Rehabilitating Reinhart and Reuland[1]

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4 October 2019

An interesting problem for the Binding Theory is formulating the locality condition for Chomsky's Principle A.

(1) Principle A
A reflexive must be bound by something in a local Argument position.
   a. α binds β iff α c-commands β and β is interpreted as α's variable.
   b. α c-commands β only if β is reflexively dominated by α's sister.

A first pass description of "local" is that reflexives must find their binder in the same clause.

(2) a. Barack thinks that Hillary$_1$ voted for herself$_1$.
   b. * Hillary$_1$ thinks that Barack voted for herself$_1$.
   c. Barack thinks that Hillary$_1$ didn't recognize a description of herself$_1$.
   d. * Hillary$_1$ thinks that Barack didn't recognize a description of herself$_1$.
   e. Barack believes Hillary$_1$ to have voted for herself$_1$.
   f. * Hillary$_1$ believes Barack to have voted for herself$_1$.

(3) α is local to β iff the smallest IP containing β contains α too.

A second pass description makes the presence of a c-commanding "subject" relevant (see Chomsky 1977).

(4) a. Hillary$_1$ didn't recognize the description of herself$_1$.
   b. * Hillary$_1$ didn't recognize Barack's description of herself$_1$.
   c. Hillary$_1$ considers herself$_1$ fond of Barack.
   d. * Hillary considers Barack fond of herself$_1$.
   e. Hillary$_1$ thinks that pictures of herself$_1$ annoy Barack.
   f. * Hillary$_1$ thinks that Barack is annoyed by pictures of herself$_1$.
   g. Hillary$_1$ believes herself$_1$ to have voted for Barack.
   h. * Hillary$_1$ believes Barack to have voted for herself$_1$.

(5) The Specified Subject Condition
α is local to β iff there is no filled Case-marked Specifier position that c-commands β but not α.

(5) is my attempt to define "subject" so that it accounts for (6).

(6) Hillary$_1$ asked [$_{CP}$ who [$_{\overline{C}}$ pictures of herself$_1$ annoy]] .

While the Specified Subject Condition is, perhaps, the most successful generalization, it's been impossible to make sense of what "subject" is, and why it should have this effect on Principle A. I will join the flock of binding theorists away from the Specified Subject Condition, and like them, try to derive its cases piecemeal.

Reinhart and Reuland (1993) is a member of this flock, and they have a simple idea that solves another problem in the formulation of Principle A. Their leading idea is (7).

(7) α is local to β iff α is an argument of the same predicate that β is.

The meaning of "predicate" in (7) is, I believe, intended to refer to just lexical items, or collocations that are lexical-item-like. α is local to β iff they are co-arguments of the same verb, adjective, noun, etc. The notion of word has to be flexible enough to allow for expressions like *talk to* and *talk about*, and understanding this flexibility will be one of my goals. But bracketing that for a moment, this captures a central core part of the locality condition. It explains why clauses should matter.

This way of stating the locality condition has an additional benefit. It explains the peculiar reference to "A position" in Chomsky's formulation, and it does so in a way that gives a way of explaining the contrast in (8).

(8) a. Barack talked to Hillary$_1$ about herself$_1$.
   b. * Hillary$_1$'s husband talked about herself$_1$.

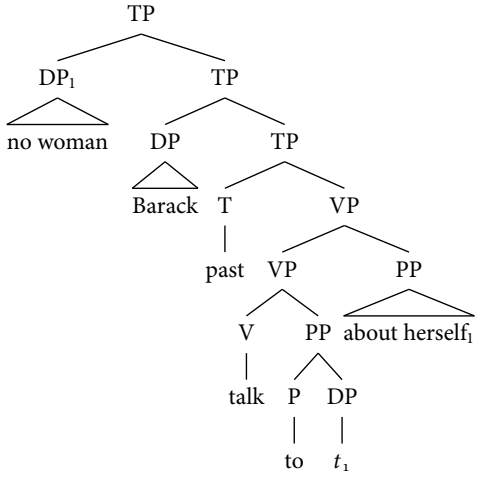
There is evidence that QR is capable of meeting the c-command requirement in both of these examples from pronominal binding.

[1] This is joint work with Brian Dillon. All errors are his.

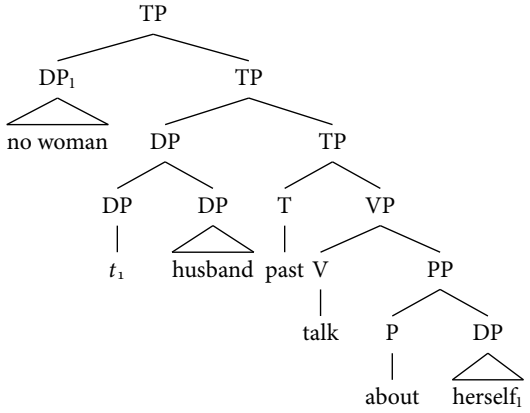
(9) a. Barack talked to no woman$_1$ about her$_1$ vote.
b. No woman's husband talked about her$_1$ vote.

So:

(10)



(11)



We're supposed to understand the A-position requirement to force us to look only at the traces of QR here, and see that c-command holds in (10) but not (11). That's not what I see. On the Reinhart and Reuland view, however, this contrast emerges. The c-command requirement is met in both examples, but only in (10) is the binder a co-argument.

If we are to maintain this view, however, we must deal with some of the cases that motivate the Specified Subject condition: (12) and (13).

(12) a. Hillary$_1$ thinks that apart from herself$_1$, no one voted for Barack.
b. Hillary$_1$ thinks that no one but herself$_1$ voted for Barack.
c. Hillary$_1$ thinks that pictures of herself$_1$ amuse Barack.
d. Hillary$_1$ considers herself$_1$ fond of Barack.
e. Hillary$_1$ believes herself$_1$ to have voted for Barack.

(13) Hillary$_1$ didn't recognize the description of herself$_1$.

They suggest that reflexives are systematically ambiguous between being Principle A obeyers and another kind of pronoun – one whose antecedent is determined along a more semantic dimension. (Pollard and Sag 1992 make the same move.) That dimension involves some notion of point of view. That reflexives might have this type of meaning is given independent support from examples like (14).

(14) a. Apart from yourself, no one here should care about the binding theory.
b. No one but myself should care about the binding theory.
c. Pictures of myself will never fetch a high price.

(15) *Said while looking at a woman fiddling in the back row:*
a. ?* Apart from herself, no one here should care about the binding theory.
b. ?* No one but herself cares about the binding theory.
c. ?* Pictures of herself will always fetch a high price.

compare:

Apart from her, no one here should care about the binding theory.

No one but her cares about the binding theory.

Pictures of her will always fetch a high price.

In order to understand why indexicals are better in these contexts, let me sketch a way of thinking. Let us imagine that point of view is only defined for propositions.

(16) Point of view is a relation between a sentient individual and a proposition.

Because root propositions are indexed to the speaker and hearer, there is a salient built-in relation between first and second person pronouns and that proposition.

(17)

$$[\![\lambda w[\neg\exists x \ \text{person}(x) \wedge x \neq \text{spkr} \wedge x \text{ cares about binding theory in } w]]\!]^{\text{spkr,hearer}}$$

For (12), we have verbs that embed propositions, and relate those propositions to the subject. That relation too, then, makes salient the entities that are in that relation.

(18) a. THINK(Hillary,[λw apart from herself, no noe voted for Barack in w])
b. THINK(Hillary,[λw no one but herself voted for Barack in w])
c. THINK(Hillary,[λw pictures of herself amuse Barack in w])
d. CONSIDER(Hillary, [λw herself fond of Barack in w])
e. BELIEVE(Hillary,[λw herself to have voted for Barack in w])

For these cases, then, let's adopt the hypothesis that reflexives can be point of view anaphors.

(19) A reflexive can be bound by a point of view co-argument. α is a point of view co-argument of β iff β is a part of a proposition that characterizes α's point of view.

I will call reflexives when they have a point of view antecedent, a *logophor* (though this term has been originally coined to name just one specific kind of point of view anaphor). Thus, the thesis is:

(20) A reflexive in English:
a. must be bound by a point-of-view co-argument, or *logophor*
b. must be bound by a co-argument. *co-argument*

(21) α is a point of view co-argument of β iff β is a part of a proposition that characterizes α's point of view.

(22) α and β are co-arguments if there is a word-like object, P, that has α and β as arguments.

This doesn't give us a treatment of (13), to which we will return.

There are some reasons for thinking that reflexives do divide this way. As Charnavel and Sportiche (2016) emphasizes, the logophoric use of a reflexive precludes inanimate antecedents and so in those environments where we can use inanimates we should expect degradation in logophoric environments. And this seems correct.

(23) a. * The actual state of the environment indicates that reports about itself are often too rosy.

compare:

The state of the environment cannot improve itself.
The actual state of the environment indicates that reports about it are often too rosy.

b. * The picture was sent so that a frame for itself could be built.

compare:

The picture references itself.
The picture was sent so that a frame for it could be built.

c. * Your thesis entails that nothing but itself will properly account for the facts.

compare:

Your thesis entails itself.
Your thesis entails that nothing but it will properly account for the facts.

d. * These examples might indicate, then, that apart from themselves, my theory is empirically correct.

compare:

These examples reveal themselves.
These examples might indicate, then, that apart from them, my theory is empirically correct.

Another phenomenon that suggests there are two styles of reflexives in English comes from the disjoint reference effects they cause in non-reflexives. There is evidence that (24) is true.

(24) If a reflexive can be used to express some meaning, then nothing can replace that reflexive to express that meaning.

This explains why (25) cannot mean the same thing that (26) does. (See Reinhart 1983, Grodzinsky and Reinhart 1993.)

(25) Only Hillary voted for her.
a. = Hillary voted for Hillary and no one other else voted for Hillary.
b. ≠ Hillary voted for Hillary and no one else$_1$ voted for x_1.

(26) Only Hillary$_1$ voted for herself$_1$.
a. ≠ Hillary voted for Hillary and no one else voted for Hillary.
b. = Hillary voted for Hillary and no one else voted for themselves.

Where a reflexive cannot be used to express the bound variable meaning, then the pronoun can.

(27) Only Hillary said that Michelle had voted for her.

a. = Hillary said that Michelle had voted for Hillary and no one else said that Michelle had voted for Hillary.

b. = Hillary said that Michelle had voted for Hillary and no one else$_1$ said that Michelle had voted for x_1

Only Hillary said that Michelle had voted for herself.

a. ≠ Hillary said that Michelle had voted for Hillary and no one else said that Michelle had voted for Hillary.

b. ≠ Hillary said that Michelle had voted for Hillary and no one else$_1$ said that Michelle had voted for x_1.

This same pattern shows up cross-linguistically.[2]

Context: Ava, Beth and Claire went voting yesterday. Ava voted for Beth, Beth for Claire, and Claire for herself. Later, Dorothy asks Claire whether she voted, and Claire replies: I did, but…

(28) Nur ich habe für mich gestimmt.
only I have for me voted.
'*Only I voted for me.'

= I voted for myself and no one else$_1$ voted for x_1

Context: Ava, Beth and Claire went voting yesterday. Ava voted for Beth, Beth for Claire, and Claire for herself. Later, Dorothy asks Alex whether Claire voted, and Alex replies: yes, but…

(29) * Nur die$_1$ hat für sie$_1$ gestimmt.
Only she has for her voted
'*Only she voted for her.'

= <u>she</u> has voted for <u>her</u> and no one else$_1$ has voted for x_1

In German, there is no first person reflexive form, but there is a third person reflexive form that has the meaning that (29) doesn't.

(30) Nur die$_1$ stimmt für sich$_1$.
only she votes for self
'She is voting for herself.'

= <u>she</u> is voting for <u>her</u> and no one else$_1$ is voting for x_1

For more on (24), see, e.g., Dowty (1980), Levinson (1987), Burzio (1998), Kiparsky (2002), Roelofsen (2008), Rooryck and Wyngærd (2011), Safir (2014).

It appears that only the co-argument reflexive has this effect though.

(31) a. Hillary$_1$ thinks that apart from her$_1$, no one voted for Barack.

b. Hillary$_1$ thinks that no one but her$_1$ voted for Barack.

c. Hillary$_1$ thinks that pictures of her$_1$ amuse Barack.

So, we should change (24) to (32).

(32) If a reflexive can have a co-argument reflexive meaning, then it must, and if a co-argument reflexive meaning can be expressed with a reflexive, then it must be.

This will also explain why the logophoric use of a reflexive is not possible in contexts where a co-argument reflexive is possible.

(33) a. * No one voted for myself.

b. * Hillary$_1$ thinks that Barack voted for herself$_1$.

c. * Hillary$_1$ considers Barack fond of herself$_1$.

d. * Hillary$_1$ believes Barack to have voted for herself$_1$.

e. * Hillary$_1$ didn't recognize Barack's descriptions of herself$_1$.

(32) teaches us that the reflexives in environments like (31) are logophoric reflexives. But it also teaches us that the reflexives in environments like (12d) and (12e) (repeated in (34)), are co-argument reflexives.

(34) a. Hillary$_1$ considers herself$_1$ fond of Barack.

b. Hillary$_1$ believes herself$_1$ to have voted for Barack.

(35) a. * Hillary$_1$ consider her$_1$ fond of Barack.

b. * Hillary$_1$ believes her$_1$ to have voted for Barack.

Here we have a counter-example to the definition of co-argument that we get from Reinhart and Reuland. There are other counter-examples.

[2] My thanks to Alex Göbel for these examples.

(36) a. The woman$_1$ seems to herself$_1$ fond of Barack.
b. The woman$_1$ appears to herself$_1$ to be less semantically inclined than necessary.
c. The woman$_1$ danced herself$_1$ sick.

(37) a. * The woman$_1$ seems to her$_1$ fond of Hillary.
b. * The woman$_1$ appears to her$_1$ to be less semantically inclined than necessary.
c. * The woman$_1$ danced her$_1$ sick.

We might add the problematic case of a reflexive in an object to this list:

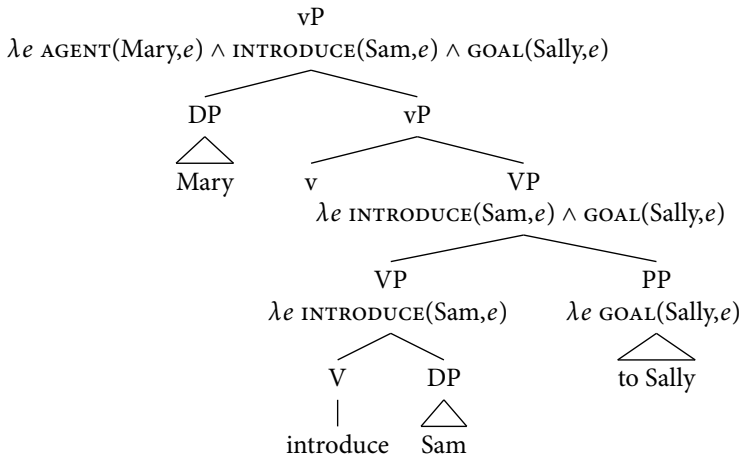
(38) Hillary$_1$ didn't recognize the description of herself$_1$.

In all of these examples, there is no word-like predicate that has both the binder and the reflexive as argument.

I propose a revision to the definition of co-argument, but one that tries to preserve the leading idea that sharing a relation is relevant. I suggest (39).

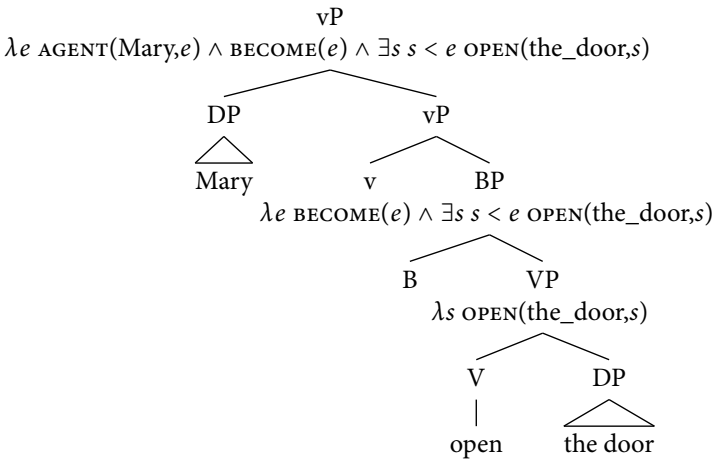
(39) α and β are co-arguments if there are relations, R and Q, such that R(α,e) and Q(β,e'), where e and e' are situations/events and $e \leq e'$.

Two DPs are co-arguments if they are related to non-distinct events or situations. This works better, I would suggest, even for cases that Reinhart and Reuland's definition of co-argument was intended for. It gives an account of the cases where strictly speaking more than one predicate is involved.

(40)


Sally is related to the situation e by *to*, and *Mary* is related to that same event by "v," so these are co-arguments, and indeed a co-argument reflexive is possible here (*Mary introduced Sam to herself.*)

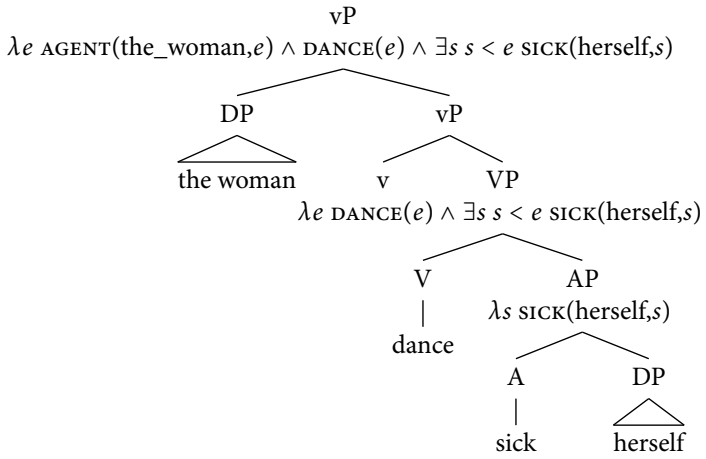
And it works for cases, like (41), where verbs are plausibly decomposed into different syntactic predicates.

(41)


Note here that that "open the door" is a state-description that is the resulting part of an action eventuality, introduced by "B" (evocative of "become"). This is what captures the direct causation meaning of these predicates. This means that *Mary* and *the door* are arguments of different eventualities, but they are not distinct eventualities: one is a part of the other. So this allows *Mary* and *the door* to be co-arguments, and indeed, a co-argument reflexive is possible here (*The door opened itself*).

This is parallel to how (39) applies to (37c), whose parse and composition is given in (42).

(42)



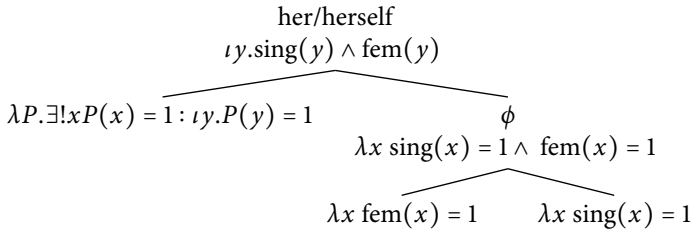
This definition of co-argument will also provide a way of solving the problem posed by (36a), a slightly modified version of which is (43).

(43) The strongest candidate$_1$ seems to herself$_1$ to be a woman.

To see that, however, requires working through some details.

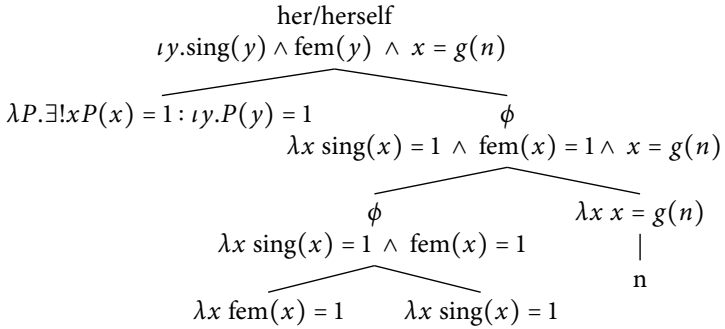
Let's first fix our assumptions about the syntax of indices. I'll assume that reflexive pronouns and pronouns both are essentially definite description with ϕ features.

(44)



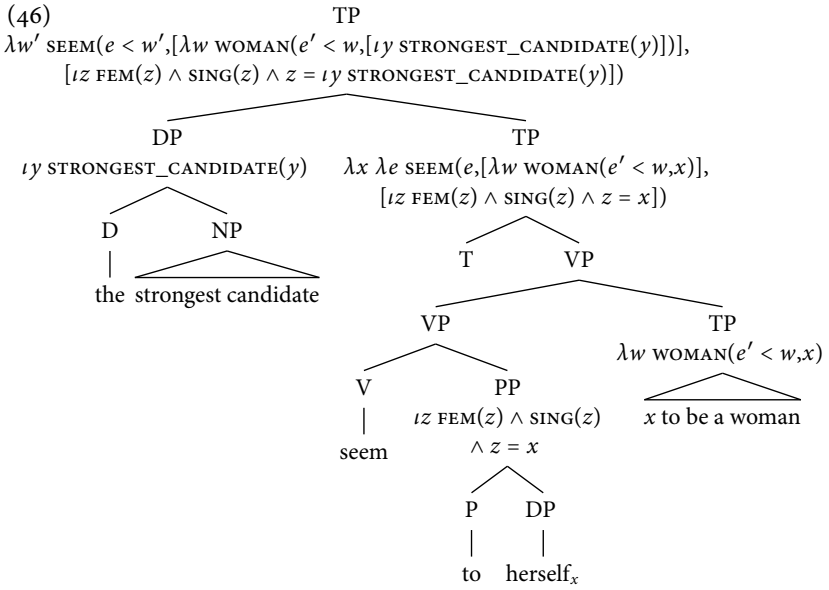
Let's assume that an index is another kind of feature; it too is a predicate. When a pronominal has an index, we have (45). (See Fox 2003.)

(45)



Okay, with this now consider how (43) will be put together.

(46)

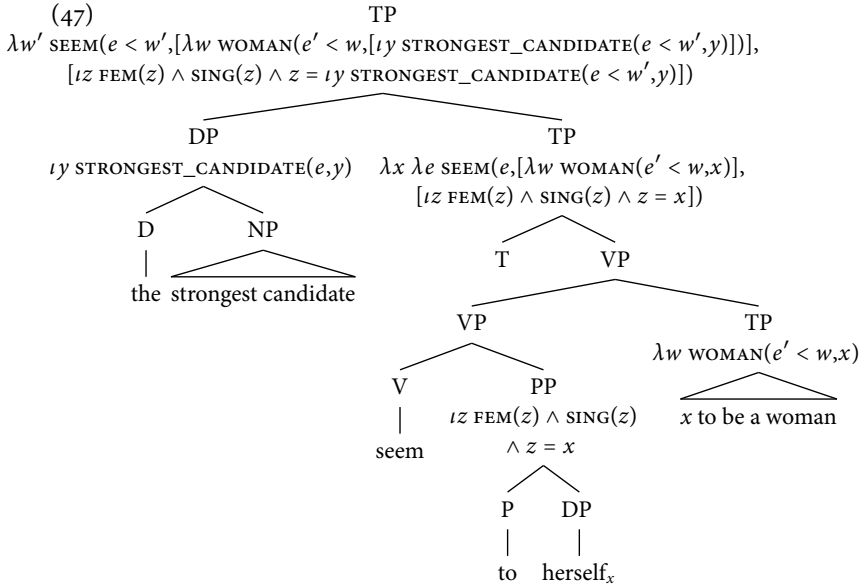


My assumptions about the semantics are that the predicates which build up a sentence relate situations to entities and propositions. The situations that they are descriptions of become parts of worlds when propositions are formed, which I'll assume happens at the highest clausal projection – here that projection is a TP. I've also assumed that *seem* is a three place relation, and that *to* is semantically vacuous. There are other, maybe better, ways of expressing the denotation of *seem*. What's required by my proposal is that *herself* be related by some predicate to the

situation that *seem* describes, so any analysis of *seem* that preserves that property will work.

As you can see, (46) doesn't provide predicates that relate *the strongest candidate* and *herself* to the same situation. The argument *herself* is related to the "seeming"-situation by the predicate SEEM, and the argument *the strongest candidate* is related to the situations that make up the words of the embedded infinitive by the predicate *woman*. This should violate the co-argument requirement on reflexives and their antecedents. But this is because I've left something out of (46); the predicate *strongest candidate* also relates the entities it characterizes to situations. When that is incorporated into the semantics co-argumenthood becomes possible. If we incorporate that information into (46), we get (47).

(47)



In the representation I've given, *the strongest candidate* is interpreted as referring to an individual that is the strongest candidate in a situation that is part of the worlds that the entire sentence characterizes (i.e., w'). That same situation is a "seeming," which relates *herself* to that situation. As a consequence, there is a predicate, namely *strongest candidate* that relates y to e and another predicate, namely *seem*, that relates *herself* to the same e.[3]

Note that the situation that *the strongest candidate* is evaluated relative to is the one that is part of the worlds characterizing the whole sentence, and not the worlds that the embedded infinitival describes. This is made necessary by the fact that the situation that comes with *strongest candidate* is not within the scope of the embedded worlds, i.e., λw. We can see the effect of this from the fact that *the strongest candidate* does not have the two interpretations it has in (48).

(48) The strongest candidate seems to Mary to be a woman.
   a. = It seems to Mary that the strongest candidate according to Mary is a woman.
   b. = It seems to Mary that the strongest candidate according to the speaker is a woman.

The paraphrase I've given in (48a) is the one in which the referent of *the strongest candidate* is the one that seems the strongest to Mary; that is, *strongest candidate* is evaluated with respect to the worlds containing the situation variables in the embedded infinitival. By contrast, in (48b), *the strongest candidate* picks out an individual that the speaker regards as satisfying *strongest candidate*. It is evaluated with respect to the worlds containing the *seem* situation. (47) has only the latter of these two meanings. This is evidence that *strongest candidate* has a situation variable in its denotation.

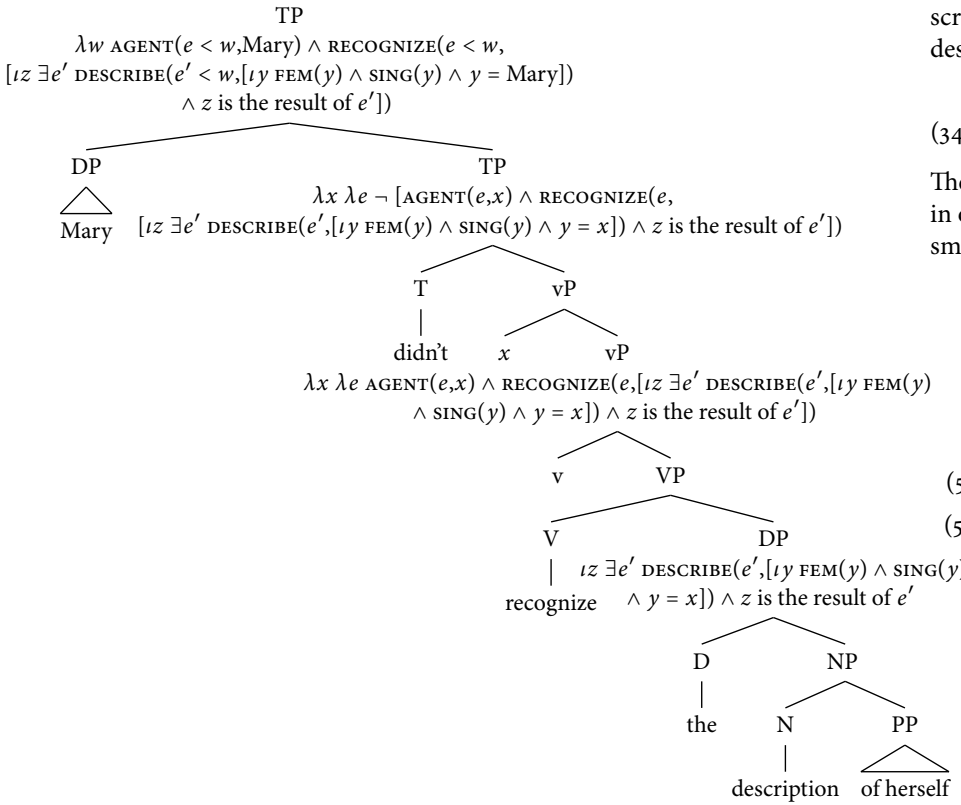
This might have consequences for examples like (49) as well.

(49) Mary didn't recognize the description of herself.

This could get a representation like (50).

[3] I've made the situation variable in the NP a free variable that is then magically made a part of the relevant world. The magic should be removed, and there are several ways of doing that. I don't think there are problems introduced if ignore this part of the interpretation.

(50)



The definition of co-argument doesn't make *herself* a co-argument with *Mary* in this example. *herself* is an argument of *describe*, and so related to the describe situation, while *Mary* is an argument of AGENT, and so related to the recognize situation. But, notice that the nominalization of *describe* refers to an entity that is the result of the describing situation. It has a similar relationship to the describe situation that *sick* does to the dance situation in (42). Imagine that this allows one to conceive of the entity that results from the describe situation as part of an eventuality that includes them both. The description entity is related by *recognize* to the recognize situation. A popular way of thinking about what that relation involves includes putting the entity into the situation. The situations that "recognize the description" describes are situations that contain the description. This transitive chain of inclusion relations allows one to understand this sentence to be about a recognizing situation that contains the result of a describing situation. The describing situation and its result are parts of a larger situation, and this causes the describing situation to be part of the recognizing situation.

Finally, let's consider the case in (34a).

(34a) Hillary$_1$ considers herself$_1$ fond of Barack.

There is an interesting feature of the instances of "raising to object." A pronominal in object position is not easily evaluated relative to the worlds that the embedded small clause characterizes. To see this, consider the following situation.

> *Alex and I often assign people to different genders. He has different criteria for sorting people into male, female, and non-binary. For instance, he has mistakenly decided that Sean is female. You and I both know that Alex has made this mistake. We are talking about Sean one evening. You ask me "Who will Sean vote for?" I reply:*

(51) ? I don't know, but Alex believes that she is fond of Barack.

(52) # I don't know, but Alex considers her fond of Barack.

The gender-features of the pronoun are evaluated relative to the worlds that characterize Alex's beliefs in (51). The oddness of (52) suggests that the gender-features of the pronoun in (52) cannot be evaluated in the worlds characterizing Alex's beliefs, and are instead evaluated according to the beliefs you and I share. ((52) is fine, if *him* replaces *her*.) Pronouns probably are required to move out of the embedded clauses in raising to object environments. That is indicated, for instance, by the fact that pronouns cannot stay to the right of particles in cases where a raising to object infinitive is selected by a particle verb.

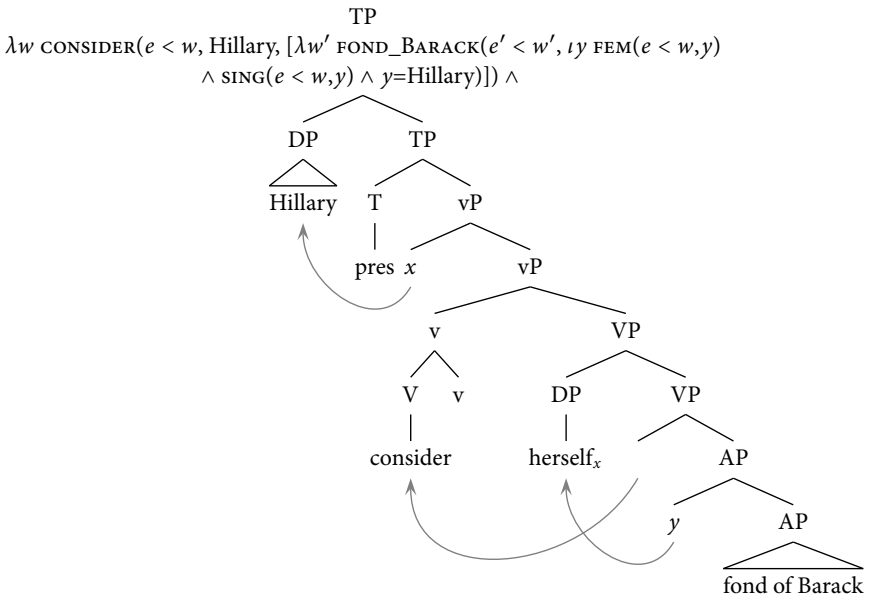
(53) a. She made them out [$_{TP}$ to be extraordinarily competent].

b. * She made out [$_{TP}$ them to be extraordinarily competent].

Perhaps this is connected to the difference in how these pronouns are interpreted.

We should let the gender features in pronominals also be relations between entities and situations. When this is put into the mix, (34a) conforms to the definition of co-argument in (39).

(54)



In this representation, *Hillary* is related to the situation e, that is a part of the root proposition ($=w$) by the root verb *consider*. The index associated with *herself* ($=x$) is an argument also related to the situation e, by the FEM and SING predicates inside *herself*. Therefore, x and *Hillary* are co-arguments according to (39), and so this reflexive can, and must, be a co-argument reflexive.

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