

Dispelling the Cloud of Unknowing

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Abstract: Collins and Postal (2014) present an argument for a syntactic analysis of Classical NEG Raising based on what they dub *Horn clauses* (first noted in Horn 1975: 238), illustrated by the italicized clause in (i):

- (i) I don't think that *ever before have the media played such a major role in a kidnapping*.

Horn (2014) rejects Collins and Postal's argument on the basis of properties of a nonfactive use of the verb *know* (and a few other similar predicates). His key discovery is that the complements of such predicates can be Horn clauses. The present study argues that Horn's rejection of the Horn clause argument in CP(2014) is not sound. We support this conclusion by providing an analysis of the new data consistent with the assumptions of CP(2014).

Keywords: Classical NEG Raising, Horn clauses, islands, Negative Inversion, negation, negative polarity items, strict NPIs, NEG deletion, non-factive *know*, *doubt*, parentheticals.

1. Background: Classical NEG Raising

Classical NEG Raising (henceforth: Classical NR) is a grammatical phenomenon traditionally defined *in the simplest cases* by the main clause presence of an overt negative element NEG interpreted as having scope in a complement clause. See Horn (1978, 2001: 5.2) and Collins and

Postal (2014) (hereafter: CP(2014)) for much background discussion and references to the relevant literature. English examples are provided in (1a-d):

- (1) a. Harriet did not seem to be agitated.
 b. Vincent is not likely to win the election.
 c. They didn't believe that Rodney would testify.
 d. I don't suppose Helen can afford a new smartphone.

Example (1a) has a reading equivalent to the claim that Harriet seemed not to be agitated, while (1b) has a reading equivalent to a claim that Vincent is likely not to win the election. Sentence (1c) has a reading equivalent to a statement that they believed that Rodney would not testify and (1d) has a reading where the speaker supposes that Helen cannot afford a new smartphone. These are the Classical NR readings.

Classical NR readings are known to depend on the choice of the main clause predicate. The following sentences corresponding to those in (1) lack the low scope readings of the high clause NEG's.

- (2) a. Harriet did not claim to be agitated.
 b. Vincent is not afraid to win the election.
 c. They didn't allege that Rodney would testify.
 d. I don't insist that Helen can afford a new smartphone.

Following CP(2014) we refer to those predicates taken in the pre-CP(2014) literature to permit Classical NR as *Classical NEG Raising Predicates* (CNRPs).

In CP(2014), Classical NR is taken to be defined by syntactic raising of a NEG from a complement clause point of origin into a containing main clause. As noted there, this is a highly controversial view; most current approaches to Classical NR take it to be a purely semantic or

pragmatic phenomenon. In these views, syntactic NEG raising plays no role whatever (see Horn (1989 [2001:308-330]), Horn and Bayer (1984), Tovená (2001), Larrivé (2004: 103-105), Gajewski (2005, 2007, 2011), Sailer (2005, 2006), Jacobson (2006), Bošković and Gajewski (2008), Homer (2010) and Romoli (2012, 2013)).

CP(2014) develops a powerful argument for a syntactic view of Classical NR based on the existence of subordinate clauses that we called *Horn clauses*. First attested in Horn (1975: 283), these are illustrated by the italicized segments of such examples as (3):

- (3) a. We don't believe *that in any sense has she met the minimal requirements*.
- b. I don't think *that any of those space aliens will we be able to catch*.
- c. I do not think *that ever before have so many space aliens visited Earth*.
- d. No one supposes *that any of those proposals will the director sign off on*.
- e. One would never have imagined *that any such people could be elected to the senate*.

The basic defining characteristics of Horn clauses are (i) the presence in the embedded clause of a left-extracted nominal NPI phrase, e.g. *in any sense* in (3a), (ii) the obligatory occurrence of subject auxiliary inversion in the embedded clause and (iii) the occurrence in the main clause of some form of negation.

In addition to the properties in (i)-(iii) above, the argument in CP(2014) hinged on a claimed restriction on Horn clauses due originally to Horn (1975: 283; 1978: 169). The claim was that Horn clauses are limited to the complements of verbs independently permitting Classical NR, that is, complements of CNRPs. However, since the appearance of CP(2014), Horn (2014) has attested a new data class illustrating Horn clauses, but ones occurring in the complements of *non*-CNRP predicates. These include in particular a nonfactive use of the verb

know, which Horn calls *know-NF*, a terminology we adopt. An example of the type at issue is given in (4):

(4) I don't know that ever before had the Army commander been in charge of the Naval forces.

(www.americancivilwarforum.com)

We agree that the complement here as in other cases Horn cites are Horn clauses. Based on this newly noticed data, Horn constructs a critique of the Horn clause argument developed in CP(2014) for a syntactic view of Classical NR. We will call the argument he advances on this basis the *anti-Horn clause argument*, hereafter, *Anti-HC*.

Since the data Horn uncovered were unknown to the authors of CP(2014), anti-HC was of course not treated in CP(2014). The present study seeks to show that contra Anti-HC, the important facts documented in Horn(2014) fail to undermine CP(2014)'s Horn clause argument for a syntactic conception of Classical NR. We argue this by indicating how a viable Classical NR analysis of the newer data can be provided within the overall syntactic view developed in CP(2014).

2. The CP(2014) Treatment of Classical NR

The examples in (1a-d) illustrate the most straightforward type of Classical NR. Following previous syntactic treatments, CP(2014) assumed that in such examples a NEG has (optionally) raised from the complement clause of a CNRP and appears overtly in the post-Aux position of the immediately higher main clause. It was equally assumed there that Classical NR could take as input NEG's in various different complement clause positions, subject to certain syntactic constraints. The most important syntactic constraint is that the original position of the raised

NEG in the complement clause can not be separated from its main clause position by an island boundary.

Since Classical NR is taken in CP(2014) to be a syntactic raising phenomenon, that is, one of the same order as the various raisings in *wh* question clauses, relative clauses, topicalizations, etc., it follows that Classical NR should obey basic island constraints on syntactic raising. A great deal of evidence that this is the case was presented in CP(2014), especially chapters 11 and 12.

An island constraint was taken to account for such facts as (5d) given that, as illustrated in (5b), clauses with complement internal topicalization are islands:

- (5) a. When did Ted believe [that Marjorie had visited her mother <when>]?
b. *When did Ted believe [that her mother, Marjorie had visited <when>]?
c. Ted did not (= NEG₁) believe [that Marjorie had visited her mother [<NEG₁> in years]].
d. *Ted did not (= NEG₁) believe that her mother, Marjorie had visited [<NEG₁> in years]].

In (5c,d) and hereafter, following CP(2014), the notation <X> is utilized to represent covert occurrences of the syntactic constituent X. Hence <NEG₁> in (5c,d) represents the lower, unpronounced occurrences of NEG₁.

In (5c,d), NEG₁ starts out in the structure [NEG in years], which CP(2014) call a *unary* NEG structure. These are distinguished from *binary* NEG structures, which originate with two NEGs in representations of the form: [NEG₁[NEG₂ X]]. Binary NEG structures are not relevant to this work. While NEG₁ raises in both (5c,d), the island created by the topic *her mother* in (5d) renders the result ungrammatical.

The fact that the Classical NR phenomenon is subject to island constraints is a powerful argument for its syntactic nature. Existing nonsyntactic approaches to Classical NR, including that in Horn (2014), generally do not provide an account of this property (although see Romoli 2013).

3. The CP(2014) Classical NR Analysis of Horn Clauses

3.1. Basics

In this section we briefly sketch the treatment of Horn clauses within the syntactic view of Classical NR found in CP(2014). Consider Horn's (1975: 238) original Horn clause example (6a):

- (6) a. I don't think that ever before have the media played such a major role in a kidnapping.
 b. I think that never before have the media played such a major role in a kidnapping.

For CP(2014), the analysis of (6a) is closely related to that of its paraphrase (6b), which uncontroversially instantiates the *Negative Inversion* construction. More precisely, the key assumption about Horn clauses in CP(2014) is (7):

- (7) Horn clauses are Negative Inversion clauses.

(7) yields an analysis of (6a) like (8a), taken to represent the common underlying syntactic form of both (6a, b). We suppress from our representations the irrelevant phrase *in a kidnapping*. We assume that phrases like *ever before* contain a null quantifier SOME (and have the interpretation 'at some point of time in the past'):

- (8) a. I think that the media have [NEG₁ SOME ever before] played such a major role.
 b. I think that [NEG₁ SOME ever before] have the media played such a major role.
 c. I do NEG₁ think that [<NEG₁> SOME ever before] have the media played such a major role.

Structure (8b) represents the claim that both (6a, b) exist as a function of Negative Inversion. By positing a covert NEG internal to the fronted NPI phrase in (6a), the requirements of Negative Inversion are satisfied. That covert negative occurrence then represents the same NEG having an overt occurrence in the main clause, as illustrated in (8c). This is possible because the main verb *think*, a CNRP, permits Classical NR. The negative analysis of the NPI in a Horn clause is only possible because CP(2014) analyzes NPIs in general as NEG-containing phrases, a position argued for at length in that work.

In these terms, the difference between (6a, b) is that only in the former, as represented in (8c), does NEG₁ raise to the matrix clause. Since (6a) is then analyzed as involving Classical NR as well as Negative Inversion, the supposed fact that Horn clauses are limited to complements of CNRPs was taken to follow from the assumption that only CNRPs permit Classical NR.

CP(2014: chapter 14) contains much discussion of the grammatical conditions under which Negative Inversion can occur. A highly simplified version of the condition proposed there is as follows:

(9) The Negative Inversion Condition

The fronted constituent (NI Focus) in a Negative Inversion clause is either syntactically negative or denotes a decreasing function.

In example (6b), *never* is both negative and decreasing. In (6a), *ever before* can meet the NI Condition only under the CP(2014) assumption that it is a unary NEG structure: [<NEG> SOME ever before].

In other views of nominal NPIs, they are taken to be existential or indefinite expressions, hence increasing constituents. The fact that they can be extracted under Negative Inversion is

then anomalous. Associating the relevant NPIs with a single NEG, rendering them decreasing negative expressions, dissolves this anomaly.

3.2. Independent Evidence that Horn Clauses Are Negative Inversion Clauses

CP(2014, chapters 13 and 14) provides much independent evidence that the subject-aux inversion found in Horn clauses is an instance of Negative Inversion. We will not replicate that material here, but rather offer a new argument. This stands on the fact that the epistemic modal *might* is incompatible with uncontroversial instances of Negative Inversion and equally bars the formation of Horn clauses.

The examples in (10) show that *might* is incompatible with Negative Inversion.

- (10)
- a. She might never again see her friends.
 - b. *Never again might she finish her thesis.
 - c. Vera might rent none of her cottages.
 - d. *None of her cottages might Vera rent.

The examples in (11) show that a similar constraint holds of Horn clauses, which are incompatible with the presence of *might*. (11a,c) are acceptable control sentences without *might*.

- (11)
- a. I don't think that ever again will she see her friends.
 - b. *I don't think that ever again might she see her friends.
 - c. I don't believe that any of her cottages did Vera actually rent.
 - d. *I don't believe that any of her cottages might Vera rent.

Because we take NPIs like *ever again* in (11a) and *any of her cottages* in (11c) to have the same negative structures as respectively *never again* in (10b) and *none of her cottages* in (10d), the constraint in (10b,d) carries over to (11b,d) without special statement. But in any other treatment

of Horn clauses we can conceive of, such correlations are inexplicable accidents.

The argument from *might* may be even stronger than at first appears. Probably (10b, d) are bad because of a more general fact that *might* cannot be under the scope of a local NEG:

(12) She might not finish her thesis. (scope: might > NEG; *NEG > might)

As discussed at length in CP (2014: section 14.2), the fronted phrase in a Negative Inversion clause must have the highest scope in its clause. Therefore, on this view (10b,d) and (11b,d) are ungrammatical because a local negative expression scopes over *might*.

Moreover, there is no general constraint on subject-aux inversion with *might*, indicating that the constraints in (10) and (11) are not functions of a general ban on subject-aux inversion with this modal.

- (13) a. How might they approach that problem?
b. What might be a possible solution?
c. Might he be willing to lend some support to that project?

Only an analysis taking Horn clauses to be Negative Inversion clauses permits reducing the violations in (10) and (11) to a generalization about negation scope since only on such an analysis is the fronted constituent in (11b,d) a negative quantifier (a unary NEG structure).

Even the limited evidence we have given here linking Horn clauses to Negative Inversion then strongly supports the conclusion of CP(2014) that Horn clauses are simply a subtype of Negative Inversion clause.

4. Horn's New Data Class and Anti-HC

4.1. The New Data Class

Horn illustrates *know*-NF (non-factive *know*) with examples like (14):

(14) I don't know that I can trust you.

Such examples lack the implication obligatorily found with the standard, factive usage of *know* that the embedded clause is true (see Horn 2014: 184).

Horn's critical discovery relevant here is the existence of many *know-NF* sentences whose complements appear to be Horn clauses, as (4) above. Additional examples include:

(15) a. I don't know that EVER before had all three boys napped simultaneously.

(www.vrbo.com/194521/reviews)

b. I don't know that ever before had the Army commander been in charge of the Naval forces. (www.americancivilwarforum.com)

We find such examples perfectly grammatical and accept Horn's claim that such examples contain Horn clauses.

Based on examples of this sort, the core of Horn's Anti-HC argument is the claim that *know-NF* clauses like those in (15) cannot be instances of Classical NR because of such nonequivalences as the following non-Horn clause and Horn clause cases:

(16) a. I don't know that she ever before visited Cyprus. $\neq$

b. I know that she did not ever before visit Cyprus.

(17) a. I don't know that ever before did she visit Cyprus. $\neq$

b. I know that never before did she visit Cyprus.

Critical to Anti-HC is that not only are cases like (16a) grammatical, but also that (16) and (17) contrast with the corresponding CNRP cases.

(18) a. I don't believe that she ever before visited Cyprus. =

b. I believe that she did not ever before visit Cyprus.

(19) a. I don't believe that ever before did she visit Cyprus. =

b. I believe that never before did she visit Cyprus.

Examples (18) and (19) represent, of course, the kind of semantically equivalent pairs which originally motivated talk of Classical NR

In illustrating the problem for CP(2014)'s Horn clause argument, we have focused on *know-NF*, as Horn did. However, Horn (2014) observed that other forms are by the same reasoning apparently also not CNRPs because of the lack of equivalences like those in (16) and (17). These, namely, *can't say* and *not aware*, likewise permit Horn clauses, as in the additional examples in (20):

(20) a. I can't say that at any time did I have a problem with any of the customer service team.

(www.reviewcentre.com/reviews182288.html)

b. I'm not aware that ever in the history of New York State has something like this

happened. (issuu.com/downtownexpress/.../113011_de.indd)

We can add, that in our dialects, the expressions, *not certain*, *not confident*, *not evident (to me)*, *not convinced*, *not persuaded*, *not obvious (to me)*, *not positive*, *not recall*, *not sure*, and *can't swear* also appear to have the relevant properties that Horn documents with *know-NF* and the forms in (20); see too section 10 on *doubt* and *unlikely*, which have related properties and which can receive a structurally parallel syntactic analysis.

That is, for these predicates, there are no semantic equivalences of the sort typical of traditionally studied Classical NR cases and Horn clause examples like (21) are grammatical:

(21) a. I am not aware that at any time did they insult any of the applicants.

b. I am not certain that ever before have I met that person.

c. It is not obvious to me that in any sense is he qualified for that position.

d. I do not recall that at any point in time did I consent to their reprinting my article.

Given facts like (17a), (20) and (21), Horn concluded:

(22) Horn 2014: 190:

“The problem for this otherwise elegant argument for a syntactic rule of NR is that ‘dichotomous’ status is not a necessary property for triggering embedded subject-aux inversion....”

By ‘otherwise elegant argument’, Horn refers to the CP(2014) argument from Horn clauses; by ‘dichotomous status’ here he refers to equivalences like those in (18).

We will call non-CNRP predicates which, when negated, permit Horn clause complements, including *know-NF*, *Cloud of Unknowing* (CU) predicates (after the title of Horn(2014)), and sentences where they occur *CU-sentences*. So in this terminology, Horn’s key discovery relevant to the overall argument in CP(2014) is that negated CU predicates, although failing to manifest the semantic equivalences usually taken as diagnostic of the simple cases of Classical NR, can take Horn clause complements.

Given that, the claim of CP(2014) that Horn clauses provide an overwhelming argument for a syntactic conception of Classical NR is seemingly undermined. That follows because, as first claimed by Horn himself (1975:283; 1978: 169) and endorsed in CP(2014: chapter 14, section 4), Horn clauses are supposedly uniformly linked to main clause CNRPs. This was taken to be explicable under two assumptions: (i) only CNRPs permit Classical NR and (ii) Horn clauses have a syntactic Classical NR analysis as in (8) above. Thus the core of Anti-HC is that CP(2014)’s Horn clause argument for a syntactic view of Classical NR falsely predicts the *ungrammaticality* of CU predicate cases like (17a), (20) and (21), etc.

4.2. The Apparent Paradox

An apparent paradox then arises from two at first convincing arguments. First, there is the seemingly solid argument in CP(2014) sketched above that Horn clauses justify a syntactic view of Classical NR. That clashes with Anti-HC based on Horn's discovery that Horn clauses are possible with CU predicates. But taking the existence of Horn clauses with CU predicates to justify Anti-HC fails to recognize the full range of analyses made possible by the framework of CP(2014).

And, actually, Anti-HC itself is not compelling at all. While its internal reasoning is correct, it depends entirely on the assumption that Classical NR can be correctly recognized only in the presence of the sort of semantic equivalences in (18). If that claim is unfounded, Anti-HC is groundless.

And it is unfounded. That such equivalences are not a *sufficient* condition is already shown by the fact, first noted in Horn (1975: 291-292; 1978: 203) and discussed further in CP (2014: 113-114), that *truth predicates*, which guarantee the relevant equivalences (although see Horn 1978: 207), nonetheless do *not* permit Classical NR.

- (23) a. It not true that she ever before visited Bulgaria. =
 b. It is true that she did not ever before visit Bulgaria.
 c. *It is not true that ever before did she visit Bulgaria.
 d. It is true that never before did she visit Bulgaria.
 e. *It is not true that she arrived until Monday.
 f. It is true that she did not arrive until Monday.

Here, despite the unquestionable equivalence of (23a,b), Horn clauses (and strict NPIs like *until*; see section 7) are impossible.

One of the main goals of this paper is to show that equivalences like those in (18) are not

a necessary condition for Classical NR either. We argue that the semantic equivalences and Classical NR are independent. That is, Classical NR is possible in the absence of semantic equivalences.

Our conclusion so far then is that the discovery that Horn clauses can occur in the complements of CU predicates cannot as such falsify the CP(2014) argument that Horn clauses strongly support a syntactic view of Classical NR. However, Horn's discovery could in principle undermine the CP(2014) view if it could be shown that there is no syntactic Classical NR analysis of the new data. But nothing like that has been shown and by advancing and justifying just such an analysis, the following sections argue that it cannot be shown.

5. The Inadequacy of the Simplest Classical NR Analysis of CU-Sentences

Perhaps the simplest approach in the framework of CP(2014) would be that a CU predicate-based Horn clause example such as (24d) is a result of Classical NR with (24b) as its input (parallel to the analysis in (8) of section 3 for CNRPs):

- (24) a. I know-NF that the media have [NEG₁ SOME ever before] played such a major role.
b. I know-NF that [NEG₁ SOME ever before] have the media played such a major role.
c. I do NEG₁ know-NF that [<NEG₁> SOME ever before] have the media played such a major role.
d. I don't know-NF that ever before have the media played such a major role.

The coindexing between the two occurrences of NEG₁ in (24c) again represents the raising of NEG₁. In (24b), NEG₁ modifies SOME and the extraction via Negative Inversion of [NEG₁ SOME ever before] to the clause initial position satisfies the conditions on Negative Inversion and requires subject-aux inversion. Then, (24c) is the result of the raising under Classical NR of

the NEG₁ of (24b).

However, there are at least three reasons to reject such a straightforward Classical NR analysis for CU predicate instances of Horn clauses. First, it predicts the existence of exactly the semantic equivalences found with CNRPs, just the situation Horn (2014: 190) observed does not exist with CU predicates; see (25):

- (25)
- a. I don't know that Carol is the best candidate. ≠
 - b. I know that Carol is not the best candidate.
 - c. I can't say that ever before have the media played such a major role. ≠
 - d. I can say that never before have the media played such a major role.
 - e. I can't swear that he embezzled the money. ≠
 - f. I can swear that he didn't embezzle the money.

Second, if (25a, c, e) represented instances of a Classical NR analysis in which the overt main clause NEG raised from the complement clause, that NEG would in each case function semantically *only* in the complement clause. But each such example clearly involves main clause semantic negation.

A third and even stronger basis for rejecting the simple Classical NR analysis represented in (24) can be based on the analysis of parenthetical clauses in chapter 17 of CP(2014). This is discussed in section 9 below.

6. A Covert NEG-Based Approach to Horn Clauses in CU-Sentences

6.1. Motivation

We suspect that Horn's (2014) conclusion that the occurrence of Horn clauses in CU-sentences undermines the support from Horn clauses for a syntactic view of Classical NR is

based implicitly on the following assumption:

- (26) The only possible syntactic Classical NR analysis of CU-sentence Horn clauses is that rejected in section 5.

But assumption (26) is not sound. We can show this by displaying a distinct syntactic Classical NR treatment of the CU-sentence data Horn discovered which suffers from none of the flaws mentioned in section 5.

Beyond accounting for the fact that CU-sentences can take embedded Horn clauses, the analysis we propose will meet two further criteria. First, it is consistent with the fact that Horn clauses are Negative Inversion clauses. Second, the proposed analysis takes the overt matrix NEG in CU-sentences to originate in the main clause and thus is consistent with the fact discussed in the previous section that this NEG functions semantically in that clause, not in the complement clause.

These assumptions are consistent with the following representation for (24d):

- (27) I NEG₁ know that [[[<NEG₂> SOME ever] before] have the media played such a major role]

Structure (27) contrasts with (24c) in that NEG₁, which modifies *know*-NF, is distinct from the NEG₂ modifying SOME. Hence in (27), NEG₁ has not been raised from the embedded clause. But the presence of NEG₂ as a modifier of SOME determines that the resulting negative adverbial phrase satisfies the Negative Inversion Condition and can hence undergo Negative Inversion in the embedded clause. And the presence of unraised NEG₁ in the main clause correctly accounts for the semantically negated character of the higher clause.

But (27) cannot be the correct representation of (24d), since it yields an incorrect interpretation equivalent to that of (28):

(28) I don't know that never before have the media played such a major role.

That is, (27) has the wrong number of negative elements to represent the meaning of (24d).

The Classical NR analysis we actually propose for (24d) remedies the defect in (27) by adding an additional NEG to the complement, and is given in (29).

(29) I [NEG₁ know-NF] that [<NEG₂> [[[<NEG₃> ever] before] have the media played such a major role]]

This representation contains three semantically and syntactically distinct NEG_s. NEG₂ is a clausal modifier, negating the embedded clause whose overt initial element is the phrase extracted under Negative Inversion. The covert NEG₂ and NEG₃ are taken in the framework of CP(2014) to have been deleted. We return to the deletion of such NEG_s in the next section.

Contrasting with many views about the distribution of syntactic negation, the general position of CP(2014) is that a NEG can modify any category whose semantics is compatible with semantic negation. Thus the presence of elements like NEG₂ and NEG₃ in the positions where they are found in (20) requires no special stipulations. In particular, NEG₂ modifies the clause (denoting a proposition), and NEG₃ modifies a covert SOME (denoting a generalized quantifier).

We observe that (29) arguably yields the correct interpretation of (24d), one essentially equivalent to (30a) (in turn equivalent to (30b):

(30) a. I don't know that it is not the case that the media haven't ever before played a major role.

b. I don't know that the media have played a major role at some time before.

This conclusion holds because the outer NEG in the embedded clause of (29) in effect cancels the semantic effect of the lower NEG associated with SOME, our syntactic representation of the existential quantifier. In predicate logic notation: $\neg[\neg\exists xP(x)] \leftrightarrow \exists xP(x)$.

Structure (29) provides both the NEG needed to account for the negative status of the main clause and the NEG needed in the fronted phrase of the Horn clause. As argued in detail in CP(2014) and above, the latter is necessary to satisfy the condition on Negative Inversion, namely, the Negative Inversion Condition.

6.2. NEG Deletion

The previous section crucially appealed to NEG deletion. Representation (29) contains two deleted NEG's. In this section, we consider the mechanisms governing their deletion. CP(2014, chapters 7 and 8) propose the general view that NEG deletion is based on a primitive binary relation between phrases called *NEG Deletion (NDEL)*.

(31) The NDEL Interpretation Condition

If NDEL(X,Y), then Y = NEG and Y is not pronounced.

This states that NDEL is a relation that determines the covertness of a NEG.

Phrases instantiating the variable X in (31) are called *NEG deleters*. CP(2014) further distinguishes between lexical and general NEG deleters. All the examples in the present paper involve general NEG deleters.

A fuller representation of structure (29) would indicate that the NEG deleter of NEG₂ is the negated matrix verb [NEG₁ know], while the NEG deleter of NEG₃ is NEG₂. These deletions form an object called a *NEG Deletion Chain*, a sequence of phrases meeting various conditions. For (29), the NEG deletion chain is (32):

(32) <[NEG₁ know], NEG₂, NEG₃>

The basic idea is that NDEL(X,Y) holds between each successive pair in a NEG deletion chain and that any deleted NEG occurs in such a chain.

The initial element of the chain in (32) for (29) is an example of a NEG deleter. These are claimed to be subject to an additional general condition, which is the analog in the system of CP(2014) of the various semantic conditions on *NPI licensers* posited in standard approaches to NPIs. CP(2014) requires, via (33), that general NEG deleters define nonincreasing functions (see also CP(2014:242, n 6)).

(33) The General NEG Deletion Condition

If $C = \langle A, \text{NEG}_1, \dots, \text{NEG}_n \rangle$ is a NEG deletion chain, and A is a general NEG deleter, then A defines a function which is nonincreasing with respect to the origin position of each NEG in C.

Just as standard views of NPIs commonly appeal to a c-command condition on NPI licensing, CP(2014) posits a c-command condition on NEG deletion:

(34) The NDEL C-Command Condition

If $\text{NDEL}(X, Y)$ then X c-commands Y.

The NPI which triggers Negative Inversion in Horn clauses exemplifies a unary NEG structure since it is represented as $[[\text{NEG SOME}] N]$. Deletion of unary NEGs is taken to be subject to condition (35):

(35) The NDEL Clausemate Condition

If $\text{NDEL}(X, Y)$ and Y is a unary NEG, then X and Y are clausemates.

Moreover, CP(2014) posit a condition, whose foundational idea is due to Szabolcsi (2004). This serves to rule out massive overgeneration of structures with covert NEG. We here, however, present an simplified version, since the actual one involved several complex issues not relevant in this work.

(36) The NEG Deletion Evenness Condition

Every NEG Deletion Chain contains an even number of deleted NEG_s.

All the principles just mentioned were motivated entirely independently of CU-sentences, which, as indicated earlier, we were unaware of.

Finally, even though CP(2014) allows NEG to modify any syntactic constituent whose semantics can be negated, we know of no cases in English (or indeed in other languages) where an *overt* NEG is adjoined to a clause. That is there are gaps like:

- (37) a. *Not Vincent left.
b. *I think that not Vincent left.

Based on very limited knowledge, we therefore boldly suggest a general principle, to be added to the collection of principles governing NEG deletion in CP(2014), as follows:

(38) The Clausal NEG Deletion Condition

For every structure [_{Clause} NEG_x [_{Clause} Y]], there exists a Z such that NDEL(Z, NEG_x).

Consider then how the CU-sentence (24d) represented in (29) satisfies the general idea that NEG deletion is a function of the NDEL relation satisfying the set of constraints just given. The Clausal NEG Deletion Condition requires NEG₂ to be deleted. The General NEG Deletion Condition then requires the NEG deleter of NEG₂ to define a nonincreasing function. The only forms in the complement clause of (29) with this property other than NEG₂ itself are NEG₃ and [NEG₃ ever before]. These phrases do not, however, c-command NEG₂. Therefore, the General NEG Deletion Condition and the NDEL C-command Condition combine to entail that the NEG deleter of NEG₂ cannot be internal to the complement clause. So it must be in the main clause.

The NDEL Clausemate Condition requires that the NEG deleter of NEG₂ be its clausemate. Therefore, NDEL(X, NEG₂) in (29) can only satisfy the overall set of conditions on NEG deletion if NEG₂ raises into the main clause. There it finds a decreasing phrase, [NEG₁

know-NF] (the matrix verb modified by negation), which is a c-commanding clausemate and hence a licit NEG deleter. The exact position to which NEG₂ raises in the main clause depends on various assumptions that space does not permit considering here.

Because NEG₂ raises into the main clause, this set of assumptions has the key entailment that Horn clauses and strict NPIs embedded under negated CU-predicates will show island effects. This claim is shown to hold in section 8 below.

The NEG Deletion Evenness Condition blocks a large number of unwanted structures. For instance, consider (39a), which differs from (29) in violating the condition:

- (39) a. I NEG₁ know that [<NEG₂> [[[NEG₃ ever] before] have the media played such major role]]
- b. I don't know that never before have the media played such a major role.

In this structure, only NEG₂ is deleted (as indicated by the angled brackets), leaving NEG₃ overt. The resulting interpretation would be identical to that of (29) (which is a representation of (24d)) since in the current system, NEG deletion has no semantic consequences. However, (39b) cannot have the same interpretation as (24d). But that follows since (39a), with only one deleted NEG, violates the NEG Deletion Evenness Condition. Essentially the same argument shows why a structure differing from (39) in that NEG₂ is not deleted but NEG₃ is deleted is also ungrammatical. It too would manifest a NEG deletion chain with only a single deleted NEG, and would also conflict with the NEG Deletion Evenness Condition.

7. Strict Negative Polarity Items and CU-Sentences

In arguing for the syntactic nature of Classical NR, CP(2014) appealed not only to Horn clauses

but to the properties of various so-called *strict NPIs*. The idea was the traditional one that certain NPIs require a local relation to their licenser.

Relevant then are contrasts like the following involving the strict NPI adjectival modifier *all that*. Horn cites the following paradigm from CP(2014: 85):

- (40) a. Arnold is *(not) all that intelligent.
b. Lucinda doesn't believe/think that Arnold is all that intelligent.
c. *Lucinda doesn't know/realize that Arnold is all that intelligent.

For CP(2014), the negation in (40b) originates in the embedded clause, as a sister to *all that*, and raises to the matrix clause where it is realized overtly. Such raising is impossible in (40c), since *know* and *realize* are not CNRPs.

However, Horn (2014: 192-193) rightly observes that the internet example (41) is well-formed, with an instance of *know-NF*:

- (41) I don't know that it was all that easy even back then.

Further examples of strict NPIs (italicized) in clauses embedded under negated CU-predicates are given in (42):

- (42) a. But she doesn't know that it's *all that* bad.
(<http://crookedkat.tumblr.com/>)
b. Bruschetta is quite delicious as well, but I can't say I've indulged *in ages*.
(www.realkidseatspinach.com/bruschetta-chicken/)
c. No, I can't say that I *think anything of* your post-graduate course idea.
(sebastianmarshall.com/on-the-competitive-edge-podcast)
d. I was not aware that he was *all that* annoying until... you wrote it here.
(www.sfx.co.uk › Features)

While sometimes awkward or ungrammatical in clauses embedded under negated CU-predicates, Web occurrences of strict NPIs in such contexts are common and the present authors find all the above sentences grammatical.

Because none of the matrix predicates in (42) is a traditional CNRP, Horn views the existence of such examples as just as problematic for CP(2014) as his newly noted Horn clause data. However, we propose an analysis of such sentences parallel to our treatment of Horn clauses with CU-sentences in (29) above. First, in CP(2014), strict NPIs are analyzed as unary NEG constituents where the NEG has raised away. In these terms, (43a) has analysis (43b):

- (43) a. Lucinda is not all that intelligent.
 b. Lucinda is NEG₁ [<NEG₁> all that intelligent]

For CP(2014), a parallel analysis extends to all strict NPIs, and to the fronted NPI phrase in a Horn clause as well, as analysis (29) shows.

So in these terms, example (41) receives analysis (44):

- (44) I do [NEG₁ know-NF] that [[<NEG₂> [it was [<NEG₃> all that easy] even back then]]

The properties of (44) are in most respects parallel to those of CU-sentences with Horn clauses. There are three semantically and syntactically distinct NEG_s, NEG₁ negates the matrix predicate, NEG₂ negates the most deeply embedded clause and NEG₃ negates the phrase *all that*. Finally, NEG₂ and NEG₃ are deleted, with NEG₂ having raised into the matrix clause to permit its deletion. As with Horn clauses, we do not show the matrix clause position of the covert raised NEG₂ in (44).

From our point of view, the analyses of Horn clauses and strict NPIs in CU-sentences are parallel. Both involve a double negation structure in the complement clause with both complement clause NEG_s ultimately deleted.

8. CU-Sentences and Islands

Our analysis of CU-sentences with Horn clause complements in section 6 and strict NPIs in section 7 determines that they will be ungrammatical when the raised NEG we posit is forced to cross a clausal island boundary.

At issue then are the sort of facts illustrated below with the traditional CNRP *believe*:

- (45) a. I don't believe that they have ever made such a proposal before.
b. I don't believe that ever before have they made such a proposal.
c. That they have ever before made such a proposal, I don't believe.
d. *That ever before have they made such a proposal, I don't believe.

CP(2014) argues that the ungrammaticality of Horn clause cases like (45d) is a function of the interaction of our syntactic view of Classical NR with the well-known fact that topicalized clauses are islands.

Strikingly then, the same pattern found with the CNRP in (45) is found with a CU-predicate like *(not) sure*:

- (46) a. I am not sure that they have made such a proposal at any point.
b. I am not sure that at any point have they made such a proposal.
c. That they have made such a proposal at any point, I am not sure of.
d. *That at any point have they made such a proposal, I am not sure of.

CU-sentences are also constrained by the island formed by the complement of *the fact*:

- (47) a. I cannot swear that they interrogated her thoroughly at any time.
b. I cannot swear that at any time did they interrogate her thoroughly.
c. I cannot swear to the fact that they interrogated her thoroughly at any time.

d. *I cannot swear to the fact that at any time did they interrogate her thoroughly.

Here the non-Horn clause case (47a), the Horn clause case (47b) with no island and the non-Horn clause case (47c) with an island are well-formed. But (47d) where the Horn clause is separated from the main clause by the island boundary is ungrammatical. Under the view that Horn clauses require syntactic raising of a NEG from the complement clause into the containing main clause, the NEG raising in (47d) but not that in (47b) must cross the island boundary, leading to the ungrammaticality.

As noted in section 7, strict NPIs receive an analysis parallel to the fronted NPI phrase of a Horn clause. Therefore, it follows that strict NPIs, such as those from the set *in hours/days/weeks/years...*, should also be sensitive to island boundaries in the complement of a negated CU-predicate. And they are:

- (48) a. I can't say that I've cooked such an expensive steak in weeks.
b. *I can't say that such an expensive steak, I have cooked in weeks.
c. I can't say that such an expensive steak, I have ever cooked before.
- (49) a. I can't swear that I have eaten such an expensive steak in years.
b. * That I have eaten such an expensive steak in years, I can't swear to.
c. That I have ever eaten such an expensive steak, I can't swear to.

The ill-formedness of example (48b) is due to the island created by a clause internal topic, while that of (49b) devolves on the fact that topicalized clauses are islands.

Summarizing, the syntactic Classical NR analysis of CU-sentences in section 6 not only accounts for the basic facts about CU-sentences and Horn clauses, it accounts as well for the sensitivity to island boundaries in CU-sentences containing Horn clauses and strict NPIs.

9. Negative Parentheticals

CP(2014: chapter 17) expanded upon ground-breaking observations in Ross (1973) to build an additional argument for a syntactic view of Classical NR. This was based on negative parentheticals like those highlighted in (50):

- (50) a. The council is not, *Ted doesn't believe*, prepared to support that proposal.
b. The council is not, *no one believes*, prepared to support that proposal.

Ross suggested that examples like (50) require the main verb of the parenthetical, here *believe*, to be a CNRP. Cases like (51) with non-CNRP parenthetical verbs are ill-formed:

- (51) a. *The council is not, *Ted doesn't realize*, prepared to support that proposal.
b. *The council is not, *no one dreams*, prepared to support that proposal.

Given these considerations, one might a priori expect that CU-predicates would permit negative parentheticals parallel to those in (50). But Horn (personal communication of April 19, 2014 to PMP) insightfully observes that this is not the case:

- (52) a. I don't know/can't say that the council is prepared to support that proposal.
b. *The council is not, *I don't know-NF/can't say*, prepared to support that proposal.

The state of affairs illustrated in (52) for *know-NF* and *can't say* is general. CU-sentences never permit corresponding negative parenthetical clauses.

Given the treatment of negative parentheticals in CP(2014: chapter 17), the simple Classical NR analysis treated in section 5 and arguably assumed by Horn (2014) to be *the* Classical NR analysis does indeed *wrongly* predict that examples like (52) should be grammatical (exactly as the Classical NR examples in (50) are grammatical). And that is a strong additional reason to reject the simplest analysis of section 5. But the more complex Classical NR analysis developed in section 6 rightly predicts cases like (52b) to be ill-formed.

To see why, one must first consider the basic structure of a parenthetical clause. We assume the structure involves clausal deletion, as specified in (53):

(53) CP(2014: 191)

“We will assume that the parenthetical is a reduction of a full clausal structure involving a complement clause that is covert in the parenthetical itself...so a parenthetical like (3a) is taken to realize an underlying structure of the form (3b).”

The (3a,b) mentioned in (53) were:

(54) a. Sally will, Eugene assumes, take a morning flight.

b. [Sally will take a morning flight] [LINK [*Eugene assumes that Sally will take a morning flight*]]

In structure (54b), the embedded clause *that Sally will take a morning flight* is deleted.

This yields the parenthetical. The account was further explicated as follows:

(55) CP(2014: 192)

“Hereafter, we refer to the italicized structure [in (54b)] as an *afterthought*. Parenthetical constructions are then taken to have the general underlying form in (4):

(4) [_A X] + Afterthought (= [LINK [_B Y[_C Z]]])

We will refer to the clause A, that is, the clause modified by the parenthetical, as the *prime*...; to clause B as the *secondary*; and to clause C as the *tertiary*. The idea of the LINK constituent is that it expresses whatever the precise relation between the prime and the afterthought is.”

Compare the following remark:

(56) Cattell (1973: 633)

“We could also give a descriptively adequate account of the data presented so far by

adopting the following proposal:

(B) The underlying form of each reversed structure has embedded within it the underlying form of the corresponding non-reversed structure, part of which is later deleted by a rule. Thus the underlying form of the two sentences in 74 would be essentially like 84a and 84b respectively:

(84) a. Harry is he murderer. (At least) I say that Harry is the murderer.

b. Harry isn't the murderer. (At least) I say that Harry isn't the murderer.

The final clause in each case would be deleted between the underlying and the surface structures. The words *at least* are not to be taken too seriously, but if they occurred, they would obviously have to be deleted too.”

That is, our view of parenthetical clauses as involving the reduction under ellipsis of the complement clause of the overt parenthetical fragment resembles Cattell's (1973) proposal B. Unfortunately, Cattell (1973) was overlooked in CP(2014).

So, in our terms, example (54a) is analyzed as:

(57) [PRIME Sally will take a morning flight] [LINK
[SECONDARY Eugene assumes that [TERTIARY Sally will take a morning flight]]]

A further key idea of the analysis in CP(2014) is that the prime modified by a parenthetical clause P is identical to the tertiary of P. Then, the tertiary of the parenthetical is deleted.

A fundamental element of chapter 17 of CP(2014) is a principle called there (p. 197) *the Parenthetical Non-decreasingness Condition*. This requires the combination of all the elements of origin in the upper part of the secondary (e.g., modifiers, negation, the verb itself), to define, in the appropriate sense (see below), a *non-decreasing* function with respect to the

parenthetical's (covert) complement clause (the tertiary required independently to be identical in the relevant sense to the prime, that is, the clause the parenthetical 'modifies').

This principle is motivated by contrasts like those in (58) and (59):

- (58) a. *Terry is not, *Jack/everyone/a friend of hers denies*, a top level worker.
b. Terry is not, *no one denies*, a top level worker.
c. Terry is not, *Sandra didn't deny*, a top level worker.
- (59) a. *Mercury is not, those women/most authorities doubt, too cool to vacation on.
b. Mercury is not, none of them doubt, too cool to vacation on.
c. Mercury is not, I don't doubt, too cool to vacation on.

In (58a) and (59a), the unmodified negative verbs create a decreasing context. But when the negative verbs are modified by negation or have a negative subject, the context is nondecreasing and the examples are acceptable. Many facts parallel to those in (58) and (59) were noted in Cattell (1973: 632-634).

However, as noted in CP(2014: 244-245, n. 6) there is an issue here with the definition of *non-decreasing* as revealed by a putative inference like the following:

- (60) a. Napoleon Bonaparte doubted that his mistress had consumed a sweetened drink.
b. Pepsi is a sweetened drink.
c. Therefore, Napoleon Bonaparte doubted that his mistress had consumed Pepsi.

If the verb *doubt* defined a literally decreasing function with respect to its complement, (60) would be valid. But conclusion (60c) clearly does not follow from the conjunction of (60a,b) as there is no way, barring time machines, that Napoleon could have known anything about Pepsi.

Nonetheless, *doubt* arguably does have a decreasing aspect seen in the fact that the inference to (60c) is valid *if* one replaces (60b) by assumption (61):

(61) Napoleon Bonaparte believed that Pepsi is a sweetened drink.

Let us call statements like ‘Pepsi is a sweetened drink’ in arguments like (60) *a subset premise*. So our claim is that *doubt* is downward entailing with respect to its complement clause when all the relevant subset premises are true in the belief worlds of the logical subject of the propositional attitude. Where the subset premise in (60b) fails to justify the decreasingness claim, (61) does justify it. It only makes sense to claim that a verb like *doubt* (and, moreover, other ‘propositional attitude’ predicates) is decreasing given such a condition. Hence, the Parenthetical Nondecreasingness Condition must ultimately be characterized in terms of this more complex notion of ‘decreasing’ limited to inferences based on appropriate subset premises. But providing a precise version of the latter is beyond the scope of this work.

Subject to the refinement just discussed, the Parenthetical Nondecreasingness Condition rightly blocks examples like (58a) and (59a). But the addition of negative elements to the parenthetical clauses as in (58b, c) and (59b, c) reverses that polarity and permits satisfaction of the Parenthetical Nondecreasingness Condition.

Briefly stated, that condition also allows negative parentheticals based on CNRPs like *Ted doesn’t believe* in (50a) because the NEG they contain can be analyzed as the result of raising under a simple Classical NR analysis. The relevant clause is then underlyingly *nonnegative* and forms an increasing element. On the contrary, negative parentheticals based on non-CNRPs like *Ted doesn’t realize* cannot be analyzed in terms of Classical NR. Their NEG thus functions semantically in the parenthetical clause, and serves to define a decreasing function, violating the Parenthetical Nondecreasingness Condition.

Critically then, the Classical NR analysis of CU-sentences represented by (29) above posits an original (nonraised) NEG in the CU-predicate clause. That means the clause defines a

decreasing function in the sense defined above, so examples like (52b) violate the Parenthetical Nondecreasingness Condition for exactly the reasons (58a) and (59a) do. It turns out then that Horn's observation about the interaction of CU-predicates and parentheticals only provides an argument against the simple Classical NR analysis of CU-sentences (see section 5), an analysis we rejected. But his observation does not conflict with the analysis we actually advocate. In fact, that analysis entails the ill-formedness of parentheticals like (52b) which Horn observed.

10. The Verb *doubt* and Horn Clauses

As documented by Google-supplied examples such as (62), Horn clauses occur under the verb *doubt* unaccompanied by any overt instance of NEG (contra McCawley 1998: 598, example (11b)):

- (62) a. I doubt that at any time did a dragonfly think tank get together and decide that the species needed to fly faster, change colors or become smaller.
(catbirdscout.blogspot.com/.../life-without-error....)
- b. Yes his actions were incredibly stupid but I doubt that at any time did he think a single punch would result in someone's death.
(forums.scottishfootballforums.co.uk/.../14179-f...)
- c. I doubt that under any circumstances would we let our defenses down in that regard.
(brookelorrren.com/blog/page/53/)

The analysis of CU-sentences we have advanced leads to a simple account of such Horn clauses parallel to that for CU-sentences.

The verb *doubt* is a negative predicate representing a decreasing function with respect to its complement clause in the same restricted sense (involving belief worlds) discussed in the

previous section. We need take no position on whether its negative aspect is just a lexical property of the meaning of the verb or represents the force of a covert instance of NEG.

Turn then to a Horn clause case like (63a), which we propose has a structure representable as (63b).

- (63) a. I doubt that in any real sense at all did Lucy consider dating Greg.
 b. I doubt that [NEG_1] [[PP in [NEG_2] SOME sense at all]] did Lucy consider dating Greg]]

This is almost entirely parallel to our proposed analysis in (29) of the CU-sentence (24d). It differs only in that where the former has an explicit NEG in the main clause, (63a) has the negative verb *doubt*. Just as in (29), there are two NEGs in the embedded clause (which cancel semantically), one of which modifies the embedded clause and the other of which modifies SOME. Parallel to structure (29), NEG_1 undergoes Classical NR to the matrix clause; the relevant landing site in the main clause is not relevant to our present concerns.

A virtue of analysis (63b) is that it correctly predicts that strict NPIs such as those highlighted in (64), can occur in the complement clauses of *doubt*:

- (64) a. Roger: Your report doesn't surprise me as I doubt that area has been surveyed *in years*,
 (<http://cruisersnet.net/alert-region/035-ef-nav-alerts/?sort=geo>)
 b. Without makeup, I doubt she's *all that* nice to look at on the outside.
 (<http://www.thetruthaboutguns.com/2014/09/robert-farago/shannon-watts-stops-making-sense/>)

And a further consequence is that Horn clauses and strict NPIs under *doubt* will be constrained by island conditions, confirmed by the contrasts in (65) and (66):

- (65) a. I doubt that at any point did he steal money.

- b. *What I doubt is that at any point did he steal money.
 - c. *I doubt the assertion that at any point did he steal money.
- (66)
- a. I doubt that he has given money to a charity in years.
 - b. *What I doubt is that he has given money to a charity in years.
 - c. *I doubt the assertion that he has given money to a decent charity in years.
 - d. *I doubt that to a decent charity, he has given money in years.
 - e. I doubt that to a decent charity, he has ever given money.

Examples (65b) and (66b) illustrate pseudo-cleft islands, while (65c) and (66c) illustrate the Complex Noun Phrase Constraint. Example (66d) illustrates a clause-internal topic island. Example (66e) is an acceptable control sentence contrasting with (66d).

A last virtue of analysis (63b) is that via the logic of the previous section, it correctly predicts that *doubt* clauses have no simple parenthetical correspondents, but do have one when an odd number of negative elements appear in the parenthetical clause:

- (67)
- a. I doubt that Lois has children.
 - b. *Lois does not, I doubt, have children.
 - c. Lois does not, I don't doubt, have children.
 - d. Lois does not, no one doubts, have children.
 - e. *Lois does not, no one doesn't doubt, have children.

Example (67e) is ill-formed because the negations in the pair {not, no one} cancel, leaving the clause with the same illicit (decreasing) polarity as that in (67b).

We observe that it is plausible that an analysis parallel to that advanced for *doubt* in (63b) might also extend to a form like *unlikely*. Thus Klima (1964: 292) cited (68a) (his (158b)) with the highlighted strict NPI in its complement, while google provides (68b) with a Horn clause:

(68) a. It is unlikely that he will get there *until after the game*.

b. Christian art and symbolism ... and have been so permanently displayed before the world, that **it is unlikely that at any time will** they become obliterated.

(<https://books.google.com/books?id=DN0TAAAYAAJ>)

11. Lack of Equivalences in CU-Sentences

Horn's (2014) Anti-HC argument was fundamentally driven by the *lack* of equivalences seen in CNRP cases (as in (18) and (19) above) in CU predicate cases. This was taken to undermine the claim that the Horn clauses and strict NPIs possible in CU predicate complement clauses can be analyzed in terms of a syntactic raising view of Classical NR. This would in turn then refute the idea central to CP(2014) that Horn clauses and strict NPI properties strongly support a syntactic conception of Classical NR.

Horn's view might well be more generally shared, as indicated by a referee's remark on an earlier version of this paper:

(69) "In fact the neg-raising phenomenon consists in the interpretation of a negation in a clause that doesn't contain an overt negation."

This statement implies that there could be no Classical NR analysis of CU-sentences, because it only recognizes the phenomenon in the presence of structures which guarantee the equivalences.

We rejected such views, justifying our rejection by showing how one could formulate a syntactic Classical NR analysis perfectly compatible with the lack of equivalences and consistent with all of the relevant assumptions of CP(2014). In fact, we claim that Classical NR is independent of the existence of equivalences. Such equivalences are neither necessary nor sufficient to demonstrate that Classical NEG Raising has taken place.

However, even acceptance of our syntactic analysis of the CU data so far leaves an important question unanswered. Why do the equivalences *not* exist with CU predicates? Since we claim that both CNRPs and CU predicates permit Classical NR, what precise syntactic characteristics distinguishing the two have that consequence?

An obvious clue is that the NEG appearing in the main clause in a CU-sentence is semantically a constituent of the main clause, while in seemingly parallel CNRP cases, it is not. These considerations suggest the following condition:

- (70) If some NEG raises into a main clause C whose predicate P is a CU predicate, there is a distinct NEG in C scoping over P.

Notice that if (70) is sound, *doubt* cannot be a CU predicate. There would thus be at least three classes of predicates permitting Classical NR (CNRPs, CU predicates and *doubt*).

Condition (70) distinguishes only *seemingly* parallel pairs like (71a, b), accounting for why the former is equivalent to (72a) but the latter is not equivalent to (72b):

- (71) a. I don't believe that in any sense is she a candidate.
 b. I can't say that in any sense is she a candidate.
 (72) a. I believe that in no sense is she a candidate.
 b. I can say that in no sense is she a candidate.

The Horn clauses in the complements of (71a, b) argue that both involve Classical NR. But condition (70) does not allow (71b) to have the simplest type of Classical NR analysis schematized in (73) and permitted for (71a):

- (73) Subject Aux NEG₁ Predicate_x [[<NEG₁> SOME sense] is she a candidate]

It requires there to be an original (hence semantic) NEG in the main clause, with consequences discussed in earlier sections. In particular, the structure of (71b) needs to be schematized as follows:

(74) Subject Aux NEG₁ Predicate_x [<NEG₂> [<NEG₃> SOME sense] is she a candidate]

Condition (70) in effect forces the overt main clause NEG in (71b) to originate in the main clause, entailing that the raised NEG has been deleted. And the NEG Deletion Evenness Condition of CP(2014) then forces there to be a second downstairs NEG. These consequences determine rightly that the NEG in (71b) has semantic force in the main clause, rendering impossible equivalences like (71b)/(72b). But (70), which permits structure (73) for (71a), allows the equivalence (71a)/(72a).

A relevant observation though is that (70) does not preclude the possibility that CNRPs like *believe* could instantiate structure (74) (as well as structure (73)). If so, examples like (71a) might be structurally ambiguous. However, it is extremely difficult to find factual considerations which distinguish the two meanings of CNRPs corresponding to analyses (73) and (74). So at this point we do not know whether CNRPs can also instantiate analysis (74) and we cannot pursue the issue here.

12. Conclusion

Horn(2014) assembled an array of important new data relevant to the understanding of the Classical NR phenomenon. Our reaction to this new material has argued several major points. First, nothing in that body of data is incompatible with the syntactic view of Classical NR in CP(2014). Far from disconfirming the analysis of Classical NR in CP(2014), the syntax of CU-predicates supports many of the basic assumptions of that work, including the analysis of NPIs as

negative phrases and the existence of NEG deletion. And, in particular, the study of CU predicates emphasizes the independence of Classical NR from the sort of semantic equivalences which initiated its study.

However, Horn's insightful observations do raise many new questions about Classical NR, e.g. whether ambiguous analyses of CNRP cases are possible. And they also highlight the fact that no characterization of the overall class of predicates permitting Classical NR is yet available.

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