ADVERBIAL *BECAUSE*-CLAUSES AS FOCAL ELEMENTS[*]

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1. Introduction

Adverbial *because*-constructions have an interesting property that other adverbial constructions do not have. (1) and (2) are different only in the choice of the adverb.

(1)   John called Mary [**because** he visited Kyoto].

(2)   John called Mary [**when** he visited Kyoto].

While it looks as if they have same structures, they behave differently when negated. Lakoff (1970) and Linebarger (1987) observe that the negated sentence with a *because*-phrase is ambiguous.

(3)   John did**n't** call Mary [**because** he visited Kyoto].
    a. John called Mary. Its cause was not that he visited Kyoto.   (NA)
    b. John didn't call Mary. Its cause was that he visited Kyoto.   (NH)

On the first reading, which is called "negative adjunct (NA)" reading, John visited Kyoto and he called Mary, but the reason for his call was not his visit, but something else. On the second reading, which is called "negative head (NH)" reading, John visited Kyoto (and he met Mary directly), so he didn't call her. Here, *not* negates the main predicate phrase. This ambiguity is not found in negated *when*-constructions, unless some part of the *when*-phrase is focused.

(4)   John did**n't** call Mary [**when** he visited Kyoto].
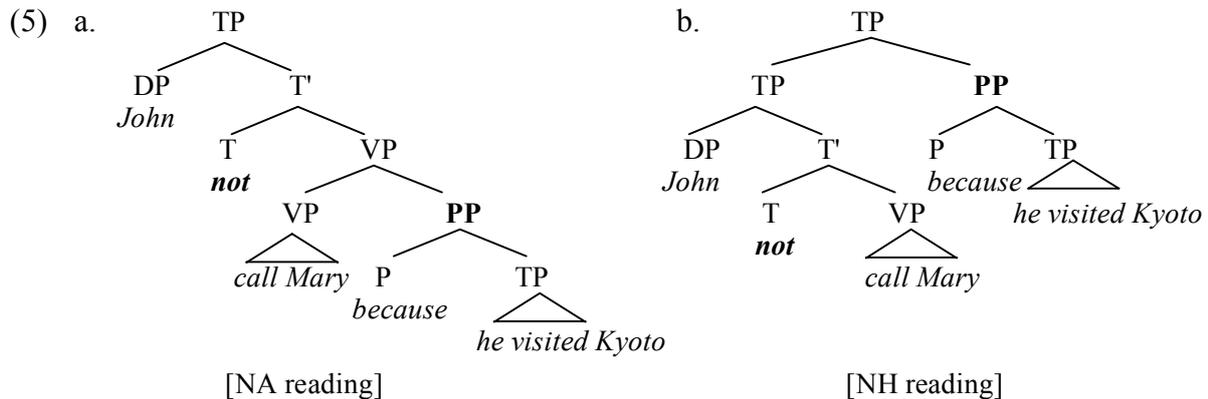   a. #John called Mary. It was not when he visited Kyoto.   (#NA)
    b. John didn't call Mary. It was when he visited Kyoto.   (NH)

The difference in (3) and (4) is puzzling if the difference between (1) and (2) is only their choice of the adverb.

Johnston (1994) proposes that the ambiguity of negated *because*-constructions arises

from two possible adjunction sites of the *because*-phrase. He argues that the *because*-phrase may adjoin to VP or TP.

(5) a.

```
            TP
          /    \
        DP      T'
       John    /  \
             T      VP
            not    /   \
                 VP      PP
                / \     /  \
          call Mary    P    TP
                   because  /\
                        he visited Kyoto
```

b.

```
              TP
            /    \
          TP       PP
         /  \     /  \
       DP    T'  P     TP
      John  / \ because he visited Kyoto
           T   VP
          not  / \
            call Mary
```

[NA reading]   [NH reading]

In (5a), the *because*-phase adjoins to VP and Johnston claims that negation takes scope over the *because*-phrase. He assumes that *because* is a logical element and if it intervenes the hierarchical relation of the negative element and the predicate, the negation must associate with the *because*-phrase, and it blocks the association of negation with the predicate. In (5b), the *because*-phrase adjoins to TP. Since *because* does not intervene between the negative element and the predicate, negation takes scope over the predicate.

This analysis, however, leaves several questions. According to Johnston, the *because*-phrase in (5a) intervenes the hierarchical relation of the negative element and the predicate, but it is not clear how to calculate the closeness in this case and why it blocks association of negation with the predicate. Secondly, Johnston claims that not only *because*-phrases, but also temporal adverbial phrases can adjoin to VP and TP. If so, we wrongly predict that negated *when*-constructions are ambiguous as well. Furthermore, this analysis does not capture the interesting correlation between the information structure and the ambiguity of negated sentences. In this paper, I examine the correlation between the information structure and the ambiguity of negated sentences, and propose an alternative focal analysis of negated *because*-constructions, arguing that *because*-phrase is inherently focused.

2.   Correlations between the Information Structure and the Ambiguity

2.1. *Because*-clauses

Rutherford (1970) and Hooper and Thompson (1973) observe that there are two distinct types of adverbial *because*-phrases: the restrictive *because*-phrase in (6) and the non-restrictive *because*-phrase in (7).

(6)   Sam is going out for dinner [because his wife is cooking Japanese food].   (restrictive)

(7)   Sam is going out for dinner, [because I just talked to Mary].   (non-restrictive)

In (6), the *because*-phrase provides the reason for Sam's actions. In contrast, the *because*-

phrase in (7) explains how the speaker came by the knowledge of Sam's actions. The reading in (7) is sometimes called "the epistemic reading" and it is distinguished from the restrictive one in (6).

Hooper and Thompson observe that the restrictive and non-restrictive *because*-phrases are different in their informational structures. The restrictive *because*-phrase in (6) expresses the main assertion of the sentence and the information in the main clause is presupposed.

(8)   Sam is going out for dinner [because his wife is cooking Japanese food].   (restrictive)
   Main assertion: because-phrase (The cause is his wife's cooking of Japanese food.)

In non-restrictive *because*-constructions, however, the main clause expresses the main assertion.

(9)   Sam is going out for dinner, [because I just talked to Mary].   (non-restrictive)
   Main assertion: main clause (Sam is going out for dinner.)

This difference between restrictive and non-restrictive *because*-phrases is clear when we check their yes-no interrogative forms. With restrictive *because*-phrases, (10) asks about the content of the *because*-phrase.

(10) Is Sam going out for dinner [because his wife is cooking Japanese food]?   (restrictive)
   Yes, that is because his wife is cooking Japanese food.
   No, that is because he found a new restaurant.

The main clause has the yes-no interrogative form syntactically, but what (10) asks is whether his wife's cooking of Japanese food is the cause of Sam's going out for dinner. 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 yes-no question in (11) asks about the content of the main clause.

(11) Is Sam going out for dinner?, [because I just talked to Mary].   (non-restrictive)
   Yes, he is going out for dinner.
   No, he is not going out for dinner.

(11) asks whether Sam goes out for dinner. The *because*-phrase now explains why the speaker asks this question about Sam. This suggests that the main clause expresses the main assertion, in contrast to the restrictive case.

Interestingly, a negated sentence becomes ambiguous when it has a restrictive *because*-phrase, but it stays unambiguous with a non-restrictive *because*-phrase.

(12) Sam is **not** going out for dinner [because his wife is cooking Japanese food]. (restrictive)
    a. Sam is going out for dinner. Its cause is not his wife's cooking of Japanese food. (NA)
    b. Sam is not going out for dinner. Its cause is his wife's cooking of Japanese food. (NH)

(13) Sam is **not** going out for dinner, [because I just talked to Mary].   (non-restrictive)
    a. #Sam is going out for dinner. Its cause is not that I just talked to Mary. (#NA)
    b. Talking to Mary, I found that Sam is not going out for dinner. (NH)

With a restrictive *because*-phrase, the negated sentence has both NA and NH readings, but with a non-restrictive *because*-phrase, it only has the NH-reading. Thus, the negated *because*-constructions are ambiguous when the *because*-phrase expresses the main assertion.

The restrictive *because*-phrase may be pre-posed as in (14).

(14) [Because his wife is cooking Japanese food], Sam is going out for dinner.   (pre-posed)

Prince (1977) observes that the information structure of pre-posed *because*-constructions is different from that of post-verbal *because*-constructions. She argues that the pre-posed *because*-phrase is presupposed and the main assertion is expressed by the main clause.

(15) [Because his wife is cooking Japanese food], Sam is going out for dinner.   (pre-posed)
    Main assertion: main clause (Sam is going out for dinner)

This fact is checked using its yes-no interrogative form. (16) asks the content of the main clause and it indicates that the main clause expresses the main assertion.

(16) [Because his wife is cooking Japanese food], is Sam going out for dinner?   (pre-posed)
    Yes, he is going out for dinner.
    No, he is not going out for dinner.

The difference between post-verbal and pre-posed *because*-constructions is clear when we check the answer of *why*-questions. In answers of *wh*-questions, the phrase which is replaced with the *wh*-element expresses the new information and it is interpreted as the main assertion of the sentence. In the answer of *why*-questions, the post-posed restrictive *because*-construction can be used (17Bi), but the pre-posed one cannot be used (17Bii).

(17) A: Why is Sam going out for dinner?
    B: i. He is going out for dinner [because his wife is cooking Japanese food]. (post-verbal)
      ii. #[Because his wife is cooking Japanese food], he is going out for dinner. (pre-posed)

The contrast in (17B) indicates that the post-verbal *because*-phrase can express the new information, while the pre-posed one cannot.

Unlike the post-verbal case, the negated sentence with a pre-posed *because*-phrase is unambiguous.

(18) [Because his wife is cooking Japanese food], Sam is **not** going out for dinner. (pre-posed)
  a.#Sam is going out for dinner. Its cause is not his wife's cooking of Japanese food. (#NA)
  b. Sam is not going out for dinner. Its cause is his wife's cooking of Japanese food. (NH)

In (18), negation cannot associate with the pre-posed *because*-phrase and it does not have the NA-reading. Thus, the pre-posed restrictive *because*-phrase is different from the post-posed one in two respects: (i) it does not express the main assertion, and (ii) negation does not make the sentence ambiguous.

2.2. Other Adverbial Phrases

The sentence with an *in-order-to* phrase has the same information structure as post-verbal restrictive *because*-clause and the content of *in-order-to* phrase expresses the main assertion.

(19) John splayed an insecticide [in order to grow tomatoes].
  Main assertion: in-order-to phrase (The purpose was growing tomatoes.)

When negated, the sentence becomes ambiguous.

(20) John did**n't** spray an insecticide [in order to grow tomatoes].
  a. John sprayed an insecticide. Its purpose was not growing tomatoes. (NA)
  b. John didn't spray an insecticide. Its purpose was growing tomatoes. (NH)

The *in-order-to* phrase expresses the main assertion of the sentence and the sentence is ambiguous when negated.

How about the constructions with a temporal adverbial phrase? Heinämäki (1978) observes that temporal adverbial phrases typically express the presupposition of the sentence and the main assertion of the sentence is the content of the main clause.

(21) Bob saw a pyramid [when he was in Egypt].
  Main assertion: main clause (Bob saw a pyramid.)

It is also known that negation does not make the sentence ambiguous, unless some part of the *when*-phrase gets some special stress.

(22) Bob didn't see a pyramid [when he was in Egypt].
  a. #Bob saw a pyramid. It was not when he was in Egypt. (#NA)
  b. Bob didn't see a pyramid. It was when he was in Egypt. (NH)

The causal phrases introduced by *since* or *after* are also presupposed, just like temporal adverbial phrases, and the main clause expresses the main assertion of the sentence.

(23) a. The room was warm [since the air condition broke down].
   Main assertion: main clause (The room was warm.)

b. The room was warm [after the air condition broke down].
Main assertion: main clause (The room was warm.)

The adverbs *since* and *after* in (23) have a causal meaning and the breaking of the air condition caused the warmness of the room. Nonetheless, the information structure is like that of temporal adverbial constructions. When those sentences are negated, the sentence stays unambiguous.

(24) The room was **not** warm [since the air condition broke down].
    a. #The room was warm. Its cause was not that the air condition broke down.   (#NA)
    b. The room was not warm. Its cause was that the air condition broke down.   (NH)

(25) The room was **not** warm [after the air condition broke down].
    a. #The room was warm. It was not after the air condition broke down.   (#NA)
    b. The room was not warm. It was after the air condition broke down.   (NH)

So far, we have seen seven different adverbial constructions. The following table summarizes the correlation between the informational structure and the ambiguity of negated sentences:

(26)

	AdvP expresses the main assertion	Ambiguous with negation
because (restrictive)	YES	YES (NA/NH)
in-order-to	YES	YES (NA/NH)
because (preposed)	NO	NO (NH)
because (non-restrictive)	NO	NO (NH)
temporal	NO	NO (NH)
causal *since*	NO	NO (NH)
causal *after*	NO	NO (NH)

(26) shows that negation may associate with the adverbial phrase when it expresses the main assertion of the sentence, but it cannot associate with the presupposed phrases.

2.3. Focal Constructions

Ambiguity is also found in the negated focal constructions (Jackendoff 1972, Jacobs 1991, Herburger 2000 and others).

(27) John did**n't** butter THE BAGEL.
    a. It was not the bagel that John buttered.   (bound)
    b. It was the bagel that John didn't butter.   (free)

In the first reading, John buttered something, but it was not the bagel. Negation associates with the focused element and thus it is called "bound" reading. In the second reading, there was something that John didn't butter and it was the bagel. This reading is called "free" reading. The focused phrase typically expresses the main assertion of the sentence and the rest of the sentence expresses the presupposition. This suggests that there is a similarity between

the restrictive *because*-constructions and the focal constructions. Both focused phrase and restrictive *because*-phrase express the main assertion of the sentence, and in the bound and NA readings, negation associates with those phrases. In the free reading and the NH-reading, negation associates with the main predicate phrase. This implies that the two readings in the negated restrictive *because*-constructions can be assimilated to the two readings of negated focal constructions. Then, why are the negated focal constructions ambiguous and how those two readings are derived? In the next section, I discuss the analysis of the negated focal constructions.

3. Negated Focal Constructions

3.1. Analysis of Focus

Davidson (1966) argues that action sentences are descriptions of events and they express event quantifications. The sentence *John buttered the bagel* is then logically represented as (28).[1]

(28) John buttered the bagel.   [Davidsonian event semantics]
   [∃e:C(e)] butter (John, the bagel, e)
   There was a contextually relevant event such that John buttered the bagel.

The event quantifier *∃e* is restricted by the context predicate C, which gets its value from the context and ensures that the sentence only refers to the events which are relevant in the context. Every other element in the sentence is interpreted in the scope of the event quantifier. Castañada (1967) and Parsons (1990) extend this event semantics and suggest 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 with the thematic roles, and the sentence *John buttered the bagel* is logically represented as (29).

(29) *John buttered the bagel.*   [neo-Davidsonian event semantics]
   [∃e:C(e)] butter (e) & Agent (e, John) & Theme (e, the bagel)
   There was a contextually relevant event which was buttering whose agent was John and whose theme was the bagel.

Herburger (2000) employs this neo-Davidsonian event semantics for the analysis of focus. Following the idea by Lewis (1975) and Partee (1991, 1998) that the phrase which expresses the old information tends to be interpreted in the restriction of some quantifier and the phrase which expresses the main assertion tends to appear in its scope, Herburger proposes that the distinction of old and new information imposes a structure on event quantification. She argues that the old information forms the restriction of the event quantifier and the new information constitutes its scope. According to her system, the focal construction *John buttered THE BAGEL* is logically represented as (30).

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[1] To simplify the analysis, I ignore tense in the logical representations.

(30) John buttered THE BAGEL.   [structured event quantification]
    [∃e:C(e) & butter (e) & Agent (e, John)] Theme (e, the bagel)
    For some contextually relevant buttering event by John, its theme was the bagel.

The non-focused element appears in the restriction of the event quantifier together with the contextual predicate variable and they restrict the event quantifier. The focused element *THE BAGEL* appears only in the scope of the event quantifier. When the focus position shifts, we get a different logical representation: the event quantifier is restricted by different elements.

(31) JOHN buttered the bagel.   [structured event quantification]
    [∃e:C(e) & butter (e) & Theme (e, the bagel)] Agent (e, John)
    For some contextually relevant buttering event of the bagel, its agent was John.

Note that two sentences in (30) and (31) have the same truth-condition, but they express different information. The logical representations in (30) and (31) successfully express this difference.

Sentences with a focused element are different from sentences without a focused element in their event structures. Then, how can we derive those logical representations from their syntactic structures? According to the Generalized Quantifier Theory (Barwise and Cooper 1981, Keenan and Stavi 1986), quantifiers in natural languages denote relations between sets. For example, in (32), 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.

(32) Some birds swim.
    ⟦some birds swim⟧ = 1   iff $\{x: \text{bird } (x)\} \cap \{x: \text{swim } (x)\} \neq \varnothing$

In this theory, the sets so-related are regarded as arguments of the quantifier and those sets play functional roles such as restriction and scope in the interpretation of quantificational expressions. Larson (1991) develops this idea by arguing that quantifiers also have their own argument structures. He proposes that the notions "restriction" and "scope" are theta-roles which are assigned to set-arguments in certain order. Parallel to Baker's (1988) thematic-hierarchy of verbal predicates in (33), Larson proposes the thematic hierarchy in (34) for quantifiers.
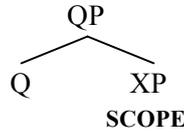
(33) $\theta_{\text{AGENT}} > \theta_{\text{THEME}} > \theta_{\text{GOAL}} > \ldots$ [thematic hierarchy of verbal predicates]

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

These thematic hierarchies decide the syntactic relation of arguments. The argument which receives a higher role in the hierarchy should be projected higher in syntactic structures. Note that these hierarchies tell us the hierarchical relations among arguments, but they do not specify the absolute positions of each argument. A certain theta-role, for example "θ_{THEME}" may be realized in the V-complement position or the VP spec position, depending on the type of the theta-assigner. If so, the scope role of one-place and two-place quantifiers may be

realized in different syntactic positions depending on the type of the quantifier. The phrases with a one-place quantifier would have the structure in (35a) and the phrase with a two-place quantifier would have the syntactic configuration in (35b):

(35) a. one-place quantifier   b. two-place quantifier
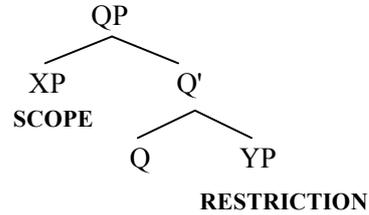

When a quantifier has only one theta-role, it would be the scope role and it is assigned to the phrase in the complement of Q. When a quantifier has two theta-roles, the restriction theta-role would be assigned to the phrase in the complement of Q and the scope theta-role would be assigned to the phrase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

    I propose that event quantifiers also have the argument structure of quantifiers and they may be one-place or two-place. When the sentence does not have any focused phrase, all elements in the sentence express new information and they are interpreted in the scope of the event quantifier. Thus, the event quantifier has only one theta-role, namely the scope role, and it is assigned to the TP in the complement of Q-head. (36c) shows how the meaning of the sentence is formed from its parts.

(36) a. John buttered the bagel.
      $[\exists e:C(e)]$ butter (e) & Agent (e, John) & Theme $(e, \text{the bagel})$
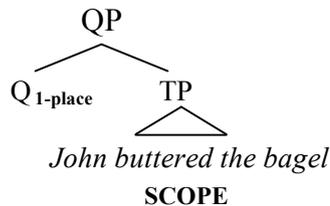
    b.   c.
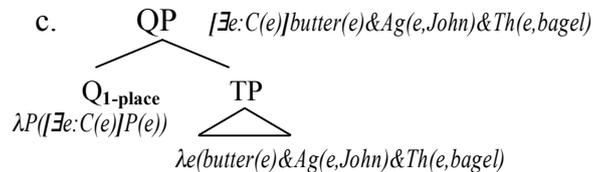
When a part of the sentence is focused, the event quantifier is restricted by unfocused elements. I propose that the event quantifier in the sentence with a focused phrase has two theta-roles and I assume that this Q-head has a feature which attracts the focused phrase to QP spec covertly. The sentence in (37a) then has the LF-structure in (37b) and the meaning of the sentence is formed as in (37c).

(37) a. John buttered THE BAGEL.
      $[\exists e:C(e)$ & butter (e) & Agent $(e, \text{John})]$ Theme $(e, \text{the bagel})$

b.

$$
\begin{array}{c}
\text{QP} \\
\diagup \quad \diagdown \\
\text{FocP} \qquad \text{Q'} \\
\textit{the bagel} \qquad \diagup \, \diagdown \\
\textbf{SCOPE} \quad \text{Q}_{2\text{-place}} \quad \text{TP} \\
\qquad \qquad \qquad \triangle \\
\qquad \qquad \textit{John buttered} \\
\qquad \qquad \textbf{RESTRICTION}
\end{array}
$$

c.

$$
\begin{array}{c}
\text{QP} \qquad \textit{[$\exists$e:C(e)\&butter(e)\&Ag(e,John)]Th(e,bagel)} \\
\diagup \qquad \diagdown \\
\lambda e(Th(e,bagel)) \qquad \text{Q'} \quad \lambda Q([\exists e:C(e)\&butter(e)\&Ag(e,John)]Q(e)) \\
\qquad \diagup \quad \diagdown \\
\text{Q}_{2\text{-place}} \qquad \text{TP} \\
\lambda P\lambda Q([\exists e:C(e)\&P(e)]Q(e)) \quad \triangle \\
\qquad \qquad \lambda e(butter(e)\&Ag(e,John))
\end{array}
$$
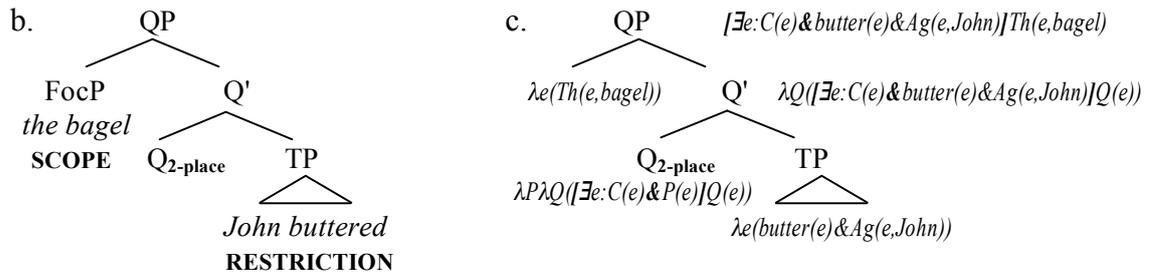
The restriction theta-role of Q is assigned to TP and the TP is mapped to the restriction of the event quantifier. The focused phrase gets the scope role in QP spec and it is mapped the scope of the event quantifier. This analysis systematically maps the LF syntactic structure to a logical representation. Using this structure, I propose an analysis of negated focal constructions in the next section.

3.2. Negated Focal Constructions

As shown before, the negated focal constructions are ambiguous with bound and free readings:

(38) John did**n't** butter THE BAGEL.
   a. It was not the bagel that John buttered.   (bound)
   b. It was the bagel that John didn't butter.   (free)

Herburger (2000) argues that these two readings are result of the scope difference of negation. On the bound reading, negation is interpreted in the scope of the event quantifier and on the free reading, it is interpreted in the restriction of the event quantifier. The two readings are logically represented as (39a) and (39b) respectively.

(39) a. **[$\exists$**e: C(e) & butter (e) & Agent (e, John)**]** ~ [Theme (e, the bagel)]   (bound)
    b. **[$\exists$**e: C(e) & ~ [butter (e) & Agent (e, John)]**]** Theme (e, the bagel)   (free)

Then how are these logical representations derived? Interestingly, Kiss (1994) observes that these two readings are distinguished syntactically in Hungarian. Without a focused element, the negative element *nem* appears in the pre-verbal position.

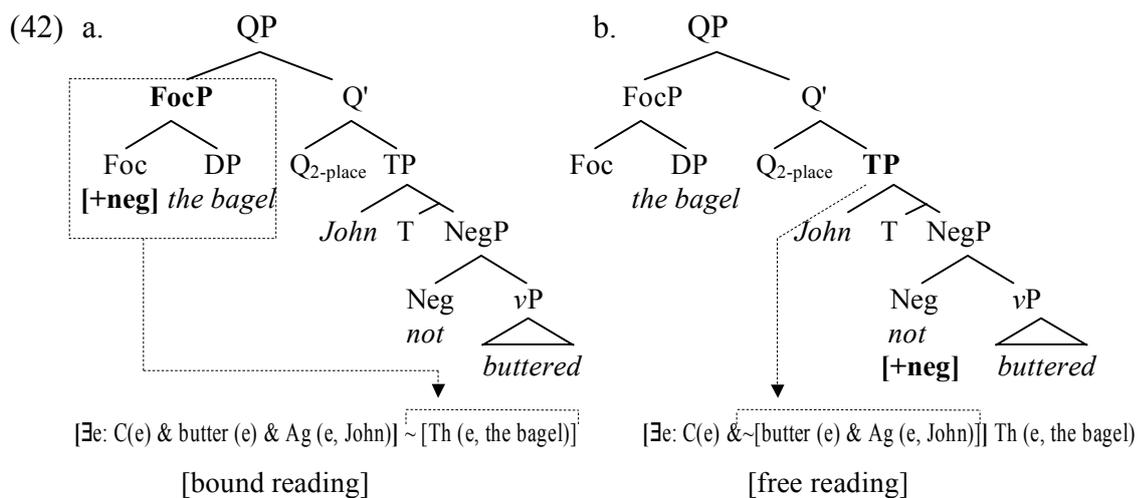(40) Mari [**nem** fözött   ebéd -et].   *Hungarian*
    Mari not coocked lunch-acc

    'Mary didn't cook lunch.'

When a part of the sentence is focused, the focused element appears in a designated position, which follows the topic phrase. In the bound reading, the negation *nem* precedes the focused phrase (41a), and in the free reading, it precedes the predicate (41b).

(41) a. Mari **nem**   EBÉDET$_i$ [fözött   t$_i$]   *Hungarian*
         Mary   not   lunch-acc   cooked

      'It was not lunch that Mary cooked.'   (bound)

     b. Mari   EBÉDET$_i$ [**nem**   fözött   t$_i$]
         Mari   lunch-acc   nom   cooked

      'It was lunch that Mary didn't cook.'   (free)

This difference in (41a) and (41b) suggests that the scope difference of negation arises from the different syntactic positions of negation.

So, I propose that 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 assume that the [+neg] feature may appear on the Foc-head or the Neg-head. If it appears on the Foc-head, the negation is mapped to the scope of the event quantifier together with the focused element, and the bound reading is derived.[2] If it appears on the Neg-head, the negation is mapped to the restriction of the event quantifier and the free reading is derived.

(42) a.

$[\exists e: C(e) \ \& \ butter(e) \ \& \ Ag(e, John)] \sim [Th(e, the \ bagel)]$

[bound reading]

$[\exists e: C(e) \ \& \sim [butter(e) \ \& \ Ag(e, John)]] \ Th(e, the \ bagel)$

[free reading]

Here, two readings arise from two possible sites of the [+neg] feature. In Einglish, the [+neg] feature does not carry the phonological form and the Neg-head is usually pronounced. However if we assume that Hungarian [+neg] feature is pronounced as *nem*, the correlation between the two forms in (41a) and (41b) and their readings is straightforwardly explained.

If the *because*-phrase behaves like a focused phrase, the ambiguity of negated *because*-constructions should be analyzed in the way parallel to the negated focal constructions. I discuss the analysis of negated *because*-construction in the next section.

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[2] In (42a), the position of the [+neg] feature is different from where negation is actually pronounced. 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 when the Neg-head is introduced to the derivation.

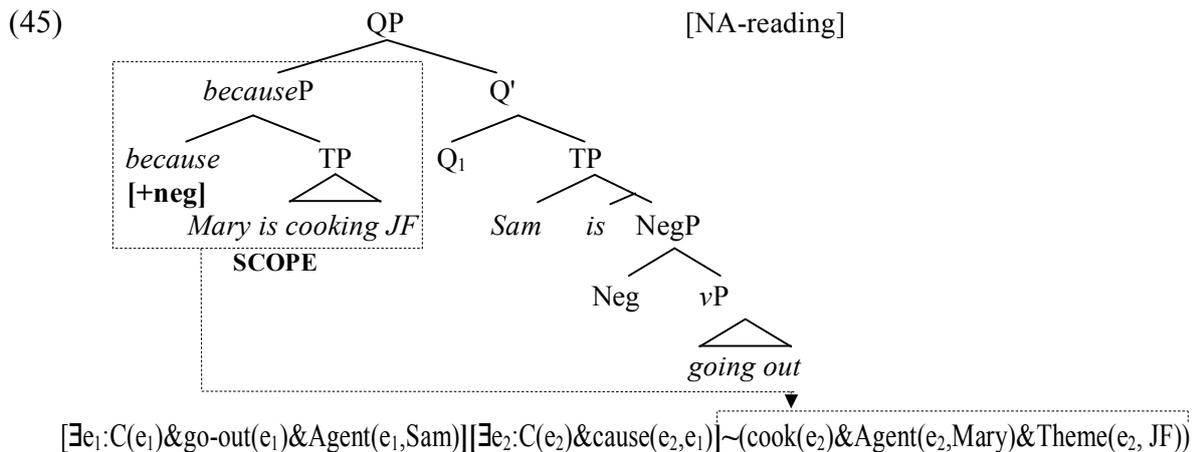## 4. Ambiguity of Negated *Because*-constructions

Recall that the restrictive *because*-phrase expresses the main assertion. Larson (2004) thus proposes that the *because*-phrase is interpreted in the scope of the event quantifier and its domain is restricted by the elements in the main clause. The simple case in (43a) is logically represented as (43b).

(43) a. Sam is going out [because Mary is cooking Japanese food].

   b. [∃e_1: C(e_1) & go-out (e_1) & Agent (e_1, Sam)][∃e_2: C(e_2) & cause (e_2, e_1)] cook (e_2) & Agent (e_2, Mary) & Theme (e_2, Japanese food)
   For some contextually relevant going out event by Sam, its cause is some cooking event of Japanese food by Mary.

Since the NA and NH readings of negated *because*-constructions correspond to the bound and free readings of negated focal constructions, two readings of negated *because*-constructions are logically represented as (44).

(44) Sam is **not** going out [because Mary is cooking Japanese food].
   a. [∃e_1: C(e_1) & go-out (e_1) & Agent (e_1, Sam)][∃e_2: C(e_2) & cause (e_2, e_1)] ~ [cook (e_2) & Agent (e_2, Mary) & Theme (e_2, Japanese food)]   (NA-reading)
   b. [∃e_1: C(e_1) & ~ [go-out (e_1) & Agent (e_1, Sam)]][∃e_2: C(e_2) & cause (e_2, e_1)] cook (e_2) & Agent (e_2, Mary) & Theme (e_2, Japanese food)   (NH-reading)

In the NA-reading, negation associates with the *because*-phrase and in the free reading, it associates with the predicate phrase. So, I propose that the [+neg] feature may appear in the *because*-head or Neg-head. If it appears on the *because*-head, the logical representation of the NA-reading is derived as in (45). If it appears on the Neg-head, the logical representation of the NH-reading is derived as in (46).

(45)   QP   [NA-reading]

   *because*P   Q'

   because   TP Q_1 TP
   [+neg]   Mary is cooking JF   Sam   is   NegP
            SCOPE
                                   Neg   *v*P
                                        going out

[∃e_1:C(e_1)&go-out(e_1)&Agent(e_1,Sam)][∃e_2:C(e_2)&cause(e_2,e_1)]~(cook(e_2)&Agent(e_2,Mary)&Theme(e_2, JF))

(46)

```
                    QP                    [NH-reading]
              ┌─────┴─────┐
          becauseP         Q'
         ┌────┴────┐    ┌───┴────┐
    because        TP   Q₁        TP
              ┌────┴──┐      ┌─────┴────┐
        Mary is cooking JF  Sam   is   NegP
                                      ┌──┴──┐
                                     Neg    vP
                                    [+neg]   │
                                          going out
                                       RESTRICTION
```

$$[\exists e_1:C(e_1)\&\sim(\text{go-out}(e_1)\&\text{Agent}(e_1,\text{Sam}))][\exists e_2:C(e_2)\&\text{cause}(e_2,e_1)]\text{cook}(e_2)\&\text{Agent}(e_2,\text{Mary})\&\text{Theme}(e_2,\text{JF})$$
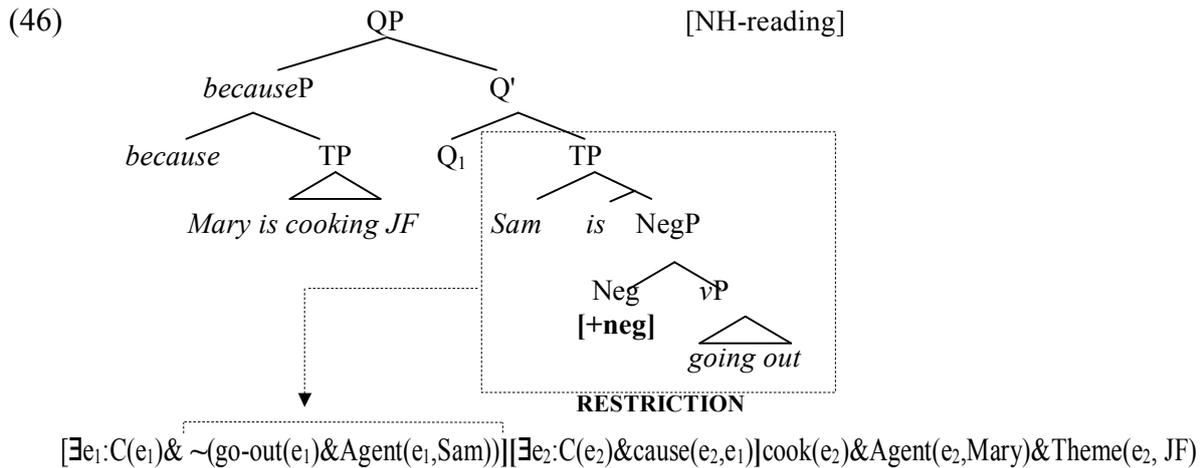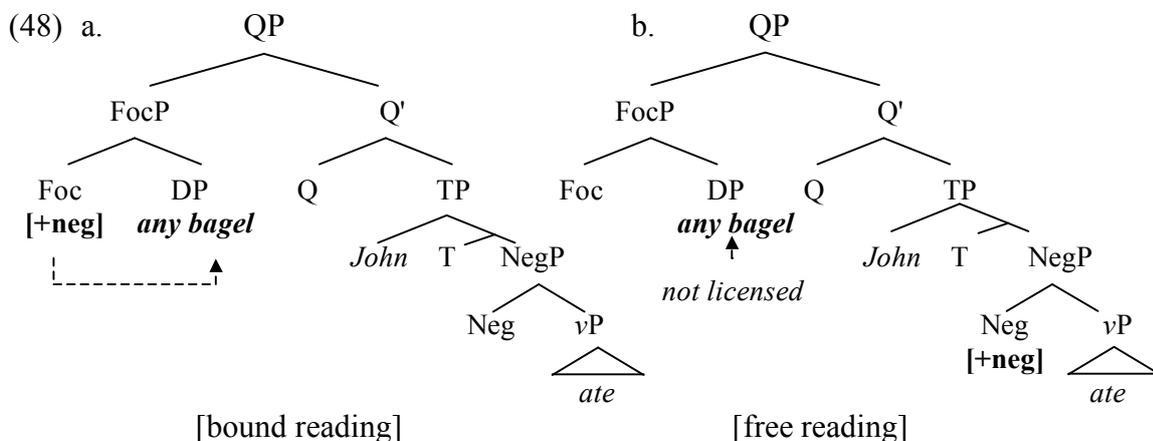
Here, just like negated focal constructions, the two possible sites of the [+neg] feature induce the ambiguity of negated restrictive *because*-constructions.

Linebarger (1980) and Uribe-Echevarria (1994) examines the correlation between scope possibilities and licensing of Negative Polarity Items (NPIs), and they argue that NPIs is licensed at LF in the scope of negation. Since the LF-position of the [+neg] feature decides the scope of negation, it is reasonable to consider that the [+neg] feature is responsible for licensing NPIs. I propose that NPIs are licensed if they are c-commanded by the head with the [+neg] feature at LF. In the bound reading, the [+neg] feature locates on the Foc-head and it would license the NPI within the focused phrase. In the free reading, the [+neg] feature locates on the Neg-head, so it would not license the NPI within the focused phrase. Then, the negated focus constructions with an NPI in the focused phrase should be unambiguous and allow only bound reading. The example in (47) shows that this is the correct prediction.

(47) John did**n't** eat **ANY BAGEL**.
    a.   It was not a bagel that John ate.   (bound)
    b. #It was a bagel that John didn't eat.   (#free)

The LF-structure of the bound and free readings are given below:

(48) a.

```
              QP                            b.            QP
         ┌────┴────┐                                 ┌────┴────┐
      FocP          Q'                             FocP          Q'
    ┌──┴──┐     ┌───┴───┐                        ┌──┴──┐     ┌───┴───┐
  Foc    DP    Q        TP                     Foc    DP    Q        TP
 [+neg] any bagel   ┌───┴───┐                       any bagel    ┌───┴───┐
   ┆_____▲     John  T   NegP                        ▲      John  T   NegP
                        ┌──┴──┐                   not licensed      ┌──┴──┐
                       Neg    vP                                   Neg    vP
                              │                                  [+neg]   │
                             ate                                         ate
         [bound reading]                              [free reading]
```

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 (48a), but not in the free reading (48b).

If the negated focal constructions and negated restrictive *because*-clauses are analyzed uniformly, we predict that the negated *because*-constructions also become unambiguous when an NPI appears within the *because*-phrase. This prediction is born out. Linebarger (1987) observes that the ambiguity in (44) disappears when an NPI appears within the *because*-phrase.

(49) Sam is **not** going out [because Mary is cooking **anything**].
    a.   Sam is going out. Its cause is not that Mary is cooking food. (NA)
    b. #Sam is not going out. Its cause is that Mary is cooking food. (#NH)

As predicted, (49) allows only NA-reading, supporting the analysis that the [+neg] feature may appear on the *because*-head.

Interestingly, when an NPI appears outside of the focused phrase, the sentence stays ambiguous. Let us look at the negated focal constructions first.

(50) John did**n'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 presupposed phrase. The availability of the bound reading may look puzzling for lack of direct c-commanding relation between the NPI and the Foc-head. Under the standard X-bar theory, however, the features of the head project up to its maximal projection and thus, the FocP should be able to inherit the [+neg] feature from its head.[3] This FocP should be able to license the TP-internal NPIs. Since the FocP c-commands an NPI in (51a), the bound reading is available, in addition to the free reading.
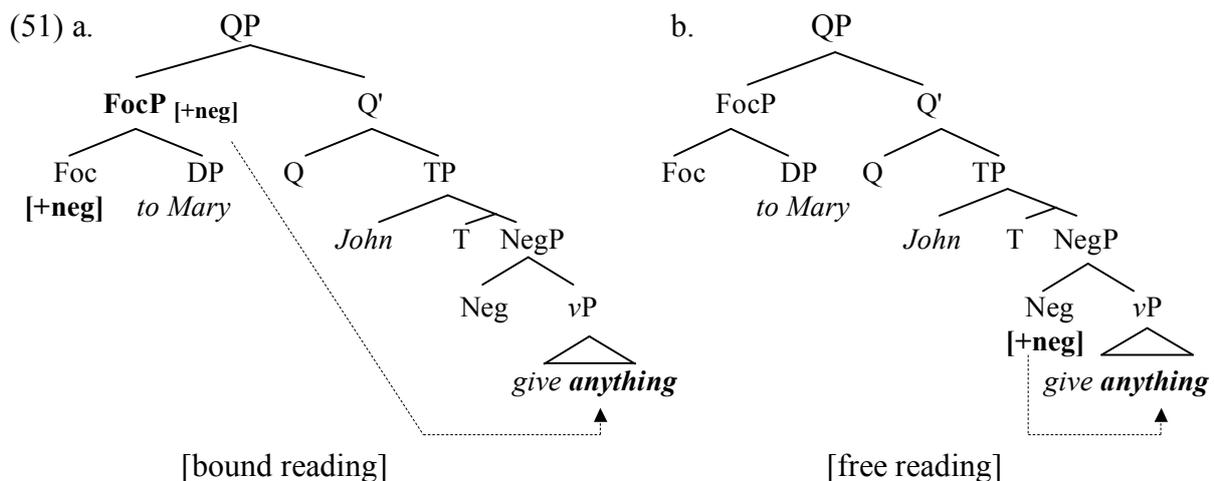
(51) a.

[bound reading]

[free reading]

Johnston (1994) observes that the ambiguity of negated restrictive *because*-constructions

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[3] Thanks to Marcel den Dikken (personal communication) for suggesting this possibility.

stays when an NPI appears outside of the *because*-phrase.

(52) Sam is **not** going to **any restaurant** [because Mary is cooking dinner].
    a. Sam is going to some restaurant. Its reason is not that Mary is cooking dinner. (NA)
    b. Sam is not going to any restaurant. Its reason is that Mary is cooking dinner.   (NH)

(52) has both NA and NH readings and it is parallel to the ambiguity we found in (50). These NPI facts support the uniform analysis of focal constructions and *because*-constructions.

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 has phonological features and it is overtly realized as *ne*.[4] In negated focal constructions, the bound and free readings are distinguished by the position of the negation. On the bound reading, *ne* appears in front of the focused element, and on the free reading, it appears in front of the predicate.

(53) a. John vstretil **ne** MARY.   (bound)   *Russian*
     John met   not Mary

     'It was not Mary that John met.'

    b. John **ne** vstretil MARY.   (free)
     John not met   Mary

     'It was Mary that John didn't meet.'

The same distribution is found in the negated *because*-constructions.

(54) a. John ušol **ne**   [potomu cto prišla Mary].   (NA)   *Russian*
     John left not   because that came Mary

     'John left. Its reason was not that Mary came.'

    b. John **ne** ušol [potomu cto   prišla   Mary]. (NH)
     John not 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*-phrase, the sentence has the NA-reading. When it appears before the main predicate, it has the NH-reading. The parallel phenomena of (53) and (54) indicate that the negated focal constructions and negated *because*-constructions should be analyzed in the same way.

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 focused element and the negated focal constructions do not have the bound

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[4] Thanks to Andrei Antonenko for Russian data.

reading.[5]

(55) Taro-wa   EDOJO-o   otozure-nak-atta.   *Japanese*
     Taro-top Edo.castle-acc visit-neg-pst

    'Taro didn't visit EDO CASTLE.'
      a. #It was not Edo castle that Taro visited.   (#bound)
      b. It was Edo castle that Taro didn't visit.   (free)

Interestingly, the same pattern is observed in Japanese negated *because*-constructions.

(56) Taro-wa [Hanako-ga   kita   kara]   deteik-anak-atta.   *Japanese*
     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)

(56) indicates that negation cannot associate with the *because*-phrase, though it may associate with the main predicate. Johnston's analysis of negated *because*-constructions cannot capture this correlation between the negated focal constructions and the negated *because*-constructions. The focal analysis, on the other hand, predicts this correlation correctly.

    Before closing this section, I would like to discuss other adverbial clauses briefly. As shown before, *in-order-to* phrases express the main assertion and the sentence is ambiguous with negation.

(57) John did**n't** spray an insecticide [in order to grow tomatoes].
      a. John sprayed an insecticide. It was not for growing tomatoes. (NA)
      b. John didn't spray an insecticide. It was for growing tomatoes. (NH)

I assume that the [+neg] feature may appear on the head of the *in-order-to* phrase or Neg-head and these options make the sentence ambiguous.

    The negated pre-posed restrictive *because*-constructions and temporal adverbial phrases are unambiguous.

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[5] Keiko Murasugi (personal communication) pointed out that the bound reading is available even in Japanese when the focused element is marked with the contrastive marker *-wa*.

(i) Taro-ga   EDOJO-**wa**   otozurenakatta.
     Taro-nom Edo.castle-*wa* visit-neg-pst

    'Taro didn't visit EDO CASTLE.'
    a.   It was not Edo castle that Taro visited.   (bound)
    b. ?? It was Edo castle that Taro didn't visit.   (??free)

(58) [Because Mary is cooking food], Sam is **not** going out for dinner.
    a. #Sam is going out for dinner. Its cause is not that Mary is cooking food.   (#NA)
    b. Sam is not going out for dinner. Its cause is that Mary is cooking food.   (NH)

(59) Bob didn't see a pyramid [when he was in Egypt].
    a. #Bob saw a pyramid. It was not when he was in Egypt.   (#NA)
    b. Bob was in Egypt. During that time, he didn't see a pyramid. (NH)

The pre-posed *because*-clause and temporal adverbial phrases do not express the main assertion and negated sentences are unambiguous. This implies that the head of the pre-posed *because*-phrase and the temporal phrase cannot host the [+neg] feature, suggesting that only phrases which express the main assertion of the sentence can host the [+neg] feature.

5.   Frequency Adverb

So far, I have argued that post-verbal restrictive *because*-phrases and *in-order-to* phrases are interpreted analogously to focal phrases. If this is on the right track, we predict that other focus sensitive elements would also associate with those phrases. It has been claimed that the frequency adverbs may associate with a focused phrase (Lewis 1975, Stump 1981, Rooth 1985 and others) and Herburger (2000) observes that the focal construction with a frequency adverb is ambiguous.

(60) John **always** e-mails Mary AT HOME.
    a. For all occasions that John e-mails Mary, he does so at home.   (bound)
    b. On all relevant occasions, John is e-mailing Mary. It happens at home. (free)

In the first reading, the frequency adverb *always* associates with a focused element and it is called "bound" reading. In the second reading, *always* does not directly associate with a focused element, rather, it associate with the main predicate. Thus it is called "free" reading.

    Independently, Johnston (1994) observes that the restrictive *because*-construction with a frequency adverb is ambiguous.[6]

(61) John **always** goes back home at eight [because Mary cooks dinner].
    a. Whenever John goes back home at eight, the 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 behaviour is that Mary cooks dinner.   (QH)

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[6] Johnston's (1994) original example is as follows:

(i)   Leopold always sold shares because he needed money.
    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)   (Johnston 1994)

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. 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.

If the restrictive *because*-phrase is regarded as a focal element, the ambiguity of (61) is correctly predicted and we can analyze the ambiguities of (60) and (61) uniformly. Herburger (2000) argues that frequency adverbs are interpreted as event quantifiers and she proposes the following logical representations for the readings in (60):

(62) John always e-mails Mary AT HOME.
  a. [Always e: C(e) & e-mail(e) & Agent (e, John) & Goal (e, Mary)] At (e, home)

  (bound)
  b. [$\exists e_1$: C(e_1) & [Always e_2: C(e_2)] e-mail (e_2) & Agent (e_2, John) & Goal (e_2, Mary)
    & contain (e_2, e_1)] At (e_1, home)   (free)

In the bound reading, the frequency adverb *always* is interpreted as a two-place event quantifier. In the free reading, it is interpreted as a one-place event quantifier which is embedded within the restriction of a higher event quantification. I suggest that the two readings in (61) can be logically represented in the same way.

(63) John always goes back home at eight [because Mary cooks dinner].
  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) & cause(e_2,e_1)] cook(e_2) & Agent(e_2,Mary) & Theme(e_2,dinner)   (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)&cause(e_3,e_1)] cook(e_3) & Agent(e_3,Mary)
    & Theme (e_3, dinner)   (QH)

(63a) says that for each event of John's going back home a eight, it is caused by the event of Mary's cooking of dinner. (63b) says that the event of Mary's cooking dinner induces serial events of John's going back home at eight. These logical representations successfully express the two readings of (61).

Since the *in-order-to* phrases express the main assertion, the *in-order-to* constructions with a frequency adverb are ambiguous, as well.

(64) John **always** goes back home at eight [in order to please Mary].
  a. Whenever John goes back home, it is for pleasing Mary.   (QA)
  b. On all relevant occasions, John goes back home at eight. He has this pattern of
    behavior to make Mary happy.   (QH)

When the adverbial phrases do not express the main assertion, the sentence should not be ambiguous and thus, the sentence with a pre-posed *because*-phrase would not be ambiguous. As predicated, (65) has only one reading, which corresponds to the QH-reading.

(65) [Because Mary cooks dinner], John **always** goes back home at eight.

'Mary cooks dinner. So, for all relevant events, John goes back home at eight.'

The temporal adverbial-phrases are typically presupposed and do not express the main assertion. Thus, we predict that the temporal constructions with a frequency adverb are also unambiguous. However, this prediction does not hold. Johnston (1994) observes that the example in (66) is ambiguous.[7]

(66) Marcia **always** writes a letter [when she is at the café].   (Johnston 1994)
      a. All the occasions that Marcia is at the café, she writes a letter.
      b. All the occasions that Marcia writes a letter, she is at the café.

This ambiguity is puzzling, but it seems those two readings are different from what we found in the focal constructions. In the first reading (66a), the adverbial phrase provides the restriction of *all* and in the second reading (66b), the main clause provides the restriction of *all*. These readings are not parallel to what we found in the focal constructions and restrictive *because*-constructions. This suggests that two readings in (66) arise from some independent property of temporal adverbial phrases.

6. Summary

In this paper, I proposed that restrictive *because*-phrases and *in-order-to* phrases are interpreted as if they are inherently focused. I argued that the negated sentences with those phrases are ambiguous in a way parallel to negated focal constructions. I also showed that other adverbial phrases which do not express the main assertion are not ambiguous with negation. This analysis captures the correlation between the informational structure of *because*-constructions and the ambiguity, and furthermore, it explains various interesting cross-linguistic phenomena, which cannot be explained by Johnston's (1994) multiple adjunction site analysis. Furthermore, I showed that the association of frequency adverb to the restrictive *because*-phrase can also be accounted for by the focal property of the *because*-phrase. This analysis leaves one interesting question: why are the restrictive *because*-phrase and the *in-order-to* phrase inherently focused, and other adverbial phrases are not? I leave this question open for further research.

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[7] Edward Wilford (personal communication) pointed out the ambiguity is more clear if we use *letters*, instead of *a letter*, though I use Johnston's original data here.

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