Deriving Principle B*

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SUMMARY

I give an account of the meaning of θ-roles that derives their exhaustivity. I also propose a modification to Tom Wasow's Novelty Constraint – a condition that governs how definite descriptions in a sentence can, or cannot, be referentially dependent. Together, these two proposals get close to deriving Chomsky's Principle B.

RÉSUMÉ

J'offre une analyse de la signification des rôles θ qui explique leur exhaustivité. Je propose également une modification à la Contrainte de nouveauté de Tom Wasow — une condition qui détermine comment des descriptions définies dans une phrase peuvent, ou ne peuvent pas, être liées. Ensemble, ces deux propositions permettent presque de dériver le Principe B de Chomsky.

1 PRINCIPLE B

Building on Lasnik (1976), Chomsky (1981) formulates a way of thinking about the limits on the anaphoric properties of personal pronouns with a condition he baptizes Principle B. Taking into consideration certain discoveries since his work, I will formulate Principle B as (1).

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(1) Principle B (preliminary)
A personal pronoun may not be co-valued with a c-commanding local DP.
   a. α c-commands β iff β is reflexively dominated by α's sister.
   b. α is co-valued with β iff
      (i) α corefers with β, or
      (ii) α is a variable bound by β, or
      (iii) α and β are both variables bound by the same term.

The correct definition of "local" has been the locus of years of frustrating failure in the literature. I will adopt the idea in Reinhart and Reuland (1993) that locality is expressed in terms of the argument structure of a sentence.

(2) α is local to β iff they are both arguments of the same verb or adjective.

It is unclear whether this definition can be extended to the other predicates that take pronouns, and other DPs, as arguments – namely Prepositions and, possibly, Nouns – largely because the argument structures of these categories are unclear. We will consider only cases involving verbs in this paper. Even with this restriction, however, (2) has its woes. We will encounter them below.

Principle B is responsible for the contrasts in (3).

(3) a. (i) *Mary voted for her.
(Mary=her)
(ii) Mary said I'd vote for her.
(Mary=her)
   b. (i) *Every woman $\lambda 1$ voted for her$_1$.
(ii) Every woman $\lambda 1$ said I'd vote for her$_1$.
   c. (i) *Every woman $\lambda 1$ said that she$_1$ would vote for her$_1$.
(ii) Every woman $\lambda 1$ said that she$_1$ thought I'd vote for her$_1$.

The personal pronoun can corefer with the c-commanding *Mary* in (3a) only when they are not co-arguments. Similarly, the personal pronoun cannot be understood as a variable related to *every woman* (I signal that relation with the λ-operator which binds the pronoun) in (3b) if they are co-arguments. And finally, *her* in (3c) cannot be a variable bound to the same term that *she* is if they are co-arguments. To see what distinguishes the case in (3c) from (3a), see Higginbotham (1980, 1983) and Heim (1993).[1]

Taking (2) as the definition of local might alleviate the need for the c-command condition in Principle B. Removing the c-command condition leads to the prediction that the c-command domains of co-arguments – their scopes – will be immaterial to Principle B. This does seem to be the case, though there may be other conditions (e.g., crossover constraints) on anaphora that, when combined with the (1), derive this as well. In none of the examples in (4) can any two arguments be co-valued.

[1] For attempts to derive (1b-iii) from the other definitions of "co-value," see Fox (1998), Roelofsen (2010, 2011) and Reinhart (2006).

(4) a. Mary told her about her.
b. It's her that Mary told Sally about.
c. It's about her that Mary told Sally.
d. It's her that I think Mary told Sally about.
e. It's about her that I think Mary told Sally about.
f. Sally talked to Mary about her.
g. Sally talked to her about Mary.

If, as seems plausible, the DP complements to the prepositions in (4) are arguments of the verbs, a Principle B that is blind to c-command but cares only about co-arguments will capture, without complication, these facts. Let us transition, then, to the reformulation of Principle B in (5).

(5) Principle B (still preliminary)
If a pronoun is an argument of $\mathcal{P}$, then it cannot be co-valued with another argument of $\mathcal{P}$.

The important exception to (5) is found when a co-argument is a reflexive. Here, not only can a pronoun be co-valued, in certain contexts it must be.

(6) a. She voted for herself.
b. Mary talked to her about herself.

In both sentences of (6), the personal pronoun can be co-valued with *herself*. In examples such as these, reflexives must be bound by something that c-commands them, and this forces the pronoun in (6a) to be co-valued with *she*. Reflexives, and perhaps other anaphors with this need to be bound by c-commanding terms, overcome (5). I'll record this with (7).

(7) Reflexive Blindness
Principle B does not see reflexives.

Chomsky (1981) also formulates a condition that limits the anaphoric properties of non-pronominal argument DPs. He christens this "Condition C." My formulation is (8).[2]

(8) Principle C
A definite description cannot be co-valued with a c-commanding DP.

Principle C differs from Principle B in whether the notion of local is relevant. Locality seems to be relevant for personal pronouns, but not for other definite descriptions. This is supported by the paradigm in (9).[3]

[2] Chomsky's condition is broader; it apples to all DPs, not just definite descriptions. Distinguishing this broader condition from one restricted to definite descriptions isn't trivial. This is partly because certain kinds of DPs are incapable of being co-valued because of their meaning and maybe all of the remaining non-definite DPs undergo Quantifier Raising, leaving a definite description in the form of a trace, to which (8) would apply. I gamble that the narrower statement of Principle C in (8) is the correct version.

[3] I've put the definite description that Principle C evaluates inside a relative clause. I mean to avoid accidentally triggering an anti-logophoric effect of the sort that Dubinsky and Hamilton (1998) describe.

(9) a. (i) *Mary knows someone that the woman will vote for.
(Mary=the woman)
(ii) Mary's friend knows someone that the woman will vote for.
(Mary=the woman)
b. (i) *Every woman $\lambda 1$ has talked to someone that the woman$_1$ will vote.
(ii) *Every woman$_1$'s friend has talked to someone that the woman$_1$ will vote for.
c. (i) *Every woman $\lambda 1$ said that she$_1$ talked to someone that the woman$_1$ will vote for.
(ii) Every woman$_1$'s brother said that her$_1$ father talked to someone who the woman$_1$ will vote for.

In (9a), the definite description *the woman* can corefer with *Mary*, but not when it's c-commanded by *Mary*. In (9b), *the woman* can be a variable related to *every woman*, but only if *every woman* doesn't c-command it. There are a variety of techniques available to bring about binding between two terms when neither c-commands the other; choosing among them won't change the conclusions I'll reach here, so I won't commit to one. I'll represent binding when no c-command is found by simply coindexing the two DPs that are in the binding relation. Finally, in (9c) we see that *the woman* can be a variable related to *every woman* only if there is no other c-commanding variable also related to *every woman*.

Reinhart and Reuland (1993) argues that Principle B should be generalized so that it isn't restricted to personal pronouns but applies instead to all non-reflexive DPs. Because the non-reflexive DPs for which co-valuation is easy to determine in English are just definite descriptions,[4] it is very difficult to test this idea in English. The similarity in Principles B and C entail that replacing a Principle B violating pronoun with a definite description will always produce a Principle C violation. The evidence adduced in Reinhart and Reuland (1993) for generalizing Principle B comes from languages which have DPs that can be co-valued, are not personal pronouns, and are not subject to Principle C. In many IndoEuropean languages, for instance, there is an anaphor whose antecedents are determined by information about whose "point of view" a description is made from. In some of these languages, that anaphor can be co-valued with a c-commanding DP only when that DP is not local. Dutch *zich* is an example.[5]

(10) a. *Henk goorde zich.
Henk heard self
'Henk heard self.'

b. Henk goorde zich zingen.
Henk heard self sing
'Henk heard self sing.'

(Reinhart and Reuland, 1993, (107b),(108b): 710)

[4] See note 2.

[5] This description of the facts requires that certain counter-exemplifying instances of local co-valuation of this anaphor be understood as having a different source. Typically, these cases are treated as using a homophonous term whose function is different than the one ascribed to the point-of-view anaphor.

The ungrammaticality of (10a) can be credited to the joint requirements that *zich* be co-valued with something in its sentence, and that *zich* is subject to Principle B. The contrasting grammaticality of (10b) arises if *zich* is not local enough to *Henk* in this example to trigger a Principle B violation, thereby allowing it be co-valued with *Henk*. If Principle B is generalized to include everthing except terms which are not covered by Reflexive Blindness, contrasts like these are understandable.

It is somewhat tricky to interpret data that involve terms like the Dutch *zich*, as the conditions governing their use are complex and varied. See Rooryck and Wyngærd (2011) for a good discussion. Nonetheless, what I will attempt to derive is the more general Principle B that Reinhart and Reuland (1993) envisions.

(11) Principle B (final)
Two local DPs cannot be co-valued.

If local is defined over the arguments of a predicate, then (11) is synonymous with (12).

(12) Principle B (final)
If DP is an argument of $\mathcal{P}$, then it cannot be co-valued with another argument of $\mathcal{P}$.

This is the Principle B I will aim at deriving.

2 THE NOVELTY CONSTRAINT

Principle C is sensitive to c-command, as (9) demonstrates. It prevents a definite description from getting co-valued with another DP, but only if that DP c-commands the definite description. There also, however, seem to be conditions on which non-c-commanding DPs a definite description may be co-valued with. We will look at one of those in this section – Wasow's "Novelty Constraint" – and then show how it can be related to Principle B.

Consider the contrasts in (13).

(13) a. (i) Every (tall) woman$_1$'s representative met someone the woman$_1$ will vote for.
(ii) *Every woman$_1$'s representative met someone the tall woman$_1$ will vote for.
b. (i) Every tall young woman$_1$'s representative met someone the (tall) (young) woman$_1$ admires.
(ii) *Every (tall) woman$_1$'s representative met someone the tall young woman$_1$ admires.
c. (i) Every widow$_1$'s representative met someone that the woman$_1$ admires.
(ii) *Every woman$_1$'s representative met someone that the widow$_1$ admires.

As we've seen, definite descriptions can be understood as variables related to non-commanding quantificational expressions, and this is what is happening in the i-examples. But the same syntactic configurations do not yield a bound variable reading in the ii-examples. The factor responsible for the difference is found in the content of the NP parts of the two DPs. In the grammatical examples, the NP in the first DP is a predicate which characterizes a set that is a subset of the set characterized by the NP in the second DP. There is a condition that makes this relevant to the ability of a definite

description to be understood as a variable. Let's take a closer look at what might be relevant to developing that condition.

Because the second DP in these examples is a definite description, its NP part introduces a presupposition. I assume the standard view that definite determiners have the denotation in (14).

(14) the = $\lambda P.\iota x.\text{MAX}(P)(x,s) = 1$; defined when there is exactly one x in s such that $\text{MAX}(P)(x,s) = 1$

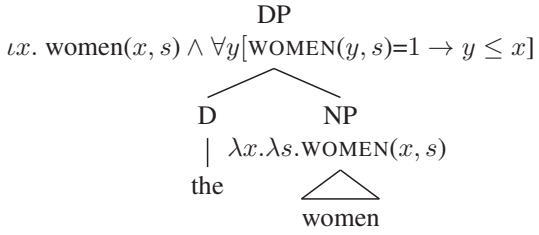
MAX = $\lambda P.\lambda x.P(x,s) = 1 \ \wedge \ \forall y[P(y,e) = 1 \rightarrow y \leq \ x]$

Assume that s is the situation being described by the linguistic material that embeds the definite description. The MAX operator ensures that a plural definite description refers to all the entities that its NP describes. By way of illustration, consider (15).

(15) The women laughed.

(14) assigns to *the women* in (15) the denotation in (16).

(16)



Defined when there is exactly one x such that WOMEN(x, s)=1
$\wedge \forall y[\text{WOMEN}(y, s) \rightarrow y \leq x]$

If the sentence in (15) is a description of the situation that s refers to, then (16) will refer to the plural individual x that contains all the women in s, and, moreover, the sentence will presuppose that there is such an x in s.

It's the fact that the second definite descriptions in (13) introduce presuppositions that led Wasow (1972) to characterize facts like these with his Novelty Constraint.

(17) Novelty Constraint
An anaphor may not introduce any presuppositions not associated with its antecedent.
(Wasow, 1972, (25): 178)

The quantifier *every* in (13) also causes the NP it combines with to introduce a presupposition, one that is parallel to the presupposition introduced by *the* in (14). In the successful examples of anaphora in (13), the presupposition introduced by the anaphoric *the* phrase is no stronger than the presupposition introduced by the *every* phrase. In (13a-i), for example, the presupposition introduced by the *every* phrase is that the situation quantified over includes a woman, or a tall woman – depending on whether *tall* is included or not – and that it is this individual which *every* quantifies over. The presupposition introduced by *the woman* is that the situation described includes a woman, and that the values *the woman* gets causes it to refer to that woman. In the ungrammatical (13a-ii)

example, however, the *every* phrase introduces a presupposition that there is a woman in the situation quantified over, while *the tall woman* phrase introduces the presupposition that there is a tall woman in that situation. (13a-i) satisfies the Novelty Constraint, as the anaphoric definite description adds no new presuppositions about the entities being quantified over, while (13a-ii) violates the Novelty Constraint because it does. A parallel distinction holds for each of the other examples in (13).

The Novelty Constraint also captures the examples in (18).

(18) a. *Every linguist$_1$'s representative met someone who the woman$_1$ admires.
b. *Every woman$_1$'s representative met someone who the linguist$_1$ admires.

The *every* phrase introduces the presupposition that there is a linguist in the situation quantified over (in (18a)) or that there is a woman in the situation quantified over (in (18b)). The presupposition introduced by the anaphoric definite description adds to that an additional presupposition. In (18a), it adds the presupposition that causes the linguist that *every* is quantifying over to be a woman. And in (18b), it adds the presupposition that causes the woman that *every* is quantifying over to be a linguist. The is proscribed by the Novelty Constraint.

We should loosen the Novelty Constraint so that it holds not just between an anaphor and its antecedent, but for the other relations that co-valuation defines as well. It also holds in cases of mere coreference and in cases of co-binding, as (19) indicates.

(19) a. (i) *The woman's representative knows someone who the tall woman admires. (the tall woman=the woman)
(ii) The tall woman's representative knows someone who the woman admires. (the tall woman=the woman)
b. (i) *Every woman$_1$'s representative thinks that the woman$_1$ met someone who the tall woman$_1$ admires.
(ii) Every tall woman$_1$'s representative thinks that the tall woman$_1$ met someone who the (tall) woman$_1$ admires.

The Novelty Constraint operates even when the antecedent does not (apparently) introduce a presupposition, as in (20).

(20) a. *A woman's representative met someone who the tall woman admires.
b. A tall woman's representative met someone who the (tall) woman admires.

So tying the constraint to the presupposition introduced by the antecedent doesn't seem correct. I suggest the reformulation in (21).[6]

(21) The New Novelty Constraint
Let $\exists x.P(x)$ be the presupposition introduced by a DP, α, and $\lambda x.Q(x) = 1$ be the restrictor for another DP, β. α cannot be co-valued with a previous β if the presupposition of α is not entailed by the existential closure of the restrictor of β.

[6] The existential closure of $\lambda x.Q(x) = 1$ is $\exists x.Q(x)$.

A glaring counter-example to the New Novelty Constraint involves pronouns and anaphors. These routinely violate it. (22) illustrates.

(22) a. Some linguist $\lambda 1$ brought her$_1$ husband to the party.
b. Some linguist $\lambda 1$ credited herself$_1$ with the idea.

The feminine features in *her* and *herself* in (22) introduce a presupposition that causes the quantification over linguists to be restricted to just females. This presupposition is not entailed by $\exists x.\text{LINGUIST}(x)$, and so violates the New Novelty Constraint. We should find an explanation for this. I'll sketch an idea here, but for our purposes, it will be enough to simply observe that the New Novelty Constraint only applies to non-pronominal DPs.

To see what might be responsible, consider the minimal pair in (23).

(23) a. *Every bird$_1$'s breeder interviewed someone that the female$_1$ will be sold to.
b. Every bird$_1$'s breeder interviewed someone that she$_1$ will be sold to.

In both cases, *the female* and *she* introduce the very same presupposition, one that, if *she* or *the female* are bound, would make the birds being quantified over females. And yet, only the pronoun can successfully do this. It does not seem to be the meanings of these expressions that matters, but something else about how pronouns differ from other definite descriptions.

One possibly relevant difference between pronouns and other definite descriptions concerns how easily their presupposition is accommodated. Consider (24).

(24) A pet store owner and customer are looking at a pair of guinea pigs in a cage. The customer wishes to buy one for her daughter. The pet store owner says:
a. The female is the cutest.
b. She is the cutest.

The sentence in (24b) is anomalous in a way that (24a) is not. The pet store owner can expect the customer to accomodate the presupposition in (24a) and learn that (exactly) one of the guinea pigs is female. If the pet store owner judges it to be obvious which of the two guinea pigs is the cute one, the pet store owner might have chosen (24a) as a way of informing the customer that the cute pig is female. (24b), by contrast, cannot be used in the same way. The presupposition that *she* introduces cannot be accommodated, and (24b)'s anomaly derives from a presupposition failure. Like personal pronouns, reflexives are similarly incapable of introducing presuppositions that can be accommodated.

Why might this difference be relevant to the New Novelty Constraint? Suppose that the source of the New Novelty Constraint is in the conditions that determine when a presupposition is intended to be accommodated. This might be achieved along the lines of (25).

(25) a. When useful, a speaker may introduce a presupposition that is not part of the shared background in order to inform the hearer that it should be part of the shared background.
b. When a speaker uses a DP's presupposition to do (25a), that DP cannot be co-valued with a preceding DP.

Because pronouns and reflexives do not participate in (25a), they are not subject to (25b). We might imagine that the New Novelty Condition describes a condition that determines when a presupposition is being used to do (25a). That is, it describes the case that arises when the presupposition of a definite description does not follow from the (possibly accommodated) presuppositions shared by speaker and hearer. In that case, the presupposition of the definite description can be reasonably surmised to be intended to do (25a), thereby triggering (25b).

2.1 THETA ROLES

One of the formulations of Principle B section 1 concludes with is (12) (repeated here).

(26) Principle B
If DP is an argument of $\mathcal{P}$, then it cannot be co-valued with another argument of $\mathcal{P}$.

(26) makes being an argument of the same predicate the source of Principle B. Let's see if we can uncover what it is about being an argument that might have this consequence.

What does it mean to be an argument of $\mathcal{P}$? Let's assume that the arguments of a predicate are those terms that get θ-roles from that predicate. If, for instance, *praise* takes a subject and object argument, then those arguments are assigned θ-roles by *praise*. I'll adopt a Neo-Davidsonian style of representing that by decomposing the denotation of a verb into a list of θ-roles it hosts along with an event description.

(27) $Smithpraisedher$ = λe. AGENT(Smith,e)=1 $\wedge$ PATIENT(her,e)=1
$\wedge$ PRAISE(e)=1.

What do the denotations of AGENT and PATIENT consist of? Carlson (1984) argued that they have a kind of exhaustive nature. The observation that he raises in support of this conclusion is that (28) cannot mean what (29) means.

(28) Kay cleaned the car. Mo (also) cleaned the car.

(29) They (=Kay and Mo) cleaned the car.

The AGENT relations for the sentences in (28) require that *Kay* and *Mo* name all of the individuals that are Agents of those cleaning events. Together, the sentences in (28) necessarily describe different events: one in which Kay is the exclusive Agent and another in which Mo is. By contrast, (29) can describe one eventuality of car-cleaning in which both Kay and Mo are Agents. Carlson suggests that (28) cannot have this meaning because of the denotation of the Agent θ-role. That denotation requires that the cleaning event described by the first sentence of (28) have Kay as Agent and no one else. Similarly, that the cleaning event described by the second sentence of (28) have Mo as Agent and no one else. Together, then, the sentences of (28) must describe two cleaning events, each distinguished by the Agents they have.

Schein (1993) reaches the same conclusion by considering examples like (30).

(30) Tony and Geezer lifted the organ. *doesn't entail* Tony lifted the organ.

(30) is unexpected if the Agent θ-role in *Tony lifted the organ* means something like *an Agent of lifting the organ is Tony*. If, by contrast, the Agent θ-role in *Tony lifted the organ* requires that Tony be the only Agent in the lifting event, then (30) follows. The lifting event that *Tony lifted the piano* describes cannot be the same one described by *Tony and Geezer lifted the organ*. They have different Agents.

The exhaustivity of θ-roles is, I suggest, the same exhaustivity that definite descriptions have by virtue of the MAX operator they contain. Recall that the denotation of *the* requires that the DP it heads refer to the maximal set of entities that its NP describes. (See (14).) As a consequence, *the women* refers to all of the women in the situation described by the expression it is in. In *the women laughed*, for instance, all of the women in the situation being described are claimed to have laughed. We can derive the exhaustivity of θ-roles, then, if we model them as definite descriptions. Let's adopt (31).

(31) $agent$ = $\lambda x.\lambda e.$ the agent of e = x
$patient$ = $\lambda x.\lambda e.$ the patient of e = x

The denotation of a θ-role assigning predicate, then, goes as in (32).[7]

(32) $Smithpraisedher$ = $\lambda e.$ the agent of e=Smith $\wedge$ the patient of e=her $\wedge$ praise(e)=1

Treating the Agent and Patient θ-roles as definite descriptions captures their exhaustive quality. (32) requires that all of the Agents of the praising event be Smith and that all of the Patients of that event be the referent of *her*. Letting θ-roles be definite descriptions also means that predicates which have θ-roles will invoke presuppositions that there are entities which satisfy those θ-roles. The claim is that (32) presupposes that a praising event has an Agent and a Patient because those presuppositions come with the Agent and Patient θ-roles.

If we let the New Novelty Constraint hold of θ-roles, then it will derive Principle B. As far as the New Novelty Constraint is concerned, (32) has the same status as (33).

(33) The Agent praised the Patient.

The New Novelty Constraint requires that the Agent and Patient θ-roles in (32) not be co-valued for the same reason that it requires that of the definite descriptions *The Agent* and *the Patient* in (33) not be co-valued. The presupposition introduced by the definite description *the Patient* in (33) is not entailed by the existential closure of the definite description *the Agent* in (33), and so the New Novelty Constraint prevents them from being co-valued. Similarly, the presupposition introduced by the θ-role Patient in (32) is not entailed by the existential closure of the restrictor of the Agent θ-role in (32), and so the Patient θ-role cannot be co-valued with the Agent θ-role. Because θ-role assignment has equated the Agent θ-role bearer with *Smith* and the Patient θ-role bearer with the

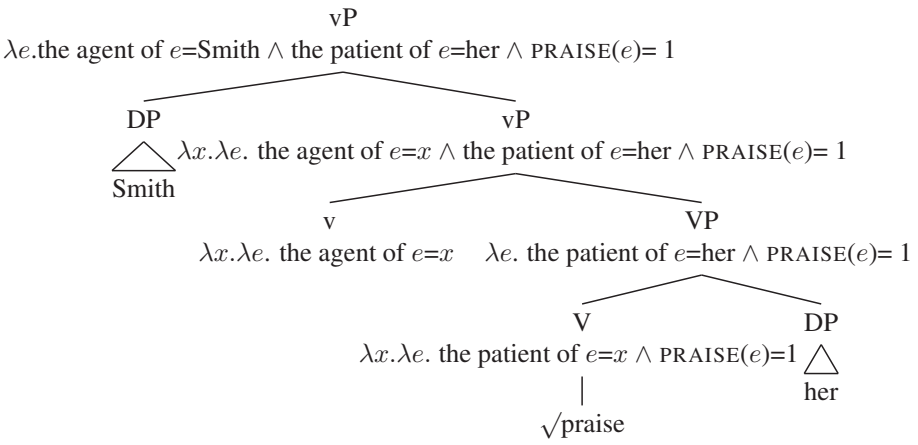
[7] There is some footlooseness to the object-language/meta-language distinction in (32). Slightly less dodgy is expressing (32) with: $\lambda e.\iota x.$[AGENT(x,e)=1 $\wedge$ $\forall y$[AGENT(y,e)=1 $\rightarrow$ $y \leq x$]]=Smith $\wedge$ ιx [PATIENT(x,e)=1 $\wedge$ $\forall y$[PATIENT(y,e)=1 $\rightarrow$ $y \leq x$]]=Smith $\wedge$ PRAISE(e), defined when there is exactly one x such that [AGENT(x,e)=1 $\wedge$ $\forall y$[AGENT(y,e)=1 $\rightarrow$ $y \leq x$] and exactly one y such that [PATIENT(y,e)=1 $\wedge$ $\forall x$[PATIENT(x,e)=1 $\rightarrow$ $y \leq x$]. This spells out the MAX operator responsible for the exhaustivity of the θ-roles, as well as the presuppositions introduced by the θ-roles.

referent of *her*, this derives that *Smith* and *her* cannot corefer.

The link I have made here between θ-roles and binding theoretic principles is shared by Edwin Williams' research on the binding theory; see especially Williams (1987) and Williams (1989). The aim of Williams' research included using binding theoretic conditions on anaphoric connections to model θ-role assignment, and that lies outside what I am proposing. But he did that, and other things, by equating the arguments with the denotation of the θ-roles in a way essentially like that in (31). I regard his thinking to be a precedent to the proposal I am making here.

An interesting feature of this analysis is that it makes Principle B effects sensitive to the event structure of a clause and not, strictly speaking, the predicates that make-up that event description. To see this, consider what happens if we take the more realistic view that transitive verbs are decomposed into two predicates, along the lines of Kratzer (1996). This would give to the sentence *Smith praised her*, the representation in (34).

(34)



There are two predicates in (34): v and $\sqrt{}$praise. The object is an argument of $\sqrt{}$praise and the subject is an argument of v. Strictly speaking, then, the formulation of Principle B in (26) does not apply to *Smith* and *her*; they are not arguments of the same predicate. But because those two predicates are composed in such a way (see the denotation of the smaller vP in (34)) that they end up describing the same event, the θ-roles will similarly end up relating arguments to the same event and this is all that's necessary for the New Novelty Constraint to have the desired effect. What is derived, then, is (35).

(35) The Best Principle B
If DP_1 and DP_2 are arguments of the same event, they cannot be co-valued.

This might give us a handle on solving some of the problems that bedevil formulations of Principle B like (26). A famous problem is illustrated by (36).

(36) Nancy believes her (to be) honest.

Principle B should prevent *her* and *Nancy* from being co-valued in (36). But on most accounts, *Nancy* is an argument of *believe* and *her* is an argument of *honest*. Moreover, there are clearly

two eventualities involved in (36). *Nancy* is an argument of the believing eventuality, and *her* is an argument of the honest eventuality. Very roughly, we might render the denotation of (36) with (37).

(37) $\exists e$. the agent of e=Nancy $\wedge$ BELIEVE(e) $\wedge$ content of e=
$\exists s$. the holder of s=her $\wedge$ HONEST(s)

Neither of our Principle Bs – the one that defines locality on co-arguments of a predicate (=(26)), nor the one that defines the locality condition on events (=(35)), explain why *Nancy* and *her* cannot be co-valued in (37).

Many people studying sentences like (36) have expressed the feeling that the subject of the embedded clause – the *her* in (36) – is also a part of the belief eventuality. There is a relation of prolepsis between *her* and the belief eventuality: it is *about her* that (36) claims Nancy has a belief. If that feeling can be derived by giving to (36) a denotation along the lines sketched in (38), then it will fall under the condition in (35), and can be derived by the New Novelty Constraint.

(38) $\exists e$. the agent of e=Nancy $\wedge$ the about of e=her $\wedge$ BELIEVE(e)
$\wedge$ the content of e= $\exists s$. the holder of s=her $\wedge$ HONEST(s)

I have made up a θ-role "about," whose content would have to be elucidated before this account of such cases could get off the ground. But (38) provides a model for how the proposal here could improve on the predictions of the locality condition that relies on co-arguments of predicates.

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