambiguous:

(i) I didn't hear that [[because Mary left], John came].
 (i) only has the reading that I didn't hear the following: Because Mary left, John came. It is not clear why negation cannot associate with the *because*-phrase. I leave this for further research.

TopP spec, the Q-head is interpreted as a one-place event quantifier, not as two-place event quantifier. Consequently, the QA reading in (58) does not exist.¹³

In this section, I have shown that focus sensitive elements may associate with *because*-clauses and I have proposed that ambiguities with *because*-constructions and ambiguities with focal constructions are to be explained uniformly. This analysis captures the correlation between the informational structure of *because*-constructions and the ambiguities, and furthermore, it explains various interesting cross-linguistic data uniformly. In the next section, I discuss some other semantic and syntactic characteristics of *because*-clauses.

4.2. *Because*-clause as a Focus Sensitive Element

So far, I have shown that *because*-clauses are interpreted as if focused. Interestingly, however, when an independent focused element appears in the matrix clause, *because*-interpretation is affected. Compare (62) and (63).

(62) Mary attended the party [because Peter got the Nobel Prize].

(63) MARY attended the party [because Peter received the emergency call].

Suppose that Peter is a medical doctor and Mary is his wife. (62) is natural in the context where Mary attended the party to celebrate Peter's Nobel Prize. Here, the *because*-phrase explains why some attending event happened. (63) is natural in

¹³ In Japanese, the two readings are represented with two different word orders. When the frequency adverb precedes the *because*-clause, the QA reading is derived and when the frequency adverb follows the *because*-clause, the QH-reading is derived.

(i) a. John-wa *itsumo* [Mary-ga yuushoku-o tsukuru kara] hayaku kaeru. (QA)
 John-top always Mary-nom dinner-acc cook because early go.back
 'For all occasions of John's going back early, its reason is that Mary cooks dinner.'
 b. John-wa [Mary-ga yuushoku-o tsukuru kara] *itsumo* hayaku kaeru. (QH)
 John-top Mary-nom dinner-acc cook because always early go.back
 'John always goes back early. The reason of this pattern is that Mary cooks dinner.'

This suggests that the word order is relevant for the information structure.

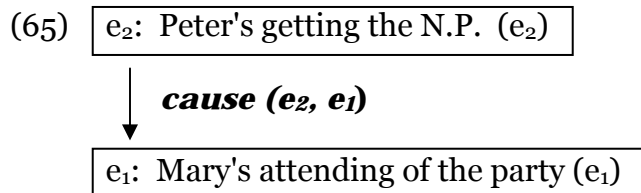
the context where Peter had to go to the hospital, so Mary attended the party in behalf of Peter. In this case, the *because*-clause does not explain why the event of attending occurred. Rather, it explains why Mary, not John, was the attendee. In this section, I argue that new reading in (63) arises from the property of focus that it introduces an independent event quantifier.

4.2.1. Focus Sensitivity of *Because*-clause

In simple *because*-constructions, two events are typically involved - in (64), an attending event and a getting-the-Nobel-Prize event:

(64) Mary attended the party [because Peter got the Nobel Prize].

The getting-the-prize event is understood as a cause and the attending event as its result.



Using the event relation *cause*, this meaning is logically represented as in (66).

(66) $[\exists e_1: C(e_1) \ \& \ \text{attend}(e_1) \ \& \ \text{Agent}(e_1, \text{Mary}) \ \& \ \text{Theme}(e_1, \text{the party})]$ $[\exists e_2: C(e_2) \ \& \ \text{cause}(e_2, e_1)]$ $\text{get}(e_2) \ \& \ \text{Agent}(e_2, \text{Peter}) \ \& \ \text{Theme}(e_2, \text{the N.P.})$

Recall that focus introduces an additional event quantifier. Whereas (67a) describes only one event, the meaning of (67b) involves two events:

(67) a. Mary attended the party.

$[\exists e_1: C(e_1)]$ attend (e_1) & Agent (e_1 , Mary) & Theme (e_1 , the party)

e_1 : Mary's attending the party (e_1)

b. MARY attended the party.

$[\exists e_1: C(e_1) \& \text{attend} (e_1) \& \text{Theme} (e_1, \text{the party})]$ $[\exists e_2: C(e_2) \& \mathfrak{R}(e_2, e_1)]$
Agent (e_2 , Mary)

e_1 : attending the party (e_1)

e_2 : Agent (e_2 , Mary)

\mathfrak{R}

The event expressed in the main clause of a *because*-construction is interpreted as the result argument of *cause*. So, when (67a) is the main clause of the *because*-construction, the event of Mary's attending the party is unambiguously interpreted as the result of *cause*.

(68) Mary attend the party [because ...]

e_2 : ...

\downarrow *cause*

e_1 : Mary's attending the party (e_1)

However, when (67b) is the main clause of the *because*-construction, there are two choices for the result argument of *cause*: e_1 , which is the event of Mary's attending the party, or e_2 , which is the event of Mary being the Agent.

(69) MARY attended the party [because ...]

e_3 : ... (e_3)

***cause*(e_3, e_1)** **or** ***cause*(e_3, e_2)**

e_1 : attending the party (e_1)

e_2 : Agent (e_2 , Mary)

\mathfrak{R}

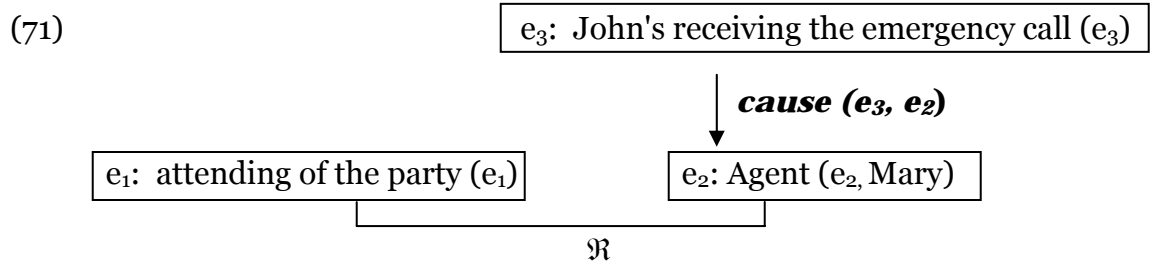
If *cause* takes e_1 as its result argument, we predict that the *because*-phrase provides the reason of some attending-the-party event and the sentence has the

meaning similar to what we find in the sentence without focus.¹⁴ However, if *cause* takes e_2 as its result argument, we predict that the *because*-clause explains the reason of having Mary as the agent and it would not give the reason of the attending-the-party event.

This later, focus sensitive reading occurs in (70).

(70) MARY attended the party [because Peter received the emergency call].

In the situation given before, where Mary went to the party in behalf of Peter, the *because*-clause explains the reason for having Mary as the Agent.



The causal relation between the event of John's receiving of the emergency call and the event of Mary being the agent is logically represented as (72).

(72) $[\exists e_2: C(e_2) \ \& \ \text{Agent}(e_2, \text{Mary})] [\exists e_3: C(e_3) \ \& \ \text{cause}(e_3, e_2)] \text{receive}(e_3) \ \& \ \text{Agent}(e_3, \text{John}) \ \& \ \text{Theme}(e_3, \text{the emergency call})$

For some event of Agent being Mary, it was caused by the event of John's receiving the emergency call.

Here, the *because*-clause is interpreted in the scope of the event quantifier introduced by the focused phrase. Since the agency of Mary is one aspect of some event of attending the party, (72) is a part of the scope of the event quantifier of some attending event. The whole event relations involved in (70) are, thus, logically represented as (73).

¹⁴ This option is discussed later in Section 4.2.4.

(73) $[\exists e_1: C(e_1) \ \& \ \text{attend}(e_1) \ \& \ \text{Theme}(e_1, \text{the party})]$ $[\exists e_2: C(e_2) \ \& \ \mathfrak{R}(e_2, e_1) \ \& \ \text{Agent}(e_2, \text{Mary})]$ $[\exists e_3: C(e_3) \ \& \ \text{cause}(e_3, e_2)]$ $\text{receive}(e_3) \ \& \ \text{Agent}(e_3, \text{John}) \ \& \ \text{Theme}(e_3, \text{the emergency call})$

For some attending event of the party, its one-to-one related event is such that the agent being Mary, the event of receiving emergency call of John caused the event of the agent being Mary.

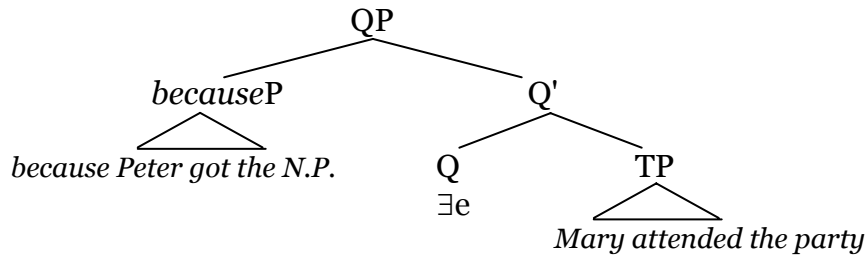
(73) represents the interpretation that some event of attending the party has Mary as its agent and this agency of Mary is explained by the event of John's receiving the emergency call. This special focus sensitive reading arises on my analysis precisely because the predicate *cause* may take the event introduced by focus for one of its arguments. The presence of this reading thus supports the analysis of focus as introducing an additional event quantifier.

4.2.2. Syntactic Structure

According to the above, on the regular reading, the predicate *cause* takes the event expressed by the main-clause as one of its arguments. On the focus sensitive reading, *cause* takes the event introduced by focus. If this semantic difference is reflected in the syntactic structure, then these two readings should correspond to different LFs. This subsection discusses the LF syntactic structure of focus sensitive *because*-constructions.

As discussed before, the simple *because*-construction has the following LF syntactic structure:

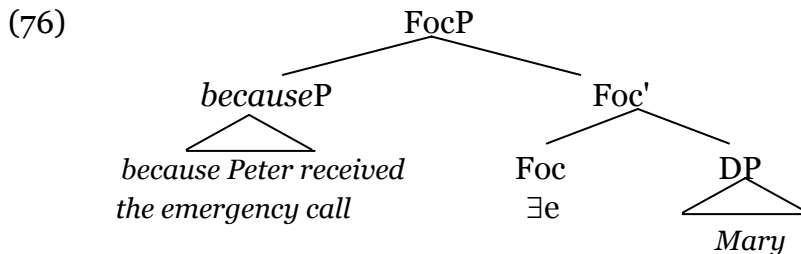
(74) Mary attended the party [because Peter got the Nobel Prize].



The *because*-phase which appears in the QP spec of the main clause gives the reason for the event that the Q-head introduces. In the focus sensitive *because*-clause in (75), the *because*-clause explains the event of Mary being the agent.

(75) MARY attended the party [because Peter received the emergency call].

Recall that the event quantifier for focus is introduced with a Foc-head. I propose that the focus sensitive *because*-phrase appears in FocP spec as in (76) and that this explains the event that Foc-head introduces. This is parallel to the structure of simple *because*-construction in (74).

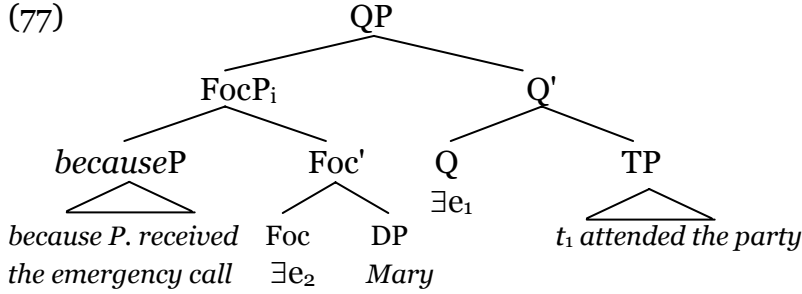


This FocP is base-generated at TP internal position, namely, the argument position, and it covertly moves to QP spec of the main clause.¹⁵ At LF, the sentence in (75) has the LF structure in (77).

¹⁵ Usually, TP ellipsis is allowed when the FocP moves overtly to QP spec and thus it allows the question *Why MARY*, which I discuss in Chapter 5.4.3. However, in *because*-constructions, even if the FocP overtly moves to QP spec, TP deletion is not allowed.

(i) A. Why did MARY go to the party? / Why MARY?
 B. *Because Peter received the emergency call MARY.

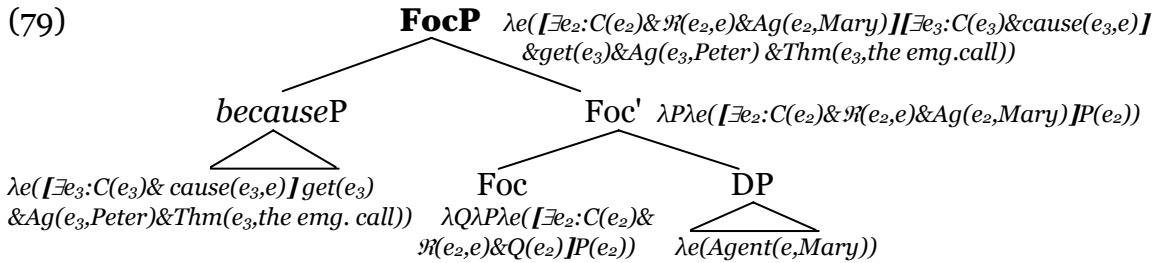
It is not clear why (iB) is ungrammatical, but when *because*-clause appears at the beginning of the sentence, it tends to be interpreted as a presupposed phrase (Prince 1977). To be interpreted as a main-assertion, the *because*-phrase must be pronounced at sentence final position. In (iB), the



Just as the event quantifier in the Q-head may take one or two arguments, I propose that the event quantifier in the Foc-head may take one argument or two arguments. When the FocP does not have the *because*-phrase, it takes only one argument and the Foc-head has the semantic value of (78a). When the FocP has the *because*-phrase, I propose that the Foc-head takes two arguments with the semantic value in (78b).

- (78) a. $\llbracket \text{Foc}_{(1\text{-place})} \rrbracket = \lambda P \lambda e ([\exists e_1: C(e_1) \ \& \ \mathfrak{R}(e_1, e)] P(e_1))$
 b. $\llbracket \text{Foc}_{2\text{-place}} \rrbracket = \lambda Q \lambda P \lambda e ([\exists e_1: C(e_1) \ \& \ \mathfrak{R}(e_1, e) \ \& \ Q(e_1)] P(e_1))$

With the structure in (76) and the semantic value of Foc-head in (78b), the semantic value of FocP is composed as (79).

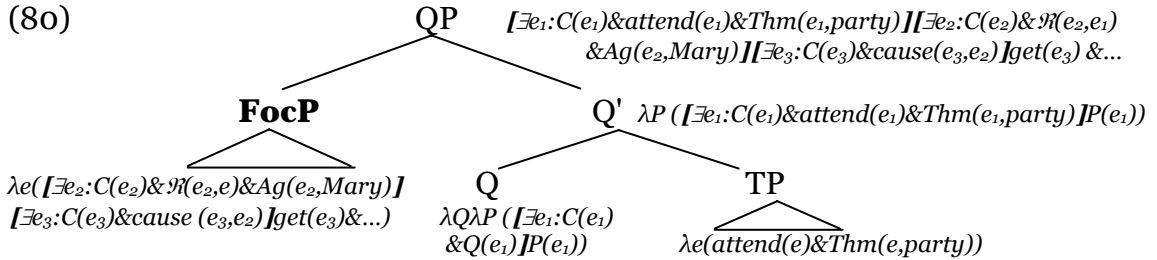


The DP, which appears in the complement of Foc-head, is interpreted in the restriction of the event quantifier of Foc-head and the *because*-phrase, which

because-phrase must be focused, but it is incompatible with the requirement of sentence-initial *because*-phrase, which is presupposed. Thus, (iB) is ruled out. If the *because*-phrase is pronounced at a post-posed position, the sentence improves.

- (ii) A: Why did MARY go to the party? / Why Mary?
 B: MARY, because Peter received the emergency call.

appears in FocP spec, is interpreted in the scope of the event quantifier that the Foc-head introduces. The FocP in (79) appears in the QP spec of the main clause, as illustrated in (80).



When the *because*-phrase appears in the FocP spec, it is interpreted in QP spec together with a focused element and the focus sensitive reading is derived. This indicates that the difference between the focus sensitive reading and the regular reading is traced back to the syntactic position of the *because*-phrase.

4.2.3. PF-position of the Focus Sensitive *Because*-clause

The semantics of focus sensitive *because*-clauses tells us that the focused phrase and the focus sensitive *because*-clause both appear within FocP and form a constituent. However, they are not adjacent in the surface form.

(81) [**FocP MARY**] attended the party [because Peter received an emergency call].

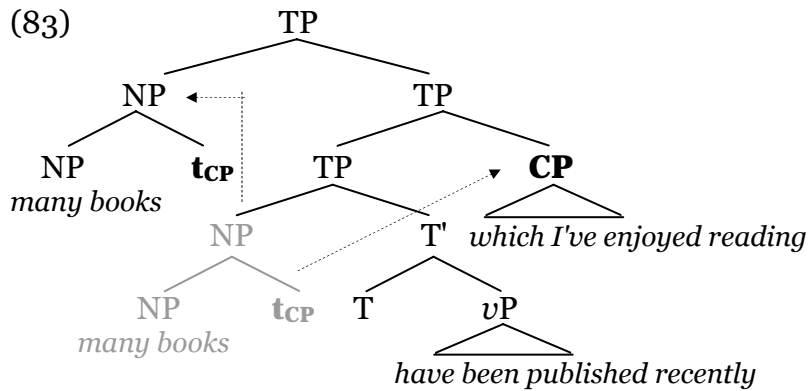
This appears problematic, but a similar phenomenon is found in (82).

(82) [**Many books**] have been published recently [which I've enjoyed reading].

(Guéron and May 1984)

Semantically the *which*-clause should be interpreted together with the NP *many books*. Guéron (198) and Guéron and May (1984) argues that the *which*-phrase

adjoins to TP (S, in their terminology) and the NP quantifier *many books* adjoin to the TP, as QR.



They propose that a head-complement relation can be satisfied by LF government relation, which is defined as (84), following Aoun and Sportiche (1983).

(84) α governs β =_{df} α and β are dominated by all the same maximal projections, and there are no maximal projection boundaries between α and β .

In the structure (83), NP [_{NP} *many books* t_{CP}] governs the *which*-phrase under the definition of *government* in (84). Thus, the head-complement relation is formed at LF again and the *which*-phrase is interpreted as a complement of NP *many books*.

Göbbel (2007) presents a more simple analysis. He argues that *which*-phrase is extraposed as an instance of PF-movement, which does not affect syntax or semantics. According to him, rightward extraposition takes place when the predicate is defocused. This is true in focus sensitive *because*-constructions, as well. In focus sensitive *because*-constructions, the focused phrase and the *because*-phrase are focused, but the predicate is defocused. So, I assume that the

sentence final *because*-clause of focus sensitive *because*-construction is derived by employing PF-movement of the *because*-clause.¹⁶

When we look at languages which do not allow PF rightward movement, we find an interesting pattern. Japanese is a head-final language forbidding rightward movement.¹⁷ When the *because*-construction does not have an independent focused phrase, the *because*-phrase may appear quite freely as long as it precedes the predicate.

(85) Mary-ga shiki-ni ressekishita.

Mary-nom ceremony-to attended

'Mary attended the ceremony.'

a. [Peter-ga sho-o totta kara] Mary-ga shiki-ni ressekishita.

Peter-nom prize-acc got because Mary-nom ceremony-to attended

b. Mary-ga [Peter-ga sho-o totta kara] shiki-ni ressekishita.

Mary-nom Peter-nom prize-acc got because party-to attended

c. Mary-ga shiki-ni [Peter-ga sho-o totta kara] ressekishita.

Mary-nom ceremony-at Peter-nom prize-acc got because attended

'Mary attended the ceremony because Peter got the prize.'

¹⁶ PF-movement of the *because*-clause is obligatory, while extraposition is usually optional. I assume that some alignment constraints in phonology would explain this difference between extraposition and PF-rightward movement of the *because*-phrase, but I leave the analysis open.

¹⁷ Some Japanese speakers allows (i) as colloquial Japanese, as observed by Kuno (1978).

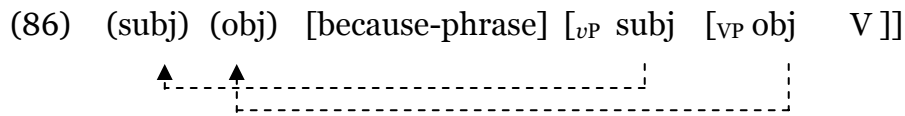
(i) John-ga yonda yo, LGB-o. (Tanaka 2001)
 John-nom read YO LGB-acc
 (John read it, LGB.)

Tanaka (2001) calls this construction "Right-Dislocation". He analyzes it by applying the regular leftward scrambling and TP-deletion as in (ii).

(ii) John-ga *pro* yonda yo, LGB-o [_{TP} John-ga t yonda yo].

↑-----↓

Apparent free ordering of the *kara*-clause with respect to subject and object is rooted to the fact that the latter may optionally undergo scrambling.¹⁸



As observed by Saito (1985), scrambling is sensitive to pure syntactic constraints, such as the proper binding condition. This indicates that scrambling is a syntactic operation.

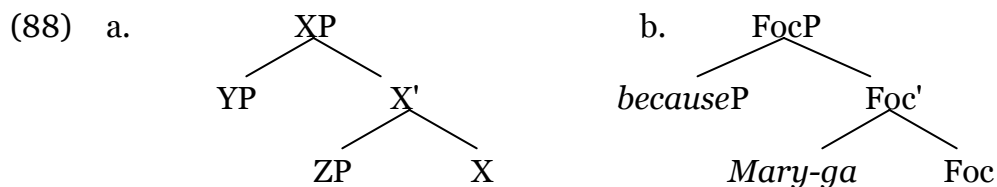
Interestingly, when an element of the main clause is focused and the *because*-clause associates with it, the position of the adverbial becomes restricted.

- (87) a. [Peter-ga byoin-ni yobidasareta kara] **MARY-GA** shiki-ni
 Peter-nom hospital-by called because Mary-nom ceremony-to
 ressekishita.
 attended.
 'MARY attended the ceremony because Peter was called by the
 hospital.'
- b. ***MARY-GA** [Peter-ga byoin-ni yobidasareta kara] shiki-ni
 Mary-nom Peter-nom hospital-by called because ceremony-to
 ressekishita.
 attended
- c. ***MARY-GA** shiki-ni [Peter-ga byoin-ni yobidasareta kara]
 Mary-nom ceremony-to Peter-nom hospital-by called because
 ressekishita.
 attended

¹⁸Following Ko (2004), I assume that the subject may undergo scrambling.

For the reading where the *because*-clause explains the reason for Mary's agency, (87a) is fine, but (87b) and (87c) are unacceptable. Thus, unlike with simple *because*-constructions, the word order of focus sensitive *because*-constructions is more restricted and the focus sensitive *because*-phrase must precede the focused phrase.

This result appears to support the current analysis of focus sensitive *because*-clause. In Japanese, the specifier appears on the left of the complement. The basic phrasal structure of Japanese is given in (88a) and the FocP structure is considered as (88b).



The structure in (88b) tells us that the *because*-phrase should precede and be adjacent to the focused element. With this structure, the sentence in (87a) is analyzed as follows:

(89) **[FocP [becauseP] MARY-GA]** shiki-ni ressekishita
 Mary-nom ceremony-to attended

In contrast, to derive the word order in (87b) and (87c), *MARY-ga* within the FocP must undergo scrambling, as in (90).

(90) **MARY-GA** **[FocP [becauseP] MARY-GA]** shiki-ni ressekishita
 ↑—————|

Later, the FocP must move to QP spec to be interpreted in the scope of the event quantifier.

(91) **[QP [FocP [becauseP] MARY-GA] Q MARY-GA]** shiki-ni ressekishita
 ↑—————|

According to the proper binding condition, the trace created by scrambling must be bound. In (91), the trace of *MARY-ga* (the gray part) is not bound and this structure is excluded. Thus, (87b) and (87c) are disallowed.¹⁹

4.2.4. Non-Focus Sensitive Reading

So far, I have discussed the semantic and syntactic analysis of focus sensitive *because*-clauses. I have argued that the focus sensitive reading is derived when *cause* takes the event introduced by the Foc-head as one of its arguments. However, this does not entail that *cause* cannot take the event of the main clause as its effect argument. In (92B), the subject *Mary* is focused, but the *because*-clause explains the reason of an attending event.

(92) A: *I heard that MARY attended the party. Why did it happen?*

B: *MARY attended the party [because Peter got the Nobel Prize].*

In this situation, some attending-the-party event had Mary as its agent. This attending event was caused by Peter's getting event of the Nobel Prize.

¹⁹ It is interesting to see the case where the *because*-clause associates with a focused object phrase.

(i) *Mary-wa shiki-ni ressekisuru yoteidatta ga,*
 (Mary was expected to attend the ceremony, but)
 a. (watashi-wa) Mary-ga [Peter-ga kegashita kara] BYOIN-NI itta (to kiita).
 I-top Mary-nom Peter-nom injured because hospital-to went C heard
 ((I heard that) Mary went to THE HOSPITAL because Peter got injured.)

b. ? (watashi-wa) [Peter-ga kegashita kara] Mary-ga BYOIN-NI itta (to kiita).
 I-top Peter-nom injured because Mary-nom hospital-to went C heard

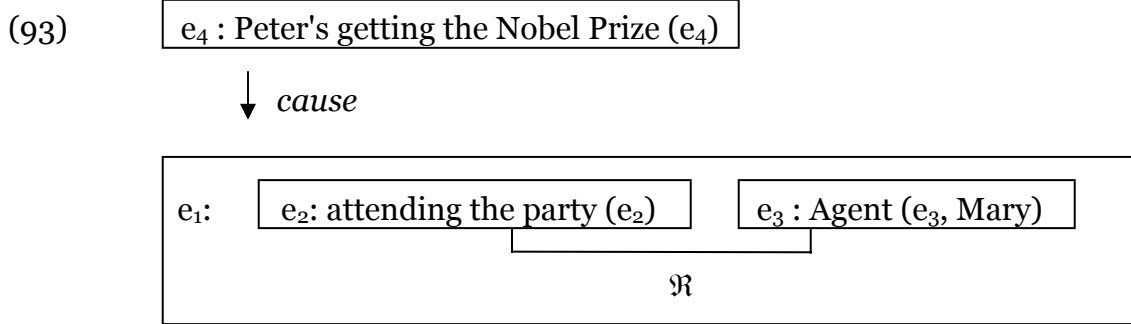
c. *(watashi-wa) Mary-ga BYOIN-NI [Peter-ga kegashita kara] itta (to kiita).
 I-top Mary-nom hospital-to Peter-nom injured because went C heard

In (ia), the *because*-phrase and the focused phrase are in the same FocP and it is acceptable. (ic) is out because the focused phrase *BYOIN-NI* must be moved out of the FocP and it results in violation of the proper binding condition. The quite high acceptability of (ib) leaves a question. If the *because*-phrase undergoes scrambling out of the FocP, we wrongly predict that (ib) is unacceptable. I leave the analysis of (ib) for furtherer research.

I propose that this reading has the structure of secondary occurrence focus.

The relations among events are illustrated as in (93) and logically represented as

(94).

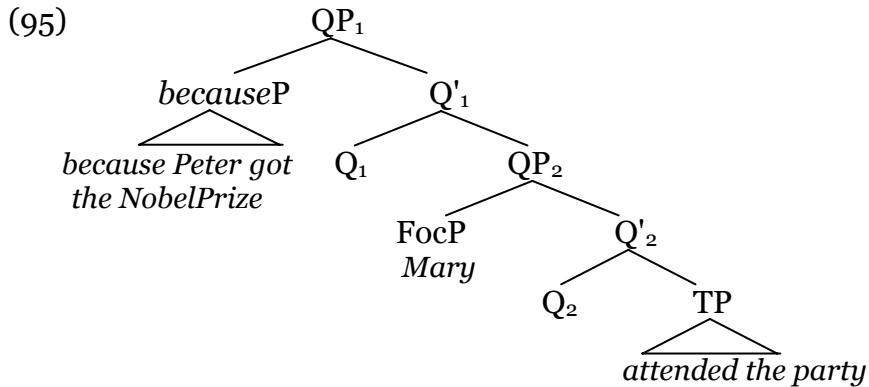


(94) $[\exists e_1: C(e_1) \ \& \ [\exists e_2: C(e_2) \ \& \ \text{attend } (e_2) \ \& \ \text{Theme } (e_2, \text{the party})] \ [\exists e_3: C(e_3) \ \& \ \Re(e_3, e_2)] \ \text{Agent } (e_3, \text{Mary}) \ \& \ \text{contain } (e_1, e_2)] \ [\exists e_4: C(e_4) \ \& \ \text{cause } (e_4, e_1)] \ \text{get } (e_4) \ \& \ \text{Agent } (e_4, \text{Peter}) \ \& \ \text{Theme } (e_4, \text{the Nobel Prize})$

An event of attending the party (e_2) has Mary as its agent and is contained by the event (e_1) which was caused by an event of Peter's getting of the Nobel Prize (e_4).

Here, the *because*-clause does not explain the agency of Mary, but it explains the event which contains the attending event. The focused element *Mary* is interpreted in the scope of the attending-the-party event and the *because*-clause is interpreted in the scope of the higher event quantifier.

Just like the case of secondary occurrence focus, I propose the layered event quantifier structure in (95) for the LF structure of this reading.



Unlike the focus sensitive reading, the focused element *Mary* and the *because*-clause appear to the structure independently. Thus when the *because*-construction has a focused element, the sentence is potentially ambiguous with the focus sensitive reading and the non-focus sensitive reading.

4.2.5. Focus Sensitivity of Other Adverbial-clauses

I have shown that the *because*-clause may function as a focus sensitive element, arguing that the *because*-head introduces a predicate *cause*, and may take the event introduced by the focused phrase as one of its arguments. If other adverbial phrases were to introduce an event relation that could take the event of a focused phrase as its argument, we would predict that adverbial phrase to be focus-sensitive. Temporal adverbial clauses are natural cases to check, but in fact, it is difficult to observe the focus sensitivity in the meanings of relevant examples. Compare (96a) and (96b).

(96) a. John left the party [when people started discussing politics].

b. JOHN left party [when people started discussing politics].

(96a) says that the event of John's leaving of the party and the event of people's starting the discussion of politics happened at the same time. If the *when*-clause

were sensitive to focus, (96b) should mean that some event which is one-to-one related with the event of leaving of the party has John as the agent at the time people started discussing politics. These two readings are difficult to distinguish and we cannot judge whether temporal adverbial clauses are focus sensitive.

The presence/absence of the focus sensitive reading is easier to judge in sentences with a focused modifier. Usually, a sentence with a modifier asymmetrically entails the sentence without the modifier. So if (97a) is true, (97b) is true:

- (97) a. John left the room quietly.
b. John left the room.

This entailment relation disappears when the *because*-clause co-occurs.

- (98) a. John left the room quietly [because the speaker was talking].
b. John left the room [because the speaker was talking].

Consider the situation where John, the conference-organizer, was interested in the talks, but had to leave the conference room to prepare the reception. In this situation, (98a) may be true, but even if (98a) is true; (98b) is false. The post-verbal adverb tends to get focused (Larson 2004) and thus, *quietly* is focused in (98a). The *because*-clause in (98a) associates with this focused element and explains why some event is done quietly. In (98b), in contrast, the *because*-clause explains the reason of John's leaving of the room. Because of focus sensitive property of *because*-clause, the entailment relation is not observed in (98).

Now, do we find the asymmetric entailment relation in the sentences with a temporal adverbial clause? If we see an asymmetric entailment relation, it shows that the temporal adverbial clauses are not focus sensitive. If we do not see

the entailment relation, it indicates that temporal adverbial clauses are sensitive to focus. Compare the sentences in (99).

(99) a. John left the room quietly [when the speaker was talking].

b. John left the room [when the speaker was talking].

(99a) asymmetrically entails (99b); if (99a) is true, (99b) must be true. This indicates that temporal adverbial clauses are not focus sensitive, unlike the adverbial *because*-clause.²⁰ This implies that the connective introduced by the temporal adverb cannot take the event of the focused phrase as its argument and the temporal adverbial phrase does not appear in the FocP spec.

4.3. Summary

In this chapter, I have argued that the *because*-clause functions like a focused element and at the same time, may function as a focus sensitive element itself. I have shown that association phenomena of negation and frequency adverb to the *because*-clause are explained by the property of the *because*-clause as a focused element. I argued that the *because*-clause covertly moves to QP spec and it is interpreted in the scope of the event quantifier, just like other focused phrases. At the same time, when a focused element co-occurs in the *because*-constructions, the *because*-clause may explain the event introduced by the focused phrase. This phenomenon is explained with the focus sensitive property of the *because*-clause. I have argued that the focus sensitive reading is derived

²⁰ Thank Carlos de Cuba for the judgment. It seems that there are less clear cases:

(i) a. Peter buttered the bread with a spoon [when he could not find a knife].
b. Peter buttered the bread [when he could not find a knife].

The entailment relation in (i) is more difficult to find than the case in (99).

when the *because*-clause appears in the FocP spec and the *because*-clause is interpreted in the scope of the main event quantifier together with the focused element. This focus sensitive property of *because*-clauses is found also in their interrogative counterparts, namely in *why*-questions. In the next chapter, I discuss several phenomena peculiar to *why*-questions.

CHAPTER 5
FOCUS SENSITIVE *WHY*-QUESTIONS

Causal *wh*-phrases *why* show some unique properties that other *wh*-phrases do not have. Focus usually does not affect the answer of *wh*-questions.

- (1) a. **What** did Lisa bring to the reception? -- She brought A PIE
b. **What** did LISA bring to the reception? -- She brought A PIE.
c. **What** did Lisa bring TO THE RECEPTION? -- She brought A PIE.
- (2) a. **Who** used the phonetics lab yesterday? -- CHRIS did.
b. **Who** used THE PHONETICS LAB yesterday? -- CHRIS did.
c. **Who** used the phonetics lab YESTERDAY? -- CHRIS did.
- (3) a. **Where** did John find the key? -- IN THE BASKET.
b. **Where** did JOHN find the key? -- IN THE BASKET.
c. **Where** did John find THE KEY? -- IN THE BASKET.

However, Bromberger (1991) observes that focus does affect the answer of *why*-questions.

- (4) a. **Why** did John buy beer?
b. **Why** did JOHN buy beer?
c. **Why** did John buy BEER?
- (5) a. He bought beer [because the department hosted a party].
b. JOHN bought beer [because he had his ID].
c. He bought BEER [because it was on sale].

Among the potential answers in (5), the most natural answer for (4a) is (5a), for (4b) is (5b), and for (4c) is (5c).¹ This indicates that focus affects the answer of *why*-questions, in contrast to other type of *wh*-questions.

Bromberger (1991) also observes that *why*-questions and other type of *wh*-questions have a different implicature pattern when a focused element appears in those questions. Compare (6) and (7).

(6) **Why** did John buy BEER?

(7) **Where** did John buy BEER?

The *why*-question in (6) may presume that John could have bought something else but he didn't buy anything besides beer. The *where*-question in (7) does not have this implicature. John might buy something besides beer, and the speaker is asking only about the buying of beer case.²

Peculiarities in causal *wh*-questions are found in other languages as well. For example, the Japanese causal *wh*-phrase *naze* shows an interesting divergence from its fellow *wh*-words in cleft constructions. Clefts combining a *wh*-element and non-*wh*-element in focus position are typically disallowed:³

¹ The answer in (5a) is available for (4b) and (4c), because *why*-questions with a focused element allows both focus sensitive reading and the reading with secondary occurrence focus, which I will discuss in section 5.1.4.

² The *why*-question in (6) may have the reading that John bought other things but the speaker is only interested in the case of buying beer among other cases of buying. This is very similar to what we find in other type of *wh*-questions with a focused element. This reading is discussed in Section 5.1.4.

³ Ji-Yung Kim (personal communication) pointed out that (8b) is slightly better than (8a) with the echo-question reading.

- (8) a. *[Kyoto-de happyosuru no]-wa **dare(-ga)** SONO RONBUN desu ka?
 Kyoto-at present C-top who-nom that paper be Q
 'Who will present THAT PAPER at Kyoto?'
- b. ?*[Hanako-ga happyosuru no]-wa **dokode** SONO RONBUN desu ka?
 Hanako-nom present C-top where that paper be Q
 'Where will Hanako present THAT PAPER?'

However, such combination clefts are acceptable in case the *wh*-element is *naze*.

- (9) [Hanako-ga happyosuru no]-wa **naze** SONO RONBUN desu ka?
 Hanako-nom present C-top why that paper be Q
 'Why will Hanako present THAT PAPER?'

In this chapter, I argue that these peculiarities of the causal *wh*-phrase arise from the focus sensitive nature of causal phrases.⁴

5.1. Interpretation of *Why*-questions

5.1.1. Logical Representations

As discussed in Chapter 2, legitimate and natural question-answer pairs should have parallel event quantificational structure. The *wh*-phrases in *wh*-interrogatives are usually focused (Calabrese 1984, Erteschik-shir 1986, and others), and in their answers, the phrase which replaces the *wh*-word expresses the new information and they are interpreted as focal elements. Thus, the question-answer pair in (10) is logically represented as (11).

⁴ Just like *because*-phrase allows the epistemic reading, *why*-questions allow the epistemic reading (Hempel 1965). An example of epistemic *why*-questions is as follows:

(i) Why would tomorrow's wind-force be 8? (Peijnenburg 1996)

(i) is interpreted as "what reasons are there for believing that tomorrow's wind-force is 8?". I do not deal with this type of *why*-questions in this dissertation.

(10) A: What did Lisa bring?

B: Lisa brought A PIE.

(11) A: **WH \mathbf{x}** [$\exists e_1$: C(e_1) & bring (e_1) & Agent (e_1 , Lisa)] [$\exists e_2$: C(e_2) & $\mathfrak{R}(e_2, e_1)$]

Theme (e_2 , \mathbf{x})

B: [$\exists e_1$: C(e_1) & bring (e_1) & Agent (e_1 , Lisa)] [$\exists e_2$: C(e_2) & $\mathfrak{R}(e_2, e_1)$]

Theme (e_2 , a pie)

In both (11A) and (11B), the theme element is focused and it is interpreted in the scope of the event quantifier.

When a part of a *wh*-question is focused, the sentence has the structure of secondary occurrence focus.

(12) A: MANY STUDENTS came to the pot-luck party last night.

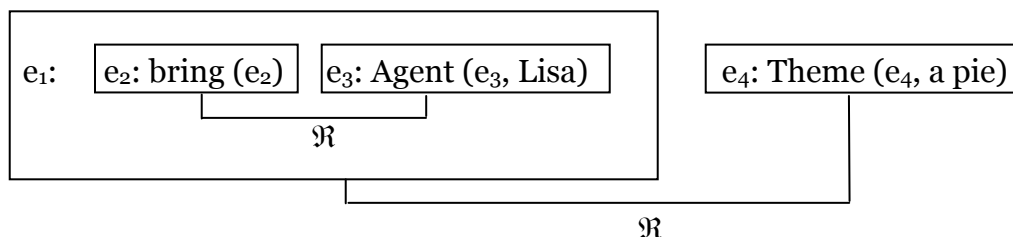
B: **What** did LISA bring?

C: LISA brought **A PIE**.

(12C) has two focused elements. *A pie* expresses the new information and it is interpreted as the primary focused element. *Lisa* is also focused, but its focal status is inherited from the previous discourse, so it is interpreted as a secondary focus element. Using the structure of secondary occurrence focus, (12C) is logically represented as (13).

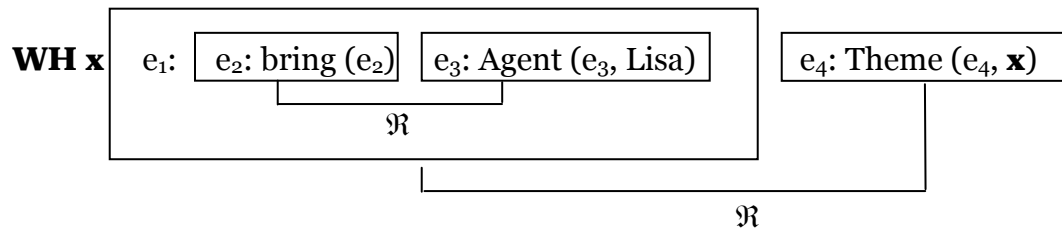
(13) [$\exists e_1$: C(e_1) & [$\exists e_2$: C(e_2) & bring (e_2)] [$\exists e_3$: C(e_3) & $\mathfrak{R}(e_3, e_2)$]

Agent (e_3 , Lisa) & contain (e_1, e_2)] [$\exists e_4$: C(e_4) & $\mathfrak{R}(e_4, e_1)$] Theme (e_4 , a pie)



The primary focused element *a pie* appears in the scope of the higher event quantifier $\exists e_1$, and the secondary focused element, *Lisa*, appears in the scope of the embedded event quantifier $\exists e_2$. If a question and its answer have the same logical information structure, the *wh*-question in (12B) is represented as (14).

- (14) **WH x** [$\exists e_1: C(e_1) \ \& \ [\exists e_2: C(e_2) \ \& \ \text{bring} (e_2)] [\exists e_3: C(e_3) \ \& \ \mathfrak{R} (e_3, e_2)]$
 Agent (e₃, Lisa) & contain (e₁, e₂)] [$\exists e_4: C(e_4) \ \& \ \mathfrak{R} (e_4, e_1)$] Theme (e₄, **x**)



Here, the primary focused element *a pie* in (13) is replaced with a variable *x*, and bound by a *wh*-operator. This suggests that regular *wh*-questions should have the structure of secondary occurrence focus when a part of them is focused.

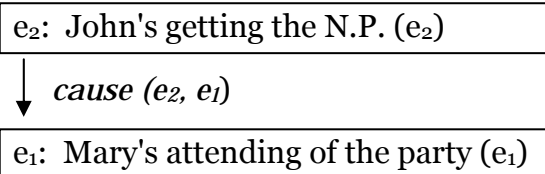
Why-questions are typically answered with a *because*-clause. The simple *why*-question in (15A) might be answered as in (15B).

- (15) A: Why did Mary attend the party?

B: Mary attended the party [because John got the Nobel Prize].

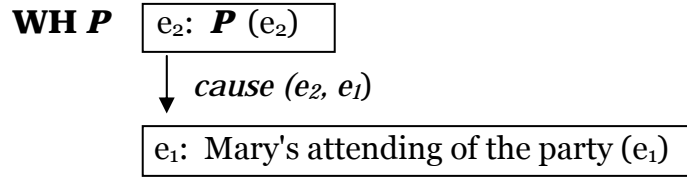
As discussed in the previous chapter, the *because*-construction in (15B) is logically represented as (16).

- (16) [$\exists e_1: C(e_1) \ \& \ \text{attend} (e_1) \ \& \ \text{Agent} (e_1, \text{Mary}) \ \& \ \text{Theme} (e_1, \text{the party})$] [$\exists e_2:$
 C(e₂) & cause (e₂, e₁)] get (e₂) & Agent (e₂, John) & Theme (e₂, the N.P.)



In the *why*-question, the content of the e_2 is asked. Thus, the content of the e_2 is replaced with a predicate variable P , which is bound by the *wh*-operator.⁵ The *why*-question in (15A) is then logically represented as follows:

- (17) **WH P** [$\exists e_1$: C(e_1) & attend (e_1) & Agent (e_1 , Mary) & Theme (e_1 , the party)]
 $[\exists e_2$: C(e_2) & cause (e_1 , e_2)] **P** (e_2)



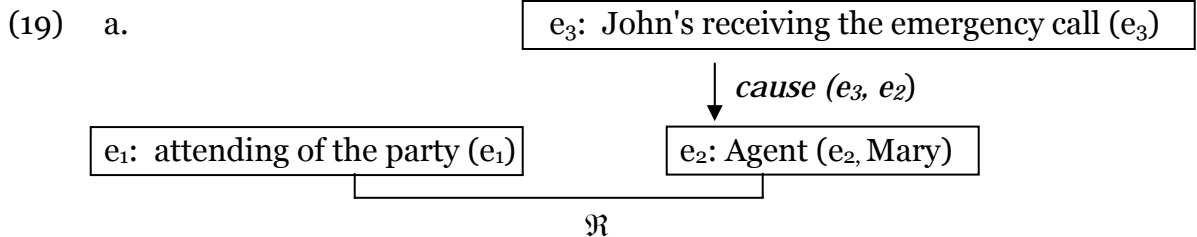
This shows that *why*-questions are questions over predicate of events.⁶

Now, when a part of *why*-questions is focused, the same element is focused in its legitimate answer. In both (18A) and its answer (18B), the subject *Mary* is focused.

- (18) A: Why did MARY attend the party?

B: MARY attended the party [because John received an emergency call].

The relations among events involved in the *because*-construction in (18B) are illustrated as in (19a) and the meaning of the sentence is logically represented as (19b).

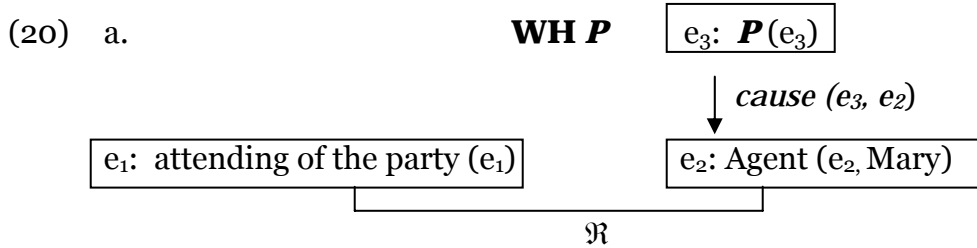


⁵ Chierchia (1988) argues that *how*-questions have a predicate variable. I assume that *why*-questions are differentiated for *how*-questions by the presence of *cause*-predicate.

⁶ Tadashi Eguchi and Miho Iwata (personal communication) pointed out that *why* in the old Japanese was *nanito*. *Nanito* is analyzed as "*nani*", which is a *wh*-variable, plus "*to*", which is a marker that typically attaches to a predicate. This fact is suggestive of an analysis of *why*-questions as inquiring variables over predicates.

- b. $[\exists e_1: C(e_1) \ \& \ \text{attend}(e_1) \ \& \ \text{Theme}(e_1, \text{the party})][[\exists e_2: C(e_2) \ \& \ \mathfrak{R}(e_2, e_1) \ \& \ \text{Agent}(e_2, \text{Mary})][[\exists e_3: C(e_3) \ \& \ \text{cause}(e_3, e_2)] \ \text{receive}(e_3) \ \& \ \text{Agent}(e_3, \text{John}) \ \& \ \text{Theme}(e_3, \text{the emergency call})]$

Since the content of the *because*-phrase is replaced with a predicate variable *P* in *why*-questions, the event relations of *why*-question in (19A) is illustrated as (20a) and the meaning is logically represented as (20b).



- b. $\mathbf{WH} \mathbf{P} [\exists e_1: C(e_1) \ \& \ \text{attend}(e_1) \ \& \ \text{Theme}(e_1, \text{the party})][[\exists e_2: C(e_2) \ \& \ \mathfrak{R}(e_2, e_1) \ \& \ \text{Agent}(e_2, \text{Mary})][[\exists e_3: C(e_3) \ \& \ \text{cause}(e_3, e_2)] \ \mathbf{P}(e_3)]$

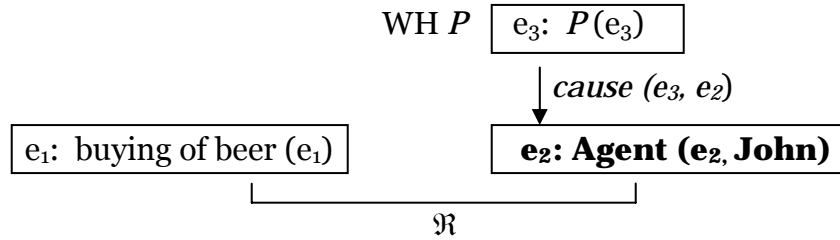
The predicate *cause* takes the event introduced by the focused element as its result argument. Thus, the logical representation in (20b) expresses the question which asks the reason of agency of Mary.

5.1.2. Answers of *Wh*-questions

This analysis of focus sensitive *why*-questions explains why focus affects the answer of *why*-questions. In (21a), the subject *Mary* is focused. Its meaning is logically represented as (21b).

(21) a. Why did JOHN buy beer?

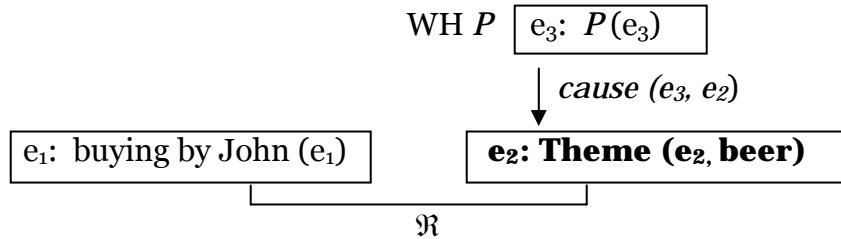
b. **WH P** [$\exists e_1: C(e_1) \& \text{buy}(e_1) \& \text{Theme}(e_1, \text{beer})$][$\exists e_2: C(e_2) \& \mathfrak{R}(e_2, e_1) \& \text{Agent}(e_2, \text{John})$][$\exists e_3: C(e_3) \& \text{cause}(e_3, e_2)$] **P**(e_3)



In (21), *why* asks about the event e_2 , which is the agency of John. When the focus position shifts, the description of e_2 changes.

(22) a. Why did John buy BEER?

b. **WH P** [$\exists e_1: C(e_1) \& \text{buy}(e_1) \& \text{Agent}(e_1, \text{John})$][$\exists e_2: C(e_2) \& \mathfrak{R}(e_2, e_1) \& \text{Theme}(e_2, \text{beer})$][$\exists e_3: C(e_3) \& \text{cause}(e_3, e_2)$] **P**(e_3)

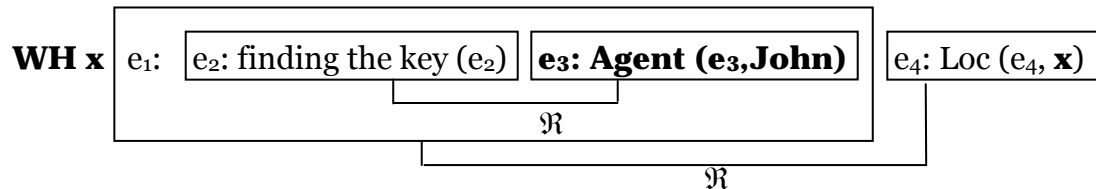


This question asks the property P of the event which made choosing beer. Since the *why*-question asks about e_2 and focus shift triggers the change of the content of e_2 , focus shift affects the answer of *why*-questions.

Unlike *why*-questions, other types of *wh*-questions have a structure of secondary occurrence focus when an additional focused element co-occurs.

(23) a. Where did JOHN find the key?

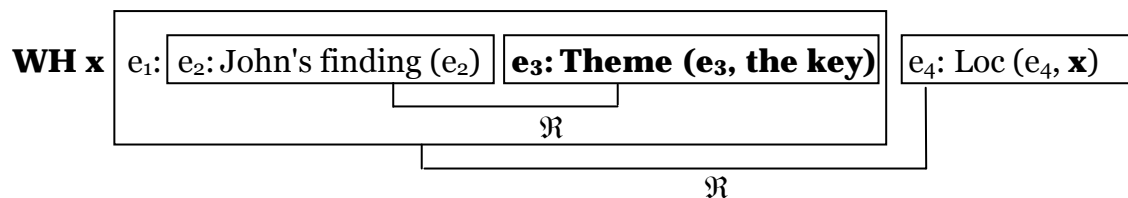
b. **WH x** [$\exists e_1: C(e_1) \ \& \ [\exists e_2: C(e_2) \ \& \ \text{find} (e_2) \ \& \ \text{Theme} (e_2, \text{the key})]$ [$\exists e_3: C(e_3) \ \& \ \mathfrak{R} (e_3, e_2)]$ Agent (e_3, John) & contain (e_1, e_2)] [$\exists e_4: C(e_4) \ \& \ \mathfrak{R} (e_4, e_1)]$ Loc (e_4, \mathbf{x})



Here, the focused element *John* appears in the scope of the embedded event quantifier as secondary focus, not in the scope of the matrix event quantifier. When focus shifts, the structure of embedded event quantifiers changes, but it does not change the structure of the matrix event. In (24), focus shifts to the object *the key*.

(24) a. Where did John find THE KEY?

b. **WH x** [$\exists e_1: C(e_1) \ \& \ [\exists e_2: C(e_2) \ \& \ \text{find} (e_2) \ \& \ \text{Theme} (e_2, \text{the key})]$ [$\exists e_3: C(e_3) \ \& \ \mathfrak{R} (e_3, e_2)]$ Agent (e_3, John) & contain (e_1, e_2)] [$\exists e_4: C(e_4) \ \& \ \mathfrak{R} (e_4, e_1)]$ Theme (e_4, \mathbf{x})



Focus shift affects the content of e_3 , but it does not affect the content of e_1 : "the event e_1 which contains some finding event of the key such that its agent is John" and "the event e_1 which contains John's finding event such that its theme is the key" refer to the same event. Since the *wh*-questions in (23) and (24) both ask

about the same event, focus shift does not affect the answer of the *wh*-questions with the structure of secondary occurrence focus.

5.1.3. Implicature Patterns

The proposed logical representation of *why*-questions explains their implicature patterns, too. According to Grice's (1969) maxim of quantity, utterances should be as informative as possible. In (25), the sentence asserts that the theme is beer and it has the implicature that John didn't buy anything other than beer.

(25) John bought BEER.

$[\exists e_1: C(e_1) \ \& \ \text{buy} \ (e_1) \ \& \ \text{Agent} \ (e_1, \text{John})][\exists e_2: C(e_2) \ \& \ \mathfrak{R}(e_2, e_1)]$

Theme (e_2 , beer)

implicature: John bought nothing but beer.

If John bought beer and wine, the speaker should have said so. Thus, because of the maxim of quantity, the focus construction tends to have exhaustive character.

The implicature of exhaustiveness is inherited in focus sensitive *why*-questions. The *why*-question *Why did John buy BEER?* has the following logical representation:

(26) Why did John buy BEER?

WH P $[\exists e_1: C(e_1) \ \& \ \text{buy} \ (e_1) \ \& \ \text{Agent} \ (e_1, \text{John})][\exists e_2: C(e_2) \ \& \ \mathfrak{R}(e_2, e_1) \ \&$

Theme (e_2 , beer)] $[\exists e_3: C(e_3) \ \& \ \text{cause} \ (e_3, e_2)] \mathbf{P}(e_3)$

implicature: John bought nothing but beer.

In (26), the focused element *beer* appears in the scope of the matrix event quantifier (e_1). Thus, it has the implicature of exhaustiveness that John could buy something else other than beer, but he didn't.

Secondary occurrence focus does not exhibit this exhaustive character. In the secondary occurrence focus constructions, one of the focused elements receives primary focus and another gets secondary focus. In (27B), *at Wal-mart* gets primary focus and *beer* gets secondary focus.

(27) A: *People bought many types of liquor for the reception. I heard that John bought BEER at Brooklyn brewery yesterday.*

B: *Well, not really.*

John bought BEER **AT WAL-MART.**
secondary primary

(27B) implicates that John brought beer only at Wal-Mart, nowhere else. However, it does not implicate the exhaustiveness of the things he bought: (27B) is natural even if John also bought bottles of wine. This indicates that secondary focus does not create the exhaustive implicature. (27B) is logically represented as follows:

(28) $[\exists e_1: C(e_1) [\exists e_2: C(e_2) \& \text{bring}(e_2) \& \text{Agent}(e_2, \text{John})] \text{Theme}(e_2, \text{beer}) \& \text{contain}(e_1, e_2)] [\exists e_3: C(e_3) \& \mathfrak{R}(e_3, e_1)] \text{Loc}(e_3, \text{Wal-Mart})$

implicature: John didn't buy beer at any place other than Wal-Mart.

The logical representation in (28) says that, regarding the beer-buying event by John, it is contained by the event such that its location is Wal-Mart. The sentence is "about" John's buying event of beer, and John's buying event of wine is

irrelevant here. Thus, secondary focus does not show the exhaustiveness character.

Typical *wh*-questions with a focused element have a structure of secondary occurrence focus.

(29) *Where did John buy BEER?*

WH_x [$\exists e_1: C(e_1) \ \& \ [\exists e_2: C(e_2) \ \& \ \text{buy}(e_2) \ \& \ \text{Agent}(e_2, \text{John})] \ [\exists e_3: C(e_3) \ \& \ \mathfrak{R}(e_3, e_2)] \ \text{Theme}(e_3, \text{beer}) \ \& \ \text{contain}(e_1, e_2)] \ [\exists e_4: C(e_4) \ \& \ \mathfrak{R}(e_4, e_1)] \ \text{Loc}(e_4, \mathbf{x})$]

The focused element *beer* appears in the restriction of the main event quantifier and is interpreted as a secondary focused element. Thus, it does not imply that John bought only beer.

In *why*-questions, the additional focused element is interpreted as a part of the primarily focused element, so it receives the exhaustive implicature. In contrast, the additional focused element in other type of *wh*-questions is interpreted as a secondary focused element and it is a part of the restriction of the main event quantifier. Thus, it does not have the exhaustive implicature, and consequently, the *why*-questions and other type of *wh*-questions have different implicature patterns.

5.1.4. *Why*-questions with Secondary Occurrence Focus Structure

Why-questions with an additional focused element tend to ask about the focused element and in this reading, the *why*-questions do not have the structure of secondary occurrence focus. However, this does not mean that *why*-questions

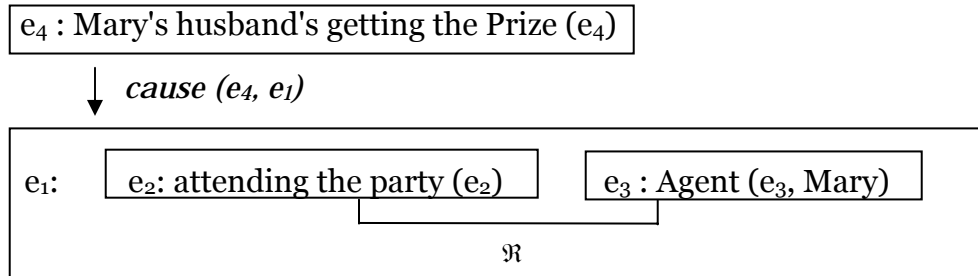
cannot have the structure of secondary occurrence focus. The following *why*-question asks about the cause of the attending event.

(30) A: *I remember that nobody was willing to attend the party.* Why did MARY attend the party?

B: MARY attended the party [because her husband got the Prize].

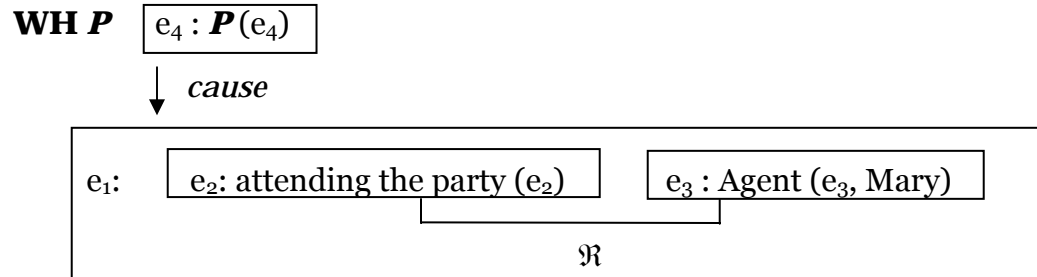
The *because*-clause in (30B) explains the reason for the attending event. Thus, as discussed in the previous chapter, (30B) is logically represented as (31), with the structure of secondary occurrence focus.

(31) $[\exists e_1: C(e_1) \ \& \ [\exists e_2: C(e_2) \ \& \ \text{attend}(e_2) \ \& \ \text{Theme}(e_2, \text{the party})]] \ [\exists e_3: C(e_3) \ \& \ \mathfrak{R}(e_3, e_2)] \ \text{Agent}(e_3, \text{Mary}) \ \& \ \text{contain}(e_1, e_2)] \ [\exists e_4: C(e_4) \ \& \ \text{cause}(e_4, e_1)] \ \text{Agent}(e_4, \text{Mary's husband}) \ \& \ \text{Theme}(e_4, \text{the Prize})$



In *why*-questions, the predicates which describe e_4 are replaced with the variable P . So, given that the question and its answer have parallel event structures, the *why*-question in (30A) is logically represented as (32).

(32) **WH P** [$\exists e_1: C(e_1)$ & [$\exists e_2: C(e_2)$ & attend (e_2) & Theme (e_2 , the party)]] [$\exists e_3: C(e_3)$ & $\mathfrak{R}(e_3, e_2)$] Agent (e_3 , Mary) & contain (e_1, e_2)] [$\exists e_4: C(e_4)$ & cause (e_4, e_1)] **P**(e_4)



Thus, *why*-questions with a focused element are ambiguous and they may be interpreted with or without the structure of secondary occurrence focus, just as *because*-constructions with a focused element are ambiguous.

Since *why*-questions with a focused element can be interpreted with the structure of secondary occurrence focus, we predict that focus shift should not affect the answer under this reading. This prediction is born out. Compare (30) and (33).

(33) A: *I remember that Mary didn't like going out.* Why did Mary attend THE PARTY?

B: She attended THE PARTY [because her husband got the Prize].

In (30A), the subject *Mary* is focused in the *why*-question. In (33A), the object *the party* is focused. While a different phrase is focused in *why*-questions in (30A) and (33A), their answers in (30B) and (33B) have the same *because*-phrase. The *why*-questions in (30A) and (33A) are about some attending event and they have the structure of secondary occurrence focus. Since they ask about the reason of the same event, their answers have the same *because*-phrase.

Why-questions with a secondary focused element have the same implicature pattern as regular *wh*-questions with a focused element.

(34) A: *I heard that John bought A CAR! I thought he didn't have any money.*

Why did John buy A CAR?

B: John bought A CAR [because he got a tax refund].

The *why*-question in (34A) does not imply that all John bought was a car. Rather, it implies that what speaker wants to know is about the event which involves a car. This leaves a possibility that John bought some other things. This implicature pattern is parallel to what we found in the *wh*-questions with a secondary focused element, and it is different from the implicature pattern of focus sensitive *why*-questions. Thus, we can conclude that the implicature pattern of (34A) arises from secondary occurrence focus.

5.2. Syntactic Structure of Focus Sensitive *Why*-questions

I have shown that *why*-questions with a focused element may have the special logical representation of focus sensitive items or the regular representation of secondary occurrence focus with non-focus sensitive items. In this section, I examine their syntactic structures. Before discussing *why*-questions with a focused element, I first propose the syntactic structure of simple *why*-questions.

5.2.1. Simple *Why*-questions

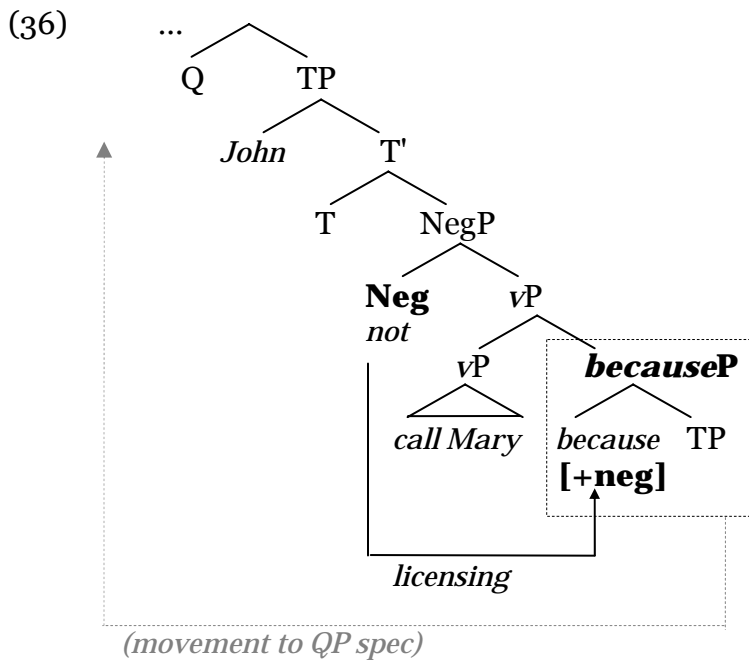
In the previous chapter, I have discussed the ambiguity of the negated *because*-construction.

(35) John didn't call Mary [because he visited Kyoto].

a. John called Mary. Its reason was **not** that he visited Kyoto. (NA)

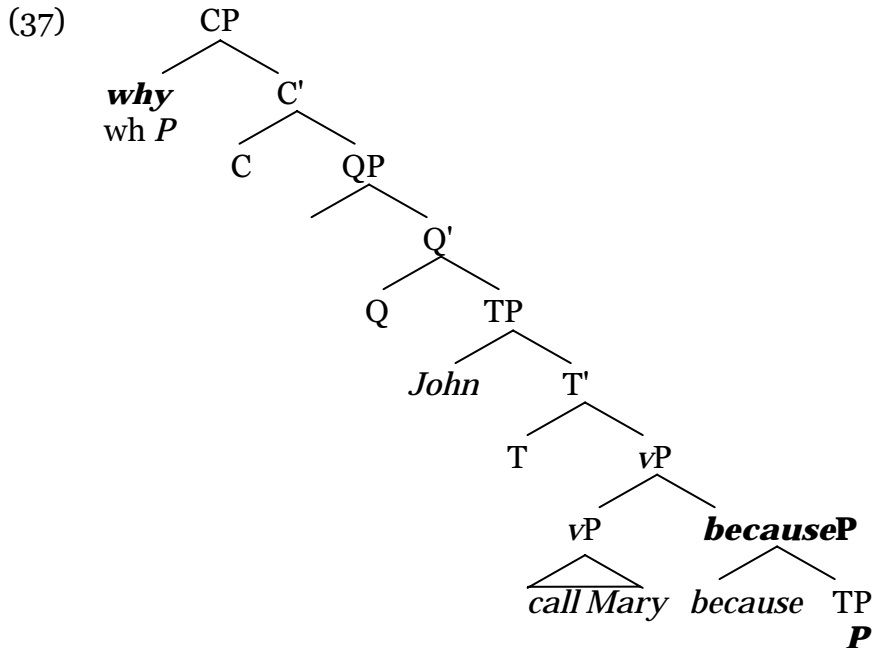
b. John didn't call Mary. Its reason was that he visited Kyoto. (NH)

On the NA-reading, I have argued that the *because*-head gets the [+neg] feature, which is c-commanded by the Neg-head before the *because*-phrase moves to QP spec. This indicates that the *because*-phrase should be base-generated within the NegP. I assume that it is base-generated as a vP-adjoined phrase.



Given that *why*-questions and the *because*-constructions have a parallel syntactic structure, some causal element should appear in the vP adjoined position in *why*-questions. I propose that the TP within the *because*-phrase gets the predicate variable *P* and the *wh*-operator which originates in CP spec binds the predicate variable *P* within the *becauseP*.⁷

⁷ In this analysis, the *wh*-operator which binds the predicate variable *P* is base-generated in CP spec. Thus, we predict that the *wh*-operator always takes wider scope than other quantificational phrases. It seems that the data is not very clear. Collins (1991) observes that *why* can take the lower scope than the quantificational element in the subject position (i). However, Engdahl



The *because*-phrase covertly moves to QP spec to satisfy the scope-feature of the Q-head.⁸ Thus, the LF-structure of *why*-questions is as follows:

(1985) observes that *why*-question may be answered as (iib), but not as (iia) and concludes that *why* must take higher scope than the quantifier in the subject position (ii).

- (i) Why did everyone hate John? (Collins 1991)
 - a. For each person x, why does x hate John? (everyone > wh)
 - b. Why does the whole group of people hate John? (wh > everyone)
- (ii) Why did no US soldier go to Vietnam? (Engdahl 1985)
 - a. # -- Because he wanted to have a good time (no US soldier > wh)
 - b. -- The president didn't allow any US troops to be sent there. (wh > no US soldier)

Furthermore, Richard K. Larson (personal communication) pointed out that the current analysis implies that negated *why*-questions are ambiguous with bound and free reading.

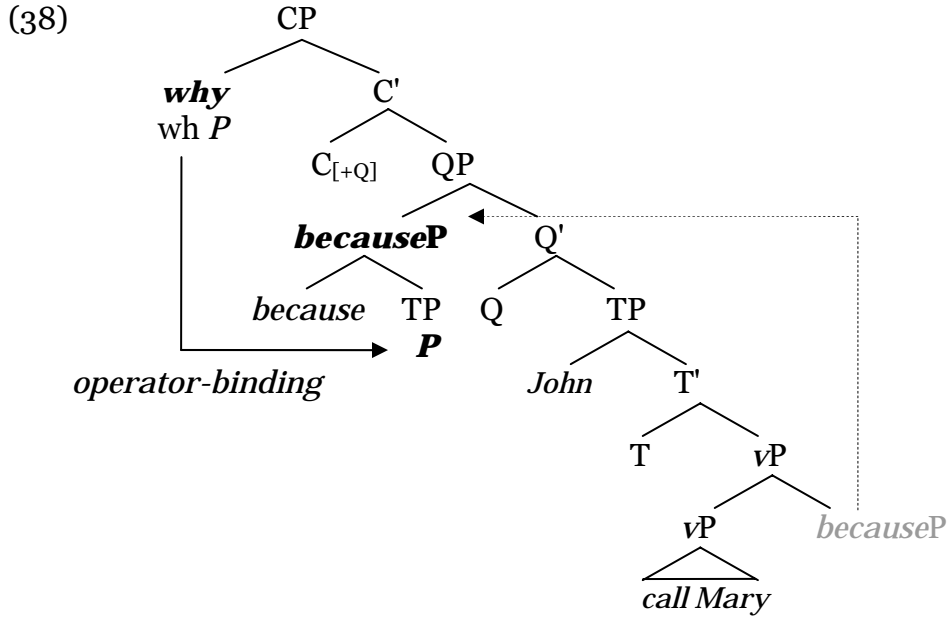
- (i) Why did not Mary leave?
 - a. Mary left. What is not the reason for Mary's leaving? (bound)
 - b. Mary didn't leave. Why was it the case? (free)

The judgment for this ambiguity is unstable and it varies from person to person. Some people give a different judgment for the sentence with contracted negation in (ii), but others do not.

- (ii) Why didn't Mary leave?

Since the judgment is unclear, I leave these cases open. Interestingly, Heejeong Ko (personal communication) pointed out that Korean *why*-question with negation is unambiguous, but Korean *for-what-reason*-question with negation is ambiguous. This implies that *why* is base-generated quite high, but *for-what-reason* is base-generated vP internal position.

⁸ Movement of the *because*-phrase to QP spec is covert because the scope theta-role of Q-head does not require pied-piping of the phonological features of the FocP or the *because*-phrase. Movement is overt only when TP-ellipsis takes place, as we discussed in previous chapters.



With this LF-structure, the logical representation in (39) is straightforwardly derived.

(39) Why did John call Mary?

WH P [$\exists e_1$: C(e_1) & call (e_1) & Agent (e_1 , John) & Theme (e_1 , Mary)] [$\exists e_2$: C(e_2)] cause (e_2 , e_1) & **P**(e_2)

The TP in the complement of Q is mapped to the restriction of the event quantifier (e_1) and the elements in *becauseP* in QP spec are mapped to the scope of that event quantifier. The *wh*-operator appears over the event quantifier and binds the variable *P*.⁹

This analysis is similar to the CP-modifier approach. Rizzi (1990), Collins (1991), Lin (1992), Bromberger (1992), Bošković (2000), Rizzi (1999), McCloskey (2002), Ko (2005) and others examine *why*-questions in several languages and

⁹ For argument *wh*-phrases, I assume that the *wh*-phrase consists of the *wh*-operator and its variable [*wh*-op + vbl]. It is base-generated at the TP-internal theta-position and moves to CP spec though the QP spec. The variable is LF-interpreted at QP spec and the *wh*-operator is interpreted in CP spec.

they argue that the *why*-phrase originates in CP spec, unlike other type of *wh*-phrases. One problem of this approach is that we cannot assign parallel structure to *why*-questions and its answer, the *because*-construction. The current bi-partite analysis where the *wh*-operator (*why*) is base-generated in CP spec and its variable is generated in TP-internal position follows the CP-modifier approach, and at the same time, it allows assigning a parallel structure to the *why*-question and its answer.

In English, the *wh*-operator in CP spec is pronounced as *why* and the predicate variable *P* is phonologically null. This bi-partite approach of *why*, however, predicts that the predicate variable *P* may have the phonological content in some other languages. It seems that Japanese *naze* is not the *wh*-operator in CP spec, but the predicate variable *P*. In English, *why* always appears in the matrix [+Q] CP spec and (40) is ambiguous: it may ask the cause of John's thinking event (a) or the cause of Mary's reading event (b).

(40) **Why** did John say to Tom [that Mary read that book]?

a. **Wh P** [**cause + P** [John say to Tom [Mary read that book]]]

b. **Wh P** [John say to Tom [**cause + P** [Mary read that book]]]

Since *cause + predicate variable* are phonologically null, (40a) and (40b) are realized in the identical phonological form.

In Japanese, two readings in (40) are distinguished phonologically. To express the meaning in (40a), *naze* appears in the matrix clause as in (41).

(41) John-wa **naze** Tom-ni [Mary-ga sono hon-o yonda to] itta no?

John-top *naze* Tom-to Mary-nom that book-acc read C_[-Q] said Q

'John said to Tom that Mary read that book. Why did John say so?'

In contrast, for the meaning in (40b), *naze* appears within in the embedded clause.

- (42) John-wa Tom-ni [Mary-ga **naze** sono hon-o yonda to] itta no?
 John-top Tom-to Mary-nom *naze* that book-acc read C_[-Q] said Q
 'John said to Tom [that Mary read that book for some reason]. According to John, why did Mary read that book?'

Given that *naze*-questions are interpreted in the same way with the English *why*-questions, the sentence in (41) would have the structure in (43a) and the sentence in (42) should have the structure in (43b).

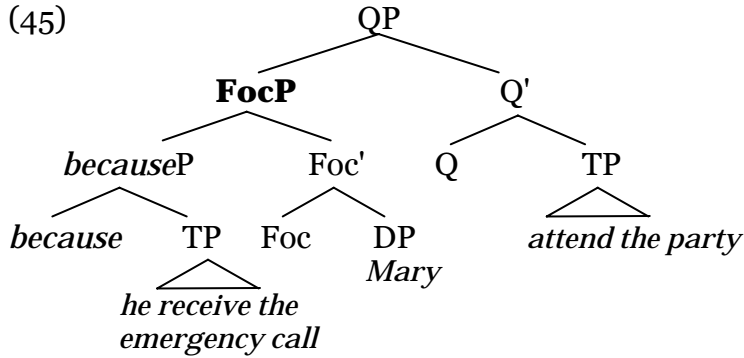
- (43) a. **Wh P** [J-ga **cause+P** T-ni [M-ga sono hon-o younda to] itta] no
 b. **Wh P** [J-ga T-ni [M-ga **cause+P** sono hon-o younda to] itta] no

The positions of *naze* and the reading in (41) and (42) indicate that *naze* is the phonological realization of *cause* or the predicate variable *P*, not the *wh*-operator. So, I suggest that *naze* in Japanese is not the *wh*-operator, but the predicate variable *P*.

5.2.2. Focus Sensitive *Why*-questions

In section 4.2.2, I have shown that the logical representation of the focus sensitive *because*-construction in (44) is mapped from the LF syntactic configuration in (45).

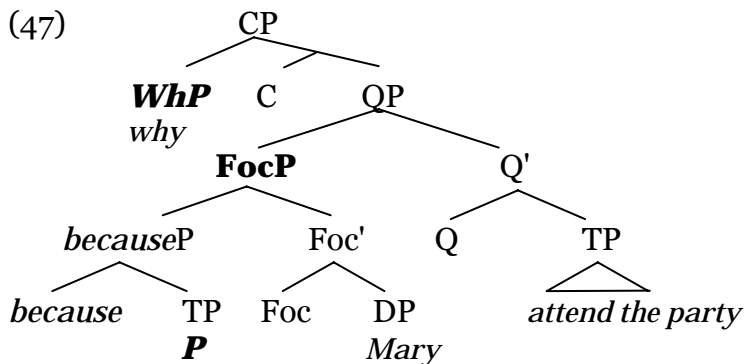
- (44) MARY attended the party [because Peter received an emergency call].
 [∃e₁: C(e₁) & attend (e₁) & Theme (e₁, the party)] [∃e₂: C(e₂) & ℞(e₂,e₁) & Agent (e₂, Mary)] [∃e₃: C(e₃) & cause (e₃, e₂)] receive (e₃) & Agent (e₃, John) & Theme (e₃, the emergency call)



In (45), the *becauseP* and the focused element *Mary* appear within the same *FocP*. In *why*-questions, the complement of *because*-head is replaced with the predicate variable *P* and it is bound by the *wh*-operator in CP spec. Thus, the *why*-question in (46) should have the LF syntactic structure in (47).

(46) Why did MARY attend the party?

WH P $[\exists e_1: C(e_1) \ \& \ \text{attend} (e_1) \ \& \ \text{Theme} (e_1, \text{the party})][[\exists e_2: C(e_2) \ \& \ \Re(e_2, e_1) \ \& \ \text{Agent} (e_2, \text{Mary})][[\exists e_3: C(e_3) \ \& \ \text{cause} (e_3, e_2)] P(e_3)$



The TP in the complement of Q is mapped to the restriction of the event quantifier for e_1 , and the *FocP* is mapped to its scope. The event quantifier introduced by the *Foc*-head has restriction and scope. The element in the complement of *Foc*-head is mapped to its restriction and the *becauseP*, which contains the predicate variable, is mapped to its scope. The *wh*-operator *why* is

base-generated in CP spec and it binds the predicate variable *P* within the *becauseP*.

In English, the predicate variable *P* has no phonological content and hence the structural position of the predicate variable cannot be directly observed. In Japanese, the predicate variable *P* is pronounced as *naze* and it is easier to check whether the predicate variable and the focused element form a constituent in focus sensitive reading.

It has been observed that long distance scrambling of *naze* is usually disallowed (Saito 1985).

(48) a. Yuri-wa [Taro-ga **naze** sono ronbun-o happyosuru to] omotteiru no?

Yuri-top Taro-nom *naze* that paper-acc present C think Q

'Why does Yuri think [that Taro will present that paper *vb*]?;

Yuri thinks that Taro will present that paper for some reason. According to Yuri, why does Taro present that paper?'

b. #**Naze** Yuri-wa [Taro-ga **t** sono ronbun-o happyosuru to] omotteiru no?

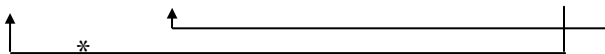
naze Yuri-top Taro-nom that paper-acc present C think Q

(48b) is acceptable for the reading where *naze* asks the reason of Yuri's thinking event, but it is unacceptable on the reading where *naze* asks the reason of Taro's presenting event. This indicates that *naze* cannot undergo long-distance scrambling. Koizumi (2000), however, points out that the sentence improves when other elements of the embedded clause undergo long-distance scrambling together with *naze*.¹⁰


¹⁰ I am grateful to Mamoru Saito for suggesting the correlation of long distance scrambling and the analysis of focus sensitive *naze*-constructions.

- (49) **Naze sono ronbun-o** Yuri-wa [Taro-ga **t** happyosuru to] omotteiru no?
naze that paper-acc Yuri-top Taro-nom present C think Q
 'Why that paper does Yuri think [that Taro will present t]?'

(49) allows the reading where *naze* asks the reason for choosing a particular paper as the theme of presenting. If *naze* and *sono ronbun-o* undergo scrambling independently, the derivation involves long distance scrambling of *naze* and we predict that the sentence is ungrammatical as (48b).

- (50) [**naze**] [**sono ronbun-o**] Y-wa [T-ga **t t** happyosuru to] omotteiru no


The high acceptability of (49) indicates that *naze* and *sono ronbun-o* move together, as in (51), and that movement of *naze* depends on long distance scrambling of *sono ronbun-o*.

- (51) [_{FocP} **naze sono ronbun-o**] Y-wa [T-ga **t** happyosuru to] omotteiru no


Thus, the grammaticality difference between (48b) and (49) supports the analysis that *naze* and *sono ronbun-o* forms a constituent.¹¹

Sohn (1994) presents a similar phenomenon. Scrambling of arguments out of an NP complement is slightly degraded (Saito 1985) as in (52a), but scrambling of *naze* out of an NP complement is clearly disallowed (Sohn 1994) as in (52b).

¹¹ Koizumi (2000) claims that the fronted *naze* may follow the other scrambled element as in (i).

(i) **Sono ronbun-o naze** Yuri-wa [Taro-ga **t** happyosuru to] omotteiru no?
 that paper-acc *naze* Yuri-top Taro-nom present C think Q
 (Why does Yuri think that Taro will present?)

(i) does not allow the focus sensitive reading unlike (49). It is not clear how (i) is derived.

- (52) a. ? **Dare-o** John-wa [[Mary-ga **t** uttaeta to iu] uwasa]-o kiita no?
 who-acc John-top Mary-nom sued C say rumor-acc heard Q
 'Whom did John hear [the rumor that Mary sued him]?'
 b. ***Naze** John-wa [[Mary-ga **t sono hito-o** uttaeta to iu] uwasa]-o
 why John-top Mary-nom that person-acc sued C say rumor-acc
 kiita no?
 heard Q
 'Why did John hear [the rumor that Mary sued him *vb*]?;
 According to the rumor John heard, why did Mary sued the person?'

Sohn observes that when *naze* moves together with an argument in the same clause, the sentence improves as in (53).

- (53) (?) **Naze sono hito-o** John-wa [[Mary-ga **t** uttaeta to iu] uwasa]-o
 why that person-acc John-top Mary-nom sued C say rumor-acc
 kiita no?
 heard Q
 'Why did John hear [the rumor that Mary sued THAT PERSON]?;
 According to the rumor John heard, why did Mary sue THAT
 PERSON?'

The grammaticality difference between (52b) and (53) again indicates that *naze* in (53) forms a constituent with a focused element and the constituent [_{FocP} *naze* [_{DP} *sono hito-o*]] undergoes scrambling, supporting on analysis in

which the predicate variable appears within FocP in focus sensitive *why*-questions.¹²

5.2.3. Why-questions with a Secondary Focused Element

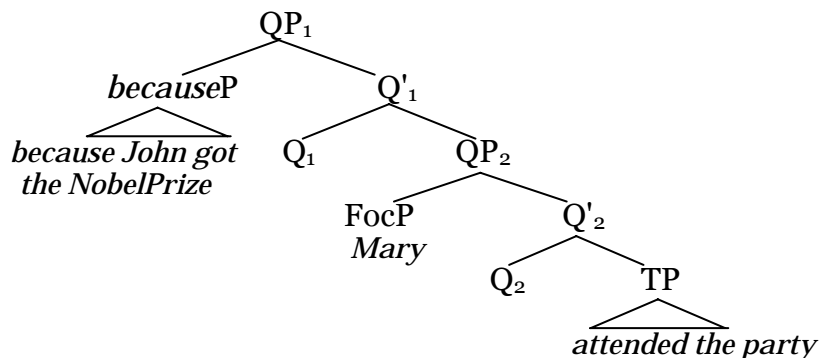
As discussed above, *why*-questions with an additional focused element may have the structure of secondary occurrence focus. In section 4.2.4., I showed that the *because*-clause with the structure of secondary occurrence focus in (54B) have the LF syntactic structure in (55).

(54) A: *I remember that nobody was willing to attend the party.*

Why did MARY attend the party?

B: MARY attended the party [because John got the Prize].

(55) $[\exists e_1: C(e_1) \ \& \ [\exists e_2: C(e_2) \ \& \ \text{attend}(e_2) \ \& \ \text{Theme}(e_2, \text{the party})]] \ [\exists e_3: C(e_3) \ \Re(e_3, e_2)] \ \text{Agent}(e_3, \text{Mary}) \ \& \ \text{contain}(e_1, e_2)] \ [\exists e_4: C(e_4) \ \& \ \text{cause}(e_4, e_1)] \ \text{get}(e_4) \ \& \ \text{Agent}(e_4, \text{John}) \ \& \ \text{Theme}(e_4, \text{the Prize})$

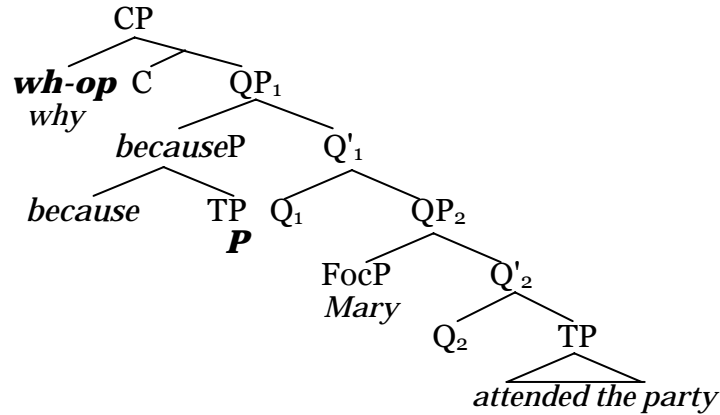


The syntactic structure of the sentence with a secondary focused element has the QP layers and the secondary focused element appears in lower QP spec at LF.

¹² Sohn (1994) observes that the sentence is just marginal even when *sono hon-o* precedes *naze*, but the grammatical status is not clear and I cannot judge what kind of reading the sentence has.

In *why*-questions, the content of *because*P is replaced with a predicate variable. Thus, the *why*-question in (54A) has the syntactic configuration in (56).

(56) **WH P** [$\exists e_1: C(e_1) \ \& \ [\exists e_2: C(e_2) \ \& \ \text{attend}(e_2) \ \& \ \text{Theme}(e_2, \text{the party})]$] [$\exists e_3: C(e_3) \ \& \ \mathcal{R}(e_3, e_2)$] Agent (e_3, Mary) & contain (e_1, e_2)] [$\exists e_4: C(e_4) \ \& \ \text{cause}(e_4, e_1)$] **P**(e_4)



The predicate variable *P* is mapped to the scope of the matrix event quantifier and bound by the *wh*-operator in CP spec. The QP₂ is mapped to the restriction of the main event quantifier and *Mary* in the QP₂ spec is mapped to the scope of the embedded event quantifier as a secondary focused element. In this structure for non-focus sensitive reading, the *because*P and the focused phrase do not form a constituent and interpreted independently, unlike the structure for the focus sensitive reading.¹³

5.3. Consequences

So far, I have shown that *why*-questions with a focused element are ambiguous with the focus sensitive reading and the non-focus sensitive reading.

¹³ I consider that argument *wh*-questions and temporal/locative *wh*-questions have this LF-structure of secondary occurrence focus when they have other independent focused element.

Among those readings, the focus sensitive reading is special for *why*-questions and it is not found in other type of *wh*-questions. This reading is derived when the predicate variable appears in the FocP together with the focused element. It implies that the variable may occur in the FocP together with other focused element only in *why*-questions, but not in other type of *wh*-questions. In this section, I cross-linguistically examine several mysterious phenomena which are peculiar to *why*-questions.

5.3.1. Japanese Combination Clefts

In Japanese, clefting the combination of the *wh*-element and the non *wh*-phrase is usually unacceptable or quite marginal.

(57) a. *[Taro-ga happyosuru no]-wa **dono ronbun** 10-gatsu na no?

Taro-nom present C-top which paper October be Q

'Which paper is it that Taro will present IN OCTOBER?'

b. ?*[Taro-ga happyosuru no]-wa **dokode** sono ronbun na no?

Taro-nom present C-top where that paper be Q

'Where is it that Taro will present THAT PAPER?'

However, *naze* exceptionally can appear in the clefted position together with a non *wh*-element.

(58) a. [Taro-ga sono ronbun-o happyosuru no]-wa **naze** 10-gatsu na no?

Taro-nom that paper-acc present C-top *naze* October be Q

'Why is it that Taro will present that paper IN OCTOBER?'

- b. [Taro-ga Kyoto-de happyosuru no]-wa **naze** sono ronbun na no?
 Taro-nom Kyoto-at present C-top *naze* that paper be Q
 'Why is it that Taro will present THAT PAPER at Kyoto?'

At first glance, these combination clefts resemble multiple clefts, but they do not behave like multiple clefts and it rather has properties of single clefts. In multiple clefts, the order of clefted phrase is free.

- (59) a. [Taro-ga happyosuru no]-wa [**10-gatsu-ni**] [**sono ronbun-o**] da.
 Taro-nom present C-top October-in paper-acc be
 b. [Taro-ga happyosuru no]-wa [**sono ronbun-o**] [**10-gatsu-ni**] da.
 Taro-nom present C-top that paper-acc October-in be
 'It is that paper, in October, that Taro will present.'

However, in combination clefts, the order of two clefted phrases is fixed and *naze* must precede the non-*wh*-phrase.

- (60) a. [Taro-ga happyosuru no]-wa **naze** sono ronbun na no?
 Taro-nom present C-top *naze* that paper be Q
 'Why is it that Taro will present THAT PAPER?'
 b. *[Taro-ga happyosuru no]-wa sono ronbun **naze** na no?
 Taro-nom present C-top that paper *naze* be Q

Multiple clefts and combination clefts diverges in case-marking patterns, too. In single clefts, the case marker and the postposition on the clefted phrase are optional (61), whereas they are obligatory in multiple clefts (62) (Koizumi 1995).

- (61) a. [Taro-ga 10-gatsu-ni happyosuru no]-wa sono ronbun(-o) da.
 Taro-nom October-in present C-top that paper-acc be
 'It is that paper that Taro will present in October.'

b. [Taro-ga sono ronbun-o happyosuru no]-wa 10-gatsu(-ni) da.
 Taro-nom that paper-acc present C-top October-in be
 'It is in October that Taro will present that paper.'

(62) [Taro-ga happyosuru no]-wa 10-gatu*(-ni) sono ronbun*(-o) da.
 Taro-nom present C-top October-in that paper-acc be
 'It is in October, that paper, that Taro will present.'

Combination clefts have the case-marking pattern of single clefts.

(63) a. [Taro-ga happyosuru no]-wa **naze** sono ronbun(-o) na no?
 Taro-nom present C-top *naze* that paper-acc be Q
 'Why is it that Taro will present THAT PAPER?'

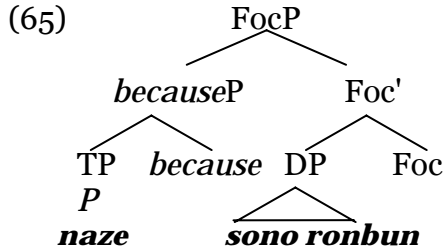
b. [Taro-ga sono ronbun-o happyosuru no]-wa **naze** 10-gatu(-ni) na no?
 Taro-nom that paper-acc present C-top *naze* October-in be Q
 'Why is it that Taro will present that paper IN OCTOBER?'

These facts indicate that combination clefts are one special case of single clefts, and it is different from multiple clefts.

In combination clefts, *naze* always associates with the other focused element. (64) asks the reason of choosing some particular paper and it does not ask the reason of presenting.

(64) [Taro-ga happyosuru no]-wa **naze** sono ronbun na no?
 Taro-nom present C-top *naze* that paper be Q
 'Why is it that Taro will present THAT PAPER?'

For this reading, the *becauseP* should appear in the spec of FocP with the other focused element. Thus, the clefted phrases *naze* and *sono ronbun* should share one FocP as in (65).



Given that this FocP is clefted in combination clefts, it explains why combination clefts behave like single clefts, not like multiple clefts. Since the element in the specifier position always precedes the complement of the same projection in Japanese, *naze* precedes the other focused element, unlike typical multiple cleft constructions. Furthermore, *naze* and other focused element form a constituent and share one FocP, combination clefts should have the same case-marking pattern as single clefts and whatever explains the optionality of the case marker in the single clefts should also explain the optionality of the case-marker in combination clefts. Thus, the proposed analysis of focus sensitive *why*-questions explains otherwise mysterious phenomena of Japanese combination clefts straightforwardly.¹⁴

5.3.2. Italian *Perché*-questions

A peculiarity of causal *wh*-expressions is found in Italian, as well. In Italian, *wh*-questions cannot have other focused element in the same sentence.

¹⁴ Satoshi Tomioka (personal communication) pointed out that the following example is a problem for the analysis that *naze* and other focused element form a constituent.

(i) [Mary-ga itta no]-wa **naze** Osaka-de naku, Kyoto na no?
 Mary-nom went C-top why Osaka-be not Kyoto be Q
 (Why is it not Osaka but Kyoto that Mary went?)

One possible approach would be *Osaka-de naku Kyoto* form a constituent and appear at FocP complement, but it is not very convincing. I leave this problem for further research.

(66) ***Achi** QUESTO hanno detto?

to whom this have said

'To whom did they say THIS, not something else?' (Rizzi 1999)

However, Rizzi (1999) observes that the *wh*-questions are acceptable with other focused element when the *wh*-phrase is *perché* (*why*).

(67) **Perché** QUESTO avemmo dovuto dirgli?

why this should had say.him

'Why should we have said THIS to him, not something else?' (Rizzi 1999)

This indicates that *perché* is something special and has a property that other *wh*-elements do not have.

According to Calabrese (1984), Italian does not allow multiple foci.

(68) a. *MARIO ha scritto UNA LETTERA.

Mario has written a letter

'MARIO has written A LETTER.'

b. *SANDRA ha dato un bacio A CARLO.

Sandra has given a kiss to Carlo

'SANDRA has given a kiss TO CARLO.' (Calabrese 1984)

This indicates that more than one FocP cannot appear in one sentence in Italian.

He also points out that multiple *wh*-questions are not allowed either.

(69) a. ***Chi** ha scritto **che cosa**?

who has written what

'Who has written what?'

b. ***Quale ragazza** ha dato un bacio a **quale ragazzo**?

which girl has given a kiss to which boy

'Which girl gave a kiss to which boy?'

(69) is parallel to (68) and it suggests that each *wh*-phrase has its own FocP. This explains why typical *wh*-questions cannot have other independent focused element. Since each of the *wh*-phrase and the additional focused element would have a FocP, the *wh*-question with a focused element results in having two FocPs and (66), which is repeated as (70), is ruled out.

(70) ***Achi** QUESTO hanno detto?

to whom this have said

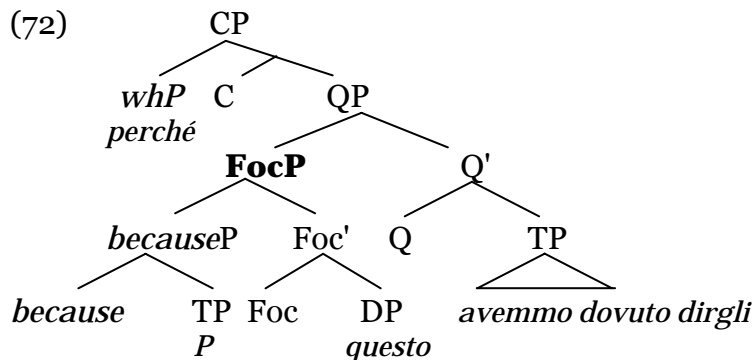
'To whom did they say THIS, not something else?'

In *why*-questions, however, the predicate variable may appear within the FocP together with other focused element.¹⁵ If so, the sentence in (67), which is repeated as (71) below, may have the structure in (72).

(71) **Perché** QUESTO avemmo dovuto dirgli?

why this should had say.him

'Why should we have said THIS to him, not something else?'



¹⁵ While the *because*-phrase may appear in FocP spec, it seems it cannot appear in the FocP spec of the *wh*-phrase.

In (72), the sentence has only one FocP. Thus, we correctly predict the acceptability of the sentence.

This analysis follows Rizzi's (1999) idea that *perché* merges in the position which is hierarchically quite high in the structure, but not only that, it explains why (71) has only focus sensitive reading. (71) asks the cause of choosing some particular thing "this" for the theme of the saying event, and it cannot ask the cause of the saying event.¹⁶ In (72), the *because*P, which contains the predicate variable, appears within FocP and it expresses the cause of the event introduced by the Foc-head. Thus, the sentence asks about the focused element and other reading is unacceptable.¹⁷

Rizzi (1999) further observes that when *perché*-question has a focused element, *perché* is interpreted in the same clause where the focused element appears. The *perché*-question without a focused element is ambiguous and (73) may ask the reason of his saying (matrix reading) or the reason of his resigning (embedded reading).

¹⁶ Thank Roberta Salmi for judging Italian sentences.

¹⁷ Anna Szabolcsi (personal communication) pointed out that a very similar pattern is observed in Hungarian. According to her, a focused element cannot appear in *wh*-questions unless the *wh*-element is *miért* (*why*). When a focused element appears within the *miért*-question, the sentence only has the focus sensitive reading, as indicated by the answers in (i).

(i) **Miért** MARI-T küldte el János a boltba?
why Mary-acc sent away John the shop
'Why did John send MARY to the shop?'

a. *Kenyér-ért.
bread-for
'For bread.'

b. Mert Mari éhes volt.
because Mary hungry was
'Because Mary was hungry.'

(Kiss 1994)

(73) Perché ha ditto [che si dimetterà]?

why did he.say that he will.resign

'Why did he say that he will resign?'

(Rizzi 1999)

However, this ambiguity disappears when a focused element appears in the matrix clause.

(74) Perché A GIANNI ha ditto [che si dimetterà]?

why to Gianni did he.said that he will.resign

'Why did he say TO GIANNI that he will resign?'

(Rizzi 1999)

It seems that judgment is difficult, but according to Rizzi, (74) only has the matrix reading. If *perché* appears at FocP spec of the focused element, *perché* and the focused element must be quite local and they must be in the same clause. Thus, lack of ambiguity in (74) is predicted in the current analysis of focus sensitive *perché*-questions.

5.4. Remaining Questions

So far, I have proposed the logical representations of focus sensitive *why*-questions and their syntactic structures. Before closing this chapter, I discuss the questions remained for further research and suggest their potential directions.

5.4.1. Intervention Effects and Anti-superiority Effects

It has been observed that the Japanese Negative Polarity Item (NPI), *NP-shika*, cannot precede a typical *wh*-phrase (Hoji 1985, Kim 1989, Beck and Kim 1997, Ko 2005, among others), as shown in (75).

- (75) a. **Nani-o** Hanako-shika kaw-anak-atta no?
 what-acc Hanako-only buy-neg-pst Q
 'What did only Hanako buy?'
- b. *Hanako-shika **nani-o** kaw-anak-atta no?
 Hanako-only what-acc buy-neg-pst Q

In (75a), the *wh*-phrase *nani-o* precedes the NPI *Hanako-shika* and the sentence is acceptable, but in (75b), *Hanako-shika* precedes the *wh*-phrase and the sentence is unacceptable. This intervention effect disappears when the *wh*-element is *naze* (Miyagawa 1997, Cho 1998, Kuwabara 1998, Watanabe 2000, Ko 2005, among others).

- (76) a. **Naze** Hanako-shika sono hon-o kaw-anak-atta no?
naze Hanako-only that book-acc buy-neg-pst Q
 'Why did only Hanako buy that book?'
- b. Hanako-shika **naze** sono hon-o kaw-anak-atta no?
 Hanako-only *naze* that book-acc buy-neg-pst Q

In (76b), *Hanako-shika* precedes *naze*, but the sentence is acceptable. Many syntactic, semantic, or pragmatic approaches have been proposed to these phenomena (Beck and Kim 1997, Hagstrom 1998, Lee and Tomioka 2000, Ko 2005). I do not discuss these proposed analyses of intervention effect and do not decide which analysis is the best, but I here show that focus sensitive *why*-questions add some additional interesting data:

- (77) a. [**Naze SONO HON-O**] Hanako-shika kaw-anak-atta no?
naze that book-acc Hanako-only buy-neg-pst Q
 'Why that book, did Hanako read?'

b. *Hanako-shika [**naze SONO HON-O**] kaw-anak-atta no?

Hanako-only *naze* that book-acc buy-neg-pst Q

In (77), the object *sono hon-o* is focused and *naze* associates with it. The focus sensitive reading, which asks the reason of choosing some particular book, is available in (77a) but not in (77b). This indicates that *naze* in focus sensitive *why*-questions behaves like an argument *wh*-phrase in the respect of intervention effects.

A similar, but different puzzle is found in multiple *wh*-questions. Multiple *wh*-questions are allowed in Japanese and usually, the order of two *wh*-phrases is quite free as a result of scrambling.

(78) a. **Dare-ga nani-o** katta no?

who-nom what-acc bought Q

b. **Nani-o dare-ga** katta no?

what-acc who-nom bought Q

'Who bought what?'

However, when one of the *wh*-phrase is *naze*, it cannot precede another *wh*-element (Watanabe 1991).

(79) a. **Dare-ga naze** sono hon-o katta no?

who-nom *naze* that book-acc bought Q

'Who bought that book for what reason?'

b. ***Naze dare-ga** sono hon-o katta no?

naze who-nom that book-acc bought Q

In (79a), *naze* follows other *wh*-element and the sentence is grammatical, but in (79b), *naze* precedes *dare-ga* and the sentence is ungrammatical. Several

analyses have been proposed to capture this anti-superiority effect (Watanabe 1991, Saito 1994, Richard 1998, among others), but again, without choosing one analysis, I here present the additional data from focus sensitive *why*-questions. The focus sensitive *why*-questions have the same pattern as the regular *naze*-question in the respect of anti-superiority effect.

- (80) a. ?**Dare-ga** [**naze SONO HON-O**] katta no?
 who-nom *naze* that book-acc bought Q
 'Who bought that book and why did he choose that book?'
- b. ***[Naze SONO HON-O] dare-ga** katta no?
 why that book-acc who-nom bought Q

(80a) is not the perfect sentence, but (80b) is much worse than (80a) even with the reading that *naze* asks the reason for choosing some particular book. This indicates that anti-superiority is found in the focus sensitive *naze*-questions.

The presence of intervention effects and anti-superiority effects in focus sensitive *naze*-questions suggests that the focus sensitive *naze* has some properties of the argument *wh*-phrases, and at the same time, it has some properties of the regular *naze*-phrases. The exact analyses of the data in (77) and (80) highly depend on the analyses of intervention effects and anti-superiority effect, and I have to leave them for the further research but these data, at least, show that focus sensitive *why*-questions provide rich interesting data to research of cross-linguistic phenomena.

5.4.2. *How-come* and *For-what-reason*

The *wh*-phrase *why* is used to ask the cause of some event, but this is not the only way to ask the cause of some event. We can use *how come* or *for what reason* for the causal questions.

(81) a. **How come** John bought the beer?

b. **For what reason** did John buy the beer?

Both (81a) and (81b) ask the cause of Mary's attending event of the meeting. Interestingly, *how come* is focus sensitive just like *why*, but *for what reason* is not, despite the similarity of the meaning. Focus shift affects the answer of *how come* questions, but it does not affect the answer of *for what reason*-questions.¹⁸

(82) a. **How come** JOHN bought beer? -Because nobody else had money.

b. **How come** John bought BEER? -Because it is good with Thai food.

(83) a. **For what reason** did JOHN buy beer?

- For winning of Italy in the 2006 World Cup.

b. **For what reason** did John buy BEER?

- For winning of Italy in the 2006 World Cup.

While (82a) and (82b) have different answers, (83a) and (83b) have the same answer. The same division is found in their implicature patterns. (82b) implicates that John didn't buy anything other than beer. (83b) does not have this implicature. This indicates that *how come* and *why* are grouped together and

¹⁸ Thank Carlos de Cuba for judging the sentences.

they are sensitive to focus, but *for what reason* is different from them and it does not associate with focus.

A similar division is found in Chinese. Chinese also has three *wh*-elements to ask the cause of some event, *weishenme* (*why*), *zenme* (*how*), and *wei-le-shenme* (*for what*).¹⁹

(84) a. Mary **weishenme** canjia zhege hueiyi?

Mary why attend this meeting

'Why did Mary attend this meeting?'

b. Mary **zenme** hui canjia zhege hueiyi?

Mary how would attend this meeting

'How come Mary attended this meeting? *She should not have attended this meeting!*

c. Mary **wei-le shenme** canjia zhege hueiyi?

Mary for what attend this meeting

'For what did Mary attend this meeting?'

When a part of the sentence is focused, *weishenme* and *zenme* may associate with the focused element, but *wei-le shenme* cannot. For the focus sensitive reading, the *wh*-element precedes the focused phrase, which is marked with the focus marker *shi*.

¹⁹ Thank Yu-an Lu for Chinese examples and their judgments.

(85) a. **Weishenme** [shi MARY] canjia zhege hueiyi?
 why foc Mary attend this meeting
 'Why MARY, not other person, attended the meeting?'

b. **Zenma** hui [shi MARY] canjia zhege hueiyi?
 how would foc Mary attend this meeting
 'How come MARY, not other person, attended the meeting?'

c. ***Wie-le shenme** [shi MARY] canjia shege hueiyi?
 for what foc Mary attend this meeting

(85a) and (85b) ask about the agency of Mary and the *wh*-element associates with focus, but (85c) is unacceptable as a question. This difference indicates that *weishenme* and *zenme* are focus sensitive, but *wei-le shenme* is not. This division corresponds to the one found between *how come/why* and *for what reason*.

Tsai (1999) observes an interesting syntactic difference between *weishenme/zenme* and *wei-le shenme*. According to him, *weishenme* and causal *zenme* appear pre-modal position (86a), while *wei-le shenme* appears post-modal position (86b).²⁰

(86) a. Akiu **weishenme/zenme** hui zou?
 Akiu why how will leave
 'Why/How come Akiu would leave?'

²⁰ When *zenme* appears post-modal position, it does not ask the cause anymore. Instead, it asks the manner. Thus, the post-modal *zenme* is interpreted as *how*.

b. Akiu hui **wei-le shenme** cizhi?

Akiu will for what resign

'For what will Akiu resign?' (Tsai 1999)

A similar pattern is found with the modal adverb *keneng* (*possibly*). *Weishenme* and causal *zenme* precede the modal adverb, but *wei-le shenme* follows it.

(87) a. Akiu **weishenme/zenme** keneng ban zhe-ge huiyi?

Akiu why how possibly organize this-cl conference

'Why/How come it is possible for Akiu to organize this conference?'

b. Akiu keneng **wei-le shenme** ban zhe-ge huiyi?

Akiu possibly for what organize this conference

'For what can Akiu organize the conference?' (Tsai 1999)

These facts suggest that the syntactic position of *weishenme* and *zenme* is higher than the position of *wei-le shenme*. If this is true for English *how come*, *why* and *for what reason* as well, there may be some correlation between syntactic heights and focus sensitivity. This is just one of the possible ways to distinguish *how come/why* and *for what reason* and it needs more careful examination of cross-linguistic data, but if there is a correlation between syntactic heights and focus sensitivity, it would tell us more about focus sensitive property and its origin. I leave this possibility open for further research.

secondary occurrence focus, TP deletion is not allowed. I do not discuss the constraints of TP ellipsis here,²¹ but I just note here that there is a very interesting observation on acquisition of these constructions. It has been reported by Labov and Labov (1978) and discussed by Kay (1980) that in the process of first language acquisition, all *wh*-words except the causal ones first appears with the bare-binary combination constructions in (88c-e). The causal *wh*-expressions, in contrast, first appear with a full sentence or a multiple word utterance, and later, the bare-binary forms in (88a-b) are developed. This indicates that the bare-binary combination construction with *why* has more complex syntactic or semantic structure involved than merging two elements together. Despite their simple appearances, the bare-binary combination constructions involve complex puzzles and close examination of this construction may tell us a hint to the origin of the focus sensitive property.

5.5. Summary

In this chapter, I discussed the analysis of *why*-questions as the consequences of the analysis of focus and *because*-constructions given in Chapter 2-4. Examining how focus affects the meaning of *why*-questions, I have argued that the predicate variable appears within the FocP together with other focused element in focus sensitive *why*-questions. In this chapter, I explored the syntactic and semantic analysis of the focus sensitive reading, but I did not discuss much

²¹ Marcel den Dikken (personal communication) suggested that the constraint which blocks TP-deletion in the structure of secondary occurrence focus would be the same with the constraint which which blocks Japanese combination clefts with *wh*-phrases other than *naze*.

the origin of the focus sensitive property. The analysis presented in this chapter suggests that *why*-questions are focus sensitive because the *becauseP* may appear at FocP spec and the predicate *cause* may take the event that Foc-head introduces as one of its argument. It is not clear yet why *becauseP* can appear in the FocP spec and other phrase cannot appear at the same place. I have to leave this important and interesting question open for the future research, but I hope I could at least show that focus sensitive *why*-questions have several mysteries and they provide rich data for the research of *wh*-questions and focus.

REFERENCES

- Aoyagi, Hiroshi. 1994. "On Association with Focus and Scope of Focus Particles in Japanese." *Formal Approaches to Japanese Linguistics* 1, *MIT Working Papers in Linguistics* 24: 23-44.
- Aoun, Joseph and Dominique Sportiche. 1983. "On the Formal Theory of Government." *Linguistic Review* 2: 211-236.
- Baker, Mark. 1988. *Incorporation*. Chicago: University of Chicago Press.
- Banfield, Ann M. 1973. *Stylistic Transformations: A Study Based on the Syntax of Paradise Lost*. Doctoral dissertation, University of Wisconsin, Madison.
- Barwise, Jon, and Robin Cooper. 1981. "Generalized Quantifiers and Natural Language." *Linguistics and Philosophy* 4: 159-219.
- Bayer, Josef. 1986. "The Role of Event Expression in Grammar." *Studies in Language* 10: 1-52.
- Bayer, Josef. 1999. "Bound Focus or How can Association with Focus be Achieved without Going Semantically Astray?" In *Grammar of Focus*, edited by Georges Rebuschi and Laurice Tuller. Amsterdam: John Benjamins Publishing Company.
- Beavor, David and Brady Clark. 2003. "'Always' and 'Only': Why not all Focus Sensitive Operators are Alike." *Natural Language Semantics* 11.4: 323-362.
- Beck, Sigrid and Shin-Sook Kim. 1997. "On *Wh*- and Operator Scope in Korean." *Journal of East Asian Linguistics* 6:339-384.
- Beghelli, Filippo and Tim Stowell. 1997. "Distributivity and Negation: The Syntax of Each and Every." In *Ways of Scope Taking*, edited by Anna Szabolsci, Kluwer. Pp71-109.
- Bennett, Jonathan. 1988. *Event and their Names*. Indianapolis: Hackett Publishing Company.
- Berman, Steve. 1989. "An Analysis of Quantificational Variability in Indirect Questions." *MIT Working Papers in Linguistics* 11.

- Berman, Steve. 1991. *On the Semantics and Logical Form of Wh-clauses*. Doctoral dissertation, University of Massachusetts, Amherst.
- Bobaljik, Johnathan, and Susi Wurmbrand. 2007. "Word Order and Scope." Handout, University of Connecticut.
- Bosch, Peter. 1988. "Representing and Accessing Focused Referents." *Language and Cognitive Processes* 3: 207-231.
- Bošković, Željko. 2000. "Sometimes in SpecCP, Sometimes In-situ." In *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, edited by Roger Martin, David Michaels, and Juan Uriagereka. Cambridge, MA: MIT Press.
- Bromberger, Sylvain. 1991. *On What We Know We don't Know: Explanation, Theory, Linguistics and How Questions Shape them*. Chicago: The University of Chicago Press.
- Büring, Daniel. 1999. "Topic." In *Focus: Linguistic, Cognitive, and Computational Perspectives*, edited by Peter Bosch and Rob van der Sandt. Cambridge: Cambridge University Press.
- Büring, Daniel. 2006. "Towards a Typology of Focus." Ms. UCLA.
- Büring, Daniel, and Katharina Hartmann. 2001. "The Syntax and Semantics of Focus-sensitive Particles in German." *Natural Language and Linguistic Theory* 19: 229-281.
- Calabrese, Andrea. 1984. "Multiple Questions and Focus in Italian." In *Sentential Complementation*, edited by W. de Geest and Y. Putseys. Dordrecht, Foris Publications. Pp67-74.
- Carlson, Greg. 1980. "Polarity *any* is Existential." *Linguistic Inquiry* 11.4: 799-804.
- Carlson, Lauri. 1984. "Focus and Dialogue Games" A Game-theoretical Approach to the Interpretation of International Focusing." In *Cognitive Constraints on Communication*, edited by Lucia Vaina and Jaakko Hintikka. Dordrecht: Kluwer.
- Castañada, Hector-Neri. 1967. "Comments on D. Davidson's "The Logical Form of Action Sentences." In *The Logic of Decision and Action*, edited by Nicholas Rescher. Pittsburgh, Pa: University of Pittsburgh Press. Pp104-112.
- Chierchia, Gennaro. 1988. *Topics in Syntax and Semantics of Infinitives and Gerunds*. New York: Garland Publishing.

- Cho, Eun. 1998. "Why, Contrastive Topic and LF Movement." *Japanese/Korean Linguistics* 8: 403-415.
- Chomsky, Noam. 1971. "Deep Structure, Surface Structure, and Semantic Interpretation." In *Semantics: An Interdisciplinary Reader in Philosophy, Linguistics and Psychology*, edited by Danny D. Steinberg and Leon A. Jakobovits. Cambridge: Cambridge University Press.
- Chomsky, Noam. 1976. "Conditions on Rules of Grammar." *Linguistic Analysis* 2.4: 303-351.
- Chomsky, Noam. 1981. *Lecture on Government and Binding*. Dordrecht: Foris.
- Chomsky, Noam. 1986. *Knowledge of Language: Its Nature, Origin, and Use*. New York: Praeger.
- Chomsky, Noam. 1993. "A Minimalist Program for Linguistic Theory." In *The View from Building 20*, edited by Kenneth Hale and Samuel Jay Keyser. Cambridge, Mass.: MIT Press. Pp1-52.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- Chomsky, Noam, and Howard Lasnik. 1977. "Filters and Control." *Linguistic Inquiry* 8: 425-504.
- Collins, Chris. 1991. "Why and How Com." In *More Papers on WH-Movement: MIT Working Papers in Linguistics* 15: Pp 31-45.
- Davidson, Donald. 1966. "The Logical Form of Action Sentences." In *The Logic of Decision and Action*, edited by Nicholas Rescher. Pittsburgh, Pa.: University of Pittsburgh Press. Pp 81-95.
- Davidson, Donald. 1967. "Causal Relations." *The Journal of Philosophy* 64.21: 691-703.
- Davidson, Donald. 1969. "The Individuation of Events." In *Essays in Honor of Carl G. Hempel*, edited by Nicholas Rescher, Dordrecht, D. Reidel.
- Davies, Martin. 1981. *Meaning, Quantification, Necessity*. London: Routledge and Kegan Paul.
- den Dikken, Marcel. 2001. "Specificational Copular Sentences and Pseudoclefts-A Case Study." In *The Companion to Syntax IV*. edited by Martin Everaert and Hank Riemsdijk. Oxford: Blackwell.
- den Dikken, Marcel. 2002. "Direct and Parasitic Polarity Item Licensing." *Journal of Comparative Germanic Linguistics* 5: 35-66.

- den Dikken, Marcel. 2006. "Either-float and the Syntax of Co-ordination." *Natural Language and Linguistic Theory* 24: 689-749.
- den Dikken, Marcel, André Meinunger, and Chris Wilder. 2000. "Pseudo-clefts and Ellipsis." *Studia Linguistica* 54.1: 41-89.
- de Swart, Henriëtte, and Helen de Hoop. 1995. "Topic and focus". *GLOT International* 1.7:3-7.
- Dretske, Fred I. 1972. "Contrastive Statements." *The Philosophical Review* 81: 411-437.
- Drubig, Hans Bernhard. 2000. "Towards a Typology of Focus and Focus Constructions."
- Engdahl, Elisabet. 1985. "The Scope of *Why*." A paper presented at LSA.
- Erteschik-Sir, Nomi. 1986. "Wh-questions and Focus." *Linguistics and Philosophy* 9: 117-149.
- Fischer, Susan. 1968. "Cleft Sentences and Contrastive Stress." Ms. MIT.
- Frege, Gottlob. 1879. *Begriffsschrift, eine der arithmetischen nachgebildete Formelsprache des reinen Denkens (Concept Script, a formal language of pure thought modelled upon that of arithmetic.)* In *From Frege to Gödel: A Source Book in Mathematical Logic, 1879-1931*. Harvard University Press (1967).
- Göbbel, Edward. 2007. "Extraposition as PF Movement." In *Proceedings of WECOL 2006*.
- Grice, H. P. 1975. "Logic and Conversation." In *Speech Acts, Syntax and Semantics 3*, edited by Peter Cole and Jerry Morgan. New York: Academic Press. Pp 41-58.
- Guéron, Jacqueline. 1980. "On Syntax and Semantics of PP Extraction." *Linguistic Inquiry* 11.4: 637-678.
- Guéron, Jacqueline, and Robert May. 1984. "Extraposition and Logical Form." *Linguistic Inquiry* 15.1:1-31.
- Gundel, Jeanette K. 1999. "On Different Kinds of Focus." In *Focus: Linguistic, Cognitive, and Computational Perspectives*, edited by Peter Bosch and Rob van der Sandt. Cambridge: Cambridge University Press.
- Gupta, Anil. 1980. *The Logic of Common Nouns: An Investigation in Quantified Modal Logic*. New Haven: Yale University Press.

- Haegeman, Liliane. 1995. *The Syntax of Negation*. Cambridge University Press.
- Hagstrom, Paul. 1998. Decomposing Questions. Doctoral dissertation, MIT.
- Hajičová, Eva. 1984. "Presupposition and Allegation Revisited." *Journal of Pragmatics* 8: 155-167.
- Hartmann, Katharina and Malte Zimmermann 2004. "Focus Strategies in Chadic: The Case of Tangale Revisited." *Interdisciplinary Studies on Information Structure* 1: 207-243.
- Han, Chung-hye and Maribel Romero. 2004. "Disjunction, Focus, and Scope." *Linguistic Inquiry* 35-2:179-217.
- Heim, Irene. 1982. The Semantics of Definite and Indefinite Noun Phrases. Doctoral dissertation, University of Massachusetts, Amherst.
- Heim, Irene. 1990. "E-type Pronouns and Donkey Anaphora." *Linguistics and Philosophy* 13: 137-178.
- Heinämäki, Orvokki. 1978. *Semantics of English Temporal Connectives*. Indiana University Linguistics Club.
- Hempel, Carl G. 1965. *Aspects of Scientific Explanations and Other Essays in the Philosophy of Science*. Glencoe, Ill.: The Free Press.
- Henry, Alison. 1995. *Belfast English and Standard English*. New York: Oxford University Press.
- Herburger, Elena. 2000. *What Counts: Focus and Quantification*. Cambridge, Mass.: MIT Press.
- Heycock, Caroline and Anthony Kroch. 1999. "Pseudocleft Connectedness: Implications for the LF Interface Level." *Linguistic Inquiry* 30-3: 365-397.
- Heycock, Caroline and Anthony Kroch. 2002. "Topic, Focus, and Syntactic Representations." In *WCCFL 21 Proceedings*, edited by Line Mikkelsen and Christopher Potts, Somerville, MA: Cascadilla Press. Pp101-125.
- Higgins, F. Roger. 1973. The Pseudo-cleft Construction in English. Doctoral dissertation, MIT.
- Hoji, Hajime. 1985. Logical Form Constraints and Configurational Structures in Japanese. Doctoral dissertation, University of Washington.

- Hoehle, Tilman N. 1992. "Über Verum-Focus im Deutschen." In *Informationsstruktur und Grammatik*, edited by Joachim Jacobs. Opladen: Westdeutscher Verlag.
- Hooper, Joan B. and Sandra A. Thompson. 1973. "On the Applicability of Root Transformations." *Linguistic Inquiry* 4.4: 465-497.
- Horn, Laurence R. 1989. *A Natural History of Negation*. Chicago: University of Chicago Press.
- Horn, Laurence R. 1996. "Exclusive Company: *Only* and the Dynamics of Vertical Inference." *Journal of Semantics* 13: 1-40.
- Hornstein, Norbert. 1999. "Movement and Control." *Linguistic Inquiry* 30: 69-96.
- Hornstein, Nobert, Jairo Nunes and Kleanthes K. Grohmann. 2005. *Understanding Minimalism*. Cambridge: Cambridge University Press.
- Huang, James C.-T. 1982. Logical Relations in Chinese and the Theory of Grammar. Doctoral dissertation, MIT.
- Jackendoff, Ray. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge, Mass.: MIT Press.
- Jacobs, Hoeksema. 1983. "Negative Polarity and the Comparative." *Natural Language and Linguistic Theory* 1.3: 403-434.
- Jäger, Agnes. 2005. "Negation in Old High German." *Zeitschrift für Sprachwissenschaft* 24:227-262.
- Johnson, Kyle. 2007. "Copies." A paper presented at ConSOLE XV, at Catholic University of Brussels.
- Johnston, Michael. 1994. The Syntax and Semantics of Adverbial Adjuncts. Doctoral dissertation, University of California Santa Cruz.
- Kamp, Hans. 1981. "A Theory of Truth and Semantic Representations." Reprinted in *Truth, Interpretation and Information*, edited by J. Groenendijk, T.M.V. Janssen and M. Stokhof, 1984, GRASS 2, Foris, Dordrecht.
- Kay, Paul. 1980. "On the Syntax and Semantics of Early Questions." *Linguistic Inquiry* 11: 426-429.
- Kayne, Richard. 1998. "Overt vs. Covert Movement." *Syntax* 1: 128-191.
- Kayne, Richard. 2004. "Prepositions as Probes." In *Structures and Beyond*, edited by Adriana Belletti, Oxford: Oxford University Press. Pp 192-212.

- Keenan, Edward, and Jonathan Stavi 1986. "A Semantic Characterization of Natural Language Determiners." *Linguistics and Philosophy* 9: 253-326.
- Kenny, Anthony. 1963. *Action, Emotion and Will*. London: Routledge & Kegan Paul
- Kim, Soo Won. 1989. "Wh-phrases in Korean and Japanese and QPs." In *Papers from the Student Conference in Linguistics: MIT Working Papers in Linguistics*: 11.
- Kim, K. S. 1999. "A Paradox in Korean NPI Licensing." *Studies in Generative Grammar* 9: 403-428.
- Kiss, Katalin É. 1994. *The Syntactic Structure of Hungarian*. Cambridge: Cambridge University Press.
- Kiss, Katalin É. 1998. "Identificational Focus versus Information Focus." *Language* 74: 245-273.
- Klein, Wolfgang, and Arnim von Stechow. 1982. "Intonation und Bedeutung von Fokus." *Working Paper 77, SFB 99*, University of Konstanz.
- Klima, Edward S. 1964. "Negation in English." In *The Structure of Language: Readings in the Philosophy of Language*. edited by Jerry A. Fodor and Jerrold J. Katz, Englewood Cliffs, NJ: Prentice-Hall. Pp. 246-323.
- Ko, Heejeong. 2005. "Syntax of *Why-in-situ*: Merge into [Spec, CP] in the overt Syntax." *Natural Language and Linguistic Theory* 23.4: 867-916.
- Koizumi, Masatoshi. 2000. "String Vacuous Overt Verb Raising." *Journal of East Asian Linguistics* 9:227-285.
- Koizumi, Masatoshi. 1995. Phrasal Structure in Minimalist Syntax. Doctoral dissertation, MIT.
- Krifka, Manfred. 1991. "A Compositional Semantics for Multiple Focus Constructions." In *Proceedings from Semantics and Linguistic Theory 1, Cornell Working Papers in Linguistics* 10: 17-53.
- Krifka, Manfred. 2006. "Association with Focus." In *The Architecture of Focus*, edited by Valerie Molnar and Susanne Winkler, Berlin, New York: Mouton de Gruyter. Pp. 105-136.
- Kroch, Anthony. 1974. The Semantics of Scope in English. Doctoral dissertation, MIT.

- Kuno, Susumu. 1978. *Danwa-no Bunpoo (Grammar of Discourse.)* Tokyo: Taishuukan-shoten.
- Kuwabara, Kazuki. 1998. "Overt Wh-movement and Scope-fixing Scrambling: A Preliminary Study." In *Report (2) Researching and Verifying an Advanced Theory of Human Language*, edited by Kazuko Inoue, Kanda University of International Studies. Pp 115-127.
- Labov, William, and Teresa Labov. 1978. "Learning the Syntax of Questions." In *Recent Advances in the Psychology of Language: Formal and Experimental Approaches*, edited by Robin N. Campbell and Philip T. Smith, New York, Plenum Press.
- Ladusaw, William. 1979. *Polarity Sensitivity as Inherent Scope Relations*. Doctoral dissertation, University of Texas, Austin.
- Laka, Itziar. 1989. "Constraint on Sentence Negation." In *Functional Heads and Clause Structure, MIT Working Paper of Linguistics 10*.
- Lasnik, Howard. 1995. "Case and Expletive Revisited." *Linguistic Inquiry* 26: 615-633.
- Larson, Richard K. 1988. "On the Double Object Construction." *Linguistic Inquiry* 19: 335-391.
- Larson, Richard K. 1991. "The Projection of DP and DegP." Ms. Stony Brook University.
- Larson, Richard K. 2004. "Sentence-final Adverbs and "Scope"." *The proceedings of NELS 34*.
- Lin, Jo Wang. 1992. "The Syntax of Zenmeyang 'how' and Weisheme "why" in Mandarin Chinese." *Journal of East Asian Linguistics* 1: 293-331.
- Linebarger, Marcia A. 1980. *The Grammar of Negative Polarity*. Doctoral dissertation, MIT.
- Linebarger, Marcia A. 1987. "Negative Polarity and Grammatical Representation." *Linguistics and Philosophy* 10:325-287.
- Lee, Ki-Suk, and Satoshi Tomioka 2000. "LF Blocking Effects are Topic Effects: Wh Questions in Japanese and Korean." Ms., University of Delaware.
- Lewis, David. 1975. "Adverbs of Quantification." In *Formal Semantics*, edited by Edward Keenan. Cambridge: Cambridge University Press.

- Ludlow, Peter. 1994. "Conditionals, Events, and Unbound Pronouns." *Lingua e stile* 29: 165-183.
- Mackie, J.L. 1980. *The Cement of the Universe: A Study of Causation*. Oxford: The Clarendon Press.
- May, Robert. 1977. *The Grammar of Quantification*. Doctoral dissertation, MIT.
- May, Robert. 1985. *Logical Form: Its Structure and Derivation*. Cambridge, Mass.: MIT Press.
- McClowkey, James. 2002. "Resumption, Successive Cyclicity, and the Locality of Operations." In *Derivation and Explanation*, edited by Samuel Epstein and Daniel Seeley. Malden, MA: Blackwell Publishers. Pp 184-226.
- Miyagawa, Shigeru. 1997. "On the Nature of Wh-scope." Ms., MIT.
- Nishigauchi, Taisuke. 1990. *Quantification in the Theory of Grammar*. Dordrecht: Kluwer Academic Publishers.
- Parsons, Terence. 1990. *Events in the Semantics of English: A Study in Subatomic Semantics*. Cambridge, Mass.: MIT Press.
- Partee, Barbara. 1991. "Topic, Focus and Quantification." In *Proceedings from SALT 1*, edited by Steven Moore and Adam Zachary Wyner. CLC Publications, Cornell University, Ithaca, N.Y.
- Partee, Barbara. 1999. "Focus, Quantification, and Semantics-Pragmatics Issues." In *Focus-Linguistic, Cognitive, and Computational Perspectives*, edited by Peter Bosch and Rob van der Sandt, Cambridge: Cambridge University Press. Pp 213-232.
- Peijnenburg, Adriana Johanna Maria. 1996. *Acting Against One's Best Judgment*. Doctoral dissertation, University of Groningen.
- Pesetsky, David, and Esther Torrego. 2004. "Tense, Case, and Syntactic Categories." In *The Syntax of Time*, edited by Jacqueline Guéron and Jacqueline Lecarme, Cambridge, Mass.: MIT Press.
- Pietroski, Paul M. 2000. *Causing Actions*. Oxford: Oxford University Press.
- Pollock, Jean-Yves. 1989. "Verb-movement, Universal Grammar and the Structure of IP." *Linguistic Inquiry* 20: 365-424.
- Prince, Ellen F. 1981. "Toward a Taxonomy of Given-new Information." In *Radical Pragmatics*, edited by Peter Cole, New York: Academic Press. Pp 223-255.

- Progovac, Ljiljana. 1994. *Negative and Positive Polarity: A Binding Approach*. Cambridge: Cambridge University Press.
- Reinhart, Tanya. 1981. "Pragmatics and Linguistics: An Analysis of Sentence Topics." *Philosophica* 27:53-94.
- Reinhart, Tanya. 1984. *Anaphora and Semantic Interpretation*. Chicago: The University of Chicago Press.
- Richards, Norvin W. 1998. "Shortest Moves to (Anti-)Superiority." *Proceedings of WCCFL* 16: 335-350.
- Rizzi, Luigi. 1997. "The Fine Structure of the Left Periphery." In *Elements of Grammar*, edited by Liliane Haegeman, Kluwer, Dordrecht.
- Rizzi, Luigi. 1999. "On the Position "Int(errogative)" in the Left Periphery of the Clause." Ms. Università di Siena.
- Rochemont, Michael. 1986. *Focus in Generative Grammar*. Amsterdam: John Benjamins.
- Rooth, Mats. 1985. Association with Focus. Doctoral dissertation, University of Massachusetts, Amherst.
- Rooth, Mats. 1992. "A Theory of Focus Interpretation." *Natural Language Semantics* 1: 75-116.
- Rooth, Mats. 1996. "On the Interface Principles for Intonational Focus." In *Proceedings from SALT 6*, edited by Teresa Galloway and Justin Spence. CLC Publications, Cornell University, Ithaca, N.Y.
- Ross, John Robert. 1967. Constraints on Variables in Syntax. Doctoral dissertation, MIT.
- Rutherford, William E. 1970. "Some Observations Concerning Subordinate Clauses in English." *Language* 46: 97-115.
- Saito, Mamoru. 1985. Some Asymmetries in Japanese and their Theoretical Implications. Doctoral dissertation, MIT.
- Saito, Mamoru. 1994. "Additional *Wh*-effects and the Adjunction Site Theory." *Journal of East Asian Linguistics* 3: 195-240.
- Sano, Masaki. 2001. "On the Scope of Some Focus Particles and their Interaction with Causatives, Adverbs, and Subjects in Japanese." *English Linguistics* 18.1: 1-31.

- Schubert, Lenhart and Jeff Pelletier. 1987. "Problems in the Interpretation of the Logical Form of Generics, Bare Plurals, and Mass Terms." In *New Directions in Semantics*, edited by Ernest LePore. London: Academic Press. Pp387-453.
- Schubert, Lenhart and Jeff Pelletier. 1989. "Generically Speaking, or, Using Discourse Representation Theory to Interpret Generics." In *Properties, Types and Meaning. Volume II: Semantic Issues*, edited by Gennaro Chierchia, Barbara Partee, and Raymond Turner. Dordrecht: Kluwer. Pp193-268.
- Sgall, Petr, Eva Hajičová, and Jarmila Panevová. 1986. *The Meaning of the Sentence in its Semantic and Pragmatic Aspects*. Dordrecht: Reidel.
- Sohn, Keun-Won. 1994. "Adjunction to Argument, Free Ride and A Minimalist Program." *Proceedings of FAJL 1*.
- Stanely, Jason and Zoltán G. Szabó. 2000. "On Quantifier Domain Restriction." *Mind and Language* 15:219-261.
- Stump, Gregory. 1981. "The Interpretation of Frequency Adjectives." *Linguistics and Philosophy* 5: 221-256.
- Szabolcsi, Anna. 1981. "The Semantics of Topic-focus Articulation." In *Formal Methods in the Study of Language*, edited by Jan Groenendijk, Theo Janssen, and Martin Stokhof, 513-541. Amsterdam: Mathematisch Centrum.
- Taglicht, Josef. 1984. *Message and Emphasis*. London: Longman.
- Takubo, Yukinori. 1985. "On the Scope of Negation and Question in Japanese." *Papers in Japanese Linguistics* 10: 87-115.
- Tanaka, Hidekazu. 2001. "Right-Dislocation as Scrambling." *Journal of Linguistics* 37: 551-579.
- Travis, Lisa. 1984. "Parameters and Effects of Word Order Variation." Doctoral dissertation, MIT.
- Tsai, Dylan W.-T. 1999. "The Hows of *Why* and the Whys of *How*." *UCI Working Papers in Linguistics* 5: 155-184.
- Uribe-Echevarria, María. Interface Licensing Conditions on Negative Polarity Items: A Theory of Polarity and Tense Interactions. Doctoral dissertation, University of Connecticut.

- Vallduví, Enric. 1990. *The Informational Component*. Doctoral dissertation, University of Pennsylvania, Philadelphia. [Published 1992, New York: Garland.]
- Vallduví, Enric, and Maria Vilkkuna. 1998. "On Rheme and Kontrast." *Syntax and Semantics* 29: 79-108.
- van Riemsdijk, Henk, and Frans Zwarts, 1974. "Left Dislocation and the Status of Copying Rules." Ms. University of Amsterdam.
- von Stechow, Kai. 1994. *Restrictions on Quantifier Domains*. Doctoral dissertation, University of Massachusetts, Amherst.
- von Stechow, Armin. 1991. "Current Issues in the Theory of Focus." In *Semantics: An International Handbook of Contemporary Research*, edited by Arnim von Stechow and Dieter Wunderlich. Berlin: Walter de Gruyter.
- Watanabe, Akira. 1991. "Wh-in-situ, Subjacency, and Chain Formation." *MIT Occasional Papers in Linguistics* 2.
- Watanabe, Akira. 1992. "Subjacency and S-structure Movement of Wh-in-situ." *Journal of East Asian Linguistics* 1: 255-291.
- Watanabe, Akira. 2000. "Absorption: Interpretability and Feature Strength." In *Grant-in-Aid for COE Research Report 4: Researching and Verifying an Advanced Theory of Human Language: Explanation of the Human Faculty for Constructing and Computing Sentences on the Basis of Lexical Conceptual Features*, Kanda University of International Studies, Chiba.
- Williams, Edwin. 1983. "Against Small Clauses." *Linguistic Inquiry* 14: 287-308.
- Zanuttini, Raffaella. 1989. "The Structure of Negative Clauses in Romance." Ms. University of Pennsylvania.
- Zoerner, Cyril Edward. 1995. *Coordination: The Syntax of &P*. Doctoral dissertation, University of California, Irvine.