

Neg-Raising and Neg movement*

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9/28/16

Abstract

This paper is primarily concerned with the phenomenon known as Neg-Raising. All previous analyses of Neg-Raising fall into one of two main categories: syntactic and semantic/pragmatic. The syntactic approach derives the effect from a Neg movement operation in the syntax (Fillmore 1963) while the semantic/pragmatic approach derives the effect as an inference attributed to an excluded middle assumption associated with Neg-Raising predicates (Bartsch 1973). In this paper, a variety of known and novel data points are argued to indicate that both a Neg movement operation as well as an excluded middle are necessary to account for the full range data. It's proposed that Neg-Raising readings should be attributed to excluded middle assumptions and that the Neg movement operation is conditioned by the presence of these assumptions. The picture of Neg movement developed here will be shown to provide further insights into the syntax of negation.

1 Introduction

This paper will primarily be concerned with the phenomenon known as Neg-Raising. Neg-Raising expressions are exceptional due the availability and salience of an interpretation that corresponds to the narrow-scope of a negation below an attitude predicate. This reading is unexpected given the linear form of the expression, which corresponds to the wide-scope reading of the negation, as shown in (1).

- (1) Mary doesn't think that it will snow.
= Mary thinks that it won't snow.

This effect is observed with only a subclass of predicates that includes *think* but not, for example, *say*, as illustrated in (2).

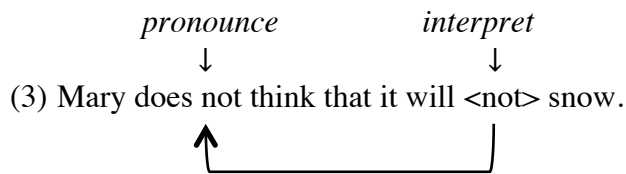
- (2) Mary didn't say that it would snow.
≠ Mary said that it wouldn't snow.

A variety of analyses have been proposed to account for the interpretation of (1), each falling into one of two general lines of approach: syntactic and semantic/pragmatic.

1.1 Syntactic analysis of Neg-Raising

The first analysis in the generative tradition was offered in Fillmore (1963), which attributes the reading to a syntactic operation that raises the negation from an embedded position where it's interpreted to the matrix position where it's pronounced.

*I'm very grateful to Irene Heim, Sabine Iatridou, Norvin Richards, Kai von Fintel and especially Danny Fox for all of their helpful comments. I'm also grateful to the audiences at MIT where some of this work was presented.



The means by which the disconnect is derived between the phonological and semantic treatment of negation will be ignored for now and taken up again in Section 3. Early support for Fillmore's approach was provided by Lakoff (1969), Ross (1973) and Prince (1976) with more recent support offered by Collins & Postal (2014).

1.2 Pragmatic analysis of Neg-Raising

An alternative approach to Neg-Raising treats the interpretation as the result of a pragmatic inference. Negation is assumed to only occupy the matrix position throughout the derivation and the interpretation is the result of an inference supported by an excluded middle (EM) assumption. Barsch (1973) proposed that Neg-Raising predicates carry an EM as a presupposition, which rules out the proposition corresponding to a wide-scope negation. The effect of the EM is observed in expressions where a predicate like *think* is negated, which supports the inference illustrated in (4). The assertion is equivalent to the negation of the first disjunct of the EM which entails the truth of the second disjunct.

- | | |
|---|-------------------|
| (4) i. $\neg \text{think}_x(p)$ | assertion |
| ii. $\text{think}_x(p) \vee \text{think}_x(\neg p)$ | EM presupposition |
| iii. $\text{think}_x(\neg p)$ | by i and ii |

The reading equivalent to the low-scope negation at LF is then derived without the negation appearing low in the structure. Some authors have argued against attributing the inference to a presupposition and propose treating it as a kind of implicature (Horn 1978, Romoli 2013). The issues discussed below will primarily bear on the distinction between the syntactic account and the family of non-syntactic accounts as a whole. However, the details of two recent non-syntactic proposals will be relevant in Section 2.2, namely the presuppositional approach of Gajewski (2007) and the scalar implicature approach of Romoli (2013). For expository reasons, the presuppositional account will be referred to here as a representative of the class of non-syntactic accounts throughout most of the paper, though no significance will be attached to this particular approach.

1.3 Aims and overview

The main aim of this paper is to demonstrate the necessity of a syntactic Neg movement operation as well as an inference in (4) supported by an EM associated with Neg-Raising predicates. It will be assumed here that Neg movement is only permitted past predicates associated with an EM. In certain contexts, Neg-Raising readings will be argued to come from a covertly low negation at LF after Neg movement, as in Fillmore's proposal. However, even in these cases it will be argued that the ability to interpret the negation low at LF is due to the presence of a higher EM. The task of explaining this dependency will not be taken up here but see Crowley (in prep a) for an analysis that attributes the

restriction on Neg movement to a blocking process motivated by considerations of pragmatic optimality.

Section 2 will work to show that there are various contexts that indicate the necessity of both Neg movement and an EM on Neg-Raising predicates. In section 2.1, two kinds of VP ellipsis—big VP ellipsis and ACD—will be argued to show that a purely syntactic approach to Neg-Raising cannot be maintained, assuming that the effect can be created by an inference of the kind in (4). In Section 2.2, both known and novel data will be argued to indicate the availability of Neg movement, focusing on the well known connection between Neg-Raising and strong NPI licensing. In Section 3, certain architectural assumptions will be set in place that allow for a detailed account of the Neg movement processes argued to arise. A puzzle will then be introduced which arises from novel VP ellipsis data whose solution will be argued to require both Neg movement and the EM assumption together. Additionally, the nature of the Neg movement operation will be discussed in this section and some additional points will be made relating to the syntax of negation in English.

2 For a combined approach to the data

2.1 Against a syntactic account: VP ellipsis

Two novel data points will be discussed in this section, the first involving an case of non-embedded big VP ellipsis and the second involving a case of embedded big VP ellipsis. Both kinds expressions will be shown to indicate that Neg-Raising cannot be a purely syntactic phenomenon.

2.1.1 Neg-Raising and big VP ellipsis

Big VP ellipsis expressions involve deletion-under-identity of a VP headed by a clause-embedding predicate, as in (5).

(5) John_{VP}[thinks that it will snow]_A and Sue also does_{VP}[~~think that it will snow~~]_E

Taking for granted that deletion requires either syntactic or semantic identity between the elided VP and a salient antecedent, we can use big VP ellipsis expressions to test for the syntactic structure of Neg-Raising expressions. As discussed, the syntactic approach to Neg-Raising attributes the reading to a covertly low negation at LF. This predicts that a big VP that is headed by a Neg-Raising predicate and contains a covert negation could not serve as an antecedent to a VP that contains no such negation. However, this is not what we find. Consider (6), where VP ellipsis is licensed despite the ellipsis site being interpreted without a negation.

(6) John doesn't think that it will snow but Sue does <think that it will snow>.

The first conjunct in (6) receives the standard Neg-Raising interpretation while still providing an appropriate antecedent to the elided VP of the second conjunct. Thus, the negation of the first conjunct must not be low at LF. The syntactic account makes another prediction in these contexts where we are expected to be able to interpret an embedded negation in an ellipsis site with a negated antecedent VP. This prediction is also not born out, as shown by the unacceptability of (7).

(7) *John doesn't think it will rain and Sue also does <think it will not rain>.

From (6) and (7) we must conclude that the Neg-Raising reading of (7) is the result of the inference process in (4) supported by an EM assumption. Before moving on, another variant of big VP ellipsis will be discussed which provides additional evidence against a purely syntactic treatment of Neg-Raising.

2.1.2 ACD, Neg-Raising and NPIs

The VP ellipsis phenomenon known as Antecedent-Contained Deletion (ACD) involves deletion of a VP in the relative clause of an object DP under identity with the larger VP containing that object. An example is shown in (8).

(8) John read a book that Mary did <read>.

The problem posed by (8) is that a VP cannot be identical to an object that properly contains it. Thus, if the object DP is contained within the matrix VP, as appears on the surface, the embedded VP does not have a parallel antecedent. May (1977) provided a popular solution, which involves raising the object DP by Quantifier Raising (QR) outside the matrix VP, creating the structure in (9).

(9) [[a book_i that Mary_{VP}[read t_i]_A]_j [John_{VP}[read t_j]_E]]

Granting that the traces in the object positions of (10) are identical enough to license ellipsis, the two VPs are appropriately parallel and ellipsis is licensed.

Turning to Neg-Raising, consider the sentence in (10), which is an instance of big ACD featuring the deletion of a negated matrix VP headed by the Neg-Raising predicate *expect*. In addition to a big ACD site, the object DP contains the NPI *a single*, which is licensed by the high negation. We will return to the details of NPI licensing in Section 2.2 but for now it will be assumed that the NPI must be within the scope of the negation at LF.

(10) John doesn't expect to pass a single_{NPI} exam that Mary does <expect to pass>.

This sentence is interpreted with the typical Neg-Raising reading however, two problems arise if we assume that the negation is below *expect* at LF. The first problem is that if negation scoped below *expect* in the LF of (10), the object DP containing the NPI would be forced to scope in the complement of the matrix VP as well. Such an LF would not allow for the deletion of the matrix VP in the relative clause given that the object DP must scope within the matrix VP to license the NPI. This would force an antecedent containment configuration, as in (11), where VP_E is a subconstituent VP_A.

(11) [John_j VP_{VP}[expect [not [a single exam_i Mary_m VP_{VP}[expect PRO_m to pass t_i]_E]_k [PRO_j pass t_k]]]_A]

In order to license both the ellipsis and the NPI, the LF for (10) must be as in (12). Here the negation takes widest scope, the object DP hosting the NPI and elided VP scopes immediately below the negation and the matrix VP scopes below the object DP and the negation.

$$(12) [\text{not } [[\text{a single exam}_i \text{ Mary}_m \text{ did}_{\text{VP}} [\text{expect PRO}_m \text{ to pass } t_i]_E]_k [\text{John}_j \text{ pass } t_k]_A]]$$

The question then is whether this LF coupled with the EM presupposition of *expect* yields the correct truth conditions for (10).¹ An important aspect of the interpretation of (10) is that it involves universal quantification. To illustrate, consider the scenario in (13) that (10) truthfully describes.

(13) John's expectations	Mary's expectations
John will fail the biology exam	Mary will pass the biology exam
John will fail the literature exam	Mary will pass the literature exam
John will fail the history exam	Mary will pass the history exam

In this scenario all of the exams that Mary expects to pass are such that John expects not to pass each of them. This aspect of the meaning does not fall out of the LF in (11). For instance, this LF would be true if we took the scenario in (13) and added that Mary expected to pass a fourth exam, say algebra, and John wasn't taking the algebra class and thus didn't have expectations about the exam. On a non-syntactic approach, using an EM presupposition and the LF in (12), the presupposition must feature universal quantification as in (14), with the negated existential interpretation of the assertion, as in (14b).

(14) *Assertion of (10):*

$$\neg \exists x. \text{exam}(x, w) \ \& \ [\forall w'. \text{expect}_{j, w}(w') \rightarrow \text{pass}(j, x, w')] \ \& \ [\forall w''. \text{expect}_{m, w}(w'') \rightarrow \text{pass}(m, x, w'')]$$

= 'It's not the case that there is a class that Mary expects to pass and John expects to pass.'

Presupposition of (10):

$$\forall x. [\text{exam}(x, w) \ \& \ \forall w'. \text{expect}_{m, w}(w') \rightarrow \text{pass}(m, x, w')] \rightarrow [[\forall w''. \text{expect}_{j, w}(w'') \rightarrow \text{pass}(j, x, w)] \vee [\forall w''. \text{expect}_{j, w}(w'') \rightarrow \neg \text{pass}(j, x, w'')]]$$

= 'For every exam that Mary expects to pass, John either expects to pass it or expects not to pass it.'

Such a universal interpretation of the presupposition has been discussed in the context of Neg-Raising by Gajewski (2007 p.310) who makes use of the proposal of presupposition

¹ There is another EM presupposition associated with the embedded *expect* in the relative clause. This won't be relevant here so it will be ignored.

projection from Heim (1983). Heim argues that presuppositions project universally through negated existentials. Gajewski discusses cases of universal projection of an EM presupposition of a Neg-Raising predicate through Negative DPs. The same process can be proposed for the case in (10), which similarly features negation scoping immediately above an existential quantifier. The presupposition and assertion of (14) together support the inference of the conditions in (15) which capture the correct interpretation of (10).

$$(15) \forall x.[\text{exam}(x,w) \ \& \ \forall w'.\text{expect}_{m,w}(w') \rightarrow \text{pass}(m, x, w')] \rightarrow \\ [\forall w''.\text{expect}_{j,w}(w'') \rightarrow \neg \text{pass}(j, x, w'')]$$

The truth conditions in (15) then require some means of deriving a universal interpretation of the quantifier binding the object variables without there being a universal quantifier present in the LF. This was assumed to be possible in this environment by universal presupposition projection of the EM through the existential object quantifier.² There is no apparent means by which the syntactic account of Neg-Raising can capture this reading. Thus, the syntactic account fails to explain the simultaneous NPI and ACD licensing in (10), which raises a more severe problem of non-identity than (6) and (7), and additionally fails to capture the interpretation of the expression. It will be taken for granted from here on that Neg-Raising readings can be derived without Neg movement however, the next section will argue that Neg movement is nonetheless evident in certain Neg-Raising contexts.

2.2 Neg-Raising and strong NPIs

The discussion in this section will be centered around a well known correlation between Neg-Raising and strong NPI licensing. Lakoff (1969) originally pointed out the contrast between (16) and (17), both featuring a strong NPI in an embedded clause. The minimal pair indicates that the strong NPI *until tomorrow* can only be interpreted as modifying the snowing event described by the embedded clause when the matrix predicate is a Neg-Raising predicate.

(16) John didn't think that it would snow until tomorrow.

(17) *John didn't say that it would snow until tomorrow.

Lakoff proposed that strong NPIs have a locality condition requiring them to be clausemates with a sentential negation. Taking Neg-Raising to be a syntactic phenomenon, the locality condition is satisfied in (16) by the cover interpretation of negation below *think* after Neg movement applies. In the case of (17) on the other hand, the Neg movement step in the derivation is blocked by the non-Neg-Raising predicate *say*. This prevents the covert low interpretation of negation at LF and thus prevents the NPI from being licensed.

² This assumption about the projection behavior of the EM in this environment is not an innocuous one however, further discussion of the issue of presupposition projection would too involved to include here. Crowley (in prep) offers a picture of NPIs that yields the universal aspect of (10)'s interpretation without requiring special assumptions about presupposition projection in this environment.

There have been recent attempts to derive the contrast without the use of Neg movement and a clausemate condition on strong NPIs. Two such explanations of the contrast will be discussed below that are associated with two non-syntactic approaches to the strong/weak distinction. The conclusion of the section will be that both accounts are insufficient for various reasons and that Lakoff's original analysis of the contrast was correct.

2.2.1 Neg-Raising, NPIs and anti-additivity

Gajewski (2005, 2007) offers a purely semantic account of the contrast in (16) and (17) that relies on two crucial assumptions relating to NPI licensing. The starting point of the proposal is the influential account of NPIs attributed to Fauconnier (1975) and Ladusaw (1979), which maintains that NPIs must be in the scope of an operator that yields downward entailing (DE) inferences.

(18) *Fauconnier/Ladusaw*: NPIs must be in the scope of a DE operator.

Downward-entailment: a function F is DE iff for all A, B in the domain of F ,
Such that $A \rightarrow B$, then $F(B) \rightarrow F(A)$.

Gajewski (2005/7) accepts that downward entailment is relevant to NPIs but re-thinks the environment that must support DE inferences. Specifically, Gajewski proposes replacing the notion of operator scope with a notion of function containment. According to Gajewski, the function that results from replacing an NPI or a constituent containing it with a variable and lambda abstracting over that variable must yield DE inferences to license the NPI. This supplementary function is shown in (19) for some constituent α of type σ contained within a constituent β , where α is either an NPI itself or contains an NPI and is replaced by a variable v .³

(19) Licensing function: $\lambda x. \llbracket \beta[\alpha/v_\sigma] \rrbracket^{g[v \rightarrow x]}$

To illustrate, consider the sentence in (20) which features the NPI *any*. The LF of this expression is shown in (21a) and the function licensing the NPI is shown in (21b). The NPI determiner *any* is replaced with a variable of the quantifier type $\langle\langle e, t \rangle, \langle\langle e, t \rangle, t \rangle\rangle$. This variable is then bound by a lambda operator to create a DE function relative to that variable, licensing the presence of *any* in that LF position.

(20) Mary didn't fail any classes.

(21) a. $[\text{not } \llbracket [\text{any classes}]_i [\text{Mary fail } t_i] \rrbracket]$

b. $\lambda x. [\text{not } \llbracket [\text{any}/v_{\langle\langle e, t \rangle, \langle\langle e, t \rangle, t \rangle\rangle} \text{dog}]_i [\text{Mary } t_i] \rrbracket \rrbracket^{g[v \rightarrow x]}$

The second key assumption for Gajewski's account of (16) and (17) relates to the more restrictive licensing conditions on strong NPIs. Following Zwarts (1998), Gajewski

³ Gajewski adds to this account a step of F(unction)-projection, in which the NPI projects a label that results in lambda abstraction of over a propositional variable that replaces a constituent containing the NPI. This serves to simplify the process of checking for DE-ness of the containing environment.

assumes that strong NPIs are licensed by a more restrictive class of DE functions that yield anti-additive (AA) inferences. Anti-additivity is defined by the following equivalence.

$$(22) \text{ Anti-additivity: } f(x \vee y) \leftrightarrow f(x) \& f(y)$$

To illustrate, we can observe that the intuitive inference judgements in (23) and (24) show *not a single student*_ to create an AA environment while *not every*_ does not.⁴

(23) Not a single person sang and not a single person danced. \rightarrow
Not a single person sang or danced. AA

(24) Not every person sang and not every person danced. \nrightarrow
Not every person sang or danced. not AA

We can see then that LFs of the form $[\neg[\exists_]]$ provide an AA environment with respect to the position _ and LFs of the form $[\neg[\forall_]]$ do not provide an AA environment with respect to the position _. The licensing of strong NPIs patterns according to the AA hypothesis, as shown by the contrast between (25) and (26) with the strong NPI *until midnight*.

(25) Not a single student arrived until midnight.
(26) *Not every student arrived until midnight.

In light of (25) and (26), Gajewski takes the licensing conditions on strong NPIs to be as stated in (27).

(27) A strong NPI α is licensed in a sentence S if there is a constituent β containing α in S such that β is AA with respect to the position of α , after applying variable replacement and lambda abstraction to β .

Gajewski shows that this condition can naturally explain the contrast in (16) and (17). With the standard assumption that attitude predicates are universal quantifiers over worlds, the expression featuring the non-Neg-Raising *say* in (17) features negation scoping over a universal quantifier.

$$(28) \llbracket \text{not} \rrbracket (\llbracket \text{claim} \rrbracket (p)(x)) = 1 \text{ iff } \neg \forall w. \text{claim}_x(w) \rightarrow p(w)$$

Such an LF was shown by the example in (26) to not provide an AA environment and thus should not license the strong NPI in the embedded clause. To confirm this, the expression fails the test for anti-additivity shown in (29).

⁴ To simplify the tests, only one direction of the AA equivalence is represented, the one that is relevant to determining AA status. The opposite direction illustrates entailment from sets to subsets, hence indicating the weaker DE status that is taken for granted to hold of these environments.

- (29) John didn't say that it would snow & John didn't say that it would rain. \rightarrow
 John didn't say that it would snow or rain.

The crucial property distinguishing (16) from (17) is that *think* in (16) is associated with an EM assumption. The inferred interpretation resulting from the EM creates an environment that supports AA inferences, as required by the strong NPI. The inferred truth conditions of negated Neg-Raising predicates are represented in (30).

$$(30) \llbracket \text{not} \rrbracket (\llbracket \text{think} \rrbracket (p)(x)) = 1 \text{ iff } \forall w. [\text{think}_x(w) \rightarrow \neg p(w)]$$

These conditions are equivalent to an LF with negation scoping over an existential, which was established to be AA in (25). That (30) provides the licensing AA environment is confirmed by the intuitive test for anti-additivity in (31).

- (31) John didn't think that it would snow & John didn't think that it would rain. \rightarrow
 John didn't think that it would snow or rain.

Gajewski thus shows that the independently supported theory of strong NPIs from Zwarts (1998) allows for an explanation of the contrast between (16) and (17) without any reference to a locality condition or a Neg movement operation. In the next section, problems that have been noted in the literature for Zwarts' anti-additivity account will be discussed along with a more recent proposal for the strong/weak NPI distinction proposed in Gajewski (2011) and Chierchia (2013).

2.2.2 *Neg-Raising, NPIs and scalar implicatures*

Gajewski (2011) and Chierchia (2013) point out a number of problems for the anti-additivity account. Though a range of data points have illustrated the inadequacies of the anti-additivity account, the sentences in (32) and (33) will suffice here. In these expressions the restrictors of the subject quantifiers provide environments that license weak NPIs, do not license strong NPIs and yet do support anti-additive inferences (left for the reader to test).

- (32) *No one who has seen Mary in years recognized her.
 (33) *Everyone who has arrived until Midnight is still here.

Given that the anti-additivity account expects these expressions to be acceptable, this must not be the correct account of strong NPIs. Collins & Postal (2014) point out a similar sentence to (32) as a counterexample to the anti-additivity account. This sentence differs from (34) in a crucial way that will be discussed further in Section 2.2.4.

Drawing on insights from Krifka (1995), von Stechow (1999) and Chierchia (2004), Gajewski (2011) and Chierchia (2013) reject anti-additivity and propose that the strong/weak distinction is tied to non-truth conditional aspects of meaning. The proposal is that while downward entailment is necessary in licensing both strong and weak NPIs, non-truth-conditional aspects of meaning (scalar implicatures, presuppositions) factor into the licensing of strong NPIs but not weak NPIs. Along with von Stechow (1999), it's

assumed that the relevant notion of entailment for weak NPIs is Strawson downward entailment, which is entailment from sets to subsets when all relevant presuppositions are assumed to be satisfied in the context. To illustrate, under the Gajewski/Chierchia account, the unacceptability of (32) is attributed to the presupposition triggered by the relative clause of the negative subject quantifier. This presupposition is an existential statement equivalent to ‘there are students who have seen Mary in weeks’. Given that strong NPIs are sensitive to presuppositions, this interferes with DE inferences in this environment and prevents the strong NPI from being licensed. Compare this to the acceptable expression in (34), which features a weak NPI *ever* being licensed in the restrictor of the negative quantifier.

(34) No one who has ever met Bill speaks badly of him.

This follows under the Gajewski/Chierchia account given that the weak NPI is licensed under Strawson downward entailment, which means the presupposition in (34) is not relevant in license the NPI.

Gajewski (2011) and Chierchia (2013) do not discuss NPI licensing in the context of Neg-Raising but Romoli (2013) argues that this theory of NPIs can explain the contrast between (16) and (17) when accepting a scalar implicature-based account of the Neg-Raising phenomenon.

2.2.3 Romoli (2013)

Romoli (2013) offers an alternative to the presuppositional approaches of Bartsch (1973) and Gajewski (2005, 2007), which treats the Neg-Raising effect as the result of a scalar implicature (SI), in the spirit of Horn (1978, 1989). This account is primarily motivated to provide a more natural explanation of the cancelability of Neg-Raising readings in certain contexts, a property that is not typical of the canonical presuppositions. However, the focus of the next two subsections will not be on Romoli’s account of this issue but will be on Romoli’s account of strong NPIs in Neg-Raising contexts.

Romoli’s account of Neg-Raising makes use of the grammatical theory of SIs proposed in Fox (2007). This account features an exhaustivity operator *Exh* that applies to propositions and their alternatives. The job of *Exh* is to affirm the input proposition and negate all ‘excludable alternatives’, i.e. those propositions which can be negated without contradicting the asserted proposition. These are formalized in (35) and (36).

$$(35) \text{Excl}(p, \text{Alt}(p)) = \{q \in \text{Alt}(p) : \lambda w. \neg q(w) \cap \neq \emptyset\}$$

$$(36) \llbracket \text{Exh} \rrbracket(\text{Alt}(p))(p)(w) = 1 \text{ iff } p(w) \ \& \ \forall q \in \text{Excl}(p, \text{Alt}(p)). \neg q(w)$$

The focus here will be on SIs observed with universal quantification. Many universal quantifiers are assumed to be associated with an existential alternative: *every/some*, *necessarily/possibly*. When an expression featuring a universal quantifier is negated, the result is an SI which implies the truth of the weaker existential statement, as illustrated in (37) with *every* and *some*.

- (37) Assertion: Not every student failed.
 SI: Some students failed.

The alternatives of the assertion in (37) are shown in (38) and the truth conditions derived from the LF featuring Exh are shown in (39).

$$(38) \text{Alt}(\llbracket \text{not every student failed the exam} \rrbracket) = \left\{ \begin{array}{l} \neg \forall x. \text{student}(x) \rightarrow \text{failed}(x, \text{the exam}) \\ \neg \exists x. \text{student}(x) \ \& \ \text{failed}(x, \text{the exam}) \end{array} \right\}$$

$$(39) \llbracket \text{Exh} \rrbracket(\llbracket \text{not every student failed the exam} \rrbracket) = 1 \text{ iff} \\ \neg \forall x. \text{student}(x) \rightarrow \text{failed}(x, \text{the exam}) \ \& \\ \neg \neg [\exists x. \text{student}(x) \ \& \ \text{failed}(x, \text{the exam})]$$

Exh yields the correct interpretation of the SI by negating the negative existential alternative, which is equivalent to the SI shown in (37).

Romoli proposes extending this picture of SIs to instances of negated attitude predicates and proposes that all such expressions yield an SI of some kind. A key distinction is made between the kinds of alternatives that Neg-Raising and non-Neg-Raising predicates are associated with. Assuming that attitude predicates are universal quantifiers, Romoli proposes that non-Neg-Raising predicates are associated with a weaker existential alternative. Taking the non-Neg-Raising predicate *be certain* as an example, this predicate associates with a weaker predicate expressing possibility according to the subject through existential quantification over worlds. The alternative set of a proposition featuring *be certain* is shown in (40).

$$(40) \text{Alt}(\text{be-certain}(p)(x)) = \left\{ \begin{array}{l} \text{be certain}(p)(x) = \forall w. \text{certain}_{x,w}(w) \rightarrow p(w) \\ \text{be-possible-for}(p)(x) = \exists w. \text{certain}_{x,w}(w) \rightarrow p(w) \end{array} \right\}$$

Taking (41) as an example, the LF of the assertion featuring *be certain* contains the Exh operator, which yields the affirmative existential SI in (41) by the same means that it yielded the existential SI for (37) with the conditions in (39).

- (41) Assertion: John is not certain that it will snow.
 SI: According to John, it is possible that it will snow.

Turning to Neg-Raising predicates, Romoli assumes these crucially differ from non-Neg-Raising predicates in that they are not associated with an existential alternative but rather an alternative equivalent to an EM. The alternatives of *think* are shown in (42).

$$(42) \text{Alt}(\text{think}(p)(x)) = \left\{ \begin{array}{l} \text{think}(p)(x) = \forall w. \text{think}_{x,w}(w) \rightarrow p(w) \\ \text{has-an-opinion-on}(p)(x) = \forall w. \text{think}_{x,w}(w) \rightarrow p(w) \vee \\ \quad \forall w. \text{think}_{x,w}(w) \rightarrow \neg p(w) \end{array} \right\}$$

Exh asserts the weaker wide-scope negation reading and negates the negative EM alternative, which creates the equivalence of an affirmative EM statement as in (43). This allows for the inference of the narrow-scope negation reading from the conjunctive truth conditions produced by Exh.

(43) John doesn't think it will snow.

$\llbracket \text{Exh} \rrbracket (\neg \forall w. \text{think}_{j,w}(w) \rightarrow \text{will-snow-in}(w)) = 1$ iff

$\neg \forall w. \text{think}_{j,w}(w) \rightarrow \text{will-snow-in}(w)$ &

$\neg \neg [\forall w. \text{think}_{j,w}(w) \rightarrow \text{will-snow-in}(w) \vee \forall w. \text{think}_{j,w}(w) \rightarrow \neg \text{will-snow-in}(w)]$

Inference: $\forall w. \text{think}_{j,w}(w) \rightarrow \neg \text{will-snow}(w)$

Romoli argues that the process in (43) has advantages over the presuppositional account developed in Gajewski (2005/7) however, the concern here is whether it fares better with the strong NPI data.

Turning to cases of (16) and (17), Romoli's account of Neg-Raising allows for use of the Gajewski/Chierchia account of strong NPIs to explain the contrast. The interpretation of (18), which includes the SI from the EM alternative of *think*, yields DE inferences, as previously established with the intuitive test for anti-additivity in (31), which indicates DENess. On the other hand, the non-Neg-Raising predicate in (17) associates with an existential alternative, according to Romoli. This alternative gives rise to an existential SI parallel to the one in (42) that blocks DE inferences for that environment and prevents the strong NPI from being licensed. This is corroborated by the intuitive DE test shown in (44), where the meaning contributed by the SI is shown in parentheses.

(44) John isn't certain that he will pass one of his exams

(and it's possible according to John that he will pass one of his exams). \nrightarrow

John isn't certain that he will pass his biology exam

(and it's possible according to John that he will pass his biology exam).

The entailment in (44) doesn't go through because it could be that the weaker antecedent statement is true—John thinks he could pass one of his exams but he's not certain that he will—while the stronger consequent statement is false—for example, John might think that it's impossible for him to pass his biology exam. Thus, Romoli's SI treatment of Neg-Raising can make use of the more successful Gajewski/Chierchia account of strong NPIs in deriving the contrast between (16) and (17) on purely semantic grounds. In the next two sections, counterexamples to the Gajewski/Chierchia approach will be discussed which will be argued to indicate that a purely semantic account of strong NPIs is not possible.

2.2.4 Collins & Postal sentence

The first key point against the Gajewski/Chierchia approach to strong NPIs comes from Collins & Postal (2014, p. 94). The sentence was not originally offered as an argument against this approach but rather as an argument against the anti-additivity account of strong NPIs. In defense of Lakoff's clausemate condition (and consequently a Neg movement operation), Collins & Postal introduced a sentence of the kind in (45) which features a strong NPI in an environment that supports AA inferences yet does not license the NPI. Compare this to the sentence in (46), which features an appropriately licensed weak NPI in the same environment.

(45) *John doesn't know a person who has seen Sue in years.

(46) John doesn't know a person who has ever met Sue.

The strong NPI appears in the relative clause of an existential quantifier phrase scoping below a sentential negation which, as shown above, supports anti-additive inferences. (45) is of a similar semantic form to (32), which was shown to be a counterexample to Zwarts' account of strong NPIs. Both expressions feature a negative element scoping over an existential quantifier, creating an AA environment. As discussed above, the Gajewski/Chierchia account can explain the unacceptability of (35) on account of the existential presupposition of the relative clause in the negative subject quantifier, which interferes with the DENess of that environment. In (45), however, there is no such presupposition or SI. DE inferences are then expected to be supported in this environment, which is the case, as illustrated with the test in (47).

(47) Mary doesn't know a person who plays an instrument. →

Mary doesn't know a person who plays the piano.

The sentence in (45) then illustrates a problem for not only the anti-additivity account, as pointed out by Collins and Postal, but for the non-truth-conditional account of strong NPIs as well. As was the original aim of Collins and Postal, the inability for the Gajewski/Chierchia approach to account for (45) provides evidence in favor a locality condition on strong NPIs. The separation of the high sentential negation and the embedded strong NPI by the relative clause boundary creates a violation of the clausemate condition. Weak NPIs on the other hand do not have this condition allowing for *ever* to be licensed in (46). In the next section, an additional problem will be shown to arise for the Gajewski/Chierchia account as applied by Romoli (2013) to the Neg-Raising data.

2.2.5 High NPI data

Lakoff (1969) discusses a contrast between the acceptable case of (16) and unacceptable sentences like (48) that feature an additional NPI in the matrix domain, in this case the weak NPI *ever*.

(48) *John didn't ever think that Bill would arrive until Tuesday.

Assuming that both *ever* and *until tomorrow* must be in the scope of the negation, the unacceptability of (50) is accounted for by Lakoff's proposal for a clausemate condition on strong NPIs along with Neg movement. If the negation is interpreted below the Neg-Raising predicate *think* to satisfy the locality requirement on *until tomorrow*, it cannot license the high NPI *ever*.

The case in (50) was not discussed in Romoli (2013) and is problematic for this and the Gajewski/Chierchia proposal.⁵ Assuming that the negation only appears high at LF, Gajewski/Chierchia would expect that the strong NPI is not licensed because of some non-truth-conditional element of the meaning that interferes with the DENess of the environment. However, the only difference between the bad (48) and the good (16) is the presence of the high weak NPI *ever*. This item is not expected to trigger any non-truth-conditional propositions that could interfere with the DENess of the expression.

- (49) John didn't ever think that Bill would visit Europe. →
John didn't ever think that Bill would visit Portugal.

On Romoli's account, the EM is a scalar alternative and the resulting SI factors into the DE requirement on the strong NPI in accordance with Gajewski/Chierchia and the licensing inference holds, making (48) a problem for Romoli (2013) + Gajewski/Chierchia. Alternatively, we might assume that the EM is a presupposition while still maintaining Gajewski/Chierchia. In this case, the Gajewski/Chierchia account could be used to explain the unacceptability of (48) given that in (49) there is no SI and the EM presupposition is relevant when determining downward entailment for the strong NPI. The entailment would not go through given that the strong NPI requires straight downward entailment. The inference in (49) would only go through on strawson downward entailment if EM is a presupposition. However, on this presuppositional treatment of EM + Gajewski/Chierchia treatment of strong NPIs, the Neg-Raising environments which license strong NPIs would not be straight DE as required (only Strawson DE), given that the EM presupposition would not be factored into the licensing of strong NPIs. This means that the unacceptability of (16) couldn't be accounted for.

On another line of approach, we might assume that the problem in (50) is connected to well known intervention effects involved with NPI licensing. In a number of places it has been argued that there are locality requirements on NPIs that require them to be in the immediate scope of a licenser (for a variety of different accounts see Linebarger 1981, 1987, Krifka 1995, Chierchia 2004, Guerzoni 2006). We might then suggest that *ever* in (50) is intervening in a way that prevents the strong NPI from being licensed. However, when we consider cases as in (50), we can see that strong NPIs are indeed licensed in [not [ever[_]]] environments when they are not separated by clause boundary.

⁵ Gajewski (2005) considers the multiple NPI cases and suggests that they can be accounted for without making use of a Neg movement operation. Gajewski attributes the inability to not license both NPIs in (50) to the projection behavior of the EM in the presence of *ever*. It's proposed that the EM presupposition of *think* projects existentially through the high NPI, yielding a statement of the form $\exists \neg _$ that does not yield anti-additive inferences. Whether or not this account can be maintained within the anti-additivity account, the examples offered by Gajewski (2011) were shown to dismiss the relevance of anti-additivity with strong NPIs.

(50) Bill doesn't ever arrive until 5pm.

Together (48) and (50) suggest that Lakoff was correct in positing a clausemate condition on strong NPIs. However, not only does this account fair better than the inference-based accounts of Zwarts and Gajewski/Chierchia in light of these cases but (48) and (50) show that no inference-based accounts can explain the contrast. There is no difference in the nature of the inferences supported in (48) and (50), which means that the contrast must be due to a syntactic condition on strong NPIs, which will be taken here to be a locality requirement.

Though a clausemate condition on strong NPIs and a Neg movement operation are assumed here after Lakoff (1969), the conclusion of Section 2.1 was that a purely syntactic account of Neg-Raising, as endorsed by Lakoff, must not be correct. In fact, an additional argument against the syntactic account can be found in a close variant of (48). Consider the acceptable expression in (51), which receives a Neg-Raising interpretation and is minimally different from (48) in that it features only the high NPI.

(51) John didn't ever think that Bill would visit Europe.

If the high NPI *ever* is only licensed in the scope of the negation at LF, then the Neg-Raising reading of (51) cannot be derived from a low negation. The syntactic account would assume LF₁ in (52) for (53) but the NPI can only be licensed in a structure like LF₂ in (52).

(52) LF₁: *John [ever [think [not [Bill would visit Europe]]]]
LF₂: John [not [ever [think [Bill would visit Europe]]]]

In addition to not licensing the high NPI, LF₁ does not yield the correct interpretation, which can be paraphrased as in (53).

(53) John always thought that Bill wouldn't visit Europe.

Assuming that *ever* is an existential quantifier, the LF₁ would yield truth conditions that are too weak, featuring an existential scoping over negation when they should feature a universal scoping over negation. This interpretation can be derived with LF₂ along with an EM presupposition and a view of presupposition projection, as discussed in section 2.1.2 to derive the interpretation of (10). Assuming again that the presupposition projects universally through the existential *ever*, we can derive the correct interpretation for (51) in the way illustrated in (54), assuming the appropriate domain restriction on universal quantification over intervals.

(54) Presupposition:

$\forall t$. John thought at t that Bill would visit Europe \vee

John thought at t that Bill would not visit Europe

Assertion:

$\neg \exists t$. John thought at t that Bill would visit Europe.

Inference:

$\forall t$. John thought at t that Bill would not visit Europe .

To all previous accounts of Neg-Raising, the cases in (48) and (50) appear contradictory, where (48) supports the syntactic approach and (50) supports a non-syntactic approach. However, these sentences together support precisely the stance taken here, which accepts both (a) a locality condition on strong NPIs coupled with a Neg movement operation and (b) a non-syntactic means of creating the Neg-Raising effect. In the next section, a new data point will be introduced that further supports this combined approach to the Neg-Raising data.

2.2.6 VP ellipsis with strong NPIs

Using VP ellipsis again as a diagnostic for LF structure, we can design a test for the syntactic position of the negation in Neg-Raising expressions featuring a strong NPI. With (6) it was shown that a purely syntactic account of Neg-Raising is not possible given that a low-scope negation at LF would block the ellipsis that is licensed. If we make the minimal change to (6) of adding a strong NPI in embedded clause of the antecedent VP, then we can test for whether or not the negation must be low at LF to license the strong NPI. If there is a clausemate condition on strong NPIs, then the negation would necessarily be situated low to satisfy the condition and ellipsis would be prevented. A key requirement in designing the test is that the featured NPI permits the phenomenon known as Vehicle Change (VC). This is illustrated in (55) where a VP is deleted that contains an item semantically equivalent to the existential NPI *any* in the antecedent VP but is not an NPI itself.

(55) John didn't take any classes but Sue did <take some classes>.

In creating the test sentence, we must use a strong NPI that can do VC and *in years* is such an expression, as shown in (56). The interpretation of the elided temporal adverb semantically equivalent to *in years* is an equivalent vague non-NPI expression represented below as *in recent years*.

(56) John hasn't been to Boston in years but Sue has <been to Boston in recent years>.

The test sentence will involve a negated antecedent VP headed by a Neg-Raising predicate that contains the embedded strong NPI *in years* and is predicted by the current proposal to be unacceptable. The sentence in (57) is such an expression, showing that the prediction of the proposal made here is born out.

(57) ??Mary doesn't think that John has been to Boston in years but Sue does <think that John has been to Boston in recent years>.

The infelicity of (57) will be taken here to indicate a forced low scope of the negation in the embedded clause to license the strong NPI. Taken together, (6) and (57) corroborate the stance taken here in which there is both a non-syntactic means of deriving the Neg-Raising readings as well as a clausemate condition on strong NPIs with Neg movement available in the syntax. Given that weak NPIs are assumed to not carry the clausemate condition, substituting the strong NPI in (58) with a weak NPI that can be used in VC is expected to result in an acceptable expressions. This seems to be the case, as illustrated by (58), which features the weak NPI *ever*.

(58) Mary doesn't think that John has ever been to Boston but Sue does <think that John has been to Boston>.

The contrast between (57) and (58) support a view of the strong/weak distinction along the lines argued for by Lakoff. However, this view does not rule out the possibility that the semantic properties of the environment containing NPIs is not relevant to their licensing. Before discussing this point a bit further, the main arguments in the literature against a clausemate condition on strong NPIs will be examined.

2.2.8 Arguments against a clausemate condition

In this section, two data points will be discussed that have been offered in the literature against a clausemate condition on strong NPIs. The first point will be argued to not be problematic and the second will be argued to provide evidence in favor of a clausemate condition.

2.2.8.2 A case of undergeneration

Gajewski (2005, p. 45) argues that sentences like (59) featuring the negation of the predicate *allow* indicate cases of undergeneration for the clausemate condition on strong NPIs.

(59) An applicant is not allowed to have left in at least three years.

The predicate *allowed* is standardly treated as an existential quantifier over worlds. In the case of (59), if the negation were low in the LF to license the strong NPI, we would have a meaning like 'an applicant is allowed not to have left in at least three years'. Gajewski says that a reviewer points out that this sentence gets bad when *at least three* is gone, which is marked by Gajewski with a single question mark.

(60) ?An applicant is not allowed to have left in years.

Gajewski's explanation of the badness of (60) is that it is due to *in years* being vague and informal and thus not appropriate in the context which is describing a formal rule. However, *at least three years* is equally inappropriate for this kind of statement.

Such a rule should state the minimal time frame that an applicant is not allowed to have left within in an exact sense, without acknowledging that this is a lower bound as with *in at least three years*. For example the phrases *in three years*, or *in the past three years* would be appropriate for stating the rule. When we test these two possible ways of stating the same rule, the first case is bad and the second is acceptable.

(61) ??An applicant is not allowed to have left in three years.

(62) An applicant is not allowed to have left in the past three years.

The reason why (61) is bad must be because *in three years* it is a strong NPI and has a clausemate condition that is not satisfied. The reason why (62) is good is because *in the past three years* is not an NPI. When we create an example of the same form using the strong NPI phrase *until Tuesday*, the sentence is clearly bad on the embedded reading of the NPI in which *until Tuesday* is describing the leaving event of the embedded clause.

(63) *An applicant is not allowed to leave until Tuesday.

These expressions with *allowed* thus pattern with all other cases featuring non-Neg-Raising predicates in not licensing embedded strong NPI and will not be considered problematic for a clausemate condition on strong NPIs.

2.2.8.1 Neg DPs and strong NPIs

One of the key points in the literature against a clausemate condition on strong NPIs involves sentences like (64), pointed out by Horn (1978). These are taken to be acceptable in the literature and are claimed to have the reading paraphrased in (64).

(64) No one thinks that John arrived until Tuesday.

= ‘Everyone thinks that John didn’t arrive until Tuesday.’

Neg DPs like *no one* are typically assumed to be composed of a negation and existential quantifier. Evidence for this comes from cases where readings are available that indicate a split between the negative component of the DP and a low scoping existential component (see Larson, Den Dikken, and Ludlow 1996, Potts 2000, Iatridou & Sichel 2011). Consider the example in (65), which has two possible readings corresponding to two different scope positions of an existential component of the Neg DP relative to the negation and the universal *need*.

(65) No one needs to attend the party for it to be fun.

Reading (a): ‘There is no one such that they need to attend the party for it to be fun.’ $\neg > \exists > \square$

Reading (b): ‘It’s not necessary that anyone attend the party for it to be fun.’ $\neg > \square > \exists$

Assuming that the person throwing the party can have fun all by themselves (and it still qualifies as a party), the availability of Reading (b) indicates that the Neg DP must be composed of a negation and a lower existential that can have split scope positions with

the modal taking intermediate scope. This rules out the possibility of treating Neg DPs as being composed of a universal quantifier above a negation which would yield an equivalent interpretation in cases where there was no other operator. The $\neg\exists$ treatment of Neg DPs would make (64) problematic for a clausemate condition on strong NPIs given that the Neg DP cannot as a whole be interpreted in the embedded clause and the negative component cannot scope under the quantificational component. However, judgements on (64) were collected for this paper that indicated that the sentence is not acceptable, with all judgements expressing that the meaning of the sentence is unintelligible. If this judgement is correct, then this expressions is not only not problematic for a clausemate condition on strong NPIs but is rather an argument in favor of a clausemate condition. The environment in (64) containing *until Tuesday* supports straight (non-Strawson) DE inferences, with no interfering non-truth-conditional factors, as well as AA inferences, as the LF is of the form $[\neg[\exists[_]]]$. Given that both non-syntactic accounts of strong NPIs discussed above cannot explain the unacceptability (64), this will be attributed here to a violation of the locality condition on *until Tuesday*. However, Neg DPs are known to be able to support a Neg-Raising readings, as indicated by (66).

- (66) No one thinks that John will visit.
 = ‘everyone thinks that John won’t visit.’

Assuming that neither the negative component nor the whole Neg DP can scope in the embedded clause, (66) requires a non-syntactic way of deriving the reading that corresponds to such an LF. Thus, (64) and (66) together provide another pair in support of the stance proposed here in which there is, on the one hand, a non-syntactic means of deriving the Neg-Raising reading and, on the other hand, a clausemate condition + Neg movement operation in the syntactic domain.

2.2.9 Collins & Postal (2014)

Collins & Postal (2014) discuss a collection of new data points offered against non-syntactic approaches to Neg-Raising. This data won’t be discussed here however, in light of the cases in (6), (7), (10), (51) and (66) discussed above, a purely syntactic account of the data is assumed not to be tenable. The task of accounting for the cases discussed by Collins and Postal in a way that is consistent with the combined approach to the data taken here will be left for future work.

2.2.7 A partial picture of strong NPIs

The discussion so far has lead to a partial treatment of strong NPIs, which were argued to carry a clausemate condition as proposed in Lakoff (1969). However, there is clear evidence that locality cannot be the only condition on strong NPIs. Consider the contrast between (67) and (68).

- (67) Not a single student arrived until Tuesday.
 (68) *Not every student arrived until Tuesday.

As discussed in Gajewski (2005), these cases disprove a purely syntactic account of strong NPIs given that there is no syntactic difference between the two expressions yet there is a contrast in their ability to license the strong NPI *until Tuesday*. The difference must then be due to the violation of a semantic condition, presumably relating to the monotonicity properties of the environment. The Gajewski/Chierchia proposal can explain the contrast given that (68) carries a scalar implicature created from the negation of the universal determiner that blocks DE inferences. With (67) there is no interfering implicature. This suggests that there is both a downward entailment requirement sensitive to scalar implicatures as well as a locality requirement between the licensing operator and the strong NPI. Though the insights of Lakoff (1969) and the Gajewski/Chierchia approach are not incompatible, accepting them together entails a peculiar picture in which this class of items is licensed only if two separate conditions on the semantic and syntactic properties of the containing expression are simultaneously satisfied. This issue is taken up in Crowley (in prep a) in which the locality effect observed with strong NPIs is derived as result of how the monotonicity requirement on NPIs is enforced.

2.2.10 Neg-Raising is a semantic/pragmatic phenomenon

Above, three pairs of minimal pairs were shown to support the assumption that there is an EM associated with Neg-Raising predicates as well as a Neg movement operation: <(6), (57)>, <(48), (51)>, <(64), (66)>. Each pair was shown to feature an expression that requires a non-syntactic means of deriving the Neg-Raising reading and an expression that requires a Neg movement operation to license strong NPIs. For both purely syntactic and purely non-syntactic approaches to the data, each pair appears contradictory. Only the combined approach suggested above can reconcile the contrasts however, this does not mean that the availability of Neg-Raising readings should be attributed both syntactic and semantic factors.

The combined approach is mysterious in that Neg movement patterns exactly with predicates that carry an EM presupposition. Accepting these two features then calls for an account that connects them in a way that captures this distribution. As a starting point, the generalization in (69) will be assumed here, which qualifies the connection as a condition on Neg movement.

(69) *Neg movement generalization*: Neg movement only applies past predicates associated with an Excluded Middle.

Given that, according to this generalization, Neg movement is dependent on the presence of an EM, the availability of the Neg-Raising reading is directly tied to the presupposition, even when negation is assumed to be low. In the Neg-Raising expressions with strong NPIs that were argued above to feature a covertly low negation at LF, the low scope reading of negation below the attitude predicate is directly determined from the LF. However, in light of (69), even though the interpretation is not the result of an inference supported by the EM, the EM still licenses the Neg movement step that allows for the pronunciation of the negation high despite being low at LF.

This task of explaining the unexpected dependency in (69) will be discussed separately in Crowley (in prep a), where an account will be offered that derives the

generalization from a more widely observable pragmatic blocking process. Next, the details of the syntactic derivations involving Neg movement will be laid out.

3 The syntax of Neg movement

In the first part of this section, some architectural assumptions will be set in place, the key assumption being the Copy Theory of Movement. This will be shown to provide a simple means of deriving the covert low scope of negation needed to explain the acceptability of embedded strong NPIs in Neg-Raising contexts. A novel ellipsis puzzle will then be introduced that will be tied to the Neg-Raising phenomenon. A solution to the puzzle will be offered using the assumptions of Section 2 and the syntactic assumptions established for the strong NPI cases. The picture of Neg movement developed below will be argued to provide further insights into the syntax of negation as well as the nature of movement more generally.

3.2 Copy Theory and covert movement

3.2.1 Copy Theory

The Copy Theory of Movement maintains that an application of the movement operation results in a lexical element being fully represented in multiple positions (Chomsky 1993). Chomsky points to cases of subject reconstruction like (70) as evidence for this, where an interaction between the indefinite subject quantifier *a New Yorker* and the intensional predicate *likely* results in semantic ambiguity.

(70) A New Yorker is likely to win the lottery. $\exists > \text{likely}, \text{likely} > \exists$

On one reading, a particular New Yorker is believed to be likely to win the lottery, which corresponds to the wide scope of the existential over the intensional quantifier *likely*. On the other reading, it is expected that whoever wins the lottery will probably be from New York, which corresponds to the narrow scope of the existential under the intensional operator.

With Copy Theory we can derive the ambiguity from an optionality that arises at the semantic interface regarding the interpretation of the subject chain. Assuming that only one link can be interpreted, there are two options. On one option, the higher copy in the overt subject position is interpreted, giving it wide scope over *likely* and on the other option, the lower copy in the embedded subject position is interpreted, giving it narrow scope under *likely* (Chomsky 1993, Hornstein 1995). The alternative copy that is not interpreted at LF is deleted.⁶ This results in two possible $\langle \text{PF}, \text{LF} \rangle$ pairs that can be derived from a common narrow syntax containing the subject chain. These are shown in (71), with the wide-scope indefinite interpretation derived from (71a) and the low-scope indefinite interpretation derived from (71b).

⁶ Fox (2002) points out that it is necessary to assume, along with a copy deletion rule, an additional chain interpretation rule at the LF interface in cases of object quantifier chains. This rule, called Trace Conversion, converts in situ object quantifier copies to definite descriptions containing a bound variable, which is necessary for type integration of that link with transitive verbs.

(71) (a) PF: [A New Yorker_i [is likely [~~A New Yorker~~_i...]]]]
 LF: [A New Yorker_i [is likely [~~A New Yorker~~_i...]]]]

(b) PF: [A New Yorker_i [is likely [~~A New Yorker~~_i...]]]]
 LF: [~~A New Yorker~~_i [is likely [A New Yorker_i...]]]]

This picture simplifies the syntax by deriving the ambiguity from independently motivated factors, thus getting rid of the scope-shifting operation Quantifier Lowering. This operation was previously assumed to create the inverse-scope reading by reinstating a raised subject quantifier into a previously occupied position (May 1977). Additional theoretical advantages to the Copy Theoretic view of reconstruction effects have been noted in the syntax (see for example Chomsky 1993, 1995, Fox 1999).

This picture of interface optionality has been argued to have applications to a range of other data with the addition of another architectural assumption, relating to the ordering of operations in the course of a derivation. A number of authors have argued that instances of scopal ambiguity associated with covert movement can be analyzed in a similar way to (71b). In these cases a covert movement operation, e.g. QR, is assumed to apply before spell-out to the phonology rather than after, as in the Y-model of Chomsky & Lasnik (1977). The resulting narrow syntactic structure contains a quantificational DP chain that is interpreted by both the PF and LF components. The phonology of English is then required to interpret the lower copy whereas the semantics can interpret either (Brody 1995, Bobaljik 1995, Pesetsky 1998, Bobaljik 2002). On this model of the grammar, sometimes called the single-output model, the covert/overt distinction is seen as a difference in chain interpretation instructions at the PF interface. We will see now how copies in a single-output model along with Neg movement can derive the Neg-Raising expressions featuring embedded strong NPIs.

3.2.2 Creating and interpreting Neg chains

A similar picture to the subject reconstruction process illustrated in (71b) will be assumed for case of (16), restated as (72), which was argued in Section 2.2 to require Neg movement.

(72) John didn't think it would snow until tomorrow.

This expression is taken to be derived from a narrow syntactic structure of the form in (73) containing a Neg chain created by applying Neg movement past a Neg-Raising verb.

(73) [...[Neg_i ...[V [Neg_i...]]]]

Assuming that the phonological and semantic components are each presented with an option of deleting one or the other Neg copies, the structure in (73) yields the four <PF, LF> pairs shown (74).⁷

⁷ This brings up a question of why EPP movement and Neg movement are treated differently at PF in English. This question won't be addressed here.

- (74) (a) PF: [...[Neg_i...[V [Neg_i...]]]] (b) PF: [...[Neg_i...[V [Neg_i...]]]]
 LF: [...[Neg_i...[V [Neg_i...]]]] LF: [...[Neg_i...[V [Neg_i...]]]]
- (c) PF: [...[Neg_i...[V [Neg_i...]]]] (d) PF: [...[Neg_i...[V [Neg_i...]]]]
 LF: [...[Neg_i...[V [Neg_i...]]]] LF: [...[Neg_i...[V [Neg_i...]]]]

The expression in (71) is taken here to be of the form in (74c), which allows for covert satisfaction of the locality condition on the strong NPI while allowing the negation to be pronounced high. In the next section, it will be argued that the other pair in (74) featuring a covert positioning of negation, *viz.* (73d), is attested in English.

3.2.3 *Imparallel VP ellipsis*

This section will discuss a novel VP ellipsis puzzle. The simplest examples of the phenomenon, referred to here as *Imparallel VP Ellipsis (IVPE)*, involve instances of big VP ellipsis like (75) and (76), which are judged by a majority of speakers to be acceptable. An obligatory feature of these expressions is that they have prosodic accenting as indicated with CAPS.

- (75) MARY is planning NOT to attend the lecture but JOHN IS <planning to attend the lecture>.
 (76) BILL expects NOT to pass the exam but SUE DOES <expect to pass the exam>.

The problem with these expressions is that on the surface there is a clear lack of identity between the antecedent and the elided VPs, where a negation is pronounced in the antecedent VP that is not interpreted in the ellipsis site. All accounts of the licensing conditions on ellipsis require strict identity between the antecedent and elided VPs and thus predict that ellipsis should not be possible in the contexts of (75) and (76).

The imparallelism effect is not observed with all matrix predicates. Consider the expressions in (77) and (78) featuring *pretend* and *promise*, which speakers judge to be unacceptable.

- (77) ??SUE is pretending NOT to know Bill but PETER IS <pretending to know Bill>.
 (78) ??JOHN promises NOT to sing at the party but MARY DOES <promise to sing tonight>.

An observation here is that (75) and (76) feature Neg-Raising predicates while (77) and (78) feature non-Neg-Raising predicates. It will then be assumed that the IVPE effect is only observable with Neg-Raising predicates.⁸ With this generalization in place, the picture of Neg movement established in the previous section provides an analysis of (75)

⁸ Though the majority of informants find (75) and (76) to be fully acceptable, a number of informants have expressed that they find these sentences slightly marked and have a clear preference for the PF form in which the negation is pronounced in the matrix domain. We will come back to this issue however, the important fact here is that even where informants express a slight discomfort with (75) and (76), the sentences in (77) and (78) are consistently judged to be clearly worse.

and (76) that is consistent with the assumption that ellipsis requires some notion of strict identity.

The first conjunct of the expressions in (75) and (76) will be proposed to be derived from a narrow syntax of the form in (73), which yields the four pairs of the form in (74) after chain interpretation. The first conjunct of the IVPE expressions is taken to be of the form in (73d). In this <PF, LF> pair, the phonology interprets the low copy of the Neg chain and the semantics interprets the high copy. Taking (75) as an example, the resulting LF of the full expression is shown in (79). Assuming that the identity conditions on ellipsis apply either to the LF or the semantic representations, an appropriate antecedent for VP_E in the second conjunct is provided by the first conjunct, in which negation is covertly situated outside VP_A.

(79) LF: Mary_F is [not_F VP[planning ~~not~~_F to attend the lecture]_A] but
 John_F is [Aff_F VP[~~planning to attend the lecture~~]_E]

With the negation interpreted in the matrix domain of the first conjunct at LF, the inference illustrated in (4) supported by the EM of *plan* creates the Neg-Raising reading of that clause, contributing to the illusion that the negation is low at LF. As for the obligatory accenting, this property also follows from the imparallel interpretation of the Neg chain by the phonological and semantic components. It will be assumed here that accenting indicates F-marking in the syntax that is licensed when a proposition containing the F-marked element has a salient antecedent that is a member of that expression's focus semantic value, as in Rooth (1992). Additionally, it's assumed here that there is a covert affirmative element in the second conjunct that contrasts with *not* (Chomsky 1957, Laka 1990).⁹ It will be left to the reader to see how these assumptions along with the structure in (79) appropriately derive the accenting in (75).

Given that the IVPE effect necessarily involves Neg movement, it won't be observable in environments like (77) and (78) where Neg movement is prevented from applying past non-Neg-Raising predicates. If this is the correct analysis of the IVPE effect, then these expressions indicate environments where the processes of both Neg movement and an inference of the kind in (4) allowed by an EM presupposition occur in a single derivation.

3.2.4 Linear distance paradigm with IVPE

The examples of the IVPE phenomenon discussed above all involve instances where the complement of the matrix verb is a non-finite clause. However, we are assuming that Neg movement can raise a Neg out of both non-finite and finite clauses, given that the

⁹ Assuming the theory of focus semantics in Rooth (1992) for this context is not arbitrary. This is motivated by the fact that a problem arises in the primary alternative to Rooth's account in the literature offered in Schwartzchild (1999). Schwartzchild proposes that the relevant relation between an antecedent and the F-marked expression is one of semantic entailment rather than set membership, as in Rooth (1992). The problem for Schwartzchild's account involves licensing the kind of accenting on *not* and *is* found in (75). Licensing accenting like this under a relation of semantic entailment yields a tautological relation that trivially licenses focus in all expressions where F-marking is found on these items. See Krifka (2004) for a brief discussion of this problem.

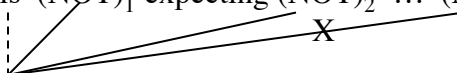
instances where strong NPIs are licensed in contexts with finite compliments. We would then expect that the IVPE effect be possible in these kinds of expressions however, this doesn't appear to be the case. For example, the expression in (80) is reported to be marginal.

- (80) ??JOHN thinks that Bill is NOT going to the party but MARY DOES <think that Bill is going to the party>.

It will be proposed here that the data point in (80) is part of a larger paradigm observable with IVPE expressions. This effect will be tied to the linear distance between the PF positions occupied by the items *not* in the antecedent clause and *is* in the ellipsis clause associated by contrastive accenting. The paradigm is illustrated by the cases in (81)-(85)

- (81) John is NOT expecting to pass the exam but SUE IS <expecting to pass the exam>.
 (82) John is expecting NOT to pass the exam but SUE IS <expecting to pass the exam>.
 (83) (?)John is expecting to NOT pass the exam but SUE IS <expecting to pass the exam>.
 (84) ?(?)John is expecting Bill NOT to pass the exam but SUE IS <expecting Bill to pass the exam>
 (85) ??/*John is expecting for Bill to NOT have passed the exam but SUE IS <expecting for Bill to have passed the exam>.

This paradigm appears to show that the more phonological material is placed in between the surface positions corresponding to the two accented items, the more marked the expression is. It will be assumed here that when two items are associated by accenting, speakers prefer those items to appear in parallel positions in the surface form. However, a certain degree of imparalelism must be tolerated by all speakers of English. The affirmative counterpart to sentential negation assumed to exist in English is not phonologically realized. The F-marking of this item is assumed to be phonologically realized on the local progressive auxiliary *is*. This means that, even when the negation is pronounced in the matrix domain, it is not parallel to the accented *is* given that there is a correlate auxiliary alongside the negation in the first conjunct. The diagram in (86) illustrates the paradigm.

- (86) John is (NOT)₁ expecting (NOT)₂ ... (NOT)₃ pass the exam but

 Sue IS <expected to pass the exam>.

The IVPE data indicates that the large majority of speakers accept positions 1 and 2 for *not* in (85) and thus tolerate a certain degree of imparallelism more than the minimum necessary.¹⁰

3.2.5 *Connecting the data*

A benefit of this treatment of the strong NPI and IVPE expressions is that the two problematic phenomena can be derived from the same assumptions. For instance, we could imagine another means of deriving the covertly high scope of negation in the IVPE expression by positing a covert high negative operator that is associated with a phonological exponent realized as *not*. This is proposed in Zeijlstra (2004) in a treatment of the negative concord phenomenon. In Zeijlstra's account, the relationship between the silent operator and the morphological exponent is one of syntactic agreement. The same process could be used to derive the IVPE effect however, we would lose the explanation of the strong NPI cases. These cases would require developing a new process involving a different syntactic relation holding between the phonological exponent and the negative operator in an inverse configuration.

The proposed analyses of the two problematic expressions are essentially the same analysis. Assuming that optionality in chain interpretation arises at both interfaces when interpreting a Neg chain, then the two expressions are predicted to derive from a narrow syntax with a Neg chain. In the next section, questions about the nature of Neg movement will be discussed.

3.3 On the syntax of negation

Positing a kind of movement raises two connected questions: (a) what are the mechanism involved with that movement? and (b) why is that movement available in the system? This section will be concerned with trying to answer these two questions with respect to Neg movement.

3.3.1 *How does Neg movement happen?*

First, we'll consider the question of what syntactic mechanisms are involved with Neg movement. A common stance in the literature is that there are two types of movement. One is feature-driven movement, which is motivated by the needs of a higher functional head. That head carries an uninterpretable feature that can be checked by merging the appropriate item to its specifier position. To do this, the head can search downwards in the structure to find and attract the object with the desired feature to its specifier position (Chomsky 2000, 2001). Examples of this are EPP movement and Wh-movement. The other kind of movement is carried out by scope-shifting operations, which place a scope-taking operator in a different c-command position for semantic purposes. The standard case of this is QR which raises QPs to a higher c-command position, merging them to t-type nodes and integrating them via lambda abstraction (May 1977, Heim & Kratzer 1998). In structures featuring object quantifier phrases, QR is obligatory and in all other

¹⁰ This paradigm could explain why some speakers have a clear preference for *not* to appear in the initial position in (83) and find IVPE expressions to be slightly degraded while finding the expressions with Neg-Raising expression clearly unacceptable. These speakers would be taken to have a stronger preference for parallelism between the accented items than speakers who accepted negation in both the initial and the second position of (83).

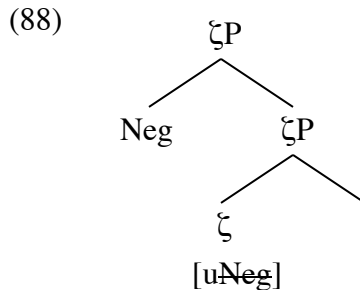
cases, it is assumed to be optional. Fox (2000) proposes that QR it is restricted by an economy constraint, called Scope Economy, informally stated in (87).

- (87) Scope Economy: scope-shifting operations cannot be semantically vacuous.
(Fox 2000, p. 3)

This constraint has the effect of blocking unnecessary instances of QR based on whether or not a given application yields an effect on the resulting truth conditions.¹¹

Accepting that there are only these two kinds of movement, the question now is which category does Neg movement belong to. It was established above that negation can only raise past predicates that carry an EM presupposition. This entails that Neg movement only applies in cases where it has no effect on the interpretation of the expression, given that the the high-Neg LF created by Neg movement is equivalent to the low-Neg LF. This distribution of Neg movement is then the opposite of what is predicted if it were constrained by Scope Economy. We should then conclude that Neg movement must not be semantically motivated. Even if scope-shifting operations were not constrained by something like Scope Economy, Neg movement still could not be viewed as semantically motivated given that it should at least have a semantic effect in some of the environments where it applies, if not in all of them.

Alternatively, if we think of Neg movement as feature-driven movement, its distribution is not problematic (though still mysterious). It will then be assumed that Neg is associated with a head, called here ζ , which has an uninterpretable $u\text{Neg}$ feature that is checked by placing a Neg in the [Spec ζP] position.¹² The structure of the layer created by Neg movement to the matrix domain is represented in (88).



¹¹ This result is formally achieved by positing an apparatus active in the syntactic domain that determines whether or not a given application of QR (or QL) is licensed by checking for a relation of non-commutativity between the target QP and another scope operator in the structure. Commutativity is defined as an equivalence between two functions such that the order in which the two functions apply has no effect on the output. The definition of commutativity between two QP arguments of a transitive predicate is shown in (1).

(1) $\langle \text{QP}_1, \text{QP}_2 \rangle$ are scopally commutative iff for every $\phi \in D_{\langle e, e, t \rangle}$,
 $\llbracket \text{QP}_1 \rrbracket (\lambda x. \llbracket \text{QP}_2 \rrbracket (\lambda y. \phi(x)(y))) = \llbracket \text{QP}_2 \rrbracket (\lambda y. \llbracket \text{QP}_1 \rrbracket (\lambda x. \phi(x)(y)))$

Under Scope Economy, QR is assumed to only be licensed if the target QP is moved past a scope operator that is non-commutative with that QP.

¹² Collins & Postal (2014) similarly propose that Neg movement is feature-driven.

Under this conception of Neg movement, it's viewed as a possible solution to a problem in the derivation created by introducing the functional head into the structure. The other possibility is to create the structure in (88) by selecting a Neg from the numeration and directly merge it into the [Spec ζ P] position. This option will be discussed further in the next two sections. Assuming that Neg movement always involves the process in (87), the question then is what the purpose of this movement is beyond the narrowly construed task of satisfying the functional needs of ζ .

3.3.2 *Why is Neg movement available?*

Granting that Neg movement must be feature-driven, the question then is why is this movement available, or alternatively, would a functional head like ζ be in the lexicon? Assuming that no functional elements exist solely for the sake of having their features checked, we would expect that the movement is available for the sake of creating some desirable effect in the phonological or semantic output.

We've already established that Neg movement is always semantically vacuous, which rules out interpretation as a possible motivation. We should then consider whether Neg movement could be motivated for phonological reasons. However, Neg movement in the cases discussed above creates no unique phonological effect. If it did, the effect would be observable in cases of overt movement, which in a single-output grammar is the result of the PF component interpreting the higher copy of a chain. However, even in the cases where the higher copy of a Neg chain is pronounced—cases of the kind in (74a) and (74c)—the Neg movement step is still in a sense covert. The landing site of the raised Neg in these expressions is between the auxiliary and matrix verb which is also a position in which a Neg can presumably be base-generated. This follows from the fact that we can pronounce and interpret the negation high in environments where Neg movement is assumed not to be possible, i.e. when the matrix predicate is non-Neg-Raising. A kind of overt movement would only be phonologically motivated if it created PFs that were unattainable without it. For example, in cases of object fronting an object is raised in to a high position where it gets linearized sentence-initially. The object cannot be base-generated in the high position given that it must first be merged into a theta position to satisfy the Theta Criterion (Chomsky 1981). Thus, object-fronting movement is necessary to create the output PF that has information-structural value. Given that all PFs resulting from Neg movement are attainable without applying that step, we must assume that Neg movement is not phonologically motivated.¹³

If the motivation for Neg movement is not semantic or phonological then what can it be? It was established in the previous section that where Neg movement is apparent, it's serving to resolve a functional problem in the derivation, *viz.* the existence of an uninterpretable feature in the structure. It will be proposed here that this is the sole purpose of Neg movement. Once ζ is merged into the structure, the syntax has two

¹³ The data set considered here is small. It may be that there are other cases of overt Neg movement where it does create PFs that are otherwise unattainable. If there are such cases maybe a phonological motivation could be found for Neg movement, creating some effect useful for communication. The assumption then would be that, although the availability of Neg movement is phonologically motivated, it is not necessary that all applications of Neg movement must have an effect on the phonology.

options for checking its uNeg feature; it can either select a Neg from the numeration or it can select a Neg that was previously integrated into the structure. Assuming that neither of these two options is more costly than the other, both are equally available.¹⁴ On this view, it is not necessary for Neg movement to ever create any uniquely observable effects on the phonological or semantic outputs. It exists solely as a solution to a mechanical problem in the narrow syntactic domain. The question that this account then faces is: why does ζ exist in the lexicon? An initial hypothesis will be suggested in the next section.

The existence of a movement operation that is both phonologically and semantically vacuous contradicts proposals that have been made relating to how considerations of economy affect movement. One such constraint has already been discussed, *viz.* Scope Economy of Fox (2000). Fox further suggests, building on insights of Chomsky (1995) and Krifka (1998), that Scope Economy is a component of an overarching economy principle governing all optional movement, including overt movement. This is referred to as Output Economy and is stated in (89).

(89) Output Economy: optional operations must affect the output.

Fox (2000, p.75)

If the data discussed here is correctly analyzed as involving Neg movement, then these sentences provide counterexamples to a constraint like in (89) given that the Neg movement is phonologically and semantically ineffectual in all cases. Although the Scope Economy theory was developed to constrain what were introduced above as ‘optional scope-shifting operations’, under the Copy Theory picture of movement the constraint would not distinguish between optional movement that was feature-driven and non-feature-driven, as discussed in Fox (2000, p. 75, footnote 64). All movement creates chains and with them an optionality at the LF interface which determines the scope of that moved item. This means that if a constraint like (89) existed, Neg movement would be among the kinds of movement sensitive to it and thus would be a problem for such a constraint. The situation is more complicated than this when we consider how Scope/Output Economy works in light of the optionality that arises with Copy Theory. The issue requires more discussion.

3.3.3 *A uniform treatment of negation*

Assuming that negation can be raised to the specifier position of the functional head ζ , the question then is what position the Neg originates from; is negation always situated in [Spec ζ P] or does it occupies a different position when it is initially merged into the structure? The simplest scenario would be that Neg is always occupies the same position in every layer it appears. With respect to the view proposed here, this means that Neg would always occupies a [Spec ζ P] position. Below, it will be suggested that this is the correct treatment of negation for English.

Since Pollock (1989), *not* in English has been treated as the head of its own NegP projection. Pollock argues for the existense of NegP in both English and French based on movement blocking effects associated with negation in both languages. Pollock proposes

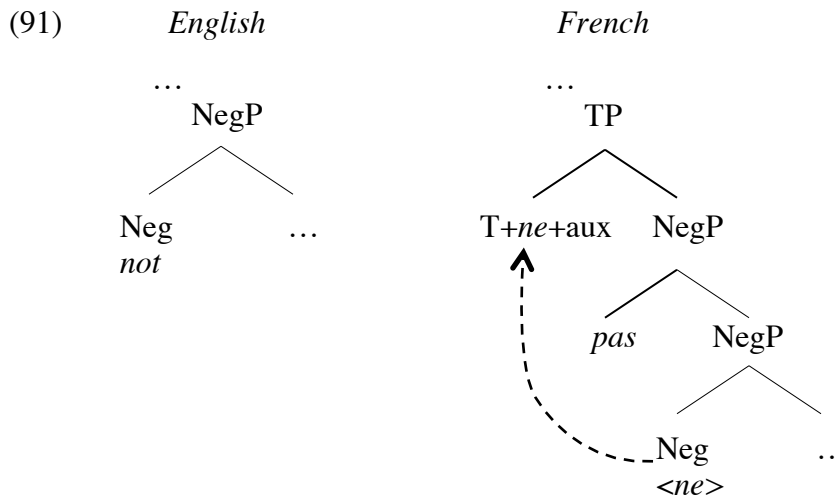
¹⁴ The cost equivalence of Merge and Move is most consistent with the assumption that movement results in a single multiply-dominated copy, rather than two distinct copies.

that the blocking should be attributed to a NegP layer which is an inherent barrier. Without discussing the relevant data here, we will consider the two different treatments of negation offered by Pollock for French and English.

Sentential negation is treated differently in French from English in that a negative clitic *ne* is pronounced before a verb that is followed by the sentential negation *pas*, as shown in (90).

- (90) Pierre n' a pas manger.
 Pierre *ne* has not eaten.
 'Pierre hasn't eaten.'

Pollock proposes that the NegP in French is headed by the clitic *ne* while the sentential negation occupies the [Spec NegP] position. The clitic *ne* is assumed to raise T, as is typical of clitics in French, creating the structure in (91b). This differs from English in which the sentential negation is assumed to project the NegP itself with no clitic head, as in (91).



Pollock's analysis of the NegP layer in French is very close to the proposed structure in (88) that results from Neg movement. It will be assumed here that negation occupies a [Spec ζP] position in both French and English in all positions that it occupies throughout a derivation. The only difference between French and English is that English lacks a morpheme like the French *ne*, which is interpreted here as the realization of the functional head ζ. However, this proposal is not original. Pollock's choice to treat Neg in English as a head was, as Pollock says, somewhat arbitrary. In fact, despite proposing that *not* is the head of NegP in English, Pollock notes in the conclusion of the paper that an analysis of negation parallel to French could be possible for English (Pollock 1989, p 421). That is, NegP in English could be headed by a null head with *not* occupying the [Spec NegP] position. This is precisely what is assumed to be the case here, the only adjustment being that sentential negation is of the category Neg in both languages and the

functional projection hosting Neg is of a different category, *viz.* ζ .¹⁵ A stronger hypothesis comes out of this analysis moving further in the direction of uniformity which maintains that all languages treat negation as in English and French. Various arguments have been made to treat sentential negation as a head as in (91). If it is the case that the item behaving as a head is sentential negation rather than a functional element, the question then would be whether Neg movement is evident in these languages.

Returning to the question of ζ 's purpose, Pollock's motivation for the proposal of a NegP layer in English and French came from the fact that there are intervention effects associated with negation in these languages. Parallel effects were observed with clitic movement in Italian by Kayne (1987) and *wh*-intervention effects were discussed in Beck (1996). This data won't be discussed here but these effects offer a hypothesis for the role of ζ in the computational domain. In contemporary theory, barrierhood is often interpreted as an effect of cyclical derivation (Chomsky 2000, 2001), which suggests that ζ is a cyclical head. Exploring this possibility will be left for future work.

4 Conclusion

The core proposal of this paper was that the Neg-Raising data can only be fully explained by assuming both a non-syntactic means of deriving the Neg-Raising reading (via an Excluded Middle presupposition) as well as Neg movement in the syntax. The arguments in favor of a non-syntactic source of Neg-Raising readings came from novel VP ellipsis and high NPI data. The arguments in favor of a Neg movement operation involved a revival of two key arguments from Lakoff (1969) involving strong NPIs in Neg-Raising contexts. These expressions were argued by Lakoff to indicate a clausemate condition on strong NPIs as well as a Neg movement operation, which allowed for the licensing of strong NPIs in Neg-Raising contexts. Recent non-syntactic accounts of this data were shown to be inadequate, concluding that Lakoff's proposal was at least partially correct. On this issue, the paper stopped short of a full account of the licensing conditions on strong NPIs. Crowley (in prep b) picks up where the discussion was left here to propose a means of deriving the fact that both monotonicity and locality are relevant to strong NPIs.

Despite arguing for both a non-syntactic and syntactic means of deriving the Neg-Raising effect, it was argued that the effect should be thought of as essentially a semantic/pragmatic phenomenon. This came from the generalization that the Neg movement operation only applied past predicates carrying an EM presupposition. This raises an additional issue relating to the connection between the Neg movement operation and Excluded Middle presuppositions. This question is addressed in Crowley (in prep a), which proposes that the Neg movement pattern can be derived by a blocking process motivated by considerations of pragmatic optimality.

¹⁵ If we assume that negation is always in [Spec ζ P], then we might consider whether [Spec ζ P] can be occupied by other polarity items. In (79), a covert affirmative counterpart to Neg was used to determine the accenting in the affirmative expression that contrasts with the accented negation. Laka (1990) proposes that this head is of the same category as sentential, both of which project a generic polarity projection. The intuition behind this proposal can be represented in the picture of negation proposed here by assuming that ζ has a more generic desire for [+polarity] items, that can be satisfied by merging either Neg or Aff to its specifier.

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