AN INTERPRETIVE EFFECT OF HEAD MOVEMENT[1]

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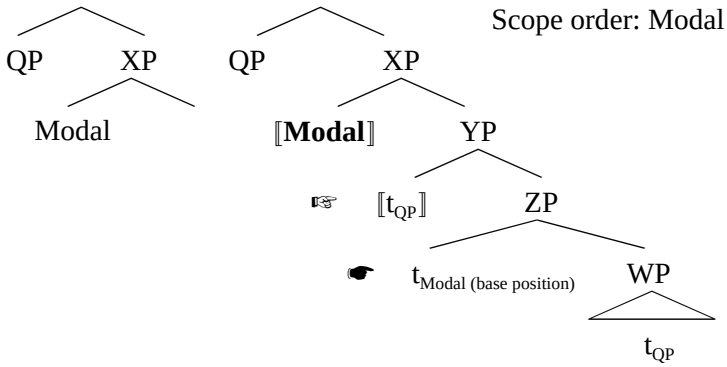
1. Introduction

In this paper, I explicate an argument for the view that HM can have an effect on semantic interpretation, as expressed by the SAHM-conjecture in (1):

(1) **SAHM conjecture:**
There are instances of ***s***emantically ***a***ctive ***h***ead ***m***ovement.

The argument is structured as follows. In certain contexts involving modals, schematized in (2)a, the modal can take scope above a clause-mate quantifier, resulting in inverted scope order, as in (2)b. The position in which QP is interpreted (☞ in (2)b) can moreover be shown to be located above the position in which the modal is base generated (☛ in (2)b). It follows that the modal has to be interpreted in a derived location.[2]

(2) a. **Overt syntax:** b. **Interpretation:**



This result is of theoretical interest inasmuch as a demonstration that HM can affect interpretation, or can be affected by principles of interpretatio, generates

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[2]For any α, denotation brackets ('⟦α⟧') signal where α is interpreted.

a strong argument for computing HM in syntax, and not at PF, as recently suggested in the literature[3] (Boeckx and Stjepanovic 2001; Chomsky 2000, 2001; Harley 2004). More precisely, the combination of (1) and the assumption implicit in the current model that PF-operations do not influence LF representations entails (by contraposition[4]) that HM has to apply in the stem of the derivation, and cannot be relocated into the phonological component. In addition, only an orthodox account of HM, according to which HM consists in syntactic displacement of terminals, correctly predicts that HM operations have the potential of shifting the scope of the moved category. This finding supplies an arguments against alternative analyses of HM which derive its effect by iterative applications of phrasal movement (on remnant movement see Hinterhölzl 1997; Koopman and Szabolcsi 2000; Mahajan 2000; Müller 2004; Nilsen 2003). If the modal in (2)b were embedded inside a phrasal category, as implied by the remnant movement analysis, it should not be possible to generate new interpretations. This is so because the node containing the modal (XP in (3)a) would either prevent the modal from c-commanding quantifiers it has crossed over ((3)a), or XP would have to reconstruct (see (3)b). None of these options derives the scope order *modal* $\succ$ *QP* (for details see Lechner 2005b and Lechner, in preparation).

(3) a. $[[_{XP}$ ...Modal...] ... [[QP... t_{XP} ...
(where XP is not a projection of the modal)
b. ... [[QP... $[_{XP}$ ...Modal...]

Finally, SAHM also directly entails that HM cannot be epiphenomenal, as maintained by Brody (2000).

In what follows, I will outline a chain of evidence embedded in a discussion of so-called scope splitting phenomena in English that supports the SAHM conjecture. Section 2 introduces the core data. In section 3, I present some background assumptions concerning the LF position of nominal quantifiers and the syntax of modality. Section 4 and 5 then assembles the argument, while section 6 expands on independent support for parts of the specific analysis to be proposed.

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[3]For evidence that HM can be *affected* by semantic principles see Lechner (2001, 2004: chap. 3.4). For further discussion of arguments pro and contra HM see Fanselow (2002); Matushansky (2005); vanRiemsdijk (1998); Roberts (2004); Zwart (2001), among others. For the claim that V2 has semantic effects see Benedicto (1994).

[4]If α is a PF-operation, then α does not have an impact on interpretation. α has an impact on interpretation. Hence, α is not a PF-operation.

2. Scope splitting

Empirically, the argument for SAHM is centered around a particular group of modal constructions exemplified in (4) to (6) below.[5] The most prominent reading of these sentences denies the compatibility of a universal proposition with a circumstantial modal background. For instance, (4) means that it is not possible that every pearl is above average size, a proposition which is analytically true given the logical impossibility of mapping all pearls to a degree above the mean. This reading correlates with the scope order $\neg\Diamond \succ \forall$, in which the negation is separated from its surface host, the quantifier *every*. (In addition, the examples can be construed *de re*, and lack *de dicto* readings.)

(4) Not every pearl can be above average size. $\neg\Diamond \succ \forall$
"It is not possible that every pearl is above average size"

(5) Not everyone can be an orphan. (André Gide) $\neg\Diamond \succ \forall$
"It is not possible that everyone is an orphan"

(6) Not every boy can make the basketball team. $\neg\Diamond \succ \forall$
"It is not possible that every boy makes the basketball team"

(4) to (6) represent instances of the so-called scope splitting construction. In the literature[6], scope splitting (or 'negative split') has been extensively discussed on the basis of examples such as (7), which differ from (4) to (6) in that negation is combined with a quantifier that carries existential and not universal force. (The negative QP in (7) is also construed as the object in order to avoid further complications with subject reconstruction; see 3.1.)

(7) Sam can find no solution. $\neg\Diamond \succ \exists$
"It is not possible that Sam finds a solution"

For reasons of concreteness, I will adopt the analysis of scope splitting formulated in von Stechow (1993) and Penka (2002),[7] according to which all negative indefinites bear a syntactic feature [+neg] which has to be licensed in the immediate scope of a possibly abstract semantic negation (NOT). The morphologically negative NPs themselves are assigned the meaning of their contradictories (e.g. *solution* for *no solution* and *everyone* for *not everyone*).

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[5]The use of negative universals instead of universals or negative indefinites in the design of the argument is motivated in Lechner (2005a).

[6]See Bech (1954/57: §80); von Fintel and Iatridou (2005); Heim (2000); Kratzer (1995); de Swart (2000); Penka (2002); Zeijlstra (2004) and references.

[7]See also Kratzer (1995: 144) and Penka and von Stechow (2001). Von Stechow and Geuder (1997: 19) credit Ede Zimmermann with the first explicit semantics.

Scope splitting is induced by configurations in which the abstract negation NOT is separated from the negative NP by another operator at LF. To exemplify, (7) can be parsed as in (8). In the LF (8)a, the feature [+neg] is licensed by the abstract clausal negation NOT in SpecNegP. Since the modal intervenes between NOT and [+neg], interpreting (8)a consequently leads to the split scope order (8)b, in which the morphologically negative object is translated as an indefinite. (Acc denotes the accessibility relation):

(8) a. John [$_{\text{NegP}}$ NOT [can find [no solution]$_{[+neg]}$]] $\neg\Diamond \succ \exists$
b. $\lambda w \neg\exists w' \exists x[\text{Acc}(w)(w') \wedge \text{solution}(x)(w') \wedge \text{find}(x)(\text{John})(w')]$

As already mentioned, (4) to (6) essentially differ from the classic instances of splitting such as (7) in that the negation associates with a universal, and not with an indefinite. This particular contrast will become important below, as universal QPs are subject to different, stricter conditions on where they can be interpreted in the tree (see 3.1).[8] Following a discussion of the relevant background assumptions in section 3, I will proceed to argue in section 4 that mapping the split readings of (4) to (6) onto a syntactic structure has nontrivial consequences for the analysis of HM.

3. Mapping syntax to interpretation

The present section will introduce two specific properties of the mapping procedure from syntax to interpretation, both of them involving empirical generalizations about the way in which movement interacts with interpretation. In section 3.1, I will comment on differences in the reconstruction behavior of different logical types of quantifiers. These findings will be used to set the lower structural bound for the interpretation of subjects and (by transitivity) categories that scope over subjects. Section 3.2 addresses the dissociation between the surface position and the base position of modals, presenting evidence for the view that modals are generated below the position in which they surface. According to this conception, the ordering of modals and other categories in the tree is derived by movement, and not by the availability of alternative insertion points for the modal or certain adverbs and negation. These results form the basis of the argument for semantically active HM (SAHM) to be spelled out in section 4.

3.1. The Strong Constraint

When quantified terms (QPs) surface in A-positions that do not correspond to

[8]For evidence that the split reading cannot be logically subsumed under the independently available *de re* interpretation ($\neg\forall \succ \Diamond$) see Lechner (2005a).

their points of origin, these QPs can sometimes be assigned scope below their overt positions. Although the exact mechanisms underlying 'scope diminishment' - borrowing a term from von Fintel and Iatridou (2004) - are poorly understood, there is an emerging consensus that the logical properties of the moved QP co-determine its ability to reconstruct. More specifically, NPs that have undergone A-movement fall into one of three groups: negative NPs, strong NPs (in the sense of Milsark 1974) and indefinites. Postponing the discussion of negative NPs until section 6, indefinites and strong NPs differ in that raised indefinite subjects may be assigned a narrow scope interpretation w.r.t. the raising predicate (see (9)), while strong quantifiers cannot be construed with scope below the intensional operator, as illustrated by (10), and probably more clearly by (11) (see Iatridou 2002; Lasnik 1999; Lechner 1996, 1998; Wurmbrand and Bobaljik 1999, among many others).

(9) a. A critic seemed to like the movie. *de re/de dicto*
b. It seemed that a critic liked the movie. *de dicto*

(10) a. Every critic seemed to like the movie. *de re/*de dicto*
b. It seemed that every critic liked the movie. *de dicto*

(11) a. Every movie which was promoted by a critic seemed to impress the jury. *de re/*de dicto*
b. It seemed that every movie which was promoted by a critic impressed the jury. *de dicto*

For (11)a to be true, the individuals promoting the movie must be actual critics in the evaluation world, whereas (11)b leaves open the option that these individuals only appeared to be critics - it could turn out that in fact, they were radical Christians. Provided that the absent *de dicto* interpretation of (11)a is contingent upon reconstruction of *every movie* along with the relative clause, it can be concluded that universals do not reconstruct below *seem.* Further confirmation for the assumption that strong quantifiers resist reconstruction into the subordinate clause comes from contexts involving non-verbal intensional operators as in (12) (Lasnik 1999: 93). Sentence (12)a contradicts the laws of probability, while (12)b is evaluated as true in a situation with five events of tossing ($½^5$ = 1/32 ≈ 3%). Again, the absence of an equivalent reading for the raising construction (12)a indicates that strong QPs have only limited access to scope diminishment:

(12) a. Every coin is 3% likely to land heads. $\forall \succ$ *likely*/*$\forall \succ$ *likely*
b. It is 3% likely that every coin will land heads.

A first version of the condition on strong NPs that was seen to be active in

(10) to (12) can be formulated in terms of the Strong Constraint in (13):

(13) **Strong Constraint (1st version)**
Strong QPs do not reconstruct below raising predicates.

The specifics of (13) still require a minor amendment, though. In particular, the same constraint which is responsible for prohibiting reconstruction in the raising-to-subject constructions (10) to (12) should presumably also operate in contexts in which raising arguably proceeds to an object position. Following Lasnik (1995), such environments are prominently exemplified by ECM-configurations like (14). As documented by (14)a, the ECM-subject has raised into the matrix sentence in overt syntax (but see also Lasnik 2005 for a diverging view):

(14) I expected everyone not to be there. $\forall \succ \neg/\neg \succ \forall$
a. I expected$_1$ [$_{XP}$ *everyone*$_2$ [$_{VP}$ t$_1$ [$_{NegP}$ not [$_{TP}$ t_2 T˚ to be ...]]]]
b. I [$_{XP}$ ~~everyone~~ [$_{VP}$ expected [$_{NegP}$ not [$_{TP}$ *everybody* to be ...]]]]

Still, the universal retains the ability to be construed within the scope of the negation. This is unexpected from the perspective of (13) inasmuch as in order to generate the inverse reading (14)b, the ECM subject would have to reconstruct across the raising predicate *expect*, which itself is restored into its base position at LF. Thus, the Strong Constraint in (13) is too restrictive as it rules out the inverse reading (14)b, and will therefore be revised as in (15):

(15) **Strong Constraint**
A strong NP cannot reconstruct below T˚.

According to (15), reconstruction in (14)b is licit because the universal does not cross T˚. Thus, (15) tolerates limited applications of reconstruction as in (14), while the standard manifestations in (10) to (12) are not negatively affected by the changes in the revised version.

In order to parse the scope splitting constructions in (4) to (6) into a tree, one last ingredient is still missing. Section 3.2 expands on this issue by providing a strategy for determining the structural position of modals, while section 4 will finally present the synthesis of the argument for SAHM.

3.2. The position of modals

There is good reason to believe that English modals are generated in a VP-external position, from where they move into a higher head which is located above clausal negation and (some aspectual) adverbs. It is arguably the effect of this movement which carries the modal to the left of *not*, *always* and *never* in (16) to (18). In what follows, I will focus on examples involving negation,

as in (16); the generalization carries over to contexts with adverbials, though.

(16) John can$_1$ not t$_1$ come along today. $\neg \succ \Diamond$ /??$\Diamond \succ \neg$

(17) He can$_1$ always t$_1$ count on me. *always* $\succ \Diamond$/*$\Diamond \succ$ *always*

(18) He can$_1$ never t$_1$ do that. *never* $\succ \Diamond$/*$\Diamond \succ$ *never*

A first indication that modals are indeed generated in a position below negation and (certain aspectual) adverbs comes from the observation that modals precede these operators yet display a strong preference for narrow scope (Lerner and Sternefeld 1984; Öhlschläger 1989). This dissociation of surface position and scope is straightforwardly captured by an analysis that adopts low base-generation, movement and reconstruction. For ease of reference, the base and the derived position of the modal will be identified with T° and AgrS°, respectively.[9] The choice of labels does however not play a substantive role in the development of the argument.

In order to establish that the scope order in (16) is actually the product of modal raising and reconstruction, it must be ascertained that scope reversal does not result from an alternative derivation in terms of covert movement of negation ('Neg-Shift') across the modal. A strong argument against Neg-Shift is furnished by examples such as (19). (19) includes a PPI (*sometimes*) which is assigned wide scope w.r.t. the modal, which in turn takes scope below *not*:

(19) It can sometimes not be avoided to confront the enemy.
sometimes $\succ \neg\Diamond$

The critical property of the PPI in (19) consists in its ability to introduce two additional scope criteria which will be seen to exclude a Neg-Shift analysis. First, the PPI must stay outside the scope of negation. Combined with the narrow scope tendency of circumstantial modals, this requirement leads to the scope order *sometimes* $\succ \neg\Diamond$. The LF underlying this reading can now either be attributed to reconstruction of the modal, as documented by (20), or to Neg-Shift followed by covert movement of the PPI *sometimes*, as in (21):

(20) *Derivation A: modal reconstruction*
a. *Surface order:* [$_{\text{AgrSP}}$ it can$_1$ [sometimes [$_{\text{NegP}}$ not [$_{\text{TP}}$ t$_1$
b. *Reconstruction* [sometimes [$_{\text{NegP}}$ not [$_{\text{TP}}$ can

[9]Johnson (2003: 68ff) supplies further motivation for locating NegP between TP and AgrSP and allowing modals to move from T° to AgrS°. For discussion of the syntax of negation see Zeijlstra (2004: 167ff). Cormack and Smith (1998, 1999, a.o.) present a non-derivational account for mismatches between scope and order.

(21) *Derivation B: Neg-Shift*

a. *Surface order*: $[_{AgrSP}$ it can$_1$ [sometimes $[_{NegP}$ not $[_{TP}$ t_1

b. *Neg-Shift:* $[_{XP}$ not$_2$ $[_{AgrSP}$ it can$_1$ [sometimes $[_{NegP}$ t_2 $[_{TP}$ t_1

c. *QR of 'sometimes'*:
$[_{YP}$ sometimes$_3$ $[_{XP}$ not$_2$ $[_{AgrSP}$ it can$_1$ [t_3 $[_{NegP}$ t_2 $[_{TP}$ t_1

Second, Szabolcsi (2002) discusses a property of an intriguing class of PPIs which makes it possible to adjudicate between the two competing analyses in (20) and in (21). She observes that the weak indefinite PPI *somewhat* in (22) has to satisfy two conflicting requirements simultaneously. As a PPI, *somewhat* would have to escape the scope of negation by Neg-Shift. However, being a weak indefinite, *somewhat* must not cross the negative island established by negation, resulting in an ill-formed output string:

(22) *John doesn't appreciate this somewhat

Sometimes in (19) behaves now just like *somewhat*, as illustrated by (23). This is expected since *sometimes* is also interpreted as a weak indefinite.

(23) *John didn't sometimes come to class.

But given that *sometimes* must not covertly move across negation in (23), it should not be able to do so in (19), either. Moreover, since the success of the Neg-Shift derivation in (21) crucially depends on the ability of the adverb to cross negation subsequent to Neg-Shift ((21)c), it also follows that (19) cannot be the result of Neg-Shift. Thus, modals must be allowed to reconstruct, as implied by the derivation in (20).

With these assumptions in the background, the next section proceeds to the argument for the view that HM may affect interpretation (SAHM).

4. Analysis

Above, it was seen that strong quantifiers do not reconstruct freely and that negated universals partake in scope splitting in examples such as (6):

(6) Not every boy can make the basketball team. $\neg\Diamond \succ \forall$

These two observations supply evidence for the view that the LF-position of the subject in (6) c-commands the node in which the modal originates. It follows that the modal, which takes scope over the universal, has to be interpreted above its base position (T°), generating an argument in support of SAHM.

Recall that negative NPs bear a feature [+neg] which has to be locally c-

commanded by the abstract negation NOT (see (24)a):

(24) a. Syntax: [+neg] must be in the local scope of the possibly abstract negation NOT.
b. Semantics: ⟦[*Not every* NP]⟧ = ⟦[*every* NP]⟧
(adopted from Penka 2002; Penka and von Stechow 2001; von Stechow 1993)

If the $NP_{[+neg]}$ precedes its licensing head, as is the case in (6), the subject must reconstruct in order to satisfy (24)a, and a lower copy is submitted to interpretation ((25)a).

(25) a. $[\text{Not every boy}]_{PF}$ NOT can $[\text{not every boy}]_{[+neg]}$ make the team.
b. ⟦NOT⟧ can ⟦not every boy⟧ make the team.
c. ⟦NOT⟧ can ⟦every boy⟧ make the team. $\neg\Diamond \succ \forall$

After the negative feature has been eliminated, the interpretive convention (24)b further regulates the transition from the morphologically negative QP in (25)b to its contradictory in (25)c, yielding the split reading.

The representations in (25) do not reveal yet the exact location in which the subject is interpreted. It can be shown, though, that the subject is parsed into a position at LF that c-commands the node in which the modal originates, and that the modal therefore has to be interpreted in a derived position. The tree in (26) below provides the relevant details for (6).

Starting bottom-up, *not every boy* is submitted to PF in SpecArgSP. In order to conform with the licensing conditions on its negative feature, *not every boy* cannot be interpreted in its surface position, but has to reconstruct into the scope of the abstract negation NOT.[10] However, the subject must not reconstruct too low, either, as scope diminishment of strong NPs below T˚ is prohibited by the Strong Constraint. The lowest interpretable subject copy is consequently located above T˚. On the most parsimonious clausal architecture, this position can be identified with SpecTP. Thus, the subject is interpreted in SpecTP[11] (marked by ☞ in (26)). Since TP is above the base position of the

[10]For evidence that *not every boy* forms a constituent see Lechner (2005a).

[11]Sauerland (2003) presents evidence that subjects can be reconstructed into a low A-position he identifies with vP. As Sauerland demonstrates, this position must be below negation (see (i)), but still high enough to bind an experiencer (see (ii)):

(i) Every student mustn't get an A. $\Box \succ \neg\forall$ (Sauerland 2003: 309; (4))

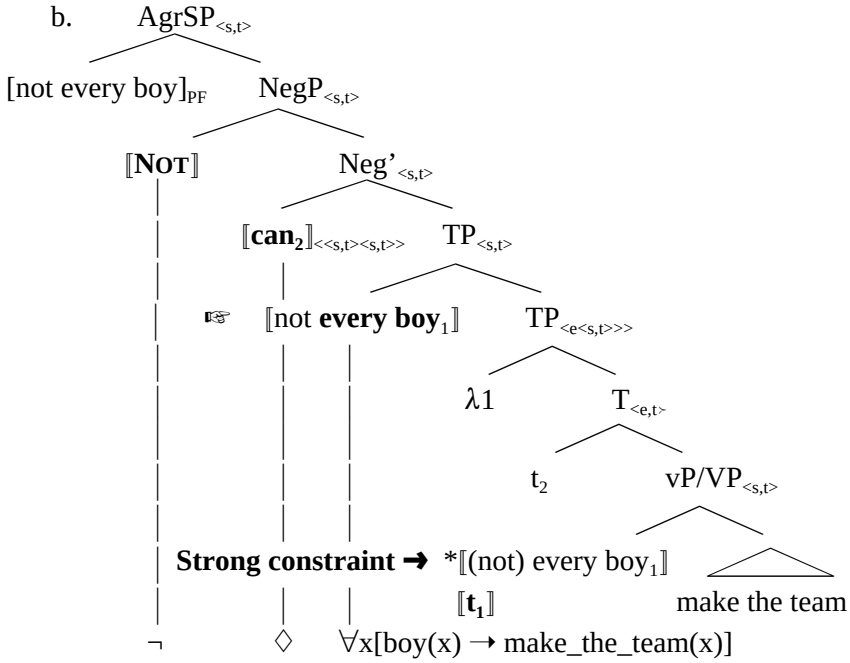
(ii) Every child_2 doesn't seem to his_2 father to be smart. $\neg \succ \forall$ (ibid, 310; (7))

Sauerland's insight can be maintained in the present system if it is assumed that the modal in (i) is interpreted in AgrSP, the subject in SpecTP, and negation in NegP.

modal, and the modal takes scope above the universal in the split reading (scope order ¬◇ ≻ ∀), it follows now that the split reading derives from interpreting *can* in a derived head (Neg˚).[12] Assuming that the trace of HM in (26) is semantically vacuous, the raising modal in Neg˚, which denotes a propositional operator of type <<s,t>,<s,t>>, can furthermore directly combine with its sister node (TP).

(26) a. Not every boy can make the team. ¬◇ ≻ ∀

b.



On this particular interpretation of the data, HM may have an effect on interpretation, eliciting a first piece of evidence in support of SAHM. Moreover, the analysis contradicts a PF-account of HM, because HM operations that apply at PF should not be able to alter scope relations. Thus, (26) provides an argument for the conservative conception that HM is produced by displacement of terminals in the syntactic component.

5. The LF-position of the subject

The validity of the argument in favor of SAHM laid out in the section 4 rises and falls with the accuracy of the tools that are used to locate the interpretive

[12]The surface interpretation ¬∀ ≻ ◇ arises from interpreting the subject in SpecTP and the modal *in-situ*, i.e. in T˚.

position of the subject in (26). In particular, the evidence is conclusive only if it can be shown that the LF position of the subject is above the position in which the modal originates. In (26), this conclusion was secured by the additional assumption that the vP is immediately merged with TP, with no other functional projections disrupting the spine of the tree. If, contrary to this assumption, vP and TP were separated by further categories (AspP, PerfP, AuxP; see e.g. Cinque 1999) which may host additional intermediate copies of the subject, it evidently has to be demonstrated that the subject is not interpreted in one of these intermediate landing sites. Otherwise, the modal could be translated in its base position, invalidating the evidence for SAHM.

5.1. Preliminary considerations

A first argument in this direction can be derived from the selectional properties of raising modals. On a widely shared assumption, raising modals embed small clauses (Stowell 1983, 2004). Moreover, as initially observed in Stowell (1981) and Williams (1983), small clauses are scope islands, they minimally contrast with clausal complements in that their subjects cannot be construed *de dicto* (see Johnson 2001 for an account):

(27) a. A linguist seems to be unhappy. *de re/de dicto*
b. A linguist seems unhappy. *de re/*de dicto*

Turning to the scope splitting example (26), the combination of these two premises is now sufficient in order to exclude subject reconstruction into specifiers inbetween TP and vP. More precisely, transposing the small clause analysis to raising modal constructions entail that all nodes c-commanded by the base position of the modal (☛) are scope islands for the subject:

(28) *No reconstruction:* Subject_k ... [$\text{Modal}_{\text{base position}}$ ☛[$_{\text{Small Clause}}$ t_k ....]]

On this view, the presence of other projections between TP and vP in (26) turns out to be immaterial for the strength of the argument.

In fact, adopting the analysis above has the even more radical consequence of rendering reconstruction below the base position of raising modals generally impossible. If correct, it would therefore follow that all *de dicto* readings below circumstantial modals derive from interpreting the modal in a derived position. Although this at first sight looks like an attractive feature of the analysis that provides further support for SAHM, the generality of claim makes it hard to be falsified, and therefore weak in its empirical foundation. Moreover, the analogy between small clauses and complements of raising modals is less straightforward than one might hope. First, raising modals allow *de dicto* readings for weak subjects, while it was the absence of such readings

in (27)b which formed the basis of the scope island hypothesis. Second, the evidence for treating complements of raising modals as small clauses is, as far as I know, not very strong, and requires further empirical justification. For at least these reasons, it would be advantageous if it were possible to find independent support for the claim that the subject in (26) is interpreted no lower than in SpecTP. There is an additional piece of evidence indicating that this view might be correct, which will be outlined in the following section.

5.2. Negative polarity licensing

A strong argument in support of interpreting subjects high can be distilled from split scope configurations which include Negative Polarity Items (NPIs). Observe to begin with that negated universals license NPIs if the QP is assigned surface scope ((29) from Horn 2000: (49b); see Penka 2002: fn. 37):

(29) Not everyone who works on negation has ever read any Jespersen.
$\neg\forall \succ$ NPI

Interestingly, scope splitting appears to conflict with NPI-licensing, as demonstrated by the deviance of (30). The relative scope of the NPI w.r.t. the universal and the modal (to the degree that they are logically independent) does not affect acceptability judgements; the example is ill-formed in all split interpretations.[13]

(30) *Not everyone can ever be on the team.
$\neg(\succ$NPI$) \succ\Diamond (\succ$NPI$) \succ\forall (\succ$NPI$)$

Moreover, (31) testifies to the fact that modals (and split indefinites) do not interfere with NPI-licensing, implying that the degraded status of (30) should not be blamed on the presence of *can* (see also (33) below; see also von Fintel and Iatridou 2005: 21f, who reach the same conclusion).

(31) Nobody can ever be on the team. $\neg\exists \succ \Diamond \succ$ NPI/$\neg\Diamond \succ \exists \succ$ NPI

A split reading for (30) is arguable unavailable for the same reason that the paraphrase of (30) given in (32) is ill-formed:

(32) *It is not possible that everybody will ever be on the team.
$\neg\Diamond \succ \forall \succ$ NPI

[13]It is orthogonal for present purposes whether (32) is well-formed on a non-split interpretation. According to informants, this is not the case, raising the additional question why (32) contrasts with (29).

In both cases, a universal intervenes between negation and the NPI. Removing the quantifier salvages (32), as shown by (33):

(33) It is not possible that you will ever be on the team. ¬◇ ≻ NPI

Thus, it is tempting to relate the absence of the split interpretation in (30) to the same condition which is usually evoked in handling contrasts such as (32) vs. (33), or those illustrated in (34) and (35): Linebarger's (1980) Immediate Scope Constraint (see also Guerzoni, to appear).

(34) a. He didn't like anything. (Linebarger 1987)
b. *He didn't always like anything. * ¬ ≻ ∀ ≻ NPI

(35) a. I didn't want her to eat any cheese. (Linebarger 1980: 29)
b. *I didn't want every boy to eat any cheese. * ¬ ≻ ∀ ≻ NPI

For this analysis to succeed, the subject of (30) has to reconstruct into a position above the NPI, from where it can disrupt the relation between the negation and *ever*, triggering a violation of the Immediate Scope Constraint. But before the subject can be linked to a specific node in the tree that meets this condition, it is necessary to identify the exact attachment site of the NPI *ever*.

Ever and *always* are both aspectual modifiers, but they are not in strict complementary distribution. If they cooccur, *ever* needs to precede *always*, as the Immediate Scope Constraint might lead one to expect:

(36) a. No one source is ever always authoritative.
b. *No one source is *always* ever authoritative.

(37) a. Where in the world is it ever always easy?
b. *Where in the world is it *always* ever easy?

Furthermore, *always* takes scope above modals to its left (see section 3.2), indicating that *always* originates as a TP-adjunct, and that modals optionally reconstruct below *always:*

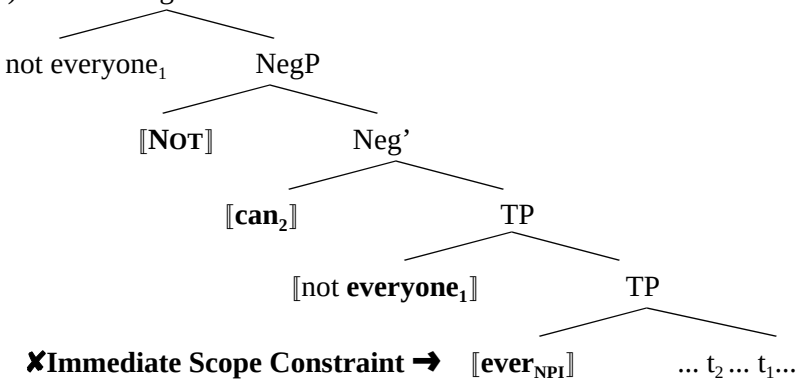
(17) He [$_{\text{AgrSP}}$ can$_1$ [$_{\text{TP}}$ always [$_{\text{T'}}$ t$_1$ count on me]]] *always*≻◇/*◇≻*always*

According to the ordering generalization extracted from (36) and (37), *ever* is located higher than *always.* Together with the scope fact (17) this entails that *ever* is generated as a TP-adjunct or as an adjunct above TP.

It also follows now that the subject in (30) has to be squeezed inbetween the negation and the TP-adjunct *ever* in order to induce a violation of the Immediate Scope Constraint. One way to arrive at the desired structural

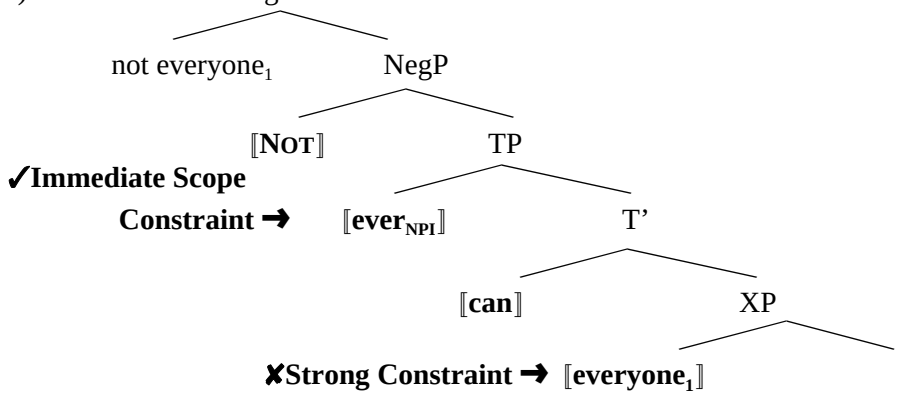
configuration for the application of the Immediate Scope Constraint consists in parsing the subject copy into an outer specifier of TP, from where it impedes NPI licensing, as shown by (38). This derivation excludes (30) by assuming that the split reading represents the scope order ¬ ≻ ◇ ≻ ∀ ≻ NPI:

(38) *AgrSP * ¬ ≻ ◇ ≻ ∀ ≻ NPI



Next, the absence of the alternative split scope order ¬ ≻ NPI ≻ ◇ ≻ ∀ encapsulates the crucial (reductio) argument against long subject reconstruction (and for SAHM). Suppose that the subject in (30) had the option to be interpreted below TP, in the specifier of some intermediate XP, as shown by (39). In this alternative derivation, the modal is located in its base position T° at LF, and no category intervenes between the NPI and its licensing negation. As a result, (39) observes the Immediate Scope Constraint. Hence, if the surface string (30) could be parsed as in (39), one would wrongly be led to expect that (30) can be assigned a split reading (¬ ≻ NPI ≻ ◇ ≻ ∀):

(39) *AgrSP * ¬ ≻ NPI ≻ ◇ ≻ ∀



The unavailability of scope splitting for (30) therefore furnishes evidence for

the view that the universal subject is interpreted in SpecTP, as in (38). The ill-formedness of (39) can then be attributed to the Strong Constraint, which blocks reconstruction of strong NPs below T°.

Considerations similar to the ones above also exclude the third logically possible scope order for (30) (¬ ≻ ◇ ≻ NPI ≻ ∀). This last available derivation differs from (39) minimally in that the modal is interpreted in its derived position Neg°. Just like (39), this reading cannot be produced due to illicit long subject reconstruction into SpecXP.

Note in passing that the argument above has the objective of securing the LF-position of the subject, and is not concerned with extracting from the data direct support for SAHM. If structures that violate a syntactic constraint, but are otherwise well-formed (such as (38)) are nonetheless assigned a semantic value, the modal in (38) might indeed be interpreted in a derived position. Whether this view turns out to be correct or not is orthogonal for the soundness of the main argument, though.

To summarize, the interaction of scope splitting and NPIs provides independent evidence for the claim that universal subjects cannot be interpreted below TP. As explicated in section 4, this finding furthermore implies that some modal contexts manifest instances of SAHM.

6. Negative Quantifiers

This final section elaborates on some consequences that the analysis for negative *universals* presented in sections 3 and 4 entails for the treatment of reconstruction in related constructions involving negative *indefinites*.

Negative quantifiers are generally held to resist reconstruction, as demonstrated by the fact that the subject of the proposition expressed by (40) can only be understood *de re* (see von Fintel and Iatridou 2004; Iatridou 2002; Lasnik 1999; Wurmbrand and Bobaljik 1999, a.o.):

(40) a. No critic is certain[14] to like the movie. *de re/*de dicto*
b. It is certain that no critic likes the movie. *de dicto*

The contrast manifest in (41) and (42) indicates that the scope options of

[14]*seem* treats clause-mate negation semantically as if it were part of the lower proposition ('Neg-raising'; (i)). Neg-raising is also attested with negative subjects, as in (ii) (from Kayne 1998: fn. 26):
(i) ⟦John does not seem to be there⟧ ⇔ ⟦It seems that John is not there⟧
(ii) ⟦Nobody seems to be there⟧ ⇔ ⟦It seems that nobody is there⟧
The change from *seem* to *is certain* in the examples in the main text makes it possible to avoid interference from Neg-raising in the scope judgements (Kayne 1998: fn. 26).

negative NPs are even more restricted than those of strong NPs. Unlike strong NPs, which may undergo short reconstruction below negation ((41)), negative quantifiers seem to lack inverse scope readings all together ((42)):

(41) a. Every guest didn't show up. $\forall \succ \neg / \neg \succ \forall$
b. All that glitters isn't gold. (Lasnik 1972)

(42) No guest didn't show up. $\neg\exists\neg \Leftrightarrow \forall / *\neg\neg\exists \Leftrightarrow \exists$

While scope diminishment with negative subjects is severely limited, the present analysis must on the other side not entirely prohibit reconstruction of negative NPs, either. More precisely, on current assumptions, reconstruction of negative subjects is indispensable in order to satisfy the local scope requirement of their [+neg]-feature at LF.[15] In the scope splitting example (26), for one, the [+neg]-feature on the subject can only be licensed subsequent to reconstruction into SpecTP.

The maximal depth at which a negative subject may lower is determined by independent principles. Negative universals fall under the reign of the Strong Constraint (see (26)), and are therefore interpreted no lower than in SpecTP. Moreover, it must be ensured that negative NPs do not reconstruct to a position below other scope bearing categories. In particular two instances of scope diminishment have to be excluded in this domain: lowering of a negative indefinite into a subordinate clause ((40)) and reconstruction across negation ((42)). As will be demonstrated below, the [+neg]-feature analysis can also be extended to these cases.

Turning to the monoclausal structures involving negation first, the unattested narrow scope reading for the subject in (42), repeated in (43)a, is contingent upon a representation in which the subject reconstructs to a position below NOT, as in (43)b. Since *not* occupies Neg°, both the head and the specifier of NegP are now filled:

(43) a. No guest didn't show up. $*\neg\neg\exists \Leftrightarrow \exists / \neg\exists\neg \Leftrightarrow \forall$
b. $[_{\text{NegP}}$ NOT $[_{\text{Neg'}}$ not $[_{\text{TP}}$ [no guest]$_{[+\text{neg}]}$ show up $*\neg\neg\exists \Leftrightarrow \exists$

But such 'doubly-filled NegP' configurations fail to satisfy the well-formedness conditions on negative contexts in English. More specifically, in double negation languages such as (standard) English, the relation between morphologically negative lexical expressions (negative NPs, the negative

[15]Penka and von Stechow, who focus on German, restrict (24)b to *surface syntax*. This difference application might be due to the general scope rigidity of German.

particle *not*, ...) and logical negations (NOT in SpecNegP) is biunique.[16] That is, every negative expression has to be associated with a NOT of its own. A single logical negation (NOT) in (43)b can therefore not simultaneously license two morphologically negative expressions (*no guest* and *not*), blocking the reconstructed interpretation.[17]

It also follows from the above that for the derivation to converge, both *no guest* and *not* have to be supplied with an individual licensor. Representation (44) satisfies this requirement by projecting an additional NegP (NegP2) that holds a second occurrence of the logical negation NOT. In (44), NegP2 is located above NegP1,[18] and each negatively marked expression is matched with a logical negation (a higher one in NegP2 for *no guest*, and a lower one in NegP1 for *not*), resulting in the attested scope order ¬∃¬:

(44) $[_{\text{NegP2}}$ NOT [[no guest]$_{[+neg]}$ $[_{\text{NegP1}}$ *NOT* $[_{\text{Neg1'}}$ do$_4$-*not* $[_{\text{TP}}$ t$_4$ ... ¬∃¬ ⇔ ∀

In sum, the absence of reconstruction of negative NPs across negation can be made to follow from the specifics of the licensing condition on [+neg] and the syntactic well-formed conditions on negation.

Turning to long reconstruction of negative NPs next, the subject of (40), repeated below as (45), can in principle be interpreted in three different positions:

(45) No critic$_{[+Neg]}$ is certain to like the movie. (= (40))

a. $[_{\text{NegP}}$ NOT is $[_{\text{TP}}$ [no critic$_{[+Neg]}$] $[_{\text{VP/AP}}$ certain to like the movie
¬∃ ≻ *certain*

b. *$[_{\text{NegP}}$ NOT is $[_{\text{TP}}$ $[_{\text{VP/AP}}$ certain $[_{\text{TP}}$ [no critic$_{[+Neg]}$] to like the movie
¬ ≻ *certain* ≻ ∃

c. *is $[_{\text{TP}}$ $[_{\text{VP/AP}}$ certain $[_{\text{NegP}}$ NOT $[_{\text{TP}}$ [no critic$_{[+Neg]}$] to like the movie
certain ≻ ¬∃

---

[16]In negative concord languages, a single NOT may check more than one [+neg].

[17]I adopt the standard premise that each SpecNegP can hold only a single NOT - i.e. each NegP may be marked for polarity only once. The negative marker *not* can be taken to represent the spell-out of NOT, or can be assumed to bear a [+neg] of its own.

[18]The representation (i), in which NegP2 is projected below NegP1 can arguably be independently excluded. For instance, *do* in (i) would have to skip the lower negative head on its way to NegP1, in violation of the head movement constraint.
(i) *$[_{\text{NegP1}}$ NOT [*do$_4$*-not $[_{\text{NegP2}}$ NOT [Neg1˚ [TP [no guest]$_{[+neg]}$ t$_4$ ... ¬¬∃ ⇔ ∃
Further support for the assumption that NegP2 is *above* NegP1 can be derived from typological evidence, which indicates that additional negative projections are located higher in the tree than classic sentence negation (see Zanuttini 1997).

In the well-formed representation (45)a, which underlies the surface scope reading, *no critic* undergoes short reconstruction to the matrix SpecTP, licensing the [+neg]-feature which now resides within the scope of NOT at LF. The parse in (45)b minimally differs from (45)a in that the subject has been reconstructed into the lower clause, resulting in an unattested split reading across a raising predicate. The structure is excluded by the locality requirement on [+neg] licensing, which demands that the feature reside within the scope of clause-mate negation. Finally, in (45)c, the subject reconstructs into the lower SpecTP again. But this time, the abstract NOT is generated in the embedded clause, too, in accordance with the locality conditions on [+neg]. At first impression, one is therefore led to expect that the derivation should converge, providing an LF for the unattested narrow-scope *de dicto* interpretation. The LF in (45)c falls short of satisfying an independent criterion on derivations, though, which is usually referred to as the Improper Movement Constraint, and which rules out certain combinations of A- and Ā-dependencies. (46) provides a version that transposes the traditional concept of A/Ā-movement into the currently more popular Agree-based system:

(46) **Improper movement constraint (Agree-based version)**
If a category C partakes in an Ā-Agree dependency at node n, it must not enter into an A-dependency at a node that dominates n.

Classic instances of improper movement prototypically involve *wh*-movement, where the constraint e.g. excludes subsequent applications of *wh*-movement and raising of one and the same category. Moreover, on a widely accepted view, the distribution of [+neg] features is governed by principles similar to the ones which are thought to be responsible for the licensing of *wh*-phrases. Haegeman and Zanuttini (1996), for one, express various restrictions on negative NPs by appealing to the Neg-Criterion, which they define in analogy to the *wh*-criterion of Rizzi (1991).[19] It is therefore only natural to expect that the application of (46) also has empirical manifestations in the domain of negative licensing. I would like to suggest that exactly such a case has been identified above in the guise of (45)c.

As detailed by (47), the subject of (45)c enters both an Ā-dependency ([+neg]-licensing) and an A-dependency (raising). Moreover, the node containing the Ā-relation (☞) is dominated by the node which demarcates raising (☛). Thus, the derivation violates the improper movement constraint,

[19]For discussion see Zeijlstra (2004). The Neg-Criterion requires specifier-head relations, instead of scope (i.e. c-command at LF) to apply between the [+neg-]feature and the semantic negation. This difference is immaterial for present purposes, though.

and the missing narrow scope reading (45)c cannot be generated:

(47) a. *[+neg]-licensing*: [$_{TP}$ [certain [$_{NegP}$ NOT ☞ [$_{TP}$ [no critic$_{[+Neg]}$]

b. *Raising*:
☛ [$_{AgrSP}$ [no critic$_{[+Neg]}$] is [$_{TP}$ [certain [$_{NegP}$ NOT [$_{TP}$ to ...

Notice in this context that the system has enough flexibility for adjustments in order to counter the potential objection that the creation of the Ā-dependency in (47) does not derivationally precede raising, but is delayed at LF. One way to remove this apparent disparity between Improper Movement with [+neg]-features and *wh*-phrases consists in assuming that negative NPs check their [+neg]-features already in overt syntax (as e.g. in Penka 2002), but that they also need to satisfy an independent scope requirement at LF which then drives reconstruction. The latter might be similar to that found with NPIs. On an alternative implementation, negative NPs are endowed with two features, which have to be eliminated in overt syntax and at LF, respectively.

To recapitulate, negative NPs can in principle reconstruct, but the effect of lowering are detectable only in the very limited set of contexts involving scope splitting (see (26)). The general resistance of negative NPs to partake in scope diminishment can furthermore be linked to the interaction between the [+neg]-licensing criterion and syntactic factors such as the improper movement constraint.

7. Conclusion

The present paper presented an attempt at isolating an argument in favor of the view that certain instances of HM must be computed in the syntactic component (SAHM). If HM can be shown to uniformly display the same behavior w.r.t. its defining characteristics, this implies that a PF-analysis of HM is not viable (contra e.g. Boeckx and Stjepanovic 2001; Chomsky 2000, 2001; Harley 2004). The search for SAHM also produced some new evidence for particular analyses of three phenomena.

First, the interaction of PPI licensing and negation was seen to provide a new argument for generating modals low and moving them to a higher head position in overt syntax (contra non-derivational approaches such as Cormack and Smith 1998, 1999, a.o.).

Second, the discussion yielded new diagnostics from NPIs for identifying the position in which subject NPs are submitted to interpretation.

Third, the deliberations resulted in a novel way for expressing restrictions on scope diminishment. On the one hand, the inability of negative NPs to

undergo reconstruction was attributed to an LF-licensing requirement on the [+neg]-feature. This approach not only offers the advantage of deriving (substantial parts of) the behavior of negative NPs from independent principles, but also supports the hypothesis that negative NPs are semantically decomposed into their contradictories and an abstract negative symbol NOT (von Stechow and Penka 2001; Penka 2002). On the other hand, the reconstruction properties of strong NPs led to the formulation of a specific descriptive generalization blocking scope diminishment below T˚ for this group of NPs.

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