

# A Puzzle for the Scope Theories of Indefinites and Intensionality

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A common objection to the scope theories of indefinites and intensionality has been that they in some cases require DPs to move out of islands (e.g., Fodor & Sag 1982). This objection has been defused recently by showing that movement out of islands can be evaded by a combination of movement of a DP to the edge of an island and subsequent movement of the island (Charlow 2019, Demirok 2019, Elliott 2020). This note presents some observations that, we argue, are puzzling for the scope theories even on this recent amendment.

## 1 Scope theories of indefinites and intensionality

The scope theory of indefinites assumes that apparent scope ambiguities in the interpretation of sentences with an indefinite follow uniformly from the scope assigned to the indefinite (and other elements), which we take to happen by an application of Quantifier Raising (May 1977). Similarly, the scope theory of intensionality assumes that the ambiguities in the interpretation of DPs in intensional contexts, ambiguities involving the evaluation of the descriptive content of the DPs, follow from the scope assigned to the DPs relative to the intensional contexts. The scope theories have been argued to encounter undergeneration problems: they appear to require movement of DPs that would violate well-established constraints on movement, in particular, they require exceptional movement out of islands (e.g., Fodor & Sag 1982 for indefinites).

**Apparent undergeneration.** Consider the sentence in (1) from Fodor & Sag (1982). The sentence may convey that I have a friend from Texas who is such that if they had died in the fire, I would have inherited a fortune; the sentence is compatible with it being false that if some other friend of mine from Texas had died in the fire, I would have inherited a fortune as well. (The reading can be brought out by a continuation in which the friend of mine is picked up in subsequent discourse, as in ‘But he didn’t, so I didn’t inherit anything.’)

- (1) If a friend of mine from Texas had died in the fire, I would have inherited a fortune.

The meaning of the sentence described above corresponds to that of the LF in (2). The movement required to derive (2) takes the indefinite out of an adjunct island. Accordingly, the LF should be ungrammatical, giving rise to undergeneration of the scope theory of indefinites.

- (2) [a friend of mine from Texas] [ $\lambda x$  [if x had died, I would have inherited the fortune]]

  
*illicit movement*

Consider now the sentence in (3). The sentence may describe a situation in which Mary is sure that I greeted someone who she mistakenly takes to be a rival of mine, but is in actual fact a friend. On a construal of the sentence that is judged to be true in the described situation, ‘a friend of mine’ is said to be interpreted *de re* (or transparently).

- (3) Sue is sure that I greeted a friend of mine.

The meaning of the sentence described above corresponds to that of the LF in (4), where the indefinite and the attitude ascription are interpreted relative to the same evaluation world (in contrast to the embedded sentence). Again, the movement required to obtain (4) takes the indefinite out of what is commonly assumed to be an island for Quantifier Raising, a finite clause. Accordingly, the LF should be ungrammatical, giving rise to undergeneration of the scope theory of intensionality.<sup>1</sup> (The interpretation of the sentence in (4) on which the indefinite is interpreted *de re* but in the semantic scope of ‘be sure’ – a reading first discussed by Fodor 1970 – can be derived by having its trace be of type  $\langle\langle e, t \rangle, t \rangle$ . See footnote 3, and von Fintel & Heim 2011, Demirok 2019, Elliott 2020 for further discussion.)

- (4) [a friend of mine] [ $\lambda x$  [Sue thinks that I greeted x]]

↑  
*illicit movement*

**Evading undergeneration.** An inspired recent development dispelled the appearance of undergeneration, however (Charlow 2019, Demirok 2019, Elliott 2020). In short, mechanisms were identified that permit DPs that appear to take exceptional scope out of islands to (i) take licit wide scope within an island, and then (ii) have the island take licit wide scope relative to a pertinent scope-bearing expression, OP in (5), (iii) all while delivering an interpretation that corresponds to what one would obtain by applying illicit movement of the DPs out of the island.

- (5) [<sub>island</sub> DP [ $\lambda x$  [... x ...]]] [ $\lambda p$  [OP [... p ...]]]

↑  
↑  
*all licit movements*  
*resulting interpretation: DP > OP*

Abstracting away from the specific details of the different implementations, the derivation of islands-respecting LFs relies on two types of operations. The first involves scoping the DPs to the edge of the island, which itself moves above the relevant operator. The second involves appropriately shifting the meanings of certain expressions in the sentence – these shifts allow the meaning of the sister of the moved DP within the island to be effectively fed to the meaning of the sister of the moved island. An example of a simplified derivation is provided in (6): there are two movements, one above an appropriate operator within the island and the other involving the island. The moved DP ‘a friend (of mine from Texas)’ is sandwiched between elements (a higher-type expression ‘P’ and an abstractor over it) that allow the meaning of the sister of the island to apply directly to the meaning of the clause out of which the DP has moved.<sup>2</sup>

<sup>1</sup>Keshet’s (2010) variant of the scope theory of intensionality avoids the problem of exceptional scope in (3). More involved examples can be constructed, say, the indefinite could be further embedded in an adjunct, in which scoping out of an island is required even on that variant (e.g., Schwarz 2012, Demirok 2019, Elliott 2020).

<sup>2</sup>Charlow assigns sentence (1) the structure in (i-a), while Demirok assigns it the structure in (ii-b) (see their papers for the definitions of the pertinent lexical items). Crucially for our purposes, in both systems, the indefinite scopes at the edge of the island in order for the required operations (ID,  $\eta$ ,  $>=$ ), which are needed to semantically combine the meaning of embedded clause with the matrix one, to be able to apply and effect apparent wide scope of the indefinite. In the main text, we mimic the respective operations by a higher-type ‘P’ that is abstracted over.

- (i) a. [ $>=$  [[ $>=$  a friend of mine] [ $\lambda x$  [ $\eta$  [x died]]]]] [ $\lambda q$  [if [ $\eta$  q] [ $\eta$  I inherit a fortune]]]  
b. [ $\exists$  [ $\lambda p$  [a friend of mine [ $\lambda x$  [[ID p] x died]]]]] [ $\lambda q$  [if q, I inherit a fortune]]]

$$(6) \quad [\lambda P [a \text{ friend } [\lambda x [P_{\langle\langle s,t \rangle, t \rangle} [x \text{ had died}]]]] [\lambda p [\text{if } p_{\langle s,t \rangle}, \text{ I inherit a fortune}]]]$$

saturation  
all licit movements

The meaning of (6) is computed in (7). It corresponds to the meaning one would obtain if the indefinite would move out of the adjunct island. This is brought about by the appropriate shifts in meaning, modeled here simply by inserting, and then abstracting over, a higher-type variable. (See Charlow 2019, Demirok 2019 for proper derivations that, unlike the one sketched here, also capture the restriction of exceptional scope to indefinites. See also footnote 2.)

$$(7) \quad \llbracket a \text{ friend} \rrbracket^w \left( \lambda x. ([\lambda p. \forall w' \in \text{Acc}(w)(p(w') \rightarrow \text{I inherit F in } w')] (\lambda w'. x \text{ died in } w')) \right) = \\ \llbracket a \text{ friend} \rrbracket^w (\lambda x. \forall w' \in \text{Acc}(w)(x \text{ died in } w' \rightarrow \text{I inherit F in } w'))$$

Similarly, a transparent interpretation of the indefinite in (4) can be derived from the structure in (8), where the indefinite undergoes movement to the edge of the island, above the element responsible for feeding the meaning of the clause the indefinite moved out of to the meaning of the sister of the island. Importantly, unlike the clause in its syntactic scope, the indefinite is evaluated relative to the same world parameter as the attitude ascription, that is, it is interpreted *de re*. This can be seen in (9). (Again, to obtain an interpretation on which the indefinite would take semantic scope below the attitude predicate, its trace would have to be of type  $\langle\langle e, t \rangle, t \rangle$ .<sup>3</sup>)

$$(8) \quad [\lambda P [a \text{ friend of mine } [\lambda x [P [\text{I greeted } x]]]] [\lambda p \text{ Mary is sure } p]]$$

saturation  
all licit movements

$$(9) \quad \llbracket a \text{ friend of mine} \rrbracket^w \left( \lambda x. ([\lambda p. \forall w' \in \text{Bel}(\text{Mary})(w)(p(w'))] (\lambda w'. \text{I greeted } x \text{ in } w')) \right) = \\ \llbracket a \text{ friend of mine} \rrbracket^w (\lambda x. \forall w' \in \text{Bel}(\text{Mary})(w)(\text{I greeted } x \text{ in } w'))$$

**Prediction.** A prediction of the scope theories is that if either the movement of a DP to the edge of an island (that is, movement above ‘P’ in our representations), or the movement of the island above a pertinent operator (that is, movement above the conditional or the attitude predicate in our examples) is blocked, the scope of the DP should be trapped below the pertinent operator.<sup>4</sup> We discuss some data that we argue go against this prediction. Our key manipulation is trapping the scope of indefinites and other quantifiers by means of focus association. Specifically, we rely on the following principle (e.g., Jackendoff 1972, Rooth 1985, 1992):

(10) **Principle of focus association:**

Focus particles (*only*, *even*, etc.) must c-command focus they associate with at LF.

<sup>3</sup>A *de re* interpretation of the indefinite that has semantic scope below the attitude predicate (cf. Fodor 1970) can be derived as in (i). See von Stechow & Heim 2011, Demirok 2019, Elliott 2020 for related discussion.

- (i) a.  $[\lambda P [a \text{ friend of mine } [\lambda Q [P [Q_{\langle\langle e, t \rangle, t \rangle} \lambda x [\text{I greeted } x]]]]] [\lambda p \text{ Mary is sure } p]]$   
b.  $\forall w \in \text{Bel}(\text{Mary})(@)(\llbracket a \text{ friend of mine} \rrbracket^w)(\lambda x. \text{I greeted } x \text{ in } w)$

<sup>4</sup>Charlow (2019) discusses one case conforming to this prediction: indefinites whose movement is restricted by pronominal binding (see Schwarz 2011 for a review). While the alternative approach to indefinites discussed in Section 3 might overgenerate in this respect, the study of this issue is beyond the modest goal of this note.

We present two sets of observations that are manifestations of the same puzzle for the scope theories: indefinites and transparent DPs that dominate a focused expression appear to be able to, paradoxically, take scope above a focus particle that associates with the focused expression. Subsequently, we outline out how some alternatives to scope theories can deal with this challenge. The fact that they can deal with it is unsurprising given their infamously less constrained nature, which is problematic in its own right (e.g., Schwarz 2001, 2011, Chierchia 2001, Keshet 2010, von Stechow & Heim 2011, Charlow 2019, Demirok 2019, Elliott 2020, among others).

## 2 The puzzle

**Indefinites.** Consider first the sentence in (11), which contains a focus particle ‘only’ that associates with focus on ‘mine’, that is, an expression contained in an indefinite (‘only’ is also used in the matrix sentence, in order to ensure a plausible meaning). The sentence may describe a situation in which I have a friend who is such that if they and no one else’s friend were killed by the mafia, I (and no one else) would have inherited a fortune; it is compatible with it being false that if some other friend of mine and no one else’s friend were killed, I (and no one else) would have inherited a fortune as well. This corresponds to a reading of the sentence on which the indefinite appears to, paradoxically, take exceptional scope out of the adjunct island, while also taking scope below ‘only’ within the island. (Note that the continuation of (11) with ‘He is still alive, so I didn’t inherit anything,’ which brings out the described reading, is felicitous.)

(11) If the mafia had only killed a friend of MINE, only I would have inherited a fortune.

Consider now the sentence with an additive focus particle instead of an exhaustive one in (12) (the antecedent for the additive presupposition is provided in the parentheses). Again, the sentence may convey that there is a friend of mine who is such that if they had died, I would have inherited a fortune; it is compatible with it being false that if some other friend of mine had died, I would have inherited a fortune as well. Again, this corresponds to a reading of the sentence on which the indefinite appears to, paradoxically, take exceptional scope out of the adjunct island, while also taking scope below ‘also’ within the island.

(12) [A friend of Sue’s from Texas died.]  
If a friend of MINE from Texas had died too, I would have inherited a fortune.

The readings of the sentences just described cannot be derived on the scope theory of indefinites. Recall that a pivotal component of the theories is for the indefinite to move to the edge of the island (and for the island to move above a pertinent operator). This is impossible here. On the one hand, if the movement of the indefinite were out of the scope of the focus particle, the principle in (10) would be violated – ‘mine’ would not be c-commanded by ‘only’/‘also’:<sup>5</sup>

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<sup>5</sup>Heim (1992), fn. 13, mentions that additive particles in some cases appears to c-command neither a prosodically stressed element nor a gap into which such an element could be reconstructed. However, this does not mean that no elements in their scope bear focus marking. Moreover, in such configurations, the additive particle does not exhibit the sensitivity of the kind exhibited in (12): the sentence in (i), modeled after Heim, does not convey that a friend of mine wants herself and, say, a friend of Sue’s to come; rather, it at best conveys the weaker meaning that she wants herself and someone else to come. A further study of such examples is obviously required.

(i) ?A friend of MINE wants [PRO to come too].

- (13)  $\#[\lambda P [a \text{ friend of } \underline{\text{mine}}_F [\lambda x [P \text{ the mafia } \underline{\text{only}}_C \text{ killed } x]]]] [\lambda p [\text{if } p, \text{ I inherit } F]]$   
└──────────────────────────┘  
*violation of principle (10)*

On the other hand, if the focus particle were to take wide scope within the island too, which is possible in our representations,<sup>6</sup> the interpretation that we would obtain, partly provided in (15), would not correspond to the intuitive meaning of the sentence – it would be that only a friend of mine is such that if they were killed by mafia, only I would have inherited a fortune. (The same point holds for (12): the additive presupposition we would obtain if ‘too’ were to scope above ‘P’ would not be satisfied in the context with the parenthesized antecedent.)

- (14)  $[\lambda P [\underline{\text{only}}_C [a \text{ friend of } \underline{\text{mine}}_F \lambda x [P \text{ the mafia killed } x]]]] [\lambda p [\text{if } p, \text{ I inherit } F]]$
- (15)  $[[\text{only}]]^w(C)([a \text{ friend of } \underline{\text{mine}}_F]^w \quad \quad \quad (\text{unobserved meaning})$   
 $(\lambda x. \forall w' \in \text{Acc}(w)(\text{the mafia killed } x \text{ in } w' \rightarrow \text{only I inherit a fortune in } w'))$

**Intensionality.** Imagine a situation in which Mary sees me and my cousin at lunch at which we sit with two other people, a friend of mine and a friend of my cousin’s. Unaware of this, Mary assumes that our friends are, respectively, a supervisor of mine and a supervisor of my cousin’s – it must be a business lunch. She gets the false impression that I only greeted the person who she takes to be a supervisor of mine (but is actually a friend of mine). The situation can be felicitously described by the sentence in (16). This means that the indefinite in (16) is interpreted *de re* (a slightly more involved scenario can be devised on which only a non-specific interpretation of the indefinite would be true, though this is not crucial for the purpose at hand).

- (16) Mary is sure that I only greeted a friend of MINE at lunch.

The reading on which (16) would be a true description of the situation described cannot be derived on the scope theory of intensionality. Namely, in order to obtain a *de re* interpretation of the indefinite, the indefinite would have to move to the edge of the island, that is, scope above ‘P’ in our representations, as given in (17). This is impossible due to the principle in (10).

- (17)  $\#[\lambda P [a \text{ friend of } \underline{\text{mine}}_F [\lambda x [P \text{ I } \underline{\text{only}}_C \text{ greeted } x]]]] [\lambda p [\text{Mary is sure that } p]]$   
└──────────────────────────┘  
*violation of principle (10)*

Moreover, if both the indefinite and ‘only’ were to take scope at the edge of the island, as in (18), we would not obtain the observed meaning. Rather, the meaning of the sentence would be that only a friend of mine is such that Mary is sure that I greeted them, which is weaker than the meaning we actually get (namely, we judge the sentence to be false if Mary is not opinionated about whether I greeted a friend/supervisor of my cousin).<sup>7</sup>

<sup>6</sup>For example, in contrast to our simplified representation, a wide scope construal of focus particles is not admitted on Demirok (2019) since such scope gives rise to triviality in his system (cf. Demirok 2019, Sect. 4.1).

<sup>7</sup>A parse of the sentence where ‘mine’ or the indefinite hosting it combines with ‘only’ by sideward movement (cf. Wagner 2006) and where the resulting phrase moves above ‘P’, leaving behind a higher-type trace, is provided in (i). While (i) may yield the desired interpretation, it is unavailable for independent reasons – namely, derivations of this kind have been shown to be impossible elsewhere (e.g., Taglicht 1984, Hirsch 2017).

- (i)  $\#[\lambda P [\text{only}_C a \text{ friend of } \underline{\text{mine}}_F] [\lambda z [P [z_{\langle\langle s, et \rangle, t \rangle} [\lambda x \text{ I greeted } x]]]]] [\lambda p [\text{Mary is sure } p]]$

- (18)  $[\lambda P [\text{only}_C [\text{a friend of mine}_F [\lambda x [P \text{ I greeted } x]]]] [\lambda p [\text{Mary is sure } p]]$
- (19)  $[[\text{only}]]^w(C)([[\text{a friend of mine}_F]]^w(\lambda x. \forall w' \in \text{Bel}(\text{Mary})(w)(\text{I greeted } x \text{ in } w')))$   
*(unobserved meaning)*

We conclude that, all else equal, the scope theories undergenerate the observed readings.

**Reconstruction?** If mechanisms were available that would allow a focus particle to associate with focus without c-commanding it at LF, the observations in (11)-(12) would obviously not be problematic for the scope theory of indefinites. And, perhaps more straightforwardly, if semantic reconstruction for focus association were available, the observation in (16) would not be problematic for the scope theory of intensionality.<sup>8</sup> However, there are empirical reasons why we may want to avoid admitting such mechanisms into the theory of grammar.

On the one hand, VP-adjoined focus particles trap the scope of quantifier phrases containing focus that they associate with. This is exemplified in (20)-(21): while the sentence in (20) allows for an inverse scope reading on which the universal quantifier scopes above the matrix existential one (and so girls vary across boys), this does not hold for the sentence in (21), which allows only for the discourse-anaphoric reading of ‘a different girl’. If it were possible to move a DP out of the scope of a focus particle while still allowing for focus association into that DP, the inverse scope reading should be available in both sentences.<sup>9</sup>

- (20) A different girl hopes to dance with every tall boy. (✓  $\forall > \exists$ )
- (21) A different girl hopes to also dance with every TALL boy. (✗  $\forall > \exists$ )

On the other hand, admitting semantic reconstruction for focus association would lead to overgeneration elsewhere, as observed by Jackendoff (1972) (see Erlewine 2018 for discussion). For example, sentence (22) lacks a reading on which the universal quantifier would reconstruct below ‘only’ and allow for association with ‘mine’. The availability of such a reading would be expected, all else equal, if semantic reconstruction for focus association were possible.<sup>10</sup>

- (22) Every friend of MINE is likely to only be happy.  
 $\neq$  It is likely that only every friend of MINE is happy.

<sup>8</sup>This latter possibility may be more straightforward since a DP can be interpreted *de re* even when in the semantic scope of an intensional operator, thus leaving the door open for a potential semantic reconstruction resolution of the puzzle for the scope theory of intensionality; see footnote 10 for some related discussion. In contrast, indefinites must take semantic scope above pertinent operators on the scope theory of indefinites.

<sup>9</sup>Note that absent focus, the movement of a universal quantifier across ‘also’ is possible. This is exemplified in (i), which allows for an inverse scope reading on which ‘every boy’ takes scope above ‘a different girl’.

- (i) A different girl hopes to also send every boy a poem about HIM. (✓  $\forall > \exists$ )

We decided to exemplify scope-trapping with ‘also’ rather than with ‘only’ because, for ill-understood reasons, ‘every’-DPs appear to resist Quantifier Raising over ‘only’ independently of whether they dominate focus or not.

<sup>10</sup>We can distinguish (16) from (22) by making reference to PF spellout. Specifically, in the former example, focus is realized in the surface scope of ‘only’; in the latter example, it is not. Whether, and if so how, an adequate PF-LF constraint could be formulated on the basis of this distinction that would allow semantic reconstruction in the former but not the latter example cannot be explored here; see also footnote 8.

### 3 Alternatives and outlook

The two sets of observations are straightforwardly accounted for on certain alternatives to the scope theories of indefinites and intensionality. For concreteness, we show this for Schwarzschild’s (2002) theory of singleton indefinites and Schwarz’s (2012) variant of the binding theory of intensionality. Schwarzschild (2002) assumes that the resource domain of an indefinite can be limited to a single individual, which then gives rise to an appearance of exceptional scope out of an island (see also von Fintel 1999, and Dayal 2019 for a recent discussion). He can assign the sentence in (11) the structure in (23), where the covert resource domain of the indefinite,  $D$ , is resolved to contain a specific friend of mine and perhaps many friends of other people. On this resolution, the sentence conveys, as desired, that if the mafia had killed the specific friend of mine and no friends of other people, only I would have inherited a fortune.

- (23) [if [only<sub>C</sub> [a<sub>D</sub> friend of mine<sub>F</sub> [ $\lambda x$  the mafia had killed  $x$ ]]]] [only I inherit  $F$ ],  
where  $\llbracket D \rrbracket$  contains a single friend of mine and many friends of other people

On the binding theory of intensionality, world variables are represented, and may thus be bound, in the object language. For example, Schwarz (2012) proposes that DPs come equipped with a world variable argument. He can assign the sentence in (16) the structure in (24), in which the world argument of the indefinite is bound at the matrix level. This binding yields a *de re* interpretation of the indefinite, as computed in (24).

- (24) [ $\beta 1$  [Mary is sure that [only<sub>C</sub> [a  $w_1$  friend of mine<sub>F</sub> [ $\lambda x$  I greeted  $x$  at the dinner]]]]]

- (25)  $\lambda w. \forall w' \in \text{Bel}(\text{Mary})(w) (\llbracket \text{only} \rrbracket (C)$   
 $(\lambda w''. \exists x (x \text{ is a friend of mine in } w \wedge \text{I greeted } x \text{ in } w'')(w'))$

The fact that these two alternative approaches to indefinites and intensionality can account for the observed readings is unsurprising in light of their design specification: they are meant to account for the scope and transparency ambiguities without recourse to movement specifically for that purpose. While this may yield desirable results for the types of examples discussed above, it has been shown to be a liability elsewhere (e.g., Schwarz 2001, 2011, Chierchia 2001, Keshet 2010, von Fintel & Heim 2011, Charlow 2019, Demirok 2019, Elliott 2020, among others). We thus face a familiar kind of predicament. However the predicament ends up being resolved, we hope to have provided new impetus for continued study of the issues involved.

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