Interpretation and the Typology of Head Movement: A Re-Assessment

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A Starting Point

the consensus around head movement

Rizzi (2016), reflecting a current consensus:

- a discussion of certain issues and opportunities in the emerging theory of labelling and projection
- head movement is by no means the principal focus of the paper, but it plays a role. In particular:
- head-movement creates difficulties for what one might think of as the simplest treatment of the labelling algorithm (in making it more difficult to distinguish heads from phrases)
- these problems would not arise if head movement were to be banished to the post-syntax.
- but it cannot be so banished because it has been established that head movement brings with it interpretive effects – citing Lechner (2007).
- the discussion presupposes (without stating explicitly) that head-movement is always adjunction.

my goals here

- to review and assess (in a somewhat sceptical way) the current evidential basis for the first strand of that consensus,
- to suggest a link between the evidence as we now have it and the second strand of the consensus – that head movement is always adjunction.
- to speculate on why there might be such a link.

Cases

scope – enhancement and diminishment

1. Lechner (2007) on 'split scope' for negative quantifiers
2. Iatridou & Zeijlstra (2013) on scope of modals with respect to negation
3. Szabolcsi (2011) on verbal quantifiers
4. Keine & Bhatt (2015) on scope in long passivization in German
5. Han et al. (2007) on verb-raising and negation in Korean
6. Benedicto (1998) on v-raising and the interpretation of determinerless nominals in Spanish

enhanced licensing

7. McCloskey (1996), Roberts (2010) and others on NPI licensing under inversion in English.

ellipsis licensing

8. Hartman (2011) on the role of head movement traces in ellipsis licensing in English
9. Gribanova (2016) on focus and verbal identity under ellipsis in Russian.

Part One: Scope Effects

(10) a.   Not everyone can be an orphan.
    b.   Not every pearl can be above average size.
    c.   Not every candidate can make the shortlist.
    d.   Not every lottery-ticket can be drawn.

(11)   THE GENERAL FORM:
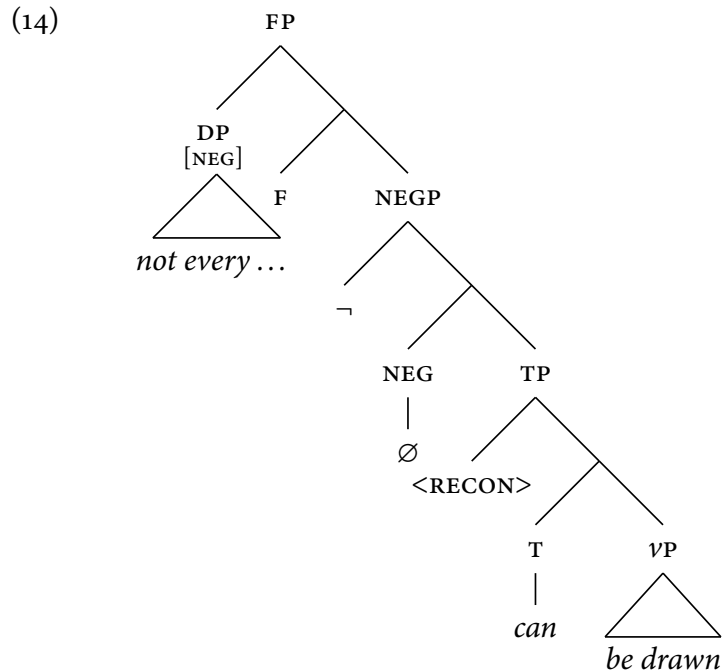   NOT every NP MODAL vP.

Two readings:

(12) a.   SPLIT READING:
    ¬   POSS   ∀
    b.   DE RE READING:
    ¬   ∀   POSS

For (10d) for instance:

(13) a.   There is no accessible possible world (of the relevant type) in which it holds that every lottery-ticket is drawn. (There are losers as well as winners.)
    b.   It's not true of all lottery-tickets that there is an accessible possible world in which they are drawn. (Maybe all of the tickets sold in Seven Eleven stores in Fremont are deliberately held back from the big drum from which the winning ticket(s) will be selected.)

THE STRUCTURE ASSUMED

(14)

```
                    FP
                   /  \
                  /    \
             DP   \
            [NEG]  \
             / \    F      NEGP
            /   \          /  \
          not every ...   /    \
                         ¬
                          /    \
                      NEG       TP
                       |       /  \
                       ∅      /    \
                     <RECON> /      \
                            /        \
                           T         vP
                           |        /  \
                          can    be drawn
```

ELEMENTS OF THE ANALYSIS

- ○ There are at least three subject positions in English (in clauses containing a modal):
  - the thematic position (specifer of *v*),
  - an intermediate position (specifier of T), and
  - the specifer position of a higher projection (call it F).
- ○ There is a negative projection above T but below F,
  - whose specifier position is occupied by the sentential negation ¬,
  - and which in turn is the licenser for the negative determiner *not* which heads negative DP's like *not every ticket* (the D itself makes no semantic contribution).
- ○ Modals originate in T and undergo a two-step head movement: through (not past) the negative head and then on to F.
- ○ Negative DP's like *not every ticket* must be licensed by being (at LF) in the local command-domain of the sentential negation in the specifier of the negative projection;
- ○ therefore the negative DP must reconstruct to a position at least as low as the specifier of T.
- ○ The raised modal may make its semantic contribution either in its base position (T) or in its intermediate position (the head-position of the negative projection).

THE READINGS

- ○ DE RE READING: when the modal is interpreted in its base-position it is below the universal quantifier *every ticket*, which is now in its specifier position, and that quantifier is in turn below ¬ in the specifier position of the negative projection.
- ○ SPLIT READING: when we interpret the modal in its intermediate position, it is above the universal quantifier (in the specifier position immediately below it) but below ¬ in the specifier position of the head it is temporarily occupying.

IMPORTANT NOTE:

There is no argument from the *de dicto* reading for a syntactic interpretation of head movement. If there were head movement of the modal, but that movement were post-syntactic, then the modal would make its semantic contribution (exclusively) in the low position – in T, yielding the *de re* interpretation.

But to get the 'split' reading, the modal must niche in between the universal (reconstructed to the specifier position of T) and the sentential negation in its own specifier-position). THAT IS: the modal must be 'seen' by the interpretive processes in the intermediate position of the 3-member head-chain – this is scope-enhancing head movement.

AND CRUCIALLY:

The negative DP must not reconstruct too far – if it reconstructed to a position below T (say to its thematic position), it would be in the scope of the modal even in its base position. This would yield the correct interpretive consequences (the split reading) but without appeal to head movement, syntactic or post-syntactic. Therefore:

(15)   Lechner's STRONG CONSTRAINT (p. 8): Strong quantifiers cannot reconstruct below T.

The argument for interpretive effects of head-movement, as Lechner recognizes (p. 18), stands or falls on the correctness of (15).

THE MISSING THIRD READING

Given this framework of assumptions, we expect, of course, a third scopal possibility – in which the modal takes scope in the highest position it attains (in F). This would be the surface-true scope (see (Lechner, 2007: p.6, p. 14)):

(16) a.   SPLIT READING:
          ¬   POSS   ∀
     b.   DE RE READING:
          ¬   ∀   POSS
     c.   DE DICTO READING:
          POSS   ¬   ∀

(17)   (16c):
     a.   There is an accessible possible world in which it's not the case that every lottery-ticket is drawn.
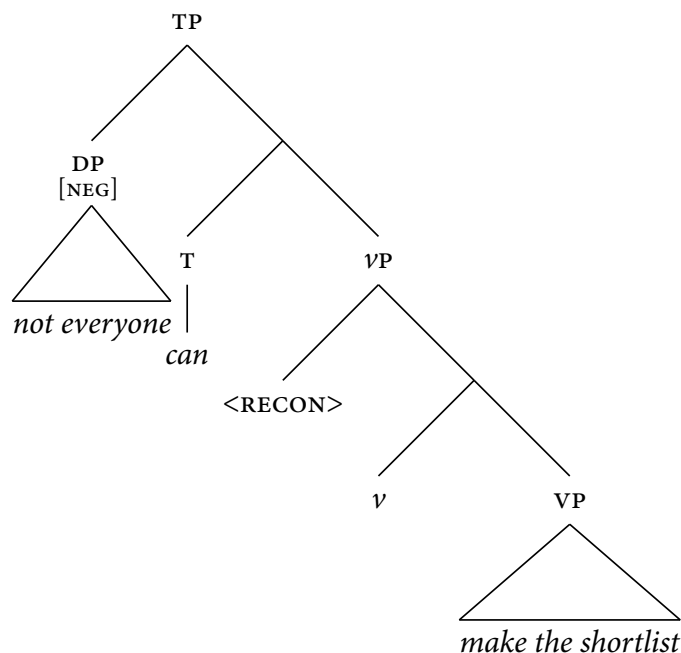   b.   Maybe not every ticket will be drawn.

SCOPE RECONSTRUCTION UNDER A-MOVEMENT

Applied to the current problem:

(18) a.   Not everyone can make the shortlist.
     b.

- the negative determiner *not* implies the presence of an abstract high negation (Ladusaw (1992), Potts (2002), Iatridou & Sichel (2011) among many others);
- reconstruction of the negative DP to the specifier of *v*P;
- the split reading emerges from the reconstruction possibility;
- the *de re* reading emerges when the negative DP is interpreted in its surface position
- there is no third reading

LASNIK'S PUZZLES

(19) a.   Every critic seemed to like the play.
    b.   Every coin is 3% likely to land heads.
    c.   Noone is certain to win.

No reconstruction under A-movement? But see Ladusaw (1977, 1988) and much subsequent work especially Sauerland (2003).

(20) a.   At least one player always loses.
    b.   Most guests will not be late.
    c.   Every player didn't score.

(21) a.   Mr. Trump needs to realize that all blacks don't go to church on Sunday.
                            [Ron Christie: NYT op-ed, Monday September 5th 2016].
    b.   When I drive past a children's playground, some au-pair nearly always makes a mental note of my registration number.
                            [Sara Baume: *Spill, Simmer, Falter, Wither*, Tramp Press, p. 9]

(22)   (I'm teaching an 8AM class and I say):
    a.   At least one student tends to fall asleep.
    b.   More than half of the students tend to fall asleep.

(23)   More than half of all voters tend to vote the straight party ticket.

And despite (19c), negative indefinites scope below (at least some) raising predicates:

(24) a.   No doctor appears to be present.
    b.   No doctor seems to be present.
    c.   No student is believed to have witnessed the crime.

(See Iatridou & Sichel (2011). Caution is in order here, though – as they show – about whether or not it is appropriate to treat such cases in terms of reconstruction in the standard sense.)

RECONSTRUCTION INVOLVING NEGATIVE STRONG QUANTIFIERS

(25) a.   Not everyone tends to hit the water together.
                            http://www.philadragonboatfestival.com/teams.asp
    b.   not everyone tends to get the same results as the other.
                            https://www.fiveeightprogram.com/pages/about-the-program
    c.   Not everyone tends to have fun in the same way.
                            https://www.wattpad.com/story/68995768-fun-happydeathday
    d.   Not everyone tends to have the same interests as I do.
                            https://www.fanfiction.net/s/12010775/2/Beautiful-in-White
    e.   not everyone tends to think the same way about titles and descriptions.
                            https://www.nocccd.edu/files/argos-report-viewer-002_25340.pdf
    f.   better to have guests a bit too packed (and not everyone tends to dance at the same time all evening), rather than rattling around in a space that is too large.
                            http://www.barndance.co.uk/tips.html

(26) a. Who will the Giants remove from the starting rotation when everyone's healthy? Short answer: Not everyone is likely to all be healthy at the same time.

http://www.mccoveychronicles.com/2015/5/18/

b. However, not everyone is likely to receive an assistantship, and students should take the initiative to look for funding as well.

http://www.umass.edu/education/sites/default/files/International

c. While not everyone is likely to become like Albert Einstein overnight, it's likely that people can definitely improve their own level.

https://www.ideatovalue.com/crea/nickskillicorn/2016/02/interview-with-dr-simone-ritter-how-variety-sparks-new-ideas/

d. If you want to create a distinct look or identity, pick styles, cuts, colours and brands not everyone is likely to be wearing that evening.

http://economictimes.indiatimes.com/slideshows/spending-lifestyle/how-to-dress-for-a-formal-dinner-or-a-late-party/dress-code/slideshow/14741460.cms

e. While not everyone is likely to agree with the elite dating app's vetting policy, it would appear that demand exists,

http://www.techworld.com/apps/inner-circle-polo-party-3622665/

f. First, not everyone may use the same minimum tensile strength number to determine the burst pressure. Even if they do, not everyone is likely to use the same safety factor number.

http://blog.restek.com/?p=10383'

INTERIM SUMMARY

Assessing whether or not the restriction on reconstruction possibilities defined in (15) is tenable or not is not straightforward given the current state of our knowledge of the relevant domains. However:

- (15) is not well integrated into any larger theoretical structure
- the evidence for scope reconstruction under A-movement is strong and clear (and the analysis in Lechner (2007) also depends on such reconstruction being available)
- therefore the decision to be made is whether or not the relevant cases are among those in which appeal to reconstruction is valid
- the current balance of evidence suggests that they could well be
- but that's the thread by which the argument for interpretive effects of head movement hangs, and
- given that there is very little INDEPENDENT evidence for head movement in these cases in the first place (evidence that is independent of the conjecture that is at issue)
- it does not seem wise to conclude that the case for interpretive effects of head movement has actually (yet) been made in this instance.

Concerned with the interaction between the scope of negation and certain modals – a much studied area.

The basic facts are well known. Deontic modals divide into three classes:

- a group of existentials like *can* and *may* which must scope under negation
- a group of universal deontic modals which divide into three classes:
  - a group like English *must* and *should* which always scope over negation
  - a group like English *have to* which always scope under negation
  - a group of universal modals like English *need* and German *brauchen* which must appear in the scope of negation.

(27) a.   Sally cannot leave. $\neg$ MODAL

      b.   Sally may not leave. $\neg$ MODAL

(28) a.   Sally must not leave.   MOD $\neg$

      b.   Sally should not leave.   MOD $\neg$

(29)   Sally doesn't have to leave. $\neg$ MODAL

(30) a.   You needn't take the exam.

      b.   Nobody need take the exam.

      c.   *You need take the exam.

The *need/brauchen* modals (as in (30)) have been widely analyzed as negative polarity items (Ladusaw (1992), van der Wouden (1994) for example).

There are also 'neutral' modals which scope under negation when it is present, but which are not dependent on negation for their well-formedness – *have to*, *need to* in English.

(31) a.   Sally has to leave.

      b.   Sally doesn't have to leave. $\neg$ MODAL

THE PROPOSAL, PART ONE:
(developed independently by Michael Israel (1996) and Vincent Homer (2012, 2015)) modals (like *must*, *should*, *ought to* in English) which must take wider scope than negation are positive polarity items and their propensity for wide scope reflects their allergy to being in the local scope of negation.

THE HEAD MOVEMENT CONNECTION:
How do we understand the class of modals which, like English *can*, scope below negation while appearing to its left?

- Modals raise from a lower position to T.
- Their scopal properties reflect their base position with respect to negation – that is lower.

(32) a.   Sally cannot leave.

      b.   [$_{TP}$ Sally T not can [$_{vP}$ leave]]

THERE IS AS YET no argument for syntactic head-movement, since, if there is head raising of the modal and if that were a postsyntactic raising, (32b) is exactly the structure which would be submitted for interpretation.

BUT … recall what are now analyzed as positive polarity items – modals like *must* and *should* in English, which obligatorily scope above negation. These modals MUST NOT BE ALLOWED to reconstruct to a position below NEG.

(33)   THE PROPOSAL, PART TWO:
        Head movement reconstructs unless reconstruction would lead to ungrammaticality.
        (Iatridou & Zeijlstra, 2013: (73)b, p. 549)

So …
- for the PPI modals like *must*, reconstruction is blocked because any modal which reconstructed would find itself in the scope of negation, which is a state it cannot abide.
- for the neutral modals like *can*, which are not polarity items, reconstruction is freely available (they are more than happy to be in the scope of negation).
- and the NPI modals like *need* and *brauchen* are happy to reconstruct – since they cannot abide NOT to be in the scope of negation
- and we now have an argument against a postsyntactic view of head-movement:
  - because the system of interpretation must see the output of head movement, in the case of PPI modals like *must* and *should* (which always scope over negation when it is present), but it sees the initial position of the head movement in the case of NPI modals like English *need* and German *brauchen*.
  - therefore we have evidence both for scope-enhancing head movement (in the case of the PPI modals) and for reconstruction effects (in the case of the NPI modals), two hallmarks of syntactic movement.

ASSESSMENT:

- the principal concern involves the appeal to reconstruction for the 'neutral' modals like *can*. The hallmark of reconstruction is optionality – there are two (or more) occurrences of an item and the item can make its semantic contribution in any of the positions it occupies at derivation's end. Note the contradiction with Lechner's argument (for which it is crucial that the modal not be FORCED to reconstruct). See (Iatridou & Zeijlstra, 2013: fn. 34, p. 554)
- Homer's (2012, 2015) alternative analysis (based on the same fundamental insight) depends not on head movement or on reconstruction but rather on scope-enhancing covert movement of the relevant modals.
- Iatridou & Zeijlstra (2013) must appeal similarly to scope-enhancing covert raising for those languages (all of the other European languages they examine) in which negation is high and in the syntax commands modals of the sort which will out-scope it for interpretive purposes. For such cases appeal to head-raising is futile and they propose covert scope-expanding movement, of the kind that Homer appeals to also for English.

Interactions between focus operators like *only* with aspectual raising verbs like *begin*:

(34) a. In May only Mary began to get good roles.
  b. READING ONE: Only Mary is such that she began to get good roles.
  c. READING TWO: It began to be the case that only Mary was getting good roles.

 ○ Such raising verbs are explicit quantifiers over time arguments and participate in scopal interactions.
 ○ In READING TWO, the quantifier encoded by *begin* scopes over *only Mary*.
 ○ In Shupamem (a Grassfield Bantu language) only READING TWO is available when the verb fronts to clause-initial position.

BUT: other languages examined do not show the effect (Hungarian, English, Dutch, Russian).

AND: as Szabolsci recognizes (pp 15–19) one expects the same scopal effects for verbs whose meanings involve quantification over world-variables (modals, intensionsal raising verbs). Such interactions have not (yet?) been documented.

KEINE AND BHATT 2015

Obligatory wide scope for elements within the complement domain of long passives in German. Is there head movement?

HAN ET AL 2007 ON KOREAN

A paper which presupposes (rather than asserts) that head movement can be scope enhancing – negation in Korean may be carried along by head movement of v through the extended projection, giving rise to new scopal effects.

But the treatment of the syntax of negation is perhaps the only questionable aspect of their proposals. See Tulling (2015) for an alternative which preserves their core results but makes no appeal to scope-enhancement via head movement.

BENEDICTO 1998 ON SPANISH

For a critical review, see Hall (2015: 106–117)

1   PART TWO: ENHANCED LICENSING

NPI licensing in standard English:

(35) a. *Which student does anybody not like?
  b. Which student doesn't anybody like?

(36) a. *I know why anyone didn't help us.
  b. Why didn't anyone help us?

Licensing of the NPI *anybody* in (35b) and (36b) seems to depend on the affixal negation being carried along with the fronted auxiliary to a position in which it commands the NPI. McCloskey (1996), Kayne (2000, 2005), Roberts (2010)).

2 PART THREE: ELLIPSIS LICENSING

MAX ELLIDE EFFECTS

Hartman (2011):
The presence of a (semantic) variable left by head-movement inside an ellipsis site in English can force larger ellipses (sluicing rather than VP-ellipsis) in virtue of the logic of MAXELLIDE as understood by Takahashi & Fox (2005). The analysis, if successful, implies that the semantic-pragmatic component of the system of ellipsis licensing has access to representations in which it can detect a trace left by head movement, understand it as a variable and react accordingly.

V-STRANDING ELLIPSIS IN RUSSIAN

Gribanova (2016):
MAXELLIDE effects can also be attributed to the presence of a verbal trace in an ellipsis type in Russian which involves ellipsis of a large constituent (TP) which is the complement to a polarity head. V-raising to the polarity head, crucially, is driven by discourse-relevant features (focus-related), with possible implications for the mystery of the verbal identity condition in V-stranding VP-ellipsis.

Appendix A: Chomsky's Charge-Sheet

('Derivation by Phase', pp 37–38:)

'There are some reasons to suspect that a substantial core of head-raising processes … may fall within the phonological component.'

The reasons:

- The expectation of near-uniformity of LF interface representations across languages; if the uniformity thesis is correct, then verbs should be interpreted in the same way whether they do not raise (English), raise to T (many languages), or raise to C (v2 languages). According to expectation, verbs are not interpreted differently in, say, Swedish as opposed to Icelandic.

- More generally, semantic effects of head raising in the core inflectional system are slight or non-existent. For phrasal movement, such effects are substantial and systematic.

- We avoid a serious problem which is too little discussed. We assume that when C, say, acting as a probe interacts with a goal D, what raises to the specifier of C is the DP projected by D, not D alone. But we simultaneously assume that when T, say, interacts with v, only v raises—not vP. This is the Pied Piping problem. This problem is easier to solve if v-to-T raising, T to C raising, N to D raising and so on reflect phonological properties, being conditioned by the affixal character of inflectional heads.

- Head raising differs from core rules of narrow syntax in several respects.
    - it is an adjunction rule
    - it is counter-cyclic (does not obey the Extension Condition)
    - the raised head does not command its trace
    - it observes somewhat different locality conditions
    - it is not successive-cyclic (assuming that there is no excorporation)

- Grodzinsky & Finkel (1998)[1] identify a type of aphasia in which the symptoms can be interpreted as suggesting an inability to identify XP-chains. These patients have no difficulty with head chains.

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[1]'The neurology of empty categories: Aphasics failure to detect ungrammaticality,' *Journal of Cognitive Neuroscience* 10: 281–292

APPENDIX B: WORKS WHICH MAKE A CASE FOR INTERPRETIVE OR SYNTACTIC EFFECTS OF HEAD-MOVEMENT

Hartman (2011)
Roberts (2010)
Szabolcsi (2011)
Lechner (2007)
Iatridou & Zeijlstra (2013)
Benedicto (1998)
Han et al. (2007)
Mathew (2014)
Funakoshi (2014)
Gribanova (2016)
Keine & Bhatt (2015)

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