Quantifier Lowering Re-reconsidered
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I. Quantifier Lowering: Some History

(1)   Some politician is likely to address John's constituency
                                                            May (1977)
(2)   "[(1)] may be taken as asserting either (i) that there is a politician, e.g., Rockefeller, who is likely to address John's constituency, or (ii) that it is likely that there is some politician (or other) who will address John's constituency."
(3)   Many people were thought to have sold IBM shares
(4)   May gives no explication or paraphrases, but (3) does seem to have both kinds of readings that May indicates for (1).
(5)   Everyone seems to like Cecil's playing
(6)   May again gives no explication. This time the differences are harder to pin down.

(7)   "... the reason that sentences like [(1), (3), (5)], containing raising predicates, are ambiguous is that they can be associated with two distinct logical forms ..."   p.189

(8) $[_S \, [\text{some politician}]_\alpha \, [_S \, \alpha \text{ is likely } [_S \, t \text{ to address John's constituency}] \,] \,] \,]$
(9)   This one arises from a standard raising instance of May's Quantifier Rule (QR).

(10) $[_S \, \alpha \text{ is likely } [_S \, [\text{some politician}]_\alpha [_S \, t \text{ to address John's constituency}] \,] \,] \,]$
(11)   We get this one from a lowering instance of QR, as QR "applies freely".

(12)   " In [(8)] and [(10)] 'α' and ' t ' represent occurrences of the same variable, since they both arise from movement of the same noun phrase; hence they are both bound by this phrase."   p.192

(13)   "In [(8)], the quantifier 'some' has scope wider than the matrix predicate 'likely'; it corresponds to the (i) reading of this sentence as described above. In [(10)], on the other hand, the quantifier has scope narrower than 'likely'; this logical form corresponds to the (ii) reading above."

(14)   Finally, in effect, α in (10) can be ignored as it is not an argument position.

(15)   A hippogryph is likely to be apprehended   May (1985)
(16)   "On [one] interpretation, [(15)] can be truthfully uttered without any supposition regarding the existence of hippogryphs. This contrasts with another construal under which it could not be truthfully uttered without this supposition."   pp.97-98
(17)   "LF-movements are instances of 'Move α,' and thus ... their application is free, in the

sense that derivationally a moved phrase may be adjoined to any S node. In particular, there is nothing to prevent the derivation of (23b) alongside (23a); the former is derived by 'raising' the S-Structure matrix subject to the matrix S, the latter by 'lowering' it to the complement S:

(23)a. a hippogryph$_2$ [e$_2$ is likely [e$_2$ to be apprehended]]
    b. e$_2$ is likely [a hippogryph$_2$ [e$_2$ to be apprehended]]

It is apparent that the structures in (23) represent the relevant ambiguity, at least as far as scope of quantification is concerned. In (23a) the quantified phrase stands outside the scope of the matrix predicate *likely*; in (23b) it is inside the predicate's scope."   p.99

(18)   Finally, the matrix e$_2$ in (23a) is an expletive, while the embedded e$_2$, being locally Ā-bound by an operator, is a variable.

II. QL: Some Alternative Treatments

(19)   Sauerland and Elbourne (2002) suggest another sort of account of the phenomenon of Quantifier Lowering:

(20)   [An Austrian]$_i$ is likely to t$_i$ win the gold medal.

(21)   "The analysis of the narrow scope interpretation of [(20)] we argue for is that *an Austrian* undergoes movement from the trace position *t*, but that this movement operation is purely phonological and therefore does not affect interpretation." p.286   This is a PF analogue of the LF movement widely assumed in Principles and Parameters theorizing.

(22)   Sloan and Uriagereka (1988) suggest yet another interestingly different account of the phenomenon. Rather than having a lowering operation largely undoing the effects of raising, or a movement with no semantic effect, they propose, roughly in the spirit of Lasnik (1972), that quantifier scope is determined cyclically, but as part of the syntactic cycle, not as part of a later LF cycle. This is an obvious precursor of the multiple spell-out of Uriagereka (1999).

III. The Empirical Difficulty: QL is much less general than it is expected to be.

(23)   None of these accounts predicts any limitation on lowered interpretations. Whenever there is a raising construction, 'lowered' readings should be possible. But, as first observed by Partee (1971), and as I discussed in Lasnik (1998) and Lasnik (1999) among other places, such readings are very often unavailable, as indicated by the standard test of paraphrase by the *it* ... [finite clause] alternant. Below, I provide a sampling of examples from those works, as well as some new ones, and some brief discussion. (I use ≠ to indicate that the first example cannot be paraphrased by the second.)

(24)   a. Nobody is (absolutely) certain to pass the test   ≠
        b. It is (absolutely) certain that nobody will pass the test   Partee (1971)

(25)   a. No large Mersenne number was proven to be prime ≠
        b. It was proven that no large Mersenne number is prime

(26) a. Noone is certain to solve the problem ≠
      b. It is certain that noone will solve the problem
(27) a. Every coin is 50% likely to land heads ≠
      b. It is 50% likely that every coin will land heads
(28) a. Every coin is 3% likely to land heads ≠
      b. It is 3% likely that every coin will land heads
(29) In (28), if we have 5 coins, the b. reading (i.e., the lowered one) would be far more
      plausible. Yet it is unavailable.
(30) However, Boeckx (2001) argues that unlike *likely*, *3% likely* is not a raising predicate.
      Then the only source for (28)a would be control, and lowering is not expected with a
      control structure.
(31) *There is 30% [sic] likely to be a man in the garden   p.541
(32) In fact, a number of my consultants agree with Boeckx's judgment on (31). But not all of
      them do. Yet none of them get the lowered reading for (28)a.

(33) Some examples like (28), but where many speakers (in fact, nearly all of my consultants)
      clearly allow raising:

(34) a. Every student is quite likely to pass the exam ≠
      b. It is quite likely that every student will pass the exam
(35) a. There is quite likely to be an investigation
      b. The cat is quite likely to be out of the bag
(36) a. Everyone is fairly certain to pass the exam   ≠
      b. It is fairly certain that everyone will pass the exam
(37) a. There is fairly certain to be a storm today
      b. The shit is fairly certain to hit the fan (when this news breaks)

(38) Another possible failure of 'lowering' comes from an observation about scope that
      Zubizarreta (1982) attributes to Chomsky, and that is discussed again by Chomsky
      (1995):
(39) a. (it seems that) everyone isn't there yet
      b. everyone seems [t not to be there yet]
(40)   Chomsky (p.327) argues as follows: "Negation can have wide scope over the Q in
      [(39)a]... but not in [(39)b]", concluding that "...reconstruction in the A-chain does not
      take place, so it appears."
(41) I expected [everyone not to be there yet]

(42) This kind of example might still be compatible with May style literal lowering (as in fact
      Chomsky suggests), but would still be incompatible with purely PF raising or with
      activation of a lower copy in a movement chain (a point that Chomsky makes).

IV. Towards a Theory?

(43)   A theory of what?

(44)   QL exists, as it would under any of the accounts above. Then we need an account of why it is so often blocked (basically, with anything except indefinites).

OR

(45)   QL doesn't exist. Then we need an account of why it doesn't. And we also need an account of why it looks like it does with indefinites.

(46)   In some of my earlier work referenced above, I proposed that A-movement, unlike Ā-movement, doesn't leave a trace/copy. Then classic literal lowering would leave the Q with no variable to bind. And copy activation would obviously be impossible, there being no copy.

(47)   As for the indefinites, I noted two things. First, in the standard examples, even though there do seem to be two readings, it is very difficult to separate them in terms of truth conditions. On the other hand, in the negative and universal examples, where lowering fails, the two sets of truth conditions for each example are relatively easy to distinguish.

(48)   Second, I appealed (vaguely) to known special properties of indefinites that might provide two readings without an actual scope difference - for example, the specific/non-specific ambiguity discussed in detail by Fodor and Sag (1982).

(49)   What of the classic 'trapping' effects (as in May (1985) and Lebeaux (1998))?

(50)   a. No agent$_i$ was believed by his$_i$ superior to be a spy for the other side $\neq$
        b. *It was believed by his$_i$ superior that no agent$_i$ was a spy for the other side   May (1985)

(51)   There are two interfering factors here: Negatives don't lower in the first place; and, even controlling for that, what can we really conclude from the fact that a particular sentence cannot be paraphrased by an ungrammatical sentence (one violating weak crossover):

(52)   a. Some agent$_i$ was believed by his$_i$ superior to be a spy for the other side $\neq$
        b. *It was believed by his$_i$ superior that some agent$_i$ was a spy for the other side

(53)   However, Wurmbrand and Bobaljik (1999) justifiably observe, with respect to (48), that while that might allow us to explain apparent **wider** than expected scope, it can't possibly tell us anything about **narrower** than expected scope.

(54)   Someone seems [t to love everyone] $\forall$ can scope over $\exists$ Aoun and Li (1993)

(55)   Someone wants [PRO to kiss everyone]   ?$\forall$ cannot scope over $\exists$

(56)   Note that for the issue at hand, it does not suffice to show that $\forall$ can scope over $\exists$. Rather, it must also be true that *seem* scopes over both of them. I am willing to believe that that is true, but I am not certain. The following example is relevant:

(57)   Two women seem to each other to be expected to dance with every senator   Lebeaux

(1998)

(58)   2 must be high (to license *each other*). ∀ cannot scope over 2. Thus, it is reasonable to conclude that in (54) also, the scope of ∀ is limited to the embedded clause, and hence that the scope of ∃ is the lower clause.

(59)   Someone_i seemed to his_i boss to be reviewing every report   ∀ cannot scope over ∃ Hornstein (1995)

(60)   Two of the students in the room are (almost/virtually) certain to have the same birthday [Suppose there are 60 students in the room. The low reading has rather clear truth conditions, and they are satisfied.]

V. **A New Approach** (one excluding lowering in general, but allowing genuine low scope where it does seem to exist).

(61)   Recall the Sloan and Uriagereka (1988) approach to lowering phenomena, one that fits neatly into single cycle syntax.
(62)   And suppose that scope is generally achieved via QR, where QR is always an Ā raising operation.
(63)   Then, to get embedded scope QR would have to operate on the embedded cycle.
(64)   But then subsequent raising to matrix subject position would constitute an instance of 'improper movement' from Ā-position to A-position.

(65)   Matrix scope would cause no such problem. Its derivation would involve perfectly standard A-movement (raising) followed by Ā-movement (QR).

(66)   But what of the low readings of indefinites in raising constructions?
(67)   For these we can rely on another special property of indefinites (that Mamoru Saito reminded me of): that they are, or can be, variables rather than quantifiers, an idea developed by Heim (1982).
(68)   These variables are then provided with binders by existential closure.
(69)   Following Reinhart (1997) among others, I would take existential closure to be available in all clausal domains, not just the matrix.
(70)   If closure is introduced in the lower clause in the examples at issue, we get low scope. And no constraint on improper movement would prevent subsequent A-movement of the indefinite up to subject position of the higher clause (though the raising would be semantically vacuous, rather in the spirit of Sauerland and Elbourne (2002)).

(71)   An alternative derivation would have raising, then closure in the higher clause. This gives high scope.

(72)   The Lebeaux and Hornstein examples with high binding and no possibility of low scope fall out, as low scope implicates low closure. But then the high pronoun or variable could not be in the scope of the introduced existential.
(73)   One remaining task: Develop a principled theory of improper movement that would be

effective here. As far as I know, noone has yet claimed that improper movement might block raising of the subject of a raising complement.

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