On the interpretation of reflexive pronouns

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Abstract

This dissertation is concerned with the interpretation of reflexive pronouns and how their interpretation requirements affect the formulation of Condition A in binding theory, with data being collected from English. In Standard Binding Theory, reflexives are assumed to be interpreted as bound variables only (Chomsky, 1981; Reinhart, 1983; Büring, 2005). This assumption is explicitly reflected in Condition A, which requires that reflexives must be locally bound variables. In this dissertation I question how well motivated this assumption is.

To test the bound-variable-only assumption for reflexives, I investigate the readings that reflexives give rise to in VP-ellipsis and focus constructions. It has previously been observed that reflexives are ambiguous in VP-ellipsis, giving rise to both a strict and sloppy reading (Dahl, 1973; Sag, 1976; Hestvik, 1995; Fiengo and May, 1994). Rather than take this as evidence for both referentially interpreted and bound-variable reflexives, as is the case with ambiguities that arise with non-reflexive pronouns (Sag, 1976; Reinhart, 1983; Heim and Kratzer, 1998), previous accounts aim to derive strict readings of reflexives while maintaining the bound-variable-only assumption (Hestvik, 1995; Büring, 2005). However, I argue that these accounts run into problems which could be avoided if reflexives were able to be interpreted as co-referential with their antecedents, and not just as bound variables.

The readings of reflexives in focus constructions have received far less attention. Judgements are mixed, with reflexives being claimed to only be interpreted as sloppy, and the strict reading being unavailable or marginal (McCawley, 1967; Heim and Kratzer, 1998; Reinhart and Reuland, 1993), which would seem to support the bound-variable-only assumption. Yet others – such as Dahl (1973), Büring (2005), Roelofsen (2008), and Ahn and Sportiche (2014) – claim both strict and sloppy readings are equally possible. I present experimental evidence in this dissertation which shows that strict reflexives in focus constructions are judged as acceptable to speakers, and argue that these readings cannot be accounted for with the assumption that reflexives are interpreted as bound variables only; and that instead, a binding theory is needed in which reflexives can be co-referential with their antecedents.

With the need for co-referential reflexives established, the remainder of this dissertation is concerned with how Condition A can be formulated to incorporate this interpretation option, and how strict readings in VP-ellipsis and focus constructions will follow once it has been incorporated. I follow Sauerland (2013) in adopting a Condition A which

is built into the compositional semantics as an argument identity presupposition, which will allow reflexives the option of co-reference, and accounts for strict readings as instances of weakened presupposition projection.

Compared to the option of modifying Standard Binding Theory, this presuppositional approach appears to be more insightful, but is not without complications. In order for weakened projection to occur, Sauerland (2013) assumes that a presupposition must be purely presuppositional. I present data which are problematic for this assumption and outline a new direction for the conditions under which weakened projection in focus alternatives may proceed, which is based on the relation the presuppositional element bears to the focus-marked phrase.

Résumé

Le sujet de cette thèse est l'interprétation des pronoms réfléchis et comment leur inter-prétation affecte la formulation de la Condition A de la théorie du liage. Dans la théorie du liage standard, il est acquis que les réfléchis sont seulement interprétés comme des variables liées (Chomsky, 1981; Reinhart, 1983; Büring, 2005). Cela est explicitement pré-cisé dans la Condition A, qui exige que les réfléchis soient des variables localement liées. Dans cette thèse, je remets en question la validité de cette supposition.

Pour vérifier la supposition que les réfléchis sont uniquement des variables liées, j'examinerai l'interprétation que ces pronoms obtiennent dans les contextes de focalisa-tion et d'ellipse du VP. Il a été observé que les réfléchis sont ambigus dans l'ellipse du VP, donnant lieu à des interprétations strictes et floues (Dahl, 1973; Sag, 1976; Hestvik, 1995; Fiengo and May, 1994). Plutôt que d'en conclure qu'il est possible d'interpréter les réfléchis comme des variables liées et comme des pronoms référentiels (Sag, 1976; Rein-hart, 1983; Heim and Kratzer, 1998), plusieurs analyses visent à dériver la lecture stricte des réfléchis tout en maintenant la supposition que ces pronoms ne sont que des variables liées (Hestvik, 1995; Büring, 2005). Je soutiendrai que ces approches font face à plusieurs problèmes qui peuvent être entièrement évités si on admet que les réfléchis peuvent être interprétés de manière coréférentielle avec leur antécédent, et non pas seulement comme des variables liées.

L'interprétation des réfléchis dans le contexte de focalisation a été beaucoup moins étudié. Les jugements sont difficiles et certains auteurs affirment que ces réfléchis ne peu-vent recevoir qu'une interprétation floue et que l'interprétation stricte est impossible ou marginale (McCawley, 1967; Heim and Kratzer, 1998; Reinhart and Reuland, 1993), ce qui supporterait la supposition que les réfléchis ne peuvent être que des variables liées. D'autres, tels que Dahl (1973), Büring (2005), Roelofsen (2008), et Ahn and Sportiche (2014), affirment que les interprétations strictes et floues sont toutes deux possibles. Je présenterai des données expérimentales qui démontreront que les interprétations strictes des réfléchis dans les structures focalisées sont jugées comme acceptables par les locu-teurs et je suggèrerai que ces interprétations sont incompatibles avec la supposition que les réfléchis ne sont que des variables liées. Plutôt, il est nécessaire d'adopter une théorie du liage selon laquelle les réfléchis peuvent être coréférentiels avec leur antécédent.

Une fois établie la nécessité des réfléchis coréférentiels, le reste de cette thèse vise à reformuler la condition A pour incorporer cette possibilité interprétative et expliquer les interprétations strictes dans l'ellipse du VP et les constructions focales. J'adopterai la

position de Sauerland (2013) selon laquelle la Condition A est intégrée à la sémantique compositionnelle sous la forme d'une présupposition d'identité d'argument, ce qui permet aux réfléchis d'obtenir une interprétation coréférentielle et d'expliquer les lectures strictes en tant qu'instances de projection affaiblie de présupposition.

Comparée à une modification de la théorie du liage standard, cette approche par présupposition est plus intuitive, mais elle a toutefois ses propres problèmes. Pour permettre la projection affaiblie, Sauerland (2013) soutient que les présuppositions sont strictement présuppositionnelles. Je présenterai des données qui sont problématiques à cet égard et je donnerai les contours des conditions dans lesquelles la projection affaiblie dans les alternatives focales peut avoir lieu, en me basant sur la relation que l'élément présuppositionnel a envers le constituant focalisé.

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Preface

Each chapter in this dissertation is comprised of original and independent work by the author.

Chapter 1 presents the motivation for the mainstream view of reflexives being interpreted as bound variables only.

Chapter 2 presents the problem that bound-variable-only reflexives pose for strict readings of reflexives in VP ellipsis. It presents new data which show that it is necessary for binding theory to allow for reflexives to be co-referential with their antecedents.

Chapter 3 presents novel experimental data which show that strict readings of reflexives are possible in focus constructions and argues that these readings are also problematic if reflexives must be bound variables only. This chapter concludes that co-referential reflexives need to be incorporated into binding theory to account for the experimental results.

Chapter 4 presents two ways of incorporating co-referential reflexives into binding theory. The first is a modification of Standard Binding Theory's Condition A, and the second is Sauerland's (2013) presuppositional approach to Condition A. This chapter argues that Sauerland's approach is more theoretically desirable.

Chapter 5 presents data which are problematic for Sauerland's assumptions regarding what can and cannot undergo weakened presupposition projection. This chapter outlines a direction for a new account of weakened projection based on focus marking and how the presuppositonal element relates to the F-marked phrase.

Contents

Chapter 1

Introduction

This dissertation is concerned with the interpretation of reflexive pronouns and investigates this topic through the readings that reflexives give rise to in focus and ellipsis constructions in English.

Broadly speaking, reflexives are instances of anaphora and are thus part of a class of sentential elements whose interpretations are not entirely fixed and depend in some way on the discourse context and the presence of a previously occurring expression – an antecedent – in order to be fully understood. It is therefore a concern of linguistic theory to find a way to capture how the interpretation of an anaphoric expression depends on the interpretation of its antecedent – in other words, how an anaphoric expression is related to its antecedent – which it turns out is not a trivial matter when it comes to reflexives.

The question of how anaphoric expressions relate to their antecedents has been given a considerable amount of attention in the literature and forms the basis of Chomsky's (1981) Binding Theory and subsequent variations thereof, such as that of Reinhart (1983) and Büring (2005). In general, Binding Theory aims to account for how anaphoric pronouns relate to their antecedents through the assumption of grammatical conditions which regulate their distribution and interpretation. For reflexives, the relevant condition is Condition A, and in the Binding Theory of Chomsky (1981), Reinhart (1983), and Büring (2005), which I will refer to as Standard Binding Theory (SBT), Condition A requires that reflexives have a local c-commanding antecedent and, consequently, that they be interpreted as bound variables.

This dissertation investigates whether this core assumption of SBT is empirically supported, and presents evidence based on the readings of reflexives in focus and ellipsis constructions which suggests that it is not. In these constructions we find that, reflexives

can give rise to a strict reading[1], which I argue can only be accounted for if reflexives are interpreted as co-referential with their antecedents – in other words, as a free variable that refers to the same individual that the antecedent DP refers to. In addition to the experimental data presented in this dissertation, that strict readings are a readily acceptable phenomenon in focus constructions can be shown in naturally occurring examples such as (1) and (2). These examples are just a few instances from a Google search showing that reflexives can be interpreted as co-referential in the context of focus particles such as *even/only*.

(1) *even*

   a. Miles Matheson [is] the man everyone loves to hate, but nobody actually does anything about. **Even he hates himself**, for all the terrible things he's done to people.
       ("Revolution episode 14 review: The Night The Lights Went Out In Georgia", Den of Geek, 2013 TV-show review)

   b. I'm so good at swimming **even I hate myself**.
       (website selling t-shirts and buttons)

   c. Hegel is often described as a mystic. Indeed, **even he describes himself as one**.
       ("Hegel and the Hermetic Tradition", Glenn Alexander Magee, 2001 book)

(2) *only*

   a. Only you can make yourself quit.
       (icanquit.com, online forum on quitting smoking)

   b. **Only I can help myself**. But I can't even do that right.
       (ehealthforum.com, online forum for mental health)

   c. **Only HE sees himself that way**, and virtually no one else could reasonably agree to such a crazy notion.
       ("SPS2: Breaking Bad, White Privilege, and The Ghost of Rollerblading Past", One Rollerblading Magazine, 2013 article)

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[1]While strict readings are typically used in the discussion of anaphoric elements in ellipsis constructions to refer to readings where the interpretation of the anaphoric element is constant in the antecedent and ellipsis clauses, I will use the term in this dissertation to extend to focus constructions which display a similar constant interpretation of the anaphoric element. In focus constructions, I assume a strict reading is one where the anaphoric element has the same denotation both in the ordinary and focus semantic values.

These data, plus the data from the literature, and the experimental results presented in this dissertation, suggest then that we should adopt a different approach to Binding Theory which allows reflexives the option of being interpreted as co-referential with, in addition to being semantically bound by, their antecedents.

1.1 Reflexives as bound variables

This section outlines the motivation for bound-variable-only reflexives and how this assumption is built into SBT. First, it should be noted that the discussion of reflexive interpretation in this dissertation is based in the framework of Heim and Kratzer (1998), which for reflexives means that they are assumed to be interpreted as variables which denote individuals of type e and also that they bear an index which the assignment function g maps to a contextually salient individual. For example, a reflexive such as *himself* with the index 1, as in (3), will refer to whichever individual the assignment function maps 1 to. This basic assumption on reflexive interpretation will be expanded upon in the dissertation, but for now serves as a starting point.

(3) $[\![\text{himself}_1]\!]^g = g(1)$

It should be noted that in this framework, this is also the same treatment that is assumed for non-reflexive pronouns, as in (4). Thus, a reflexive and a non-reflexive pronoun both denote the individual to which the assignment function maps their index.

(4) $[\![\text{him}_1]\!]^g = g(1)$

Individual-denoting variables in this framework can either be free or bound at LF. In the configuration in (5), assume that DP_α is an individual-denoting variable. Here, it would be considered free and would denote whichever individual the assignment function maps the index 1 to. As a concrete example, take the sentence in (6), where the non-reflexive pronoun would be assumed to have a free-variable denotation, referring to the individual *John*.

(5) $[_{TP} DP_\beta \dots V DP_{\alpha,1}]$

(6) $[_{TP} \text{Mary likes him}_1] (1 \rightarrow \text{John})$

It is also possible in some instances for the assignment function to map the index 1 of DP_α in (5) to the same individual that DP_β denotes. If this is the case then the two DPs are said to be co-referential, that is, they independently refer to the same individual. For example, in (7), if the index 1 on the non-reflexive pronoun *him* is mapped to the individual *John*, then this pronoun would be considered to be a free variable which is co-referential with the subject DP *John*.

(7)   [$_{TP}$ John thinks that Mary likes him$_1$]

   Binding, on the other hand, modifies the assignment function so that the interpretation of the variable is not dependent on the index. Certain processes in the grammar, such as quantifier raising (QR) for example, are assumed to introduce a variable binder into an LF. QR is an instance of movement which takes a phrase and moves it to a higher position in an LF, introducing a variable binder within its sister constituent, which binds the trace of movement and any other variable with the same index, such as in the configuration in (8). The sentence in (9) exemplifies an instance where the non-reflexive pronoun would have a bound variable interpretation; the pronoun *him* is not interpreted as the individual that 1 is mapped to, but instead its interpretation co-varies with every boy.

(8)   [$_{TP}$ DP [$\lambda 1_\beta$ [$_{TP}$ t$_1$ . . . V DP$_{\alpha,1}$]]]

(9)   Every boy$_1$ thinks that Mary likes him$_1$.

The conditions under which such binding is assumed to hold are as in (10), and given this definition, the variable-denoting DP in (8) would be considered bound (as too would the trace of movement).

(10)   *Semantic Binding*
         β binds α if and only if:
         a. α is an occurrence of a variable
         b. β is an occurrence of a variable binder
         c. β c-commands α
         d. β is co-indexed with α
         e. β does not c-command any other variable binder occurrence which also c-commands and is co-indexed with α

Despite these two ways of interpretation being available for variables, reflexives, as previously mentioned, are standardly assumed to not have the option of being free, and are only thought of as being bound. While it is uncontroversial that reflexives can be interpreted as bound variables in some configurations, that they must be in all configurations is debatable[2]. Evidence that reflexives are allowed to have bound variable interpretations can be seen in configurations where their antecedents are quantified DPs (QDPs), such as in (11a). Here, it can, and in fact must, be interpreted as a bound variable, as in the denotation in (11b) The option of being interpreted as a free variable, which is co-referential with its antecedent, is not available in this instance since the reflexive's antecedent is not a referring expression in the first place.

(11)   a.   Every man$_2$ likes himself$_2$.
        b. $[\![_{\text{TP}}$ Every man $\lambda 2$ $[_{\text{TP}}$ t$_2$ $[_{\text{VP}}$ likes himself$_2]]]]\!]^g$ = T iff for every man x, x likes x

On the other hand, when the reflexive has a referential DP antecedent, as in (12a), the necessity of it being a bound-variable does not follow as it does with quantified DPs. In this instance, the same denotation of the sentence would arise, namely, that *Mary likes Mary*, regardless of whether the reflexive is treated as a bound variable, (12b), or as co-referential with its antecedent, i.e., as a free-variable, (12c)[3].

(12)   a.   Mary$_2$ likes herself$_2$.
        b. $[\![_{\text{TP}}$ Mary $\lambda 2$ $[_{\text{TP}}$ t$_2$ $[_{\text{VP}}$ likes herself$_2]]]]\!]^g$ = T iff Mary likes Mary
        c. $[\![_{\text{TP}}$ Mary $[_{\text{VP}}$ likes herself$_2]]]\!]^g$ = T iff Mary likes Mary (if g(2) $\rightarrow$ Mary)

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[2]It is clear that in some configurations reflexives cannot be interpreted as bound variables. For example, as observed by Ross (1970); Kuno (1987); Reinhart and Reuland (1993) some uses of reflexives can occur without a sentential antecedent, and therefore cannot possibly be bound variables in the absence of this antecedent (examples below from Reinhart and Reuland (1993)).

(i)   a.   There were five tourists in the room apart from myself.
       b.   Physicists like yourself are a godsend.
       c.   It angered him that she ... tried to attract a man like himself.

[3]While I will mark sameness of reference with numerical indices in example sentences prior to any structural analysis, as in (12a), some clarification needs to be made with how this translates at LF. With regard to indexing at LF, Heim and Kratzer (1998) assume that all DPs can theoretically be indexed. Thus a non-variable denoting/full DP such as the antecedent DP *Mary* in both (12b) and (12c) could occur with an index. This index though does not have a semantic contribution, and is interpreted as semantically vacuous and thus I will not mark full DPs with an index at LF.

Presented with just the data in (11) and (12), the claim that reflexives must be bound variables seems hard to test. All we can conclude about reflexive interpretation from these examples is that they can be interpreted as bound variables, and not that they must be interpreted as bound variables.

So where does this assumption come from? The motivation for a Condition A that requires reflexives to be bound variables stems from the observation that reflexives do not seem to be able to acceptably occur without a local c-commanding antecedent. Contrasting the examples in (11) and (12) above with the examples in (13) below, we see that that reflexives are acceptable when they have a local c-commanding antecedent, but unacceptable if both of these conditions are not met. For example, a reflexive cannot have an antecedent which is non-local (yet still c-commands it), as in (13a), or have an antecedent which is local but does not c-commanding it, as in (13b)[4], or have no antecedent at all, as in (13c).

(13) a. *John$_1$ thinks that I hate himself$_1$.
      b. *John$_1$'s mother likes himself$_1$.
      c. *That it is snowing bothers himself$_1$.

Given examples such as these, it is often assumed, such as by Reinhart (1983, p.131), that reflexives must be interpreted only as bound variables. The reason for this conclusion is that if reflexives were necessarily bound variables, then it will ensure that they will always have a c-commanding antecedent[5], since the presence of c-command is required for semantic binding to follow, as seen previously in the definition of binding given in (10).

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[4]Reinhart (1983) assumes that the possessor DP, such as *John* in (13b), is not in a position where it c-commands the reflexive. Assuming an LF where *John* remains in situ, this would clearly be the case, but, one could argue that *John* is able to undergo QR and thus c-command the reflexive. There is precedent for this kind of movement for pronouns in constructions such as (ia).

(i) a. [Every boy]$_1$'s mother likes him$_1$.
     b. [$_{TP}$ [$_{DP}$ Every boy] $\lambda1$ [$_{TP}$ [$_{DP}$ t$_1$'s mother] likes him$_1$]]

This sentence has a reading where, for every boy x, x's mother likes x. In order to derive this reading the possessor *every boy* must be able to QR out of the DP to a position where it can c-command and bind the pronoun. Putting aside this complication here, I follow Reinhart's assumptions in the presentation of the data which motivate the need for reflexives to have a c-commanding antecedent.

[5]Although it should be noted that variable binding does not ensure that the reflexive will have a local antecedent.

Under this definition of binding, it should be noted though, that while the variable-denoting DP will be considered bound if it has a c-commanding variable binder, it does not explicitly say whether or not it has a c-commanding antecedent DP. This is unproblematic, though, and will in fact follow from Heim and Kratzer's (1998) assumptions on how the variable binder gets introduced in the first place. For example, with an instance of QR, it is assumed to get introduced when a phrase has undergone movement; thus, if the antecedent DP undergoes QR and introduces a variable binder, which is in a position to c-command the variable-denoting DP, then the antecedent DP also will end up being in a position to c-command the variable-denoting DP.

Thus, the motivation for reflexives being bound variables only is essentially to ensure the presence of a c-commanding antecedent DP. SBT is then constructed in such a way so that reflexives have no option but to be interpreted as bound variables. This arises, for example, under Chomsky's (1981) Condition A assumptions in (14) and Heim and Kratzer's (1998) semantic enrichment of this theory. Heim and Kratzer (1998) propose that there is a close association between syntactic and semantic binding – an idea which they formalize as the Binding Principle in (15), which requires that whenever there is syntactic binding (i.e., binding in the surface structure, see the definition in (16)), there must also be binding in the semantics (at LF).

(14)   *Condition A*
        Reflexive pronouns and reciprocals must be syntactically bound in their local domain.

(15)   *Binding Principle*
        Let α and β be DPs, where β is not phonologically empty. Then α binds β syntactically in the surface structure iff α binds β semantically at LF.

(16)   *Syntactic Binding*
        A node α syntactically binds a node β iff:

        a. α and β are co-indexed
        b. α c-commands β

Both Condition A and the Binding Principle combined result in reflexives being treated necessarily as bound variables. Condition A requires that reflexives be syntactically bound, resulting in a surface structure such as in (17a), and if that binding relation is absent in the LF structure – if, for example, the reflexive were a free variable and hence

not semantically bound, as in (17b) – then the Binding Principle would be violated. Thus, the only way for both principles to be satisfied is if the reflexive is a bound variable, as in (17c).

(17)   Mary$_2$ likes herself$_2$.

    a.   SS: [$_{TP}$ Mary$_2$ [$_{VP}$ likes herself$_2$]]
    b.   LF: *[$_{TP}$ Mary [$_{VP}$ likes herself$_2$]]
    c.   LF: [$_{TP}$ Mary $\lambda 2$ [$_{TP}$ t$_2$ [$_{VP}$ likes herself$_2$]]]

Thus, we see that reflexives have no option but to be interpreted as bound variables. The situation is no different for the Binding Theory assumptions of Reinhart (1983) and Grodzinsky and Reinhart (1993), where the theory is again constructed in such a way as to ensure that there is no other option for reflexives but to be treated as a bound variable. Reinhart (1983); Grodzinsky and Reinhart (1993) assume something similar to Heim and Kratzer's (1998) Binding Principle, which will force semantic binding whenever it is possible. This principle, Rule-I, is formalized by Grodzinsky and Reinhart (1993) in (18) and is intended to ensure that, if semantic binding is possible and if the speaker intends for two DPs to have the same interpretation, use binding, unless there is some reason to avoid it[6].

(18)   *Rule-I*:
    DP A cannot co-refer with DP B if replacing A with C, C a variable bound by B, yields an indistinguishable interpretation.

Rule-I essentially requires the relationship between two DPs to be that of binding whenever possible, unless co-reference would give rise to a different interpretation than binding would. Since reflexives always occur in configurations where binding is possible (i.e., in configurations where they have a c-commanding antecedent) and co-reference would not give rise to a different interpretation than binding, as shown in (19), the reflexive will always default to being interpreted as a bound variable.

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[6](Reinhart, 1983, p.167) states this intuition as follows:

"Where a syntactic structure you are using allows bound-anaphora interpretation,then use it if you intend your expression to co-refer, unless you have some reason to avoid bound anaphora."

(19) a. $[\![_{\text{TP}} \text{ Mary } \lambda 2 \, [_{\text{TP}} \, t_2 \, [_{\text{VP}} \text{ likes herself}_2]]]\!]^g = \text{Mary likes Mary}$

  b. $[\![_{\text{TP}} \text{ Mary } [_{\text{VP}} \text{ likes herself}_2]]\!]^g = \text{Mary likes Mary (if } g(2) \rightarrow \text{Mary)}$

While Rule-I would always give reflexives a bound variable interpretation, it does not account for reflexive distribution, and thus a Condition A is also needed to ensure that the antecedent of the reflexive is local. To this end, Grodzinsky and Reinhart assume the Condition A in (20), which is essentially Chomsky's Condition A reformulated to apply to variable binding relations only.

(20) *Condition A*: An anaphor [reflexive] is [semantically] bound in its governing category [local domain] (Grodzinsky and Reinhart, 1993, p.75)

To summarize, SBT (regardless of whether one takes Chomsky's or Reinhart's approach) assumes at the onset that reflexives must be interpreted as bound variables in order to account for the fact that they require a c-commanding antecedent. The theory is then constructed in such way that the assumed principles of the grammar will result in a bound-variable interpretation being the only possible interpretation for reflexives.

1.2 Alternative semantics for focus and reflexives

This dissertation is concerned with testing SBT's bound-variable-only assumption for reflexives, and does so by investigating their interpretation in focus and ellipsis constructions. In the discussion of both of these phenomena I will assume the alternative semantics for focus framework of Rooth (1985, 1992b, 1996), and as a preliminary to the following chapters, this section outlines the basics of how the interpretation of reflexives could be reflected in a set of alternatives.

Whether the interpretation of reflexives is assumed to be that of co-reference or variable binding is not a trivial matter when the antecedent of the reflexive is focused. In each case, the set of alternatives evoked by the presence of focus would be different, which would in turn predict different available readings for focus phenomena that make use of these sets of alternatives, thus providing a way to test the assumption of bound-variable-only reflexives.

When the reflexive is assumed to necessarily be a bound variable, there is only one grammatical configuration at LF which reflexives can be in. This requirement makes certain predictions for focus constructions where the reflexive's antecedent happens to be

the element that is focused – namely, if there is binding at LF there will also be binding reflected in the set of alternatives derived from that LF, which will give rise to a sloppy reading. On the other hand, if the reflexive has the option of being co-referential, it is a free variable at LF, and this is also reflected in the set of alternatives derived from this LF. If the reflexive is a free variable, then a strict reading would be predicted to be possible.

Before looking at how alternative sets are derived involving reflexives, take the example sentence in (21). From the LF of this sentence, a set of alternatives would be derived as shown in (22). It assumes Rooth's alternative semantics framework for focus, in which sets of alternatives are derived compositionally, and elements of a sentence are assumed to have a second semantic value – namely, a focus semantic value $[\![\varphi]\!]^f$, in addition to their ordinary semantic value $[\![\varphi]\!]^o$. When a sentence element is not F(ocused)-marked, the focus semantic value ends up being the singleton set containing its ordinary semantic value. For example, in (21), the non-F-marked *[VP likes Sue]* denotes the property $\lambda y \in D_e.y$ likes Sue, and would thus have a focus semantic value that is the singleton set containing this denotation, as shown in (22c). When a sentence element is F-marked, on the other hand, the focus semantic value defines a set of alternatives that contrast with the ordinary semantic value. For example, in (21), the F-marked DP $MARY_F$ has a focus semantic value which is the set of individuals, as shown in (23a).

Furthermore, in the derivation of the focus semantic value, when this DP combines with the property denoted by the VP, the result would be the set of propositions {that x likes Sue : $x \in D_e$}, as in (23b), where pointwise function application gives a focus semantic value derived from the denotations of both sentence elements.

(21)   [TP MARY$_F$ [VP likes Sue]]

(22)   a. $[\![$Sue$]\!]^{g,f}$ = {Sue}

      b. $[\![$likes$]\!]^{g,f}$ = {$\lambda x \in D_e.\lambda y \in D_e.y$ likes x}

      c. $[\![$likes Sue$]\!]^{g,f}$ = {$\lambda y \in D_e.y$ likes Sue}

(23)   a. $[\![$MARY$_F]\!]^{g,f}$ = {$x : x \in D_e$}

      b. $[\![$MARY$_F$ likes Sue$]\!]^{g,f}$ = {that x likes Sue : $x \in D_e$}

Turning now to reflexives with focused antecedents, if reflexives must be bound variables, then the set of alternatives will also reflect this variable binding and the result is with a set of propositions where the subject and object of the predicate are identical. To see why, consider the LF in example (24), where the reflexive's antecedent is an F-marked

DP, and the reflexive is treated as a bound variable.

(24) $[_{TP}$ MARY$_F$ $\lambda 2$ $[_{TP}$ t$_2$ $[_{VP}$ likes herself$_2$ $]]]$

Deriving the set of alternatives compositionally from this LF would proceed in a similar manner to (23b) in the sense that an F-marked DP is being applied to a property. The main difference here, from (23b), is that the property that the F-marked DP combines with has a different denotation. The effect of treating the reflexive as a locally bound-variable is that it creates a reflexive property, i.e., both subject and object of the predicate are identical, as in (25e). When this reflexive property combines with the F-marked antecedent, the result is a set of propositions which also has identical arguments, (26).

(25)   a. $[\![herself_2]\!]^{g,f}$ = {g(2)}
        b. $[\![likes]\!]^{g,f}$ = {$\lambda x \in D_e.[\lambda y \in D_e.y$ likes $x]$}
        c. $[\![likes\ herself_2]\!]^{g,f}$ = {$\lambda y \in D_e.y$ likes g(2)}
        d. $[\![t_2\ likes\ herself_2]\!]^{g,f}$ = {g(2) likes g(2)}
        e. $[\![\lambda 2\ t_2\ likes\ herself_2]\!]^{g,f}$ = {$\lambda x \in D_e.x$ likes x}

(26) $[\![MARY_F\ \lambda 2\ t_2\ likes\ herself_2]\!]^{g,f}$ = {that x likes $x : x \in D_e$}

Consider now a binding theory which allows for reflexives to also be co-referential with their antecedents. In this theory, a sentence such as *MARY$_{2,F}$ likes herself$_2$* can have the LF in (27).

(27) $[_{TP}$ MARY$_F$ $[_{VP}$ likes herself$_2$ $]]$

The property denoted by the VP would be as in (28c), where co-reference is achieved through the reflexive being interpreted as a free variable, and the assignment function mapping the index 2 to *Mary*. When the F-marked DP combines with the VP, the resulting set of alternatives would be similar to that which was previously seen in (23b) – it would result in a set of alternatives where the predicate's arguments are not identical, one argument denotes the individual *Mary* and the other a set of individuals.

(28)   a. $[\![herself_2]\!]^{g,f}$ = {Mary}
        b. $[\![likes]\!]^{g,f}$ = {$\lambda x \in D_e.\lambda y \in D_e.y$ likes x}
        c. $[\![likes\ herself_2]\!]^{g,f}$ = {$\lambda y \in D_e.y$ likes Mary}

(29) $[\![MARY_F\ likes\ herself_2]\!]^{g,f}$ = {that x likes Mary : $x \in D_e$}

If the LF in (27) is a possibility, where the reflexive can be co-referential, then it would allow for a different set of alternatives to be derived from when the reflexive is a bound variable, and would thus allow for multiple interpretations in focus phenomena that make use of alternative sets; both strict and sloppy readings would be predicted to be acceptable. If, on the other hand, reflexives can only be interpreted as bound variables, then only the sloppy reading would be predicted to be acceptable.

1.3 Overview

With the motivation and theoretical implementation of bound-variable only reflexives established, the remainder of this dissertation is organized as follows. Chapter 2 and 3 address the question of how we can empirically test whether reflexives are necessarily bound variables or not by looking at interpretations of reflexives in VP ellipsis and focus constructions. These environments have been previously used as diagnostics for bound-variable and co-referential interpretations of pronouns, and these chapters show that for reflexives, the strict reading is possible. This presents a problem for SBT's assumption that reflexives must be bound variables only. In these chapters I argue that strict readings of reflexives can be accounted for in a binding theory which allows for co-referential reflexives.

Chapter 4 addresses the question of how co-referential reflexives can be built into binding theory. It first considers how SBT can be modified and takes an approach which would allow for co-referential reflexives in SBT through the modification of Condition A which captures the bound-variable and co-referential nature of reflexives through a disjunctive condition. This chapter also explores Sauerland's (2013) presuppositional approach to Condition A, where Condition A effects are captured by an argument-identity presupposition on a two-place predicate. I argue that the presuppositional approach to Condition A is preferred to a disjunctive Condition A, since the latter results in a theory which merely stipulates the observation of binding and co-reference for reflexives, whereas in a presuppositional approach, the option of binding and co-reference for reflexives is a consequence of the assumed presuppositional requirement. Furthermore, this chapter argues that when it comes to accounting for strict reflexives, while both approaches can account for the data, encoding Condition A as a presupposition paves the way for a more insightful explanation of why these readings occur. Under the presuppositional approach, strict readings of reflexives can be tied into the larger phenomenon of

weakened presupposition projection, as proposed in Sauerland (2013).

The weakened projection approach to strict reflexives is not without complications. Chapter 5 addresses some of the issues that arise with Sauerland's (2013) approach to weakened projection via pure presuppositionality, and argues that his assumed condition under which presuppositions can be weakened is incorrect. While this chapter does not provide a fully fleshed out alternative to these previous accounts, it does suggest that the direction a new account should take is to base the requirement for weakened projection on focus marking and how the presuppositional element relates to the F-marked phrase.

Lastly, Chapter 6 provides a summary and outlines some outstanding questions for future research.

Chapter 2

Strict reflexives and VP ellipsis

Counter to some claims in the literature, reflexives in VP ellipsis are observed to be ambiguous and give rise to both strict and sloppy reading (Dahl, 1973; Sag, 1976; Hestvik, 1995; Fiengo and May, 1994; Büring, 2005; Ahn and Sportiche, 2014). That reflexives can give rise to a strict reading, such as in (1), is unexpected in a binding theory that necessarily treats reflexives as locally bound variables .

(1)   *Context: John was charged with embezzlement and had to defend himself in court. His lawyer Bill was also there to defend him. On the day of the trial...*
  a.   John$_1$ defended himself$_1$ before Bill did.
  b.   = John defended John before Bill defended John (strict)

As shown in Chapter 1, standard binding theory (SBT) assumes that reflexives can be interpreted only as bound variables and builds this into its formulation of Condition A, such as in (2)[1].

(2)   *Condition A*
      Reflexives must be semantically bound in their local domain

---

[1]As discussed in Chapter 1, I take SBT to be the binding theory of Chomsky (1981), Reinhart (1983)/Grodzinsky and Reinhart (1993) and Büring (2005) (i.e., binding theories which build into it the assumption of bound-variable-only reflexives). The Condition A in (2) is formulated to cover the distribution and interpretation of reflexives commonly assumed in each of these theories.

(3)   *Semantic Binding*

β binds α if and only if:

a. α is an occurrence of a variable

b. β is an occurrence of a variable binder

c. β c-commands α

d. β is co-indexed with α

e. β does not c-command any other variable binder occurrence which also c-commands and is co-indexed with α

The fact that strict readings appear to be available raises the question of whether Condition A's requirement of reflexives being interpreted as only bound variables is correct.

This chapter investigates whether strict readings of reflexives in VP ellipsis can be accounted for while maintaining SBT's bound-variable-only assumption for reflexives. I will show that previous accounts in the literature which appear to be compatible with this assumption (the accounts of Hestvik (1995) and Büring (2005), for example), are still problematic, and that in order to account for the full range of strict reflexive data, binding theory needs to allow for reflexives to be interpreted as co-referential with their antecedents.

2.1   How the problem arises

Before turning to reflexives, this section starts with strict and sloppy readings which arise with pronouns. It was first observed by Ross (1967, p. 348) that pronouns in ellipsis constructions are ambiguous. The standard analysis of this ambiguity, beginning with Sag (1976), and continuing in the literature with Reinhart (1983) and Heim and Kratzer (1998), is to assume that each reading arises from two distinct LFs, with strict and sloppy readings being linked to the bound-variable or co-referential status of an anaphor – binding is attributed to sloppy readings and co-reference to strict readings.

(4)   a.   John$_1$ defended his$_1$ brother and Bill did too.

b.   = John defended John's brother and Bill defended John's brother (strict)

(5)   a.   John$_1$ defended his$_1$ brother and Bill did too.

b.   = John defended John's brother and Bill defended Bill's brother (sloppy)

With regard to pronouns, when they occur inside an elided VP, there is an ambiguity that arises. Either the pronoun can be interpreted as having the same antecedent in the elided VP as it does in the overt VP – known as the strict reading, and seen in (4) – or the pronoun can be interpreted as having a different antecedent in the elided VP than it does in the overt VP – known as the sloppy reading, and seen in (5). The availability of these readings is attributed to the pronoun's ability to be interpreted either referentially or as a bound variable. When the pronoun is referential (i.e., interpreted as a free variable) the strict reading arises, as shown in the LF in (6), and when the pronoun is a bound variable then a sloppy reading arises, as shown in the LF in (7).

(6) $[_{TP}$ John$_1$ $[_{VP}$ defended his$_1$ brother$]]$ and $[_{TP}$ Bill did $[_{VP}$ defended his$_1$ brother$]$ too$]$. (strict)

(7) $[_{TP}$ John $\lambda 1$ t$_1$ $[_{VP}$ defended his$_1$ brother$]]$ and $[_{TP}$ Bill $\lambda 1$ t$_1$ $[_{VP}$ defended his$_1$ brother$]$ too$]$.   (sloppy)

In contrast to pronouns, the literature often claims that the only reading available for reflexives in VP ellipsis is the sloppy reading (Keenan, 1971; Williams, 1977; Partee and Bach, 1984; Heim and Kratzer, 1998), as in (8a).

(8)   *Context: John and Bill were charged with embezzlement and had to defend themselves in court. On the day of the trial . . .*
    a.   John$_1$ defended himself$_1$ before Bill did.
    b.   = John defended John before Bill defended Bill. (sloppy)

This claim follows from the assumption that reflexives must always be locally bound variables . If reflexives must be bound variables , then the strict/sloppy ambiguity is not predicted to be available. A bound variable reflexive is predicted to only give rise to a sloppy reading, and not a strict reading. Counter to this prediction, it has been previously observed that reflexives can in fact give rise to strict readings in VP ellipsis (Dahl, 1973; Sag, 1976; Hestvik, 1995; Fiengo and May, 1994; Büring, 2005; Ahn and Sportiche, 2014). As seen previously seen in (1) above, the elided anaphor can have the same referent in the elided VP as it does in the overt VP.

It should be noted that the literature on strict reflexives in VP ellipsis often makes a contrast between subordinated and coordinated ellipsis, with strict readings arising more naturally in subordinated ellipsis than in coordinated ellipsis (Hestvik, 1995). But, as the

example in (9) shows, in the right context, strict readings in coordinated ellipsis do sound natural.

(9)   *Context: John and Bill are very good friends, and would do anything to help the other out. When John was wrongfully accused of stealing some office supplies. . .*

    a.   he$_1$ defended himself$_1$ and Bill did too.

    b.   = John defended John and Bill defended John (strict)

If strict reflexives are derived like strict readings for pronouns, then the examples in (1) and (9) suggest that they too can have co-referential interpretations, counter to SBT assumptions.

To see the full extent of the strict reflexive problem for SBT, consider the LF in (10), where ellipsis resolution is assumed to proceed through LF copying of the overt VP to the ellipsis site (Williams, 1977). The LF in (10) shows that strict reflexives in VP ellipsis present a problem not just for the interpretation requirement that Condition A imposes on reflexives, but also with its locality requirement. According to SBT's Condition A, the reflexive must be treated as a locally bound variable. Problematically, the reflexive in the copied VP will not satisfy this requirement under a strict reading since the antecedent *John* is not in the reflexive's local domain, or in a position to c-command and thus semantically bind the reflexive, thus there does not seem to be a way for strict readings to acceptably arise.

(10)
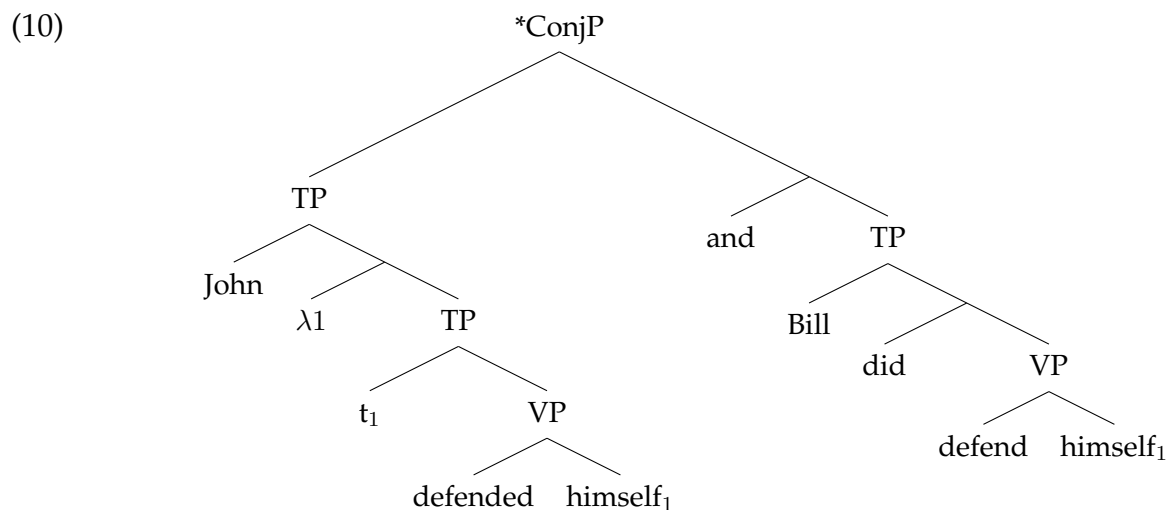
In order for the LF in (10) to be acceptable, it seems as though Condition A would have to

allow for reflexives to be co-referential with their antecedents, since binding is impossible due to the lack of c-command. Secondly, even if we were to allow the reflexive to be co-referential with its antecedent, the result of LF-copy is that the reflexive in the elided VP ends up being in a position where its antecedent *John* is outside its local domain, and therefore Condition A would have to somehow allow reflexives to have non-local antecedents.

We could at this point try to modify SBT's Condition A to allow for co-referential reflexives with non-local antecedents, in which case Condition A would end up abandoning its standardly assumed bound variable and locality requirements. A modification such as this would in turn mean abandoning a prediction at the core of SBT – namely, the complementary distribution of pronouns and reflexives. Problematically, if we allowed for reflexives to be co-referential and have non-local antecedents in this way, there is no way to predict the uncontroversial unacceptability of constructions, such as (11), where the reflexive has a non-local antecedent, or (12), where the reflexive has a non-commanding antecedent. Thus, while modifying Condition A in such a way might allow for strict reflexives, it is undesirable since it makes these incorrect predictions for reflexives in other constructions.

(11)   *$John_1$ said that Mary saw $himself_1$.

(12)   *[[$John_1$'s mother] likes $himself_1$].

To summarize, strict reflexives in VP ellipsis do pose a real problem for SBT assumptions regarding reflexive interpretation and distribution. The availability of strict readings with reflexives seems to suggest the need for a binding theory in which reflexives can be co-referential with their antecedents in addition to being free in their local domain, counter to standard Condition A assumptions. The solution cannot be be as simple as just modifying Condition A to allow for co-referential reflexives which can be free in their local domain, as this kind of modification would mean that Condition A would lose the ability to account for one of the observations it was meant to account for in the first place.

2.2   Strict reflexives are not reflexives

In the literature on strict readings with reflexives in VP ellipsis, one of the main strategies for dealing with these apparent Condition A violations in VP ellipsis is to assume that

the anaphor in the elided VP is not a reflexive in the first place, i.e. it is a pronoun or a movement trace. Therefore, Condition A is not the relevant binding condition to apply to the anaphor in the elided VP, and cannot incur any violations. The reflexive in the antecedent VP is still a reflexive and subject to Condition A, and these approaches still maintain SBT's Condition A of bound variable only reflexives, but they avoid the need to modify Condition A in any way by assuming that the anaphor in the elided VP is not actually a reflexive.

This section investigates two approaches to strict readings with reflexives that use this strategy. This first is that of Hestvik's (1995) anaphor raising and the second Büring's (2005) focus matching, which is essentially an interpretation of Rooth (1992a). Both of these approaches to strict reflexives essentially solve the Condition A violation problems in the same way, by assuming that the anaphoric element in the elided VP is not a reflexive, preventing Condition A from being violated due to its inapplicability.

2.3 Anaphor raising: ellipsis resolution and the interaction with movement

If we maintain a syntactic identity approach to ellipsis resolution, such as LF-copy, we previously saw that there was both an interpretation problem and a locality problem with regard to SBT's Condition A. To avoid these problems, the reflexive in the elided VP needs to be interpreted co-referentially, and have the ability to be free in its local domain. These problems would not arise though, if it were the case that the elided VP did not contain a reflexive at all.

One way of avoiding a reflexive in the elided VP is to derive strict readings through the interaction of covert movement of the reflexive and LF-copying, as suggested by Hestvik (1995). In this approach, the elided VP ends up containing a movement trace in the object position, which is bound by the reflexive in the antecedent clause. This approach allows us to maintain a Condition A in which reflexives are bound variables , and also that ellipsis resolution proceeds as assumed before, through LF-copy. The basic idea is that the movement of the reflexive can interact with the ellipsis resolution process in such a way that, when the VP is copied, the reflexive is no longer part of that copied VP, thus having the effect that Condition A is no longer applicable to the anaphor of the elided phrase.

To see how this account works, we first start with the assumption that reflexives can undergo QR. This means that the LF of a simple transitive sentence such as *John₁ defended himself₁* could be as in (13), where the reflexive has QR-ed to adjoin to the VP. Following Heim (1998), and also Drummond and Shimoyama (to appear) in their discussion and interpretation of Hestvik's (1995) anaphor raising, DPs are assumed to have inner and outer indices. An inner index indicates what that DP is bound by, and an outer index indicates what that DP binds. Thus, the reflexive in (13) has the inner index 1 and the outer index 2. In addition, since reflexives are still assumed to be subject to Condition A, the antecedent *John* must also undergo QR so that the reflexive ends up being semantically bound.

(13)

```
                          TP
                    ┌──────┴──────┐
                   DP             TP
                 ┌──┴──┐     ┌─────┴─────┐
                /  John \   λ1          TP
                ───────      ┌───────────┴───────┐
                            t₁                   VP
                                          ┌───────┴───────┐
                                         DP               VP
                                    ┌─────┴─────┐    ┌─────┴─────┐
                                   / himself₁ \ λ2  λ2          VP
                                   ───────────          ┌────────┴────────┐
                                                     defended           t₂
```
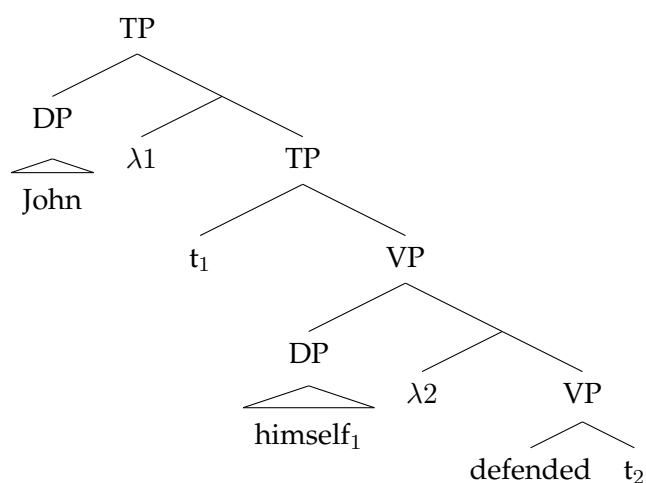
QR of the reflexive does not have semantic effects in a simple transitive sentence such as (13); i.e., the reflexive is still interpreted as a bound variable and the truth conditions are the same whether the reflexive has QR-ed or whether it stays in object position – namely *that John defended John*. But, it crucially can have a semantic effect when it interacts with ellipsis resolution. Different readings can be derived depending on whether QR of the reflexive occurs before or after VP-copy. The strict reading, for example, would be derived when the lower VP is copied after the reflexive moves.

The LF in (14) shows the derivation for strict readings in subordinated ellipsis. First, the reflexive in the VP of the matrix clause QRs to adjoin to the complex VP that contains the adjunct clause. It is necessary for the reflexive to move here, rather than adjoin to the lower VP, since it must end up in a position where it can bind into the adjunct clause. After the reflexive QRs, the lower VP is then copied into the elided VP of the subordinate clause. From this position, the moved reflexive is able to bind the object trace in both the

antecedent and the elided VPs, which results in a reading where *John defended John before Bill defended John*, without Condition A being violated.

(14)

```
                    TP
            ┌────────┴────────┐
          John                │
                    ┌─────────┴────────┐
                   λ1                  TP
                            ┌──────────┴──────────┐
                           t₁                     VP
                                          ┌───────┴───────┐
                                      himself₁            │
                                              ┌───────────┴───────────┐
                                             λ2                       VP
                                                           ┌──────────┴──────────┐
                                                          VP                     CP
                                                    ┌──────┴──────┐        ┌──────┴──────┐
                                                defended         t₂    before           TP
                                                                                 ┌───────┴───────┐
                                                                                Bill             │
                                                                                         ┌───────┴───────┐
                                                                                        did             VP
                                                                                                 ┌───────┴───────┐
                                                                                              defend          t₂
```
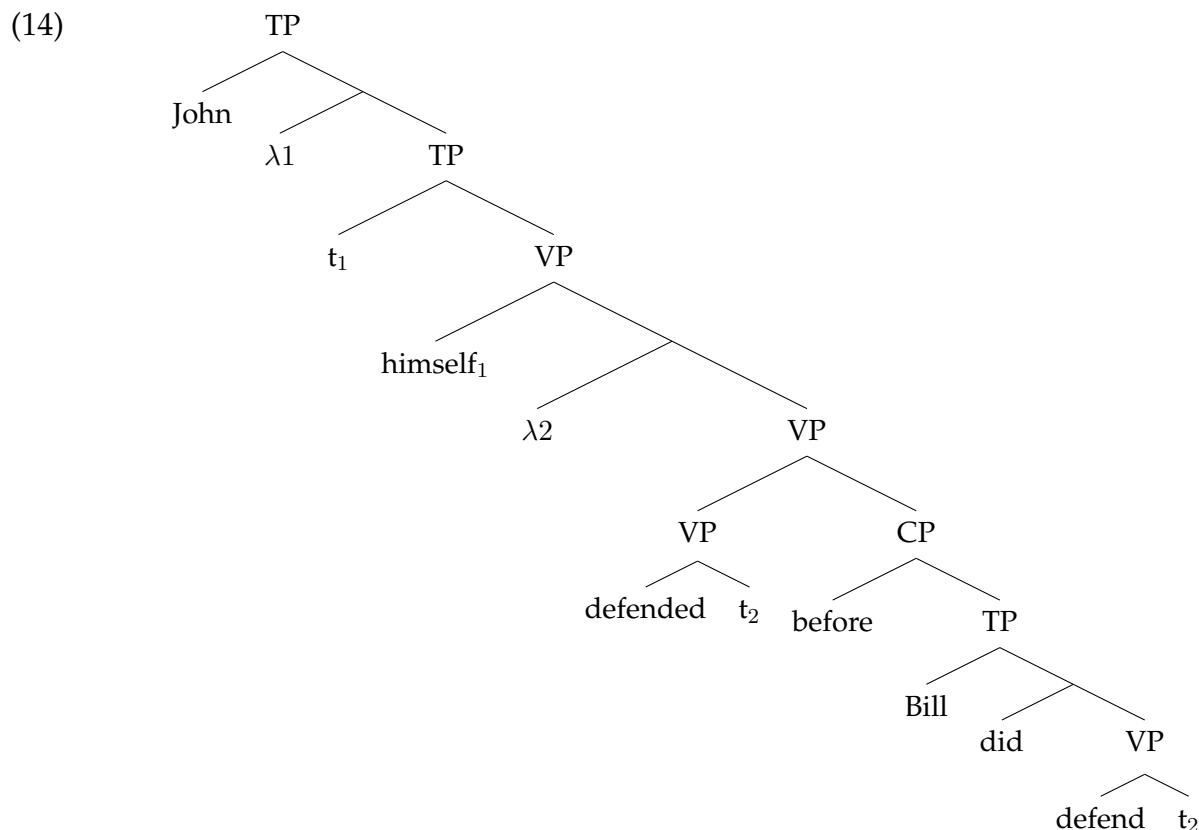
In sum, we see that in Hestvik's (1995) anaphor raising approach strict readings of reflexives can be derived while maintaining SBT assumptions. Strict readings do not violate Condition A as long as the reflexive can undergo QR before LF-copy to a position where it binds the trace in both the antecedent and elided VP.

2.3.1 Anaphor raising and islands

The availability of strict readings in Hestvik's approach relies on the possibility of the reflexive to QR to a position where it can bind into both the antecedent and elided VPs. If this approach is correct, then it is predicted that strict readings should not arise when it is impossible to bind into both VPs, such as in the configuration in (15), where the reflexive is embedded in an island for movement.

(15)
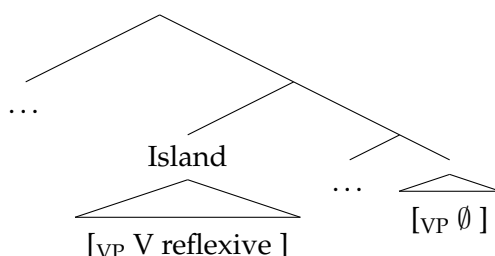
If the reflexive QR-ed to bind into the elided VP, the resulting structure would be as in (16) and would be unacceptable, since it would involve movement out of an island.

(16)

This section looks at whether this prediction is borne out in constructions where the reflexive is embedded in islands for movement, such as coordinate structures, adjuncts, and complex DPs. As we will see below, strict readings of reflexives are possible in these constructions, thus posing a serious problem which the anaphor raising approach is incapable of handling.

Coordination

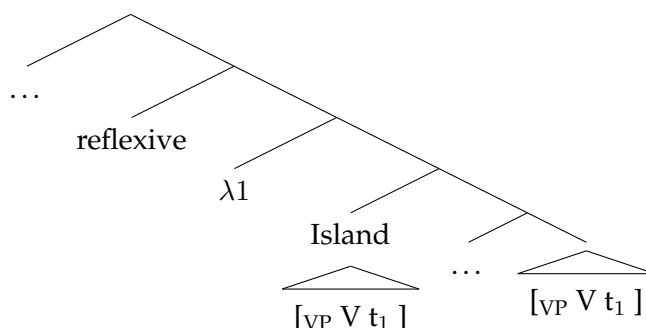Since Ross (1967), coordinate structures have been shown to be islands for movement, disallowing the movement of, or out of, one of their conjuncts. For example, wh-movement is not permitted out of the second conjunct in (17).

(17)   *[Which man]$_1$ did you invite [$_{ConjP}$ [$_{DP}$ Mary] and [$_{DP}$ a friend of t$_1$]]?

While this restriction was originally considered to apply to overt movement, it has subsequently been shown that covert movement is subject to these island constraints as well (Heim, 1982; Fodor and Sag, 1982; May, 1985; Fox, 2000). Take the sentence in (18), for example. If movement out of an island were possible, the universally quantified DP should be able to move out of the first conjunct to take scope over the existentially quantified DP,

as in (18b), giving rise to the reading where: for every professor x, there is a (different) student y, such that y likes x and hates the dean. Yet, the judgements for sentences such as (18) are that this reading is unavailable, thus suggesting that the movement needed to get this reading is not possible.

(18)   a.   Some student likes every professor and hates the dean.
          b.   *[[every professor] $\lambda 1$ [some student [$_{\text{ConjP}}$ [likes t_1] and [hates the dean]]]].
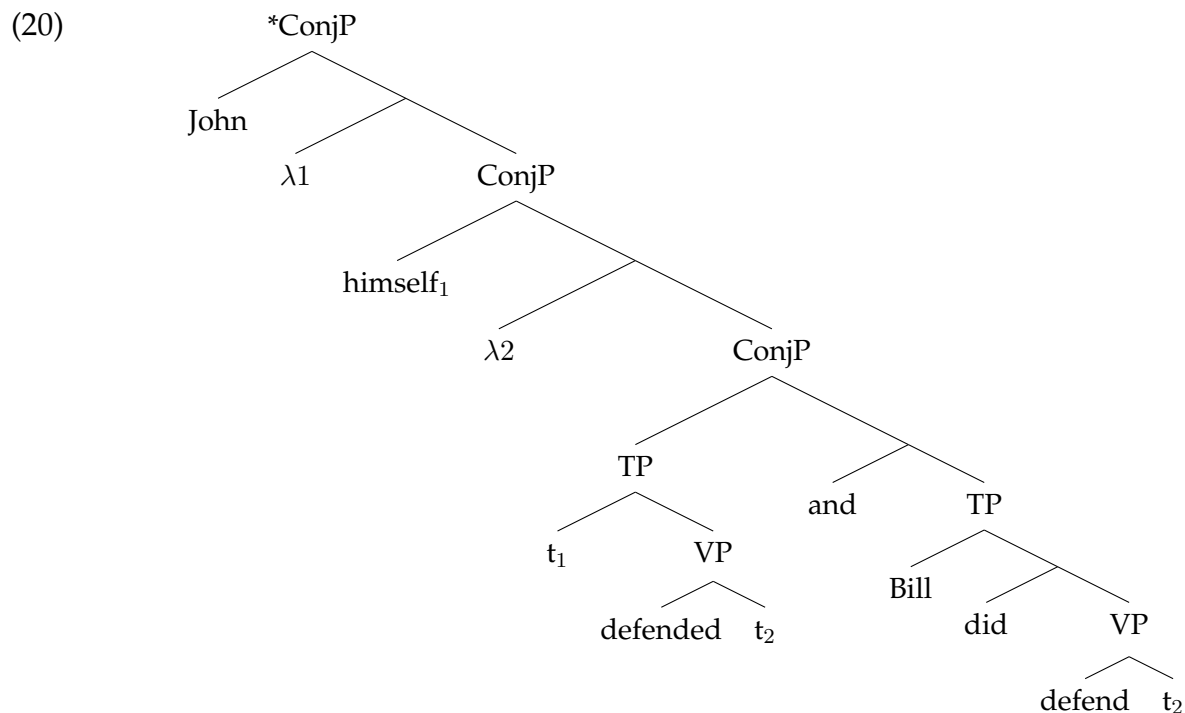
If QR is unacceptable out of a coordinate structure, the expectation for reflexives is that, if they undergo movement out of a coordinate structure as well, this movement should be equally unacceptable, and thus strict readings should be unavailable.

Counter to this prediction, the availability of strict reflexive readings in coordinate structures has been widely discussed in the literature, and it is generally accepted that strict readings are acceptable in sentences such as (9) (=(19))[2]. This would suggest that the movement approach is incorrect, since strict readings arise in a construction where movement is generally blocked.

(19)   *Context: John and Bill are very good friends, and would do anything to help the other out. When John was wrongfully accused of stealing some office supplies...*
          a.   he$_1$ defended himself$_1$ and Bill did too.
          b.   = John defended John and Bill defended John

To derive the strict reading under the movement approach, the reflexive in the first conjunct would have to move to a position where it adjoins to the ConjP, so it can bind into both conjuncts, as in (20). In addition, since this reflexive must also be a bound variable, the antecedent *John* must move out of the first conjunct. Both movements are illicit given that they are instances of movement out of an island, thus predicting strict readings to be unavailable when in fact they are available.

---

[2]It has been brought to my attention, though, that there may be speaker variation with regard to these judgements. While some speakers do find strict readings to be easily accessible in coordinations, there are other speakers who routinely do not get these reading at all.

(20)

```
                      *ConjP
                 ╱        ╲
            John
                    λ1        ConjP
                          ╱        ╲
                  himself₁
                          λ2            ConjP
                                    ╱        ╲
                                 TP
                                            and      TP
                              ╱    ╲
                           t₁     VP                Bill    did    VP
                               ╱    ╲
                          defended   t₂                        defend   t₂
```

Thus, based on the fact that strict readings are available, and that movement of the reflexive out of the coordinate structure seems impossible, having the reflexive undergo QR does not seem to be the right approach for deriving these readings.

This conclusion, based on coordinate structure constructions alone, is not without complications. While (18) shows QR out of a coordinate structure is in general not possible, there do appear to be exceptions to this restriction. For example, Roberts (1987); Fox (2000) and Keshet (2007) observe that a universally quantified DP may take scope over the coordinate structure to bind a pronoun in the second conjunct, in a phenomenon known as telescoping, as shown in (21) and (22).

(21)   [$_{ConjP}$ [[Each degree candidate]$_1$ accepted his$_1$ diploma] or [(if he$_1$ was sick) his$_1$ mother accepted it]].

(22)   Mary [$_{ConjP}$ [likes [every professor]$_1$] and [wants him$_1$ to be on her committee]].

One way of analyzing (21) and (22) would be to have the quantified DP move out of the first conjunct to take scope over the whole ConjP, as in shown in the LF in (23).

(23)   [$_{ConjP}$ [$_{DP}$ each degree candidate] λ1 [$_{ConjP}$ [$_{TP}$ t$_1$ accepted his$_1$ diploma] [or [$_{TP}$ his$_1$ mother accepted it]]]]

24

Thus, the examples in (21) and (22) are relevant for the case of strict reflexives under the movement approach since they set a precedent for the movement that that would be required by the reflexive, and the antecedent of the reflexive. Just as the quantified DP (QDP) could move out of the first conjunct to bind the pronoun in the second, so too could the reflexive move out of the first conjunct to bind the trace in the second. If the movement in (23) is possible, then in a similar manner, the reflexive could move out of the first conjunct to take scope over the whole ConjP and bind into both conjuncts, predicting the LF in (20) – which gives rise to the strict reading – to be grammatical[3].

With the possibility of reflexives moving out of a conjunct based on the availability of QR in a construction like (23), the coordinate structure cases, which at first sight seem to exhibit evidence against the movement approach to strict readings, could potentially still be accounted for with movement. It should be noted, though, that there is some debate over the analysis of these telescoping cases in (21) and (22), and whether it requires movement at all. Non-movement accounts exist (see Roberts (1987)), in which case there may very well be no precedent for movement out of the coordinate structure, and strict readings of reflexives in coordinate structures would remain problematic for the anaphor raising approach.

Adjuncts and complex DPs

Despite the case of coordinate structures being inconclusive with regard to whether they support the anaphor raising account or not, there are other islands which can be investigated for the availability of strict readings in order to test the predictions of the anaphor raising approach. Adjuncts and complex DPs are also well-known islands for movement. As (24) and (25) show, overt wh-movement out of these constructions is not permitted (examples from Szabolcsi (2006)):

(24)   *[$_{DP}$ Which topic]$_1$ did you leave [$_{CP}$ because Mary talked about t$_1$]?

(25)   *[$_{DP}$ Which kid]$_1$ did you call [$_{DP}$ the teacher who punished t$_1$]?

Turning to covert movement, these islands appear to block QR as well, since a univer-

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[3]This prediction is simplified somewhat for strict readings in coordinate structures since, in order for the structure to be well-formed, the reflexive needs to be a bound variable, which requires movement of the antecedent DP out of the first conjunct. Problematically, this violates the Coordinate Structure Constraint. So, even if we did allow anaphor raising out of a conjunct based on the similarity to the telescoping cases, we still need to explain why the further movement of the antecedent DP is allowed.

sally quantified DP embedded in the island cannot move out of that island to take scope over the existentially quantified DP, as shown in (26) and (28). In (26), the universally quantified DP cannot move out of the adjunct to take scope over the existentially quantified DP, as the reading which would arise from the LF in (26b) does not seem possible for this sentence, i.e., the sentence does not have the reading where: for every woman x, there is a (different) judge y, such that y laughed after the lawyer defended x.

(26)   a.   Some judge laughed after the lawyer defended every woman.
          b.   *[[every woman] $\lambda 1$ [some judge laughed [$_{CP}$ after the lawyer defended t$_1$]]]

The example in (27) also shows that the universally quantified DP is restricted to its surface scope position in the island. The sentence in (27) does give rise to a reading which reports one incident of laughing in total, namely: there is a unique lawyer x, such that for every woman y, after x defended y, I laughed at x. This reading would arise from the LF in (27a), where the universally quantified DP takes surface scope. The sentence in (27) however does not give rise to a reading where: for every woman y, there is a unique lawyer x, such that after x defended y, I laughed at x, and thus reports multiple occurrences of laughing. This reading would arise from the LF (27b) where the universally quantified DP can take scope out of the island. Since this reading is unavailable, we can conclude that the QDP *every woman* cannot move out of the island and is restricted to its position inside the island.

(27)   I laughed right after the lawyer defended every woman.

          a.   [$_{TP}$ I [[laughed] [right after [$_{TP}$ the lawyer defended every woman]]]]
          b.   *[$_{TP}$ every woman $\lambda 1$ [$_{TP}$ I [[laughed] [right after [$_{TP}$ the lawyer defended t$_1$]]]]]

A similar situation occurs in the complex DP case of (28). This sentence does not have the reading where: for every woman x, there is some (different) judge y, such that y laughed at the man who defended x, which would arise from the LF in (28b). Since this reading is unavailable, we can conclude this LF, with movement out of the island, is ungrammatical.

(28)   a.   Some judge laughed at the man who defended every woman.
          b.   *[[every woman] $\lambda 1$ [some judge laughed at [$_{DP}$ the man who defended t$_1$]]].

Again, we can also see that the QDP is restricted to its surface scope position from sen-

tences such as (29). The sentence has a reading where there is some unique man who defended every woman, and I laughed at that man. In other words, it has the reading where: there is a unique man x, such that for every woman y, x defended y and I laughed at x, which would arise from the QDP taking surface scope as in the LF in (29a). This sentence though, does not have a reading which reports multiple occurrences of me laughing, i.e., it does not have a reading where: for every woman y, there is a unique man x, such that x defended y and I laughed at x, which would arise from the LF in (29b).

(29)   I laughed at the man who defended every woman.

    a.   [$_{TP}$ I laughed at [$_{DP}$ the man who defended every woman]]

    b.   *[$_{TP}$ every woman $\lambda 1$ [$_{TP}$ I laughed at [$_{DP}$ the man who defended t$_1$]]

Given these judgements, we can conclude that covert movement out of an island is not possible. The expectation for reflexives is that they should not be able to QR out of an adjunct or a complex DP either, in which case strict readings are predicted to be unavailable when it would involve reflexive movement out of an island. Counter to this prediction, the examples in (30a) and (31a) are judged to be acceptable under the reading where the anaphor in the elided phrase can in fact be interpreted as having the same referent as in the overt VP, thus showing that strict readings are possible when the reflexive is embedded in an island for movement.

(30)   *Context: At the trial, the accused, Bill, was defended both by himself and his lawyer. The judge was not sympathetic to Bill's defense, but she had no problem with the lawyer's defense of Bill.*

    a.   The judge laughed [$_{CP}$ after Bill defended himself], but she didn't laugh after his lawyer did.

    b.   = . . . but she didn't laugh after Bill's lawyer defended Bill.

(31)   *Context: In court, everyone was defended by their lawyer except for one man, who ended up defending himself.*

    a.   The judge questioned [$_{DP}$ the man who defended himself] about why his lawyer couldn't.

    b.   = . . . about why the man's lawyer couldn't defend the man . . .

In order to derive the strict reading in both of these examples under the anaphor raising

approach, the reflexive would have to QR out of a uncontroversial island for movement. For the adjunct case, it would have to move to a position to take scope over both clauses, as in (32)[4].

(32) $[_{ConjP}$ the accused $\lambda 2$ $[$ himself$_2$ $\lambda 1$ $[_{ConjP}$ $[_{TP}$ the judged laughed $[_{CP}$ after t$_2$ defended t$_1$ $]]$ $[$but $[_{TP}$ she didn't laugh $[_{CP}$ after his lawyer did defend t$_1$ $]]]]]]$

Furthermore, Condition A still requires that the reflexive be a locally bound variable. In the adjunct island example, this could be achieved by QR-ing the antecedent – $[_{DP}$ *the accused]* in (32) – to a position where it can bind the reflexive. If this movement is possible, then the locality requirement of Condition A could be met, but problematically, this movement would be out of an island, and the sentence in (30a) would be incorrectly predicted to be unacceptable, counter to speaker judgements.

  With regard to complex DPs, the reflexive would have to move out of the DP to adjoin to the matrix VP in order to bind into both the antecedent and elided VPs. This movement of the reflexive out of the complex DP also runs into the same problem as the adjunct case: not only would reflexive movement be out of an island, but in order to satisfy Condition A's locality and bound-variable requirements, further movement of the antecedent DP would also have to occur out of the island. But, unlike the adjunct island case, there does not seem to be a way to satisfy the locality requirements of the reflexive. This would require both *the man* and *who* to move together to a position above the reflexive. The problem with this, though, is that these elements do not form a constituent, and could not be considered for movement like this in the first place. Since we cannot derive this structure, strict readings in examples such as (31a) are incorrectly predicted to be unacceptable.

  At this point it is worth considering whether there are exceptions to movement out of these islands in a similar manner to the coordinate structure cases, where a quantified DP can take exceptional scope in order to bind a pronoun outside of the island it is embedded in. It turns out that, unlike the coordinate structure case, there are no apparent exceptions to movement out of these islands. In (33a) and (34a), the pronoun cannot be interpreted as bound by the universally quantified DP. For example, the sentence in (34a) does not have the reading where: for every woman x, the judge talked to the man who defended x about why x's lawyer was absent. Likewise, the sentence in (33a) does not have the

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[4]There is the added complication here of the reflexive not only having to move out of the adjunct island, but out of a coordinate structure as well. Despite this, the point still holds that the predictions of the movement account do not match with the observed judgements.

reading where: for every man x, the judge laughed so hard after the lawyer defended x that she couldn't read x's verdict[5].

(33) a. *The judge laughed so hard [$_{CP}$ after the lawyer defended [every man]$_1$] that she couldn't read his$_1$ verdict.

   b. = For every man x, the judge laughed so hard after the lawyer defended x that she couldn't read x's verdict

(34) a. *The judge questioned [$_{DP}$ the man who defended [every woman]$_2$] about why her$_2$ lawyer was absent.

   b. = For every woman x, the judge talked to the man who defended x about why x's lawyer was absent

To summarize, the anaphor raising approach to strict reflexives aims to maintain SBT's Condition A and a syntactic identity approach to ellipsis resolution. It accounts for strict readings by assuming that the reflexive undergoes QR to a position somewhere above the VP that is then copied to the ellipsis site, therefore binding a movement trace in each VP. Since the anaphor is now a trace of the moved reflexive DP, and therefore not considered a reflexive with regard to binding theory, it is not subject to Condition A. Condition A still applies to the moved reflexive of the antecedent, though, and as long as this moved reflexive is a locally bound variable, it will be satisfied. As shown in this section, while this account can predict strict readings in some configurations, it undergenerates, and runs into problems accounting for strict reflexives in island configurations.

2.3.2   VP ellipsis as deep anaphora

That strict readings in coordinated ellipsis are available has not gone unnoticed in the literature. Hestvik (1995) does observe that strict readings are possible in coordinated ellipsis, yet claims that they are less preferred than subordinated ellipsis. Realizing that the anaphor raising approach undergenerates for coordinated ellipsis, he proposes that

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[5]Judgements on (33a) range from marginal to unacceptable. The example in (i) (p.c. Aron Hirsch) makes the same point, but is more clearly unacceptable. It does not seem possible in (i) for the QDP, [$_{DP}$ no witness], to take scope out of the island to bind the pronoun *his*.

(i)   *The judge laughed so hard [$_{CP}$ after the lawyer talked to [no witness]$_1$] that his$_1$ testimony would have become irrelevant.

strict readings in these constructions arise from a different strategy. Instead of anaphor raising, strict readings in coordinate structures arise from reanalysis of the elided VP as a case of deep anaphora (cf. Hankamer and Sag (1976)). Under this approach, Hestvik analyses the elided VP as an empty version of a deep anaphor, like *so* or *the same thing*, which he represents as *pro*, as shown in (35).

(35)   John likes himself and [Bill does [$_{VP}$ *pro*]] too.

The VP anaphor does not contain syntactic structure at LF, but instead picks up a semantic antecedent, i.e. it somehow picks up as its antecedent the property $\lambda x.x$ likes John, therefore, it does not incur any Condition A violations. Additionally, the VP anaphor does not depend on there being a syntactic antecedent in order to get its interpretation, thus this analysis does not incur any island constraint violations. With regard to how VP-pro picks up its antecedent, Hestvik assumes a process similar to Dalrymple et al.'s (1991) Higher Order Unification approach to ellipsis resolution (although he discusses it in a DRT framework), where the meaning of the elided VP is recovered from the meaning of the antecedent clause. As further discussed in 2.3.3, the meaning of the elided VP comes from finding the property which, when applied to the subject of the antecedent clause, gives the interpretation of that clause.

For Hestivk, one of the advantages to this approach is that it can apparently explain the preference difference for strict readings between coordinated and subordinated ellipsis. His reasoning being that, since coordinated ellipsis requires reanalysis as an instance of deep anaphora, it will be less preferred. This would mean that strict readings in both adjunct islands and complex DPs should also be less preferred, or more difficult to get. Informal judgements reported for sentences such as the previously seen (30a) and (31a) above, indicate that this is not the case, and a strict reading is the preferred reading in these examples.

Furthermore, it is not entirely clear why analysing the elided VP as a deep anaphor would necessarily cause this asymmetry in preference. If we think of the two strategies in terms of processing costs associated with ellipsis resolution, both the coordinated and subordinated ellipsis constructions incur a processing cost which could potentially make them less preferred – the strict readings in subordinated ellipsis require covert movement, so it is not as if processing one structure is inherently simpler than the other. Yet, interestingly, experimental evidence for this asymmetry has been reported by Frazier and Clifton Jr (2006), who observe that strict readings, while possible in coordinate construc-

tions with reflexives, are less preferred than sloppy readings. Thus, while the asymmetry for coordinate structures seems to be empirically supported, it is unclear whether this result is necessarily attributable to reanalysis as deep anaphora.

But, let's say we do take the deep anaphora analysis as correct for the island constructions, what predictions does it make? One prediction of this account would be that strict readings should be possible in island constructions which have deep anaphors which are overt, such as *the same* or *so*, in examples like (36a).

(36)   *Context: John and Bill are very good friends, and would do anything to help the other out. When John was accused of stealing some office supplies by his boss …*

      a.   John's boss laughed after John defended himself, but she didn't laugh after Bill did the same.

      b.   John's boss laughed after John defended himself, but she didn't laugh after Bill did so.

Interestingly, judgements on these sentences seem to be that they are unacceptable when *the same* or *so* is present, counter to the predictions of Hestvik's account.

2.3.3   Higher order unification

As mentioned in the previous section, the strategy taken by Hestvik in order to account for the coordination cases bears a resemblance to another ellipsis resolution strategy in the literature; namely, that of Higher Order Unification by Dalrymple et al. (1991). Both approaches require that a semantic object is found in the discourse, independently of syntactic structure, which the elided VP stands for. Dalrymple et al. take this as a general strategy for ellipsis resolution and fully elaborate a proposal that Hestvik only sketches, and that he only applies narrowly to the specific case of coordinations. At first glance, this strategy seems to make the right predictions, but as we will see in this section, it does not seem so easy to divorce ellipsis resolution from syntax as these approaches claim.

For Dalrymple et al. (1991), ellipsis resolution comes down to finding a common property which is predicated of the parallel elements in the ellipsis and antecedent clauses, and do this through solving the equation in (37) for the property P. The intuition is that we can find this property P by looking at the antecedent clause, since whatever this property is, when applied to the parallel element of the antecedent clause, will give the denotation

of the whole antecedent clause.

(37) $P(s_1, s_2 \ldots, s_n) = s$

     a. s_1 through s_n are the parallel elements in the antecedent clause

     b. s is the interpretation of the antecedent clause

As a concrete example take the VP ellipsis construction in (38). The parallel elements in the ellipsis construction are, *Dan* and *George*, and the interpretation of the antecedent clause as a whole is $likes(Dan, golf)$, as in (39a). These are then used to give the ellipsis resolution equation in (39b).

(38)   Dan likes golf, and George does too.

(39)   a.   likes(Dan, golf)

     b. P(Dan)=likes(Dan, golf)

Possible solutions to this equation are as in (40). The first solution is a property formed by vacuous binding, and when applied to *Dan* gives the proposition $likes(Dan, golf)$. The second solution is a property formed where the subject position is lambda abstracted over, which, when applied to *Dan* also gives the proposition $likes(Dan, golf)$, so both propositions when applied to *Dan* give the interpretation of the antecedent clause.

(40)   a. $\lambda x.$ like(Dan, golf)

     b. $\lambda x.$ like(x, golf)

   As the theory stands at this point, there would be a problem if the first of these properties was chosen as the interpretation of the elided material. The property $\lambda x.like(Dan, golf)$ applied to *George* would give the interpretation $like(Dan, golf)$ to the elided clause which is clearly not the intended interpretation. In order to rule these readings out, Dalrymple et al. (1991) assume the constraint in (41), which requires that a primary occurrence, i.e. the element in the antecedent clause parallel with something in the ellipsis clause, cannot be left in the solution, it must be lambda abstracted over.

(41)   *Constraint of primary occurrences*:
        primary occurrences cannot be left in the result of higher order unification

    a.   where a primary occurrence is "an occurrence of a sub-expression in the semantic form directly associated with one of the parallel elements in the source clause" (p.406).

Given this constraint, the property in (40a) would be ruled out, leaving only the property in (40b) as the interpretation of the elided material, giving the reading that *Dan likes golf and George likes golf*.

Turning to strict and sloppy readings, these would arise from there being multiple solutions to the ellipsis resolution equation. Take the coordinated ellipsis construction in (42) with a reflexive as an example. The sentence in (42) would have the parallel elements in (43a), the denotation of the antecedent clause as in (43b) and the ellipsis resolution equation as in (43c).

(42)   John defended himself and Bill did too.

(43)   a.   *John*, *Bill*
        b.   defended(John, John)
        c.   *P*(John)=defended(John, John)

The possible solutions to the equation would be as in (44), but the constraint on primary occurrences rules out the first two solutions, leaving only (44c) and (44d) as possible solutions. If the former is chosen then a strict reading will arise, and if the latter is chosen then a sloppy reading will arise.

(44)   possible values of P:

    a. $\lambda x.$ ~~defended(John,John)~~
    b. $\lambda x.$ ~~defended(John,x)~~
    c. $\lambda x.$ defended(x,John)
    d. $\lambda x.$ defended(x, x)

This particular approach to ellipsis resolution aims to be independent from syntactic representation, but it appears that we cannot do away with syntax entirely. Dalrymple et al. (1991) even admit that some connection needs to be maintained between syntactic and semantic representation. This is primarily why they introduce the constraint on

primary occurrences, to block the

Furthermore, if ellipsis resolution were not sensitive to syntactic structure, it would predict that strict readings would be possible in ellipsis constructions with inherently reflexive verbs, as in (45). The denotation of the antecedent clause would be *shave(John, John)*, and the ellipsis resolution equation to be solved would be as in (46).

(45)   John shaved and Bill did too.

(46) P(John)=shave(John, John)

Just as in the coordinate structure example above, there would be two possible values for P, meaning that this sentence is predicted to be ambiguous between a strict and sloppy reading.

(47)   possible values of P:

    a. $\lambda x.$ shave(x,John)

    b. $\lambda x.$ shave(x, x)

Problematically, strict readings are not attested with inherently reflexive verbs, indicating that ellipsis resolution cannot be entirely separated from syntax. In this particular example, the syntactic information with regard to argument structure is still needed to rule out the unattested reading.

To summarize, we began with the discussion of island constructions which were shown to be problematic for the anaphor raising analysis to strict readings. Hestvik does provide a possible solution to this problem with his proposal that coordinated ellipsis is a case of deep anaphora, and this analysis could potentially extend to the other island cases. In this analysis, the VP anaphor picks up its denotation semantically, in a similar way to Dalrymple et al.'s (1991) higher order unification approach discussion in this section, which also aims to divorce the ellipsis resolution from syntax. But, it was shown that this strategy runs into some problems of its own, and that syntax does not seem to be able to be ignored entirely in the ellipsis resolution process. We therefore end up in a situation where the pragmatic proposal for ellipsis resolution overgenerates, whereas the syntactic approach undergenerates with regard to strict readings, thus bringing us back to the question of how to get around this undergeneration problem in order to account for these readings.

2.4 Focus matching

Since it is not possible to maintain both SBT's Condition A and ellipsis resolution under syntactic identity, our assumptions regarding one of these two components needs to change. As argued for in Section 2.1, changing Condition A while maintaining a strict syntactic identity approach to ellipsis resolution is not a desirable option, since it overgenerates, predicting reflexives to be acceptable in configurations which they are not. If we maintained a syntactic identity approach to ellipsis resolution, not only would we need to modify Condition A to allow for co-referential reflexives, but we would also need to abandon its locality requirement, which while possible, leads to a number of incorrect predictions. So, as an alternative, this section will examine whether it is possible to leave standard Condition A in tact while changing the assumptions regarding ellipsis resolution, in order to derive strict reflexives.

In the literature on approaches to strict readings, Büring (2005) presents a semantic identity approach based on Rooth (1992a), in which he maintains that reflexives must be bound variables – as required by Condition A – but assumes that ellipsis resolution proceeds under the semantic identity requirement of focus matching, rather than syntactic identity. In brief, with ellipsis resolution occurring under semantic identity, strict readings can arise when the the anaphor in the elided VP is a co-referential pronoun, while the anaphor in the antecedent VP is a bound-variable reflexive. Ellipsis will still be possible as long as the pronoun and the reflexive denote the same individual.

Looking at this approach to ellipsis resolution in more detail, we start off with the semantic identity requirement which needs to be met for ellipsis to occur – namely, focus matching. For Büring and Rooth, the conditions under which ellipsis can occur are related to the conditions under which focus can acceptably be used to indicate a symmetric contrast between two phrases. Take the contrastive focus and ellipsis constructions in (48a) and (48b), for example. In (48a), the prosody has the effect of marking the second conjunct as contrasting with the first, where prosodic prominence marks where the conjuncts are different, and prosodic reduction where they are redundant. Rooth (1992a) assumes that this is the same situation that is occurring with ellipsis constructions, such as in (48b), claiming that ellipsis is "just a very extreme form of phonetic reduction, where all phonetic content is totally reduced" (p. 4). The basic idea of this proposal is that the same mechanisms which license the contrast in (48a) are at play in the licensing of ellipsis in (48b) – namely that a VP can only be elided if the constituent it is contained in has an

antecedent it contrasts with.

(48) a. JOHN$_F$ likes Sue and MARY$_F$ likes Sue.
      b. JOHN$_F$ likes Sue and MARY$_F$ does too.

Following Rooth (1992b), a phrase can contrast with another under the condition in (49). Thus, a phrase α can acceptably contrast with another phrase β when the denotation of β is an element of the set of alternatives derived from α[6].

(49) *Contrasting phrases/focus matching*
      Construe a phrase α as contrasting/focus matching with a phrase β if $[\![\beta]\!]^{g,o} \in [\![\alpha]\!]^{g,f}$

The condition in (49) allows the second conjunct in both instances of contrastive focus and ellipsis to acceptably contrast with the first conjunct, since the denotation of the first conjunct, *John likes Sue*, is an element of the focus semantic value of the second conjunct, {that x likes Sue $: x \in D_e$}.

With regard to ellipsis resolution, the basic idea is that if the ellipsis clause has a suitably contrasting antecedent clause, then the VP can be elided. The relevant condition under which a VP can be elided would be as in (50) (Büring, 2005, p. 133).

(50) A VP can be elided if there is an antecedent constituent β that is focus matched by some constituent α dominating VP.

For the example in (48b), the VP can be elided since the constituent dominating the VP – the TP – has a focus matched antecedent constituent. The denotation of the antecedent clause (TP$_A$) would be as in (51a), which is an element of the ellipsis clause's (TP$_E$) alternative set, (51b).

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[6]Büring (2005) terms this as focus matching, and gives the definition in (i), which is essentially just a rephrasing of Rooth's condition, but in ellipsis specific terms – with C$_E$ referring to the clause that contains the elided VP, the α of (49), and C$_A$ referring to the antecedent clause, the β of (49).

(i) *Focus matching*
     C$_E$ focus matches C$_A$ if $[\![C_A]\!]^{g,o}$ is an element of $[\![C_E]\!]^{g,f}$.

(51) a. $[[_{TP_A} \text{JOHN}_F \, [_{VP} \text{likes Sue}]]]^{g,o}$
          = that John likes Sue
      b. $[[_{TP_E} \text{MARY}_F \, [_{VP} \text{likes Sue}]]]^{g,f}$
          = {that x likes Sue $: x \in D_e$}

To see how this would derive strict readings of reflexives, take the coordinated ellipsis example in (52), but now with contrastive focus on the subject of the ellipsis clause.

(52) a. $\text{JOHN}_{1,F}$ defended himself$_1$ and BILL_F did too.
      b. = John defended John and Bill defended John

Now assume that the reflexive of the antecedent clause is a bound variable, in which case the LF of the antecedent clause would be as in (53a). Assume also that the anaphor of the ellipsis clause is a pronoun, co-referential with the subject of the antecedent clause. If this is the case, then the ellipsis clause has the LF in (53b).

(53) a. $[_{TP_A} \text{JOHN}_F \, \lambda 1 \, [_{TP} \, t_1 \, [_{VP} \text{defended himself}_1]]]$
      b. $[_{TP_E} \text{BILL}_F \, [_{VP} \text{defended him}_1]]$

Given these LFs, the denotation of the antecedent clause would be as in (54a), and the set of alternatives derived from the ellipsis clause would be as in (54b).

(54) a. $[(53a)]^{g,o}$ = that John defended John
      b. $[(53b)]^{g,f}$ = {that x defended John $: x \in D_e$}

We see that the denotation of the antecedent clause is an element of the set of alternatives of the ellipsis clause, thus VP ellipsis is predicted to be possible, even when we assumed that the reflexive must be a bound variable. Despite the ellipsis and antecedent clauses having different syntactic elements in object position, the semantic identity requirement of focus matching is met.

One of the advantages this account to strict reflexives has over the anaphor raising approach is that it can unproblematically account for the island cases. Since the focus matching account does not rely on movement, the problems that were encountered with deriving strict readings in the anaphor raising approach are avoided. For example, the anaphor raising approach predicts (52) to be unacceptable, since it would result in a Coordinate Structure Constraint violation, whereas here no such violation occurs.

Similarly, the strict readings with adjuncts and complex DPs can be accounted for without violating any island constraints. In (55), for example, the relevant constituents for assessing focus matching are *[TP the accused defended himself]* and *[TP [his LAWYER]F defended him]*. As we can see in (56), the denotation of the antecedent clause is an element of the alternative set derived from the ellipsis clause.

(55)   The judge laughed [CP after the accused defended himself], but she didn't laugh after [DP his LAWYER]F did.

(56)   a. $[\![_{TP_A}$ [DP the accused] $\lambda 1$ [TP t_1 [VP defended himself$_1$]]]$]\!]^{g,o}$
              = that the accused defended the accused
        b. $[\![_{TP_E}$ [DP his LAWYER]F [VP defended him$_2$]]$]\!]^{g,f}$
              = {that x defended the accused $: x \in D_e$} (2 → the accused)

To summarize, then, under the focus matching approach to strict reflexives, the anaphor in the elided VP is not a reflexive at all, and is instead a non-reflexive pronoun. Despite the different anaphors, VP ellipsis can still proceed since the focus matching requirement between the elided VP and the antecedent is met. The effect of allowing VP ellipsis under focus matching is essentially the same as that of the movement approach: that the anaphor in the elided VP is not a reflexive and thus Condition A does not apply, and is therefore satisfied, resulting in a well formed structure. Furthermore, unlike the anaphor raising approach, the focus matching approach is able to avoid the problems that follow when dealing with strict readings in islands.

2.4.1   Reflexives in the elided VP

At this point, it seems that strict reflexives can be accounted for without having to abandon SBT Condition A assumptions. Problematically, though, there are other strict readings involving reflexives where the bound-variable-only assumption cannot make the right predictions. The bound-variable-only assumption causes problems for the focus matching approach when the anaphor in the elided phrase has no other option but to be a reflexive, such as in (57). The reading in (57) can be considered a strict reading in the sense that the object DP has the same denotation in the elided phrase as it does in the antecedent.

(57)   *Who is proud of Sally?*

    a. $BILL_F$ is proud of her$_2$ and $SHE_{2,F}$ is too.

    b.   = Bill is proud of Sally and Sally is proud of Sally too.

For the ellipsis construction in (57), despite there not being an overt reflexive, there is good reason to think that there is one in the elided phrase[7]. A reflexive seems to be the only grammatical option here, when both arguments of the predicate are intended to refer to *Sally*. Since the theory of ellipsis we are assuming here is concerned with the semantic identity between the antecedent and the ellipsis clauses, both a pronoun referring to *Sally* or the full R-expression *Sally* could occur in the object position and would result in the focus matching condition on ellipsis being met.

(58)   a. $[_{TP_E} SHE_{2,F}$ is proud of her$_2$]

    b. $[_{TP_E} SHE_{2,F}$ is proud of Sally]

The focus semantic value of either (58a) or (58b) would be as in (59).

(59)   {that x is proud of Sally $: x \in D_e$}

And the denotation of the antecedent clause – *that Bill is proud of Sally* – is an element of this set, therefore meeting the focus matching condition on ellipsis.

Problematically, these potential underlying structures of the ellipsis clause are ungrammatical. If the DP in the elided phrase were a pronoun or an R-expression, the sentence would incur a violation of Condition B or Condition C respectively[8]. Therefore, the sentence in (57) would be predicted to be unacceptable, despite the fact that focus matching occurs. On the other hand, if the DP in the elided phrase is a reflexive and necessarily a bound variable, the underlying structure would be grammatical, but now the problem would be that the focus matching condition would not be met. The denotation

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[7]As we will see in Chapter 3, examples such as (57), are essentially the same the focus constructions involving parallelism. As noted by Rooth (1992a), and as shown in (48) above, the main difference between the coordinate structure with ellipsis and the coordinate structure with focus is that the non-focused elements in the ellipsis constructions are not just phonetically reduced but absent entirely. In either case, we see that bound variable reflexives are problematic for deriving the strict reading in these constructions – indicating that they are not just a problem for these particular ellipsis constructions, but constructions involving parallelism in general.

[8]Not only is (57) problematic for the focus matching approach, but it is also problematic for an LF-copying approach. If the VP is copied to the ellipsis site a Condition C violation would occur since the object DP is an R-expression that is syntactically bound by the subject DP.

of the antecedent clause *that Bill is proud of Sally* is not an element of the set that arises from a bound variable reflexive, i.e. the set in (60b).

(60)   a. $[_{TP_E}$ SHE$_{2,F}$ $\lambda 1$ [t$_1$ is proud of herself$_1$]]
         b.   {that x is proud of x:$x \in D_e$}

There is one further option to consider since we are assuming a theory of ellipsis concerned with semantic identity between ellipsis and antecedent clauses. In this theory, the shape of the antecedent and ellipsis clauses could potentially differ as long as the meanings of both clauses are such that the focus matching requirement is met. Given this, we might consider that perhaps the meaning of the VP in the ellipsis clause is structurally different than in the antecedent clause, yet gives rise to the same meaning, thus allowing for focus matching to occur. For example, if the underlying structure of (57) were as it is in (61), containing a phrase such as *[the same]* which is anaphoric with the overt VP *[proud of Sally]*.

(61) $[_{ConjP}$ $[_{TP}$ BILL$_F$ is [proud of Sally]] and $[_{TP}$ SALLY$_F$ is [the same]] too].

The set of alternatives derived from the ellipsis clause would then be as in (62a), and the denotation of the antecedent clause would be as in (62b). In this case, the denotation of the antecedent clause is an element of this set, and thus the elided clause would be focused matched.

(62)   a. $[\![$SALLY$_F$ is the same$]\!]^{g,f}$ = {that x is proud of Sally : $x \in D_e$}
         b. $[\![$BILL$_F$ is proud of Sally$]\!]^{g,o}$ = that Bill is proud of Sally

This runs into the same problem, though, as the potential underlying structures in (58). While the focus matching requirement on ellipsis would be met, the underlying structure would be ungrammatical – with judgements on the sentence in (61) being that it is not acceptable for *the same* to be anaphoric with *proud of Sally*. If the underlying form of the ellipsis construction is ungrammatical, then the ellipsis construction itself in (57) would also be predicted to be ungrammatical. The only option left at this point would be to express the meaning of the ellipsis clause in (57), *Sally is proud of Sally*, with a reflexive in object position.

    If the anaphor in the elided phrase of (57) must be a reflexive, then the relevant constituents for assessing focus matching would be the antecedent clause *[BILL$_F$ is proud of*

Sally] and the ellipsis clause *[SHE$_{2,F}$ is proud of herself$_2$].* Because the reflexive must be a bound variable, a set of alternatives in which this binding relation is necessarily reflected is derived, as shown in the set of alternatives in (63b). Clearly the denotation of the antecedent is not an element of this set, and thus ellipsis is incorrectly predicted to not be possible.

(63)   a. $[\![\text{BILL}_F \text{ is proud of Sally}]\!]^{g,o}$ = that Bill is proud of Sally
       b. $[\![\text{SHE}_{F,1} \ \lambda 2 \ [\ t_2 \text{ is proud of herself}_2\ ]]\!]^{g,f}$ = {that x is proud of $x : x \in D_e$}

In sum, while the focus matching account avoids the problems of the movement account, it runs into problems of its own, which cannot be resolved under the current assumptions regarding ellipsis resolution and binding theory. We have seen that the assumption of reflexives being only interpreted as bound variables is still problematic, and that this assumption needs to change in order to account for the behaviour of reflexives occurring in ellipsis constructions – that despite efforts to maintain SBT's Condition A, the interpretation of reflexives in ellipsis constructions cannot be accounted for by assuming that they must be bound variables .

2.4.2   A two-way licensing condition on ellipsis

So far we have seen that the Rooth/Büring focus matching approach runs into problems making the correct predictions for strict readings which occur in ellipsis constructions where the anaphor in the elided phrase must be a reflexive; yet, on the other hand, it seems to fare just fine when accounting for strict readings in subordinated ellipsis, and ellipsis involving islands. It should be noted that the Rooth/Büring focus matching approach has been argued by Merchant (1999), for independent reasons, to be inadequate. Merchant proposes a stronger version of the focus matching approach, and under this approach the unproblematic strict readings for the basic focus matching approach would become problematic.

Merchant's theory of ellipsis builds on the focus matching approach of Rooth (1992a)[9], and argues for a stronger version of the focus condition on ellipsis resolution. This section shows that under these stronger assumptions, the standard cases of strict reflexives are

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[9]Although Merchant develops his theory of ellipsis within in Schwarzschild's (1999) theory of focus, instead of Rooth's, the intuitions of his theory are still compatible with Rooth's alternative semantic for focus framework.

also problematic for SBT's Condition A.

Merchant adopts a semantic condition on ellipsis resolution similar to (50) seen in Section 2.4, but argues that an additional requirement is needed in order for the VP to be acceptably elided. For Merchant, not only does the ellipsis clause have to be focus matched by the antecedent clause, but the antecedent clause must also be focus matched by the ellipsis clause, thus resulting in the two-way licensing condition in (64) (see Merchant (1999, p. 34)).

(64)   A VP in constituent C_E can be elided if there is a constituent C_A, where:

    a. $[\![C_A]\!]^{g,o} \in [\![C_E]\!]^{g,f}$, and

    b. $[\![C_E]\!]^{g,o} \in [\![C_A]\!]^{g,f}$

If a VP can only be elided under the conditions in (64), and we assume that reflexives can only be bound variables , then strict reflexives in standard examples such as (65) will be problematic[10].

(65) $\text{JOHN}_{1,F}$ defended himself$_1$ before BILL_F did ~~defend him~~$_1$.

The LF of the antecedent clause would be as in (66) with a bound-variable reflexive, giving rise to the ordinary semantic value in (67a) and the focus semantic value in (67b).

(66) $[_{TP_A}$ JOHN_F $\lambda 1$ [t_1 defended himself$_1$]]

(67)   a. $[\![TP_A]\!]^{g,o} =$ that John defended John

    b. $[\![TP_A]\!]^{g,f} = \{$that x defended $x : x \in D_e\}$

The ellipsis clause would have the LF in (68) with a pronoun in object position, and would have the ordinary semantic value in (69a) and the focus semantic value in (69b).

(68) $[_{TP_E}$ BILL_F defended him$_1$]

(69)   a. $[\![TP_E]\!]^{g,o} =$ that Bill defended John

    b. $[\![TP_E]\!]^{g,f} = \{$that x defended John $: x \in D_e\}$

Now, given these denotations in (67) and (69), and the focus matching condition on el-

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[10]Strict readings in sentences such as (65) will be problematic under the assumption that Bill and John symmetrically contrast with each other and bear prominence which indicates contrastive focus. If this is the case then both Bill and John are F-marked.

lipsis in (64) we can assess whether ellipsis is possible or not. The first condition is met since the denotation of the antecedent clause *that John defended John* is an element of the set of alternatives of the ellipsis clause {that x defended John $: x \in D_e$}. Problematically though, the second condition of (64) is not met; since the reflexive is a bound variable, this binding relation carries over into the set of alternatives which ends up being a set of reflexive propositions. The denotation of the ellipsis clause is *that Bill defended John* and is not an element of the set of alternatives derived from the antecedent clause, which would be the set {that x defended $x : x \in D_e$}, thus not meeting the second focus matching condition. Ellipsis under a strict reading would therefore be predicted to be unacceptable, counter to speaker's judgements.

To sum up, two types of strict readings have been introduced at this point which involve reflexives – one where there is a reflexive in the elided VP, but not in the antecedent VP, and the other where there is a reflexive in the antecedent VP, but not in the elided VP. The main point of this section is that trying to maintain the assumption of bound-variable-only reflexives is problematic for the focus matching approach to ellipsis resolution, regardless of whether we assume the weaker Rooth/Büring version or Merchant's stronger version. Under the former, only one type of strict reading is problematic, and under the latter, both types are.

2.5   Interim summary

The puzzle introduced by strict reflexives is that it calls into question the accuracy of a Condition A requiring reflexives to be locally-bound variables. The availability of strict readings with reflexives seems to suggest that reflexives can be interpreted as co-referential with their antecedents, counter to SBT assumptions. This chapter has investigated previous approaches in the literature which argue that this co-referential reading of the reflexive is, in a way, an illusion – that the strict reading does not arise from an underlying reflexive at all, but instead from a movement trace, as in the anaphor raising approach, or a pronoun, as in the focus matching approach. By assuming the anaphor of the elided VP is not a reflexive in the first place, these approaches aim to maintain SBT's Condition A assumptions, while avoiding a violation of this condition in the elided VP.

This strategy proved to be problematic, though, under both a syntactic identity and semantic identity approach to ellipsis resolution. The anaphor raising approach runs into problems because it links the availability of strict readings to the possibility of the moved

reflexive being able to bind the trace of the elided VP. This causes a problem for strict reflexives in VP ellipsis involving coordinate structures, adjuncts, and complex DPs, since the necessary movement of the reflexive to make these strict readings possible would be out of an island for movement. Given these problematic cases, the conclusion seems to be that it is impossible to account for strict reflexives while maintaining SBT's Condition A and strict syntactic identity in ellipsis resolution.

The focus matching approach, which maintains SBT's Condition A, but assumes that ellipsis resolution proceeds instead under semantic identity, also runs into problems. It cannot account for ellipsis in constructions where there is necessarily a reflexive in the ellipsis clause. If reflexives must be bound variables , then a bound variable in the ellipsis clause prevents the focus matching condition on ellipsis from being satisfied, thus predicting these constructions to be unacceptable. This incorrect prediction suggests that there is a fundamental problem with the assumption that reflexives can only be interpreted as bound variables , and that we cannot maintain SBT assumptions, regardless of which theoretical approach we take to ellipsis resolution.

At this point, modifying Condition A seems unavoidable. Under both a syntactic or semantic identity approach to ellipsis resolution, if Condition A allowed for reflexives to be co-referential with their antecedents, it seems that the problematic cases would cease to be problematic.

2.6   Co-referential reflexives and syntactic identity

As discussed previously in Section 2.1, under a syntactic identity approach to ellipsis resolution, strict readings could be derived if Condition A allowed for co-referential reflexives. Take the coordinate structure, for example, in (70) (=(9)). These constructions pose an interpretation problem for SBT's Condition A, since the reflexive in the elided VP, after LF-copy, could not be a bound variable due to the lack of c-command. If the reflexive can be co-referential with its antecedent on the other hand, then after LF-copy, the reflexive in the elided VP can be in an acceptable relation with its antecedent; co-reference doesn't require c-command, just sameness of reference.

(70)   John$_1$ defended himself$_1$ and Bill did too.

(71)   [$_{ConjP}$ [$_{TP}$ John$_1$ [$_{VP}$ defended himself$_1$]]] [and [$_{TP}$ Bill [$_{VP}$ defended himself$_1$]]]]

So, we see that co-referential reflexives could solve the interpretation problem posed by strict reflexives. Section 2.1 also made the point that under the syntactic identity approach, there is a distribution problem posed by strict reflexives and that we would also need to explain why the reflexive is allowed to have a non-local antecedent in constructions such as (71). Section 2.1 considered modifying Condition A further so that reflexives could have non-local antecedents, but argued that this was undesirable since it meant that binding theory could no longer predict the complementary distribution between reflexives and pronouns, and also made a number of incorrect predictions for reflexives as well. This section examines an account in the literature which avoids these problems encountered in the syntactic identity approach to ellipsis resolution, namely, Fiengo and May's (1994) vehicle change account to apparent binding condition violations in ellipsis constructions.

2.6.1 Vehicle change

Fiengo and May (1994) (F&M) propose a way to account for strict reflexives – which crucially can be interpreted as allowing reflexives to be co-referential with their antecedents while avoiding a violation of Condition A's locality requirement – through the process which they term vehicle change. Vehicle change provides a solution to the problem which is, in a way, similar in nature to the solution of Rooth/Büring – both accounts weaken the identity requirement on ellipsis. The process of vehicle change provides a way for the syntactic identity requirement to be weakened, allowing reflexives to take on a different morphological form in the elided VP, yet still count as non-distinct for the purposes of ellipsis resolution.

F&M consider ellipsis to be a type of discourse which involves connected parallel elements (in their terms, reconstructions), and, as is standardly assumed in structural approaches to ellipsis resolution, these parallel elements, "must be of the same formal structure and have the same terminal vocabulary" (p. 200) – a condition which needs to be met in order for phonological reduction to occur. Sameness of structure and terminal vocabulary can be achieved, for example, through the process of LF-copy.

Where their account differs from standard structural approaches is with regard to the occurrence of DPs in the antecedent and ellipsis clauses. They develop a way in which these DPs can differ in syntactic form, while still allowing for the discourse to be acceptably parallel, through the process of vehicle change. Vehicle change allows, for example,

R-expressions, pronouns, and reflexives to be interchangeable in parallel phrases, as long as their indexical structure is unchanged.

With regard to indexical structure, F&M develop a theory of indices (Dependency Theory) within their theory of anaphora, where indices are assumed to be complex objects consisting of a numerical value and an indexical type, either α or β. Thus, in the definition of vehicle change in (72), indexical value refers to the numerical value of the index and indexical type refers to α and β occurrences of indices. In Dependency Theory, indices are distinguished based on how they are dependent on prior occurrences of other indices – a DP specified with an α occurrence is one whose interpretation is independent of another sentential element, and a DP with a β occurrences is one whose interpretation is dependent on another sentential element.

(72)   *Vehicle change*

In a reconstruction, a DP can take any syntactic form as long as its indexical structure (type and value) is unchanged (modulo identity for β occurrences). (Fiengo and May, 1994, p. 218)

The α and β distinction appears to capture the fact that sameness in meaning between two DPs could be established in two different ways. For F&M, α-occurrences, "establish reference independently for each occurrence; co-reference obtains for each in virtue of individual valuations of each bearer to the same referent" while β occurrences "find their values through the intermediation of some other linguistic element that is prior to, or antecedes, it. The establishment of the value of this antecedent will be sufficient to determine the value of all of the occurrences that depend upon it" (Fiengo and May, 1994, p. 48).

For our purposes here, I will not assume F&M's dependency theory of indices, as it seems to me that their α and β distinction is basically one of reference versus semantic binding, where α occurrences are essentially referential expressions, having their interpretations determined independently through the contextual assignment function, and β occurrences are instances of semantic binding.

Recasting the definition of vehicle change in (72) in terms of reference and variable binding, this translates into a referential DP being able to take on any syntactic form in a reconstruction as long as it is also referential and maintains the same index. And DPs which are bound variables can also take on any syntactic form in a reconstruction, but must also stay bound variables , and they do not need to maintain the same index.

With regard to binding theory assumptions, F&M assume a Condition A defined as in (73), where reflexives must be syntactically bound in their local domain. They also assume that the binding conditions apply at LF (following Chomsky (1995)), which therefore means that they assume that syntactic binding is also being assessed at LF[11].

(73)   *Condition A*: Reflexives must be syntactically bound in their local domain.

(74)   *Syntactic Binding*
        A node α syntactically binds a node β iff:

        a. α and β are co-indexed
        b. α c-commands β

F&M's binding theory is for the most part SBT as outlined in Chapter 1, without the assumption of something like Heim's Binding Principle. Thus, it leaves open the possibility of the reflexive being interpreted as either co-referential with or a variable bound by its antecedent. As long as the reflexive is syntactically bound (i.e., has a co-indexed and c-commanding antecedent) Condition A is satisfied. Co-referential reflexives in an LF such as (75) would satisfy this Condition A, since the reflexive is syntactically bound by John in its local domain.

(75)   [$_{TP}$ John$_1$ likes himself$_1$]

Bound variable reflexives would also satisfy this Condition A as long as it is assumed that the antecedent DP retains its index after QR, allowing it to be co-indexed with the reflexive[12].

(76)   [$_{TP}$ John$_1$ λ1 t$_1$ likes himself$_1$]

With these assumptions in place, we are now able to see how F&M account for strict reflexives. The basic idea is that the reflexive will be interpreted as co-referential in the antecedent clause, and undergo the process of vehicle change in the ellipsis clause, after LF-copy, to be interpreted as a co-referential pronoun. They thus avoid the Condition A

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[11]This assumption differs from the binding theory of Chomsky (1981) where the binding conditions are assumed to apply pre-LF (typically at SS).

[12]This assumption is counter to Büring (2005), who assumes that in the process of QR, a DP transfers its index to the λ-operator, but it is compatible with Heim and Kratzer (1998, p. 260), who assume that an index can still be present on a QR-ed DP.

violation that would occur if there was only LF-copy. The end result of vehicle change is essentially the same as what occurs under a semantic identity approach to ellipsis resolution; both approaches to the problem posed by strict reflexives find a way to loosen the identity condition on ellipsis resolution so that a reflexive does not have to necessarily be a reflexive in the elided VP, avoiding a Condition A violation.

(77)   a.   John$_1$ defended himself$_1$ before Bill did.
       b.   [$_{TP}$ John$_1$ [$_{VP}$ [$_{VP}$ defended [himself$_1$]] [before [$_{TP}$ Bill [$_{VP}$ defended [himself$_1$]
            $\rightarrow$ [him$_1$]]]]]

What is crucial though, for F&M, is that reflexives are allowed to have the option of being co-referential with their antecedents. The need for the reflexive to be co-referential is evident when we consider the cases with coordinate structures (and other islands), such as in (78). If the reflexive were a bound variable, it could undergo vehicle change to a pronoun, thus aiming to avoiding the Condition A distribution problem; but, if a bound variable reflexive undergoes vehicle change, the DP it changes into, in this case a pronoun, must also be a bound variable given the definition of vehicle change in (72). This poses a problem in coordinate structures since the pronoun in the elided VP would not be c-commanded by its antecedent in the first conjunct, thus it cannot possibly be construed as a bound variable, and incorrectly predicts strict readings to be impossible in coordinated ellipsis.

(78)   a.   John$_1$ defended himself$_1$ and Bill did too.
       b.   *[[$_{TP}$ John $\lambda1$ [$_{TP}$ t$_1$ [$_{VP}$ defended [himself$_1$]]] [and [$_{TP}$ Bill [$_{VP}$ defended
            [himself$_1$] $\rightarrow$ [him$_1$]]]]]]

Thus, the only way to derive strict readings in coordinated ellipsis would be if the reflexive is already co-referential with its antecedent, as in (79), which would then undergo vehicle change in the elided VP to become a co-referential pronoun.

(79)   a.   John$_1$ defended himself$_1$ and Bill did too.
       b.   [[$_{TP}$ John$_1$ [$_{VP}$ defended [him$_1$[self]]]] [and [$_{TP}$ Bill [$_{VP}$ defended [himself$_1$] $\rightarrow$
            [him$_1$]]]]]

The assumption of co-referential reflexives and a process such as vehicle change are also able to account for the acceptability of ellipsis when there is a reflexive in the elided

phrase, as in (80a)(=(57)), which have previously been shown to be problematic in the focus matching approach. Diverging from Büring (2005), the assumption in this account is that the ellipsis site is syntactically identical, barring vehicle change. This means that the VP with the R-expression *Sally* first gets copied to the ellipsis site. If left as is, the structure would violate Condition C. In order to avoid this, the R-expression undergoes vehicle change to a reflexive, co-referential with its antecedent. This reflexive is still subject to the Condition A, but does not incur a violation since it has a local c-commanding antecedent.

(80) a. Bill is proud of Sally$_2$ and she$_2$ is too.

b. [$_{ConjP}$ [$_{TP}$ Bill is [$_{VP}$ proud of Sally$_2$]] [and [$_{TP}$ she$_2$ is [$_{VP}$ proud of [Sally$_2$] $\rightarrow$ [herself$_2$]]]]]]

In sum, once we allow for co-referential reflexives, Condition A still encounters a distribution problem under a syntactic identity approach to ellipsis resolution. Fiengo and May's (1994) theory of vehicle change provides a solution to this problem though, allowing the reflexive to take on the form of a pronoun, and thus be free from the locality requirements Condition A would impose on it. We see that while F&M's approach to strict readings makes the right predictions, there are theoretical reasons to look for a better approach, which are discussed in more detail in Chapter 4. The main criticism of their approach is that the introduction of the process of vehicle change seems ad hoc, and does not provide any deeper insight into why the phenomena it is designed to deal with occur in the first place.

2.7 Summary

Turning to the semantic identity approach to ellipsis resolution, we have seen in this chapter that strict readings are problematic for bound-variable-only reflexives in constructions where the anaphor of the elided VP must be a reflexive, as in (57) (=(81)), since the focus matching condition on ellipsis resolution would not be met.

(81) BILL$_F$ is proud of Sally$_2$ and SHE$_{2,F}$ is too.

If reflexives could be co-referential, though, then the set of alternatives derived from the ellipsis clause would be as in (82b). The VP can be elided, since the ellipsis clause is acceptably focused matched with the antecedent clause (i.e., the denotation of the an-

tecedent clause is an element of the set of alternatives).

(82)   a. $[[_{TP_A} \text{Bill is proud of Sally}]]^{g,o}$ = that Bill is proud of Sally.
        b. $[[\text{SHE}_{F,2} \text{ is proud of herself}_2]]^{g,f}$ = {that x is proud of Sally $: x \in D_e$ }

Co-referential reflexives also seem to be needed to deal with the problem posed by strict readings under Merchant's focus matching condition on ellipsis, where even the standard strict reflexive configurations, like (83), are problematic under his two-way focus matching condition.

(83)   JOHN$_{1,F}$ defended himself$_1$ before BILL$_F$ did.

(83) is problematic since the reflexive of the antecedent clause would be assumed to be a bound variable in SBT; it would give rise to a reflexive set of alternatives, and the focus matching condition on ellipsis would not be met. While the denotation of the antecedent clause would be an element of the set of alternatives of the ellipsis clause, meeting the first focus matching requirement in (64a), the second requirement in (64b) would not be met since the denotation of the ellipsis clause would not be an element of the set of alternatives derived from the antecedent clause with a bound-variable reflexive.

If reflexives could be co-referential, this problem would not arise. The reflexive of the antecedent clause would be a free variable, co-referential with its antecedent as in (84a), giving rise to the set of alternatives in (84b). The denotation of the ellipsis clause, (85b), would be an element of this set, and both requirements of Merchant's focus matching condition would be met.

(84)   a. $[_{TP_A} \text{JOHN}_{1,F} \text{ defended himself}_1$]
        b. $[\![\text{TP}_A]\!]^{g,f}$ = {that x defended John $: x \in D_e$}

(85)   a. $[_{TP_E} \text{BILL}_F \text{ defended him}_1]$
        b. $[\![\text{TP}_E]\!]^{g,o}$ = that Bill defended John

In sum, what is clear at this point is that SBT assumptions about reflexives being interpreted as only bound variables cannot be maintained if strict reflexives are to be predicted as acceptable. In order to account for strict readings of reflexives in ellipsis constructions, a binding theory which allows for co-referential reflexives is needed, regardless of whether one assumes a syntactic or semantic identity approach to ellipsis resolution.

Chapter 3

Strict reflexives and focus

The previous chapter looked at which readings are available for reflexives in VP ellipsis in order to test the assumptions of SBT's Condition A – namely, that reflexives must be interpreted as locally bound variables. If reflexives must be bound variables, then they should be unambiguous in VP ellipsis. Counter to this prediction, reflexives do give rise to an ambiguity in these contexts. Despite efforts to account for the ambiguity while maintaining a Condition A in which reflexives are locally bound variables, it does not seem possible without giving up the bound-variable-only assumption; the acceptability of strict reflexives can only be accounted for if reflexives can be interpreted co-referentially.

VP ellipsis is not the only construction which we can use to test whether reflexives must be interpreted as bound variables or not. Again, borrowing from the domain of pronoun interpretation, focus has previously been used to argue for both co-referential and bound-variable interpretations of pronouns (Reinhart, 1983; Heim and Kratzer, 1998). For example, in the context of the focus particle *only* in (1), the presence of the pronoun creates an ambiguity. On one hand, the sentence can give rise to a reading that excludes others that like their own cat, as in (1a), or it can give rise to a reading that excludes others that like Mary's cat, as in (1b).

(1)   Only MARY$_{F,2}$ likes her$_2$ cat.

    a.   No one but Mary likes their own cat. Bill doesn't like his cat, Sue doesn't like her cat, etc. (sloppy)

    b.   No one but Mary likes Mary's cat. Bill doesn't like Mary's cat, Sue doesn't like Mary's cat, etc. (strict)

Under the adverbial analysis of *only*, where it is assumed to combine at the clausal level, sentences such as (1) provide a direct test for the structure of the clause *only* combines with, (i.e., its prejacent). If the pronoun is a bound variable in the prejacent of *only*, then the sloppy reading in (1a) will arise, and if the pronoun is a free variable referring to *Mary*, and thus co-referential with its antecedent in the prejacent, then the strict reading in (1b) will arise. Since both readings are acceptable, we can conclude that the pronoun is allowed to be interpreted as either co-referential or bound.

Turning now to reflexives, the strict reading should be unavailable if they must be interpreted as only bound variables. Focus constructions such as (2) would be predicted to give rise to only the sloppy reading, which excludes other self-likers, as in (2a), and not the strict reading, which excludes other Mary-likers, as in (2b).

(2)   Only MARY$_{F,2}$ likes herself$_2$.

   a.   *Predicted possible*: No one other than Mary likes themselves. Bill doesn't like Bill, John doesn't like John, etc.

   b.   *Predicted not possible*: No one other than Mary likes Mary. Bill doesn't like Mary, John doesn't like Mary, etc.

While a binding theory that assumes reflexives are necessarily bound variables makes clear predictions, the situation regarding the actual judgements in the literature is unclear. Unlike VP ellipsis where strict reflexives are generally accepted to be possible, the judgements reported for strict reflexives in focus contexts in the literature are mixed, and have received much less attention. To the best of my knowledge, the judgements in the literature are as follows:

- Dahl (1973), Büring (2005), Roelofsen (2008) and Ahn and Sportiche (2014) claim that reflexives can be interpreted ambiguously in the context of focus; both strict and sloppy readings are possible. Drummond and Shimoyama (to appear) also observe strict reflexive in the context of focus in superlative constructions, such as (3)[1].

   (3)   Out of all the boys, JOHN$_F$ defended himself most skillfully. (= John defended John most skillfully)

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[1]In order to account for strict readings in these constructions, Drummond and Shimoyama (to appear) adopt Hestvik's (1995) insight that strict readings can be derived by movement of the reflexive.

- Sauerland (2013) on the other hand, claims that reflexives are unambiguous in simple transitive constructions such as (2), only giving rise to a sloppy reading, but ambiguous in ECM constructions, such as in (4), giving rise to both a strict and sloppy reading[2].

  (4)   Only ROMNEY$_{1,F}$ expected himself$_1$ to win.

    a.   No one but Romney expected themselves to win (sloppy).
    b.   No one but Romney expected Romney to win (strict).

- Others such as McCawley (1967), Reinhart and Reuland (1993, p. 674) and Heim and Kratzer (1998, p. 269) assume there is a lack of ambiguity for sentences such as (2), with only the sloppy reading being available.

- Furthermore, others such as Fiengo and May (1994) and Spathas (2010) claim that reflexives are ambiguous in focus contexts, but that the strict reading is accompanied with prosodic prominence on the object reflexive, and not the expected subject.

Given these conflicting claims, it is crucial to determine what exactly the judgements are for strict reflexives, since the possible readings of reflexives in focus contexts bear directly on the question of whether they are necessarily bound variables. If reflexives in focus contexts are unambiguous, and do not give rise to strict readings, then there would

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[2]Sauerland's judgements are similar to previous claims made by Keenan (1971) for VP ellipsis – reporting that, with simple transitive verbs, such as in (i), the strict reading is unavailable; but, with ECM verbs, such as in (ii), the strict reading is available.

(i)   John$_1$ shot himself$_1$ and so did Fred.
    a.   John shot John and Fred shot Fred (sloppy)
    b.   *John shot John and Fred shot John (strict)

(ii)   John$_1$ considers himself$_1$ a leader and so does Fred.
    a.   John considers John a leader and Fred considers Fred a leader (sloppy)
    b.   John considers John a leader and Fred considers John a leader (strict)

It should be noted, though, that to get the strict reading in (i) both John and Fred would have had to shoot John, which seems pragmatically odd, without further context. If we construct a context where both of them shooting John is less odd, then the strict reading seems to be acceptable.

(iii)   Context: John and Fred were playing paintball. John's ammo was red and Fred's was green. At the end of the game John had both red and green paint on his coveralls, so clearly ...
    John shot himself and so did Fred (shoot John).

be evidence for them being interpreted as bound variables only. If, on the other hand, reflexives in focus contexts do give rise to strict readings, this requirement is too strong. This chapter reports the results of a judgement and a production experiment aimed at clarifying whether strict reflexives in focus contexts are possible or not. Looking ahead to Sections 3.2 and 3.4, the results of these experiments show that speakers do in fact find strict reflexives acceptable in focus contexts, supporting a view in which reflexives can be co-referential with their antecedents, counter to SBT assumptions.

3.1   Reflexives and focus phenomena

Chapter 1 outlined what the set of alternatives would look like when the antecedent of a reflexive is focused, under the assumption that the reflexive was interpreted as co-referential compared to when it was interpreted as a bound variable. I showed that depending on the interpretation of the reflexive, the set of alternatives evoked by the presence of focus would be different. For example, if the antecedent of the reflexive is focused in a sentence such as (5), and the reflexive is a free variable, the set of alternatives would be as in (6), consisting of elements which are non-reflexive propositions.

(5)   Only MARY$_{2,F}$ likes herself$_2$.

(6)   {that x likes Mary : $x \in D_e$}

On the other hand, if the reflexive is a bound variable, then this binding relation translates over into the set of alternatives, as in (7), which consists of elements that are reflexive propositions.

(7)   {that x likes x : $x \in D_e$}

By looking at the set of alternatives that would be derived when the reflexive is treated as a bound variable or as co-referential, we can predict which readings would be available for focus phenomena that make use of these alternatives sets. This section outlines the predicted acceptability of strict readings in question-answer pairs, focus particles, and parallelism constructions, both when the reflexive is assumed to be a bound variable and

when it is assumed to be co-referential[3]. We see that if the reflexive must be a bound variable, then only the sloppy readings should be possible. If reflexives have the option of being co-referential, though, then the strict reading should be possible as well.

3.1.1 Question-answer congruence

If reflexives are necessarily bound variables, then the set of alternatives evoked by the presence of focus would be of the form {that x likes $x : x \in D_e$}. In the case of question-answer pairs, we would not expect question-answer congruence to arise in contexts such as (8). If we assume question-answer congruence arises as proposed by Rooth (1996), the reason for the predicted infelicity would be that the requirements for question-answer congruence to follow would not be met. If reflexives can be co-referential though, then question-answer congruence would arise in the discourse in (8).

(8) *Who likes Mary?*
     $SHE_{F,2}$ likes herself$_2$.

To see why, first consider how question-answer congruence would arise for a discourse not involving reflexives. Following Rooth (1996), question-answer congruence is assumed to arise when the denotation of the question is a subset of the set of alternatives derived from the answer, which contains the ordinary denotation of the sentence and at least one other element.

(9) *Question-answer congruence*
     A question, α, and an answer, β, are congruent when $[\![\alpha]\!]$ is a subset of $[\![\beta]\!]^f$ containing $[\![\beta]\!]^o$ and at least one other element.

This accounts for the acceptability of the question-answer pair in (10) below, and its unacceptability in the context of the question in (11). Under the assumption that questions denote a set of possible answers, following Hamblin (1973); Karttunen (1977), then in (10), we see that question-answer congruence will arise since the denotation of the question,

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[3]These particular focus constructions are of interest since it has been claimed by some in the literature that in order to express a strict reading – for example, the reading of (5) that reports that Mary is the only Mary-liker – the non-reflexive pronoun is the only option that can acceptably be used, despite it seeming to incur a Condition B violation, for example by (Reinhart and Reuland, 1993; Heim, 1998, 2007). Thus determining whether strict readings with reflexives are also possible in these focus constructions will be relevant to these previous claims as well.

is a subset of the answer's set of alternatives – containing the ordinary semantic value of the answer, *John likes Sue*, and at least one other element.

(10)   *Who likes Sue?*
         MARY$_F$ likes Sue.

     a. $[\![\text{Answer}]\!]^{g,o}$ = that Mary likes Sue
     b. $[\![\text{Answer}]\!]^{g,f}$ = {that x likes Sue : $x \in D_e$}
     c. $[\![\text{Question}]\!]$ = {Mary likes Sue, Bill likes Sue, John likes Sue, etc.}

On the other hand, question-answer congruence does not arise when the same sentence occurs in the context of the question in (11). Even though the denotation of the question contains the ordinary semantic value of the answer, the question denotation is not a subset of the answer's derived set of alternatives.

(11)   *Who does Mary like?*
         # MARY$_F$ likes Sue

     a. $[\![\text{Answer}]\!]^{g,o}$ = that Mary likes Sue
     b. $[\![\text{Answer}]\!]^{g,f}$: {that x likes Sue : $x \in D_e$}
     c. $[\![\text{Question}]\!]$ = {Mary likes John, Mary likes Sue, Mary likes Bill, etc.}

Turning now to reflexives as bound variables, when the antecedent of the reflexive is focused, as in (12), the set of alternatives derived from the answer would be of the form {that x likes x : $x \in D_e$}, the ordinary semantic value would be as in (12a) (i.e., *that Mary likes Mary*) and the denotation of the question would be as in (12c).

(12)   *Who likes Mary?*
         SHE$_{F,2}$ likes herself$_2$.

     a. $[\![\text{Answer}]\!]^{g,o}$ = that Mary likes Mary
     b. $[\![\text{Answer}]\!]^{g,f}$ = {that x likes x : $x \in D_e$}
     c. $[\![\text{Question}]\!]$ = {John likes Mary, Mary likes Mary, Bill likes Mary}

Question-answer congruence would not arise in this discourse since the denotation of the question is not a subset of the set of alternatives evoked by the answer, and thus reflexives would be predicted to be infelicitous in this context.

If, on the other hand, reflexives could be co-referential, then question-answer congru-

ence would arise in examples such as (8). The denotation of the question and the ordinary semantic value of the answer would not change from previous examples, but the focus semantic value would be different; it would denote a set of propositions of the form {that x likes Mary $: x \in D_e$}. As (13) shows, when the reflexive is treated as co-referential, the denotation of the question would end up being a subset of the set of alternatives evoked by the answer, and thus question-answer congruence would follow.

(13)   *Who likes Mary?*
       SHE$_{F,2}$ likes herself$_2$.

    a. $[\![\text{Answer}]\!]^{g,o}$ = that Mary likes Mary
    b. $[\![\text{Answer}]\!]^{g,f}$ = {that x likes Mary $: x \in D_e$}
    c. $[\![\text{Question}]\!]$ = {John likes Mary, Mary likes Mary, Bill likes Mary}

3.1.2   Focusing particles

In the case of focusing particles, if the set of alternatives is of the form {that x likes $x : x \in D_e$}, then we do not expect the focused sentence with *only* or *even* in (14) and (15) to be acceptable. On the other hand, if the set of alternatives is of the form {that x likes Mary $: x \in D_e$}, then (14) and (15) would be predicted to be acceptable.

(14)   *Mary is really unpopular.*
       Only SHE$_{F,2}$ likes herself$_2$.

(15)   *Mary did something really terrible.*
       Even SHE$_{F,2}$ hates herself$_2$

Focusing particles such as *only* and *even* have denotations which depend on the place of focus in the phrase they combine with and the set of alternatives that are derived from this phrase. In the discussion that follows, I will use *only* constructions to exemplify the behaviour of reflexives with focus particles, but the same claims could be exemplified with *even*. Assuming the denotation in (16), *only* combines with a proposition p and a set of alternatives C and returns a truth value (Rooth, 1996; Partee, 2009). A sentence composed of *only* and a clause, denoting a proposition p, will be true if and only if no other proposition but p in p's the alternative set is true.

(16) $[\![\text{only}]\!]^{g} = \lambda C.\lambda p.\forall q[q \in C \& T(q) \leftrightarrow q = p]$

To see how this denotation depends on the set of alternatives derived from the proposition it combines with, take the sentence in (17) as an example. The set of alternatives derived from the prejacent of *only* is the set {that x likes Sue $: x \in D_e$}. Given the definition of *only* in (16), the denotation of the sentence would be as in (18) – namely, *that John likes Sue* is the only true proposition in the set of alternatives {that x likes sue $: x \in D_e$}, or in other words, nobody other than John likes Sue. This sentence would be true in a context where John is the only Sue-liker, and false otherwise.

(17)   Only JOHN$_F$ likes Sue.

(18) $[\![(17)]\!]^g = \forall q[q \in \{$that x likes Sue $: x \in D_e\} \& T(q) \leftrightarrow$ that John likes Sue]

In the case of reflexives, when *only* combines with a clause that contains a bound-variable reflexive with a focused antecedent, such as in (14), the set of alternatives derived from the focused clause would be of the form {that x likes $x : x \in D_e$}, and the denotation of the sentence would be as in (20).

(19)   [$_{TP}$ only [$_{TP}$ SHE$_{F,2}$ $\lambda 2$ [$_{TP}$ t$_2$ [$_{VP}$ likes herself$_2$]]]]

(20) $[\![(19)]\!]^g = \forall q[q \in \{$that x likes $x : x \in D_e\} \& T(q) \leftrightarrow q =$ that Mary likes Mary]

The resulting denotation of the sentence would be *that Mary likes Mary* is the only true proposition in the set of alternatives {that x likes $x : x \in D_e$}, and would be true in a scenario where no one else but Mary likes themselves, and false in all other scenarios, such as in a context where no other person likes Mary, except for Mary herself. The context of (14) supports a reading where Mary is the only Mary-liker, and thus the sentence with a reading where Mary is the only self-liker would not be acceptable in this context.

It should be noted that this prediction does not rely on the denotation in (16), where *only* is treated as quantifying over propositions. Alternatively, *only* could be treated as quantifying over individuals (Horn, 1969), as in (21), and same predictions for (14) would still arise.

(21) $[\![$only$]\!]^g = \lambda C.\lambda x.\lambda p.\forall y[y \in C \& p(y) = 1 \rightarrow y = x]$

In what Rooth (1985) terms the "scope theory", *only* with a denotation as in (21) would instead combine with the F-marked DP. In order for the DP to combine with *only* it is assumed to undergo QR. The LF would be as in (22), and the resulting denotation would

be as in (23).

(22) $[_{TP}$ [only MARY$_F$] $\lambda2$ $[_{TP}$ t$_2$ $[_{VP}$ likes herself$_2$]]]

(23) $[\![(22)]\!]^g = \forall y[y \in \{x : x \in D_e\}\&y$ likes $y = 1 \rightarrow y = $ Mary$]$

The truth conditions for (22) would be the same as in (20) – that is, the sentence would be true if and only if for every y, if y is in the set of individuals, and y likes y is true, then y is Mary. In other words, the sentence would be true in a context where no one other than Mary likes themselves, and false otherwise. Again, this reading of the sentence in context of (14) would not be acceptable, as the context supports a reading where Mary is the only Mary-liker and the sentence gives rise to a reading where Mary is the only self-liker. The reason this prediction turns out the same as when *only* is treated as quantifying over propositions is that, in both cases, the reflexive is treated as a bound variable and thus creates a reflexive property, which is in turn reflected in the truth conditions of the sentence. In the first case it is reflected in the set of alternatives that *only* takes as an argument, and in the latter case it is instead reflected in the proposition that *only* takes as an argument. In sum, there is no way to avoid interpreting these sentences in any other way than as excluding other self-likers.

Turning now to the scenario where the reflexive could be considered co-referential, the prediction for a sentence such as (24) is that the reading which excludes other Mary-likers should be possible.

(24) $[_{TP}$ only $[_{TP}$ SHE$_{F,2}$ $[_{VP}$ likes herself$_2$]]]

(25) $[\![(24)]\!]^g = \forall q[q \in \{$that x likes Mary $: x \in D_e\}\&T(q) \leftrightarrow q = $ that Mary likes Mary$]$

The LF in (24) would have the denotation in (25), where the sentence denotes that *Mary likes Mary* is the only true proposition in the set of alternatives {that x likes Mary $: x \in D_e$}, and would be true in a scenario where no one else but Mary likes Mary, and false in all other scenarios. Looking at this sentence in the context of (14), it would be predicted to be acceptable.

3.1.3 Parallelism

Lastly, for the parallelism cases, we again see that if the alternative set is of the form {that x likes $x : x \in D_e$}, as predicted if the reflexive is necessarily a bound variable, then the

second conjunct would not be expected to be able to contrast with the first conjunct (and vice versa) in an example such as (26). On the other hand, if the reflexive could be co-referential, giving rise to the alternative set {that x likes Mary $: x \in D_e$}, the conjuncts would be predicted to contrast with each other.

(26)   *John$_1$ and Mary$_2$ have a lot in common.*
         HE$_{1,F}$ likes her$_2$ and SHE$_{F,2}$ likes herself$_2$.

With regard to acceptably contrasting phrases, Rooth (1992b), citing Chomsky (1971) and Ladd (1980), discusses constructions like coordinations in which the presence of focus is used to indicate a symmetric contrast. In order for a phrase to be able to contrast with another phrase, he proposes the interpretation rule in (27), which allows a phrase, α, to contrast with another phrase, β, as long as the ordinary semantic value of β is an element of the set of alternatives derived from α.

(27)   *Contrasting phrases*
         Construe a phrase α as contrasting with β if $[\![\beta]\!]^o \in [\![\alpha]\!]^f$.

Given this definition, the example below in (28) shows that the second conjunct can acceptably contrast with the first conjunct since the denotation of the first conjunct is an element of the second conjunct's alternative set.

(28)   BILL$_F$ likes Sue and MARY$_F$ likes Sue.

         a. $[\![$First conjunct$]\!]^{g,o}$: that Bill likes Sue
         b. $[\![$Second conjunct$]\!]^{g,f}$: {that x likes Sue $: x \in D_e$}

On the other hand, the second conjunct cannot acceptably contrast with the first conjunct in a coordination such as (29), since the denotation of the first conjunct is not an element of the second conjunct's alternative set.

(29)   #BILL$_F$ likes Mary and MARY$_F$ likes Sue.

         a. $[\![$First conjunct$]\!]^{g,o}$: that Bill likes Mary
         b. $[\![$Second conjunct$]\!]^{g,f}$: {that x likes Sue $: x \in D_e$}

For the cases with reflexives, such as in (30a) (=(26)), the ordinary semantic value of the first conjunct would be as in (30b). If the reflexive must be interpreted as a bound variable,

the set of alternatives derived from the second conjunct would reflect this binding, and the denotation of both the subject and object would co-vary in the alternatives, as in (30c)[4].

(30)　　a.　$HE_{1,F}$ likes her$_2$ and $SHE_{F,2}$ likes herself$_2$.
　　　　b.　$[\![HE_{1,F}$ likes her$_2]\!]^{g,o}$ = that John likes Mary
　　　　c.　$[\![SHE_{F,2}\ \lambda 2\ t_2$ likes herself$_2]\!]^{g,f}$ = {that x likes $x : x \in D_e$}

Given the rule of contrasting phrases in (27), the second conjunct would not count as contrasting with the first, since the denotation of the first conjunct is not an element of the second conjunct's alternative set, and thus the sentence would be predicted to not be felicitous.

If reflexives could be co-referential, though, the set of alternatives derived from the second conjunct would be a non-reflexive set, as in (31c). In this case, the second conjunct would count as contrasting with the first conjunct since the first conjunct is an element of set of alternatives derived from the second conjunct, and the sentence would be predicted to be felicitous.

(31)　　a.　$HE_{1,F}$ likes her$_2$ and $SHE_{F,2}$ likes herself$_2$.
　　　　b.　$[\![HE_{1,F}$ likes her$_2]\!]^{g,o}$ = that John likes Mary
　　　　c.　$[\![SHE_{F}, 2$ likes her$_2]\!]^{g,f}$ = {that x likes Mary $: x \in D_e$}

Summary

To summarize, this section outlined the predictions we would expect if reflexives were treated as bound variables, and also considered what the predictions would be if they were treated as co-referential. If we assume that reflexives are necessarily bound variables, as SBT requires, then the reflexive should be unambiguous in the context of focus, and only sloppy readings are predicted to arise, i.e., only a set of alternatives is predicted to be derived where the reflexive interpretation co-varies. If on the other hand reflexives can be co-referential, then strict readings should be acceptable, i.e., a set of alternatives is predicted to be derived where the reflexive interpretation remains constant.

The question now is to determine how these predictions match up with speakers'

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[4]The problem here is the same as the problem noted for the coordinated ellipsis cases in Chapter 2. Both of these examples are instances of parallelism, the ellipsis cases just being an instance where instead of the non focused material being phonetically reduced, it is absent entirely. Thus we see that bound variable reflexives are problematic more generally for constructions involving parallelism.

judgements on the available readings of reflexives in these focus contexts. If speakers find the unbound reading to be unacceptable, then this would empirically support the standard view that reflexives must be bound variables, if on the other hand the unbound reading is judged acceptable, then this casts doubt on the assumptions made by the standard theory regarding reflexive interpretation, and suggests that reflexives need not necessarily be interpreted as semantically bound.

3.2 Experiment 1: Acceptability judgements

As previously noted, there are conflicting claims in the literature with regard to what the judgements for these constructions actually are. The experiment reported here addresses this empirical question and shows that strict readings of reflexives are judged to be acceptable in focus contexts. Given the predictions of Section 3.1 in light of these results, it becomes clear that the SBT's assumptions regarding reflexive interpretation fail to make the correct predictions, suggesting that reflexives should not always be interpreted as bound variables.

3.2.1 Design and predictions

To test speakers' intuitions on the acceptability of strict readings of reflexives in focus contexts, an acceptability judgement experiment was run which consisted of two sub-experiments, which compared the naturalness rating of reflexives to pronouns across different focus types. Each sub-experiment was a 2x2x2 design. One crossing anaphor type (levels: pronoun, reflexive), reference (levels: co-reference, disjoint reference) and focus-type (levels: only, even), and the other crossing anaphor type and reference with different focus types than the first (levels: parallelism, question-answer). The data from each experiment were then combined into one dataset for analysis, where the focus particle data of the first experiment for *only/even* was merged to act as one of three levels of the focus-type variable (levels: particle, parallelism, question-answer).

Experimental items were created for each focus type along the lines outlined in (32) below, which shows an item template for focus particles. Items contained a context and a target sentence, with focus being marked in all capital letters and information following the target sentence indicating how the pronouns and reflexives should be interpreted.

(32)   Focus Particles

    a.   *Pronoun Co-reference*
       Context: Mary did a terrible thing but no one hates her for it.
       Target sentence: Only SHE hates her. [where she=Mary, her=Mary]

    b.   *Reflexive Co-reference*
       Context: Mary did a terrible thing but no one hates her for it.
       Target sentence: Only SHE hates herself. [where she=Mary, herself=Mary]

    c.   *Pronoun Disjoint Reference*
       Context: Jane did a terrible thing and no one hates her for it except Mary.
       Target sentence: Only SHE hates her. [where she=Mary, her=Jane]

    d.   *Reflexive Disjoint Reference*
       Context: Jane did a terrible thing and no one hates her for it except Mary.
       Target sentence: Only SHE hates herself. [where she=Mary, herself=Jane]

Figure 3.1 shows the predicted ratings for each condition based on previous assumptions and claims in the literature. The predictions for co-referential reflexives follow from the assumptions of SBT and alternative set computation, as we saw in Section 3.1. In particular, if reflexives are necessarily bound variables, then they should be unable to occur in focus contexts that give rise to unbound readings.

The disjoint reference conditions for both pronouns and reflexives act as baseline conditions, since they provide configurations which are uncontroversially grammatical and ungrammatical – disjoint reference pronouns are predicted to be acceptable since there is nothing in SBT that prevents a pronoun from being anaphoric to a DP outside of its local clause, and thus can acceptably have a different referent than that of the clausal subject. For reflexives, disjoint reference would be unacceptable, since reflexives are required to be anaphoric to the subject of their local clause, but in these conditions they are not.
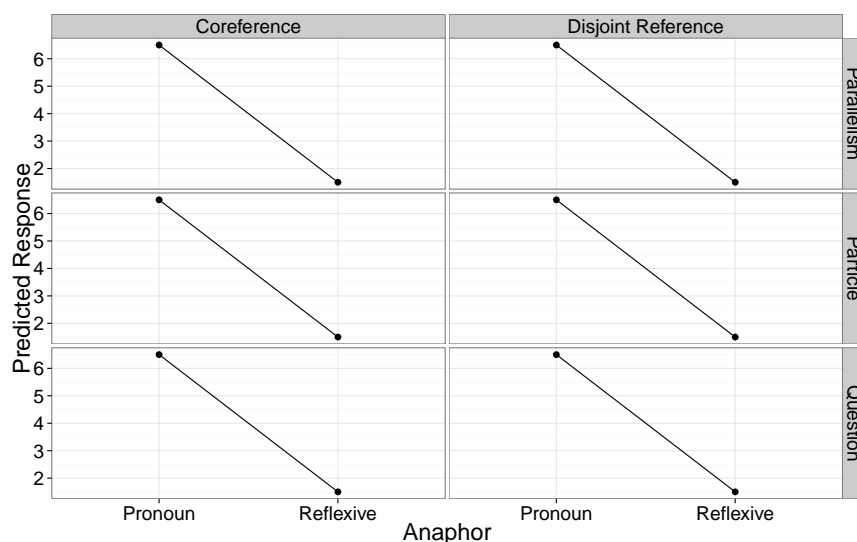
Figure 3.1: Predicted Judgements by Standard Binding Theory

The inclusion of pronouns in the experiment was, on the one hand, to use as a comparison for reflexives, since it is standardly assumed in the literature that object pronouns are acceptable with a focused antecedent in these focus contexts (Reinhart, 1983; Grodzinsky and Reinhart, 1993; Heim, 2007). For example, the general consensus in the literature is that sentences such as (33) are acceptable, despite there being what appears to be a Condition B violation, i.e., the pronoun has a local c-commanding antecedent. Thus, if the judgements in the literature are correct, there should be a clear difference between how speakers rate pronouns and reflexives in these contexts – namely, that pronouns are predicted to be rated as acceptable and reflexives not.

(33)   *Mary did a terrible thing but none of her friends hate her for it.*
        Only $SHE_{F,2}$ hates her_2.

The second reason for including pronouns was in the interest of clarifying the judgements for pronouns in these focus contexts as well. Despite the assumed grammaticality of these sentences in the literature, the informal speaker judgements are unclear, with speakers reporting that sentences such as (33) are marginal to ungrammatical.

In sum, the experiment aims to: 1) clarify what the judgements are for co-referential reflexives and pronouns in the same focus contexts, and 2) determine if they differ. Given the theoretical assumptions in the literature, the prediction is that co-referential reflexives should not be acceptable whereas pronouns should be acceptable, with no differences

across the three focus types. The inclusion of the disjoint reference conditions allows for a point of comparison such that, if reflexives with focused antecedents are unacceptable, then their rating should be similar to that of the disjoint reference reflexives. And, if pronouns with local antecedents are acceptable, then their rating should be similar to that of the disjoint reference pronouns. Thus, the expectation based on the literature is that no interaction effect between anaphor, reference, and focus type is expected, as shown in Figure 3.1.

3.2.2   Methods and materials

Prior to analysis, a dataset was created which combined the two sub-experiments. Both sub-experiments were constructed with 16 items each (8 items per focus type), following the template in (32). No filler items were used in the experiment.

16 participants were recruited through McGill's Prosody Lab, all native speakers of English. Participants saw only one condition from each of the 8 items per focus type. Thus, participants did not contribute more to one level of the anaphor and reference variables than another. Participants were instructed to silently read a context on the computer screen, followed by the target sentence, with information on how to interpret pronouns and reflexives. They then rated the sentence on a scale of 1-7, with 1 being unnatural and 7 being natural. Prior to the experiment, participants were instructed that a word in all capital letters should be read as having the main emphasis in the sentence.

3.2.3   Analysis and results

Figure 3.2 shows the empirical data of the effect of anaphor type by reference on naturalness rating, for each focus type. Inspection of this graph indicates that co-referential reflexives are rated as natural, whereas co-referential pronouns are not. In addition, this difference between co-referential reflexives and pronouns seems to be slightly different for the parallelism conditions, with pronouns being rated as slightly higher than in the other focus types.
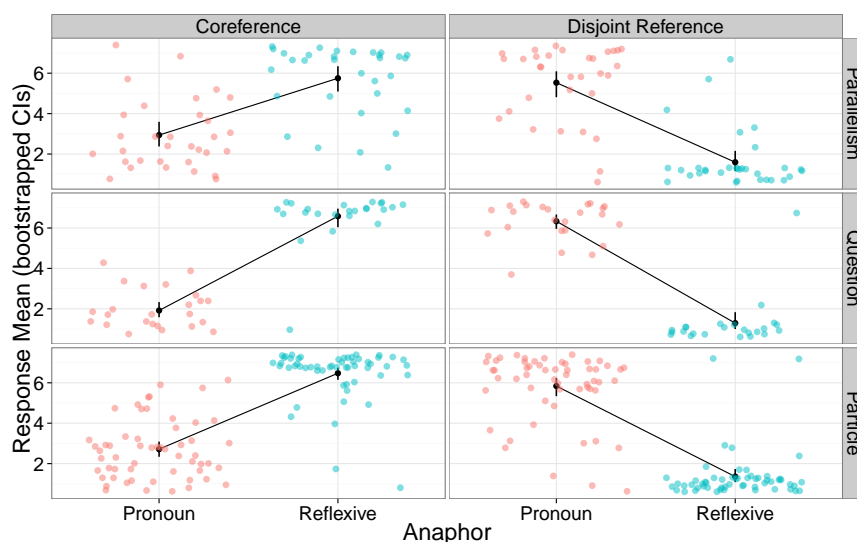
Figure 3.2: Interaction of Reference and Anaphor Type by Focus Type

A linear mixed model was fitted to the data, and before fitting the model, predictors were standardized, with anaphor, and reference being sum-coded and type being helmert-coded so that there was a contrast between parallelism constructions on one hand, and questions and particles on the other, with a second contrast between questions and particles. The predictors and interactions included in the model are: Anaphor, Reference, and vs. QA/only, QA vs. only, Anaphor:Reference, Anaphor:and vs. QA/only , Reference:and vs. QA/only, Anaphor:QA vs. only, Reference:QA vs. only, Anaphor:Reference:and vs. QA/only, and Anaphor:Reference:QA vs. only.

The model also included by-participant random intercepts and slopes for the predictors and interactions of: Anaphor, Reference, QA vs. only, Anaphor:Reference, and Anaphor:and vs. QA/only. By-item random intercepts were included in the model, but not by-item random slopes. This final model was compared using a likelihood ratio test to a fully crossed model with all possible predictors and interactions and by-participant and by-item random slopes, again, for all possible predictors and interactions which showed that this fitted model is not significantly different from the full model ($\chi^2(9) = 0.54, p = 1$). The R^2 of the model is 0.81, indicating that the model is a good fit for the data.

Table 3.1 shows the model coefficient estimates, standard errors, degrees of freedom, t-values and p-values[5], showing a significant effect of Reference, and significant inter-

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[5]P-values were determined using lmerTest, which gives p-values for t-values using degrees of freedom based on the Satterthwaite approximation.

actions of Anaphor:Reference, Reference:QA vs only, and Anaphor:Reference:and vs. QA/only.

	Estimate	Std. Error	df	t-value	p-value
Anaphor	-0.19	0.1	14	-1.964	0.07
Reference	-0.35	0.09	15.3	-3.948	<0.01
and vs. QA/only	-0.034	0.04	152.6	-0.767	0.44
QA vs. only	-0.038	0.08	9.3	-0.490	0.64
Anaphor:Reference	-2.0	0.14	13.7	-14.018	<0.001
Anaphor:and vs. QA/only	-0.04	0.06	16.3	-0.676	0.51
Reference:and vs. QA/only	-0.02	0.04	349.3	-0.461	0.64
Anaphor:QA vs only	0.04	0.07	352.4	0.498	0.62
Reference:QA vs only	0.15	0.07	346	2.083	<0.05
Anaphor:Reference:and vs. QA/only	0.15	0.04	347.6	3.426	<0.001
Anaphor:Reference:QA vs only	-0.14	0.07	344.4	-1.878	0.06

Table 3.1: Model coefficient estimates, standard errors, degrees of freedom, t-values and p-values, intercept omitted

3.2.4 Discussion

Based on the fact that there are conflicting claims on the judgements of strict reflexives with focused antecedents in the literature, plus the standardly assumed acceptability of pronouns in the same configuration, the aim of this experiment was to answer the following questions: What are the judgements for strict reflexives and pronouns in focus contexts? And how do they differ?

The model prediction of the interaction effect between Anaphor and Reference gives insight into both clarifying and comparing judgements for co-referential reflexives and pronouns. Figure 3.2 graphically shows this interaction effect in the empirical data, where we see co-referential pronouns being rated on the lower end of the naturalness scale, and reflexives being rated on the higher, and then the disjoint reference pronouns being rated as natural and disjoint reference reflexives as unnatural.

This interaction effect shows that the predictions of the theoretical literature – of pronouns being grammatical and reflexives not – is incorrect, since if they were, there would be no interaction effect between reference and anaphor type (see Figure 3.1). If the theoretical literature were correct, the difference between co-referential pronouns and reflexives would be similar to the difference between disjoint reference pronouns and reflex-

ives, with pronouns being grammatical and reflexives ungrammatical, but we see this is not the case. The results show that the difference between co-referential reflexives and pronouns is in the opposite direction of what is predicted by the literature. Instead of pronouns being grammatical and reflexives not being grammatical, the results show that reflexives are judged as natural with a focused antecedent, and pronouns rated as less acceptable than reflexives, thus leading to the observed interaction effect.

While the results are not compatible with the predictions of the theoretical literature, another possible explanation has been brought to my attention (Uli Sauerland p.c.). There is the possibility that these results could be due to participants ignoring the context which biases for the strict reading, and rating the co-referential pronouns or reflexives as if this context were not there. In which case, a pronoun with a local antecedent would be unacceptable and a reflexive with a local antecedent would be acceptable, thus, the acceptability of reflexives shown in the results would not be an argument against the bound variable analysis.

One indication that they are not doing this comes from the co-reference pronoun data, which are rated as unnatural, but compared to the uncontroversially unacceptable disjoint reference reflexive, is rated somewhat higher across the different focus types, particularly in parallelism cases. If context did not come into play at all, these should be rated as low as the uncontroversially unacceptable disjoint reference reflexive condition, that they are not, suggests that participants were taking the context into consideration. The effect of context in the co-reference pronoun cases being that it helped somewhat in making them more natural, but participants in general still found these constructions unnatural. If they took context into consideration in these conditions, then they most likely took context into consideration in the reflexive conditions as well.

We can also see that there is a significant interaction effect of Reference, Anaphor, and And vs. QA/only. We can see in the graph in 3.2 above that the difference between co-referential pronouns and reflexives for parallelism constructions is different than the other focus types, with pronouns being rated slightly higher, and reflexives rated slightly lower, thus this prediction of the model is expected.

This effect could be the result of parallelism constructions having additional requirements on felicity which the other two focus types do not have. For example, if parallelism constructions require identical lexical items in the phrases they contrast, the similarity between the lexical items of the conjuncts in *He likes her and she likes her* may raise the acceptability of pronouns in these contexts, and the dissimilarity between the conjuncts in

He likes her and she likes herself may lower the acceptability of reflexives. What is crucial, though, despite a lower rating of reflexives in parallelism constructions than the other focus types, is that they are still rated as natural, and the interaction effect of Anaphor and Reference is still present and in the same direction for parallelism constructions as it is for the other focus types, indicating that reflexives are acceptable and are judged as more acceptable in focus contexts than pronouns.

To sum up, the results of this analysis show that the judgements regarding reflexives and pronouns in the theoretical literature do not coincide with actual speaker judgements; reflexives with focused antecedents are acceptable, and pronouns are unacceptable. This suggests that the theory needs to be modified in order to account for these judgements.

3.3 Strict reflexives and object prominence

While the results of experiment 1 show that, in general, speakers judge strict readings of reflexives as acceptable in focus contexts, there may be a potential problem with this conclusion once we consider examples such as (34), where the reflexive object has been claimed to acceptably occur with prosodic prominence. As claimed by Fiengo and May (1994, p. 208), strict reflexives are indeed possible, but that "they are most comfortably accompanied by primary stress."

Spathas (2010, 2013) also claims that the placement of prominence plays a role in the acceptability of strict readings; according to Spathas, when the subject bears prosodic prominence, strict readings are unacceptable, but when the reflexive object bears prosodic prominence instead, judgements go from unacceptable to (marginally) acceptable.

(34)   *Who likes Mary?*
        She$_2$ likes herSELF$_{F,2}$.

With the addition of data such as (34), the question arises as to what the circumstances in fact are for the availability of strict readings, and, if they are acceptable with object prominence, whether this is compatible reflexives being construed as bound variables.

While the results of experiment 1 suggest strict readings of reflexives are acceptable, there is no way to tell whether participants interpreted and rated the sentences they read as having prosodic prominence on the subject, despite having been instructed to read words in all capital letters as having the main emphasis of the sentence. To address this

confound, a second experiment was run which aimed to see where participants place prosodic prominence, and whether the place of prominence affects the acceptability of the reflexive in focus contexts.

Knowing where participants place prominence is crucial for testing the bound-variable-only assumption for reflexives. If object prominence somehow facilitates the acceptability of strict reflexives, then there may be a way to account for strict readings with object prominence while maintaining SBT assumptions. Before moving on to the experimental details, we first consider how object prominence could affect the acceptability of strict readings in focus phenomena while still maintaining SBT's Condition A.

In the parallelism cases, recall that if just the subject bears prosodic prominence, and if reflexives must be bound variables, then the conjuncts would not be considered as acceptably contrasting phrases, as shown in (35), the denotation of the first conjunct is not an element of the set of alternatives derived from the second conjunct.

(35)   a. $HE_{1,F}$ likes her_2 and $SHE_{F,2}$ likes $herself_2$.
          b. $[\![HE_{1,F}$ likes $her_2]\!]^{g,o}$ = that John likes Mary
          c. $[\![SHE_{F,2}$ $\lambda 2$ t_2 likes $herself_2]\!]^{g,f}$ = {that x likes $x : x \in D_e$}

But, it seems that if the object reflexive also bears prosodic prominence, as in (36), then the conjuncts would be considered as acceptably contrasting while also maintaining the bound-variable-only assumption for reflexives[6].

(36)   *predicted acceptable:* $John_1$ and $Mary_2$ have a lot in common. $HE_{1,F}$ likes her_2 and $SHE_{2,F}$ likes $herSELF_{2,F}$.

If the reflexive in the second conjunct is a bound variable at LF and also F-marked, it is not interpreted in the alternatives as the single individual to which the index 2 is mapped,

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[6]Note that this prediction requires both the subject and object to bear prosodic prominence. Object prominence on its own would not have the same effect, and the conjuncts would not acceptably contrast.

(i)   *predicted unacceptable*: $John_1$ and $Mary_2$ have a lot in common. #$HE_{1,F}$ likes her_2 and she_2 likes $herSELF_{2,F}$
          a. $[\![$1st conjunct$]\!]^{g,o}$ = that John likes Mary
          b. $[\![$2nd conjunct$]\!]^{g,f}$ = {that Mary likes $y : y \in D_e$}

For the parallelism cases, prominence on both subjects would appear to be necessary, since it is these subjects which are contrasting in each conjunct. A parallelism construction with prosodic prominence on the subject in the first conjunct but only on the object in second sounds unnatural.

but instead it is interpreted as a set of individuals. As a set of individuals, it is no longer being interpreted as a variable bound by the subject. Now, when the subject is F-marked as well, it will also be interpreted as a set of individuals, which would result in the set of alternatives in (37b), which crucially does not reflect the binding of the reflexive which is present in the LF. Given this set of alternatives, the conjuncts will be allowed to acceptably contrast, since the first conjunct would be an element of this set.

(37)   a. $[\![\text{1st conjunct}]\!]^{g,o}$ = that John likes Mary
        b. $[\![\text{2nd conjunct}]\!]^{g,f}$ = {that x likes $y : x, y \in D_e$}

For question-answer pairs, having object prominence would theoretically help, as long as the subject is also F-marked, as in (38), just as with the parallelism cases.

(38)   *predicted acceptable:*
        Who likes Mary?
        SHE$_{2,F}$ likes herSELF$_{2,F}$.

The set of alternatives derived from the answer would be as in (39b), and the denotation of the question would be as in (39a). Question-answer congruence would follow, since the question is a subset of the set of alternatives.

(39)   a. $[\![\text{question}]\!]^{g,o}$ = {John likes Mary, Bill likes Mary, Mary likes Mary}
        b. $[\![\text{answer}]\!]^{g,f}$ = {that x likes $y : x, y \in D_e$}

Problematically, it seems that in these question-answer pairs the subject probably does not have to bear prosodic prominence. Having prosodic prominence on both the subject and object sounds particularly unnatural in this context, and the reported judgements by Fiengo and May (1994) and Spathas (2010) are that strict readings in question-answer pairs are acceptable with just the object bearing prosodic prominence.

If just the reflexive object is focused, and reflexives are still assumed to be bound variables, then problematically for Fiengo and May's (1994) and Spathas's (2010) judgements, question-answer congruence would not arise in examples such as (34) (=(40)).

(40)   *predicted unacceptable:*
        a.   Who likes Mary?
        b. #She$_2$ likes herSELF$_{2,F}$.

When the reflexive is treated as a bound variable and is F-marked, rather than its antecedent, the set of alternatives derived from the answer in (40) would be as in (41a). Assuming the denotation of the question is as in (41b), question-answer congruence would not be predicted to follow since the denotation of the question is not a subset of the answer's set of alternatives.

(41)   a. $[\![\text{answer}]\!]^{g,f}$ = {that Mary likes $x : x \in D_e$}
       b. $[\![\text{question}]\!]^{g,o}$ = {John likes Mary, Mary likes Mary, Bill likes Mary}

Thus, if only the object bears prosodic prominence, it is not immediately clear how this could facilitate strict readings of reflexives, and in fact seems quite problematic for the bound-variable only assumptions of SBT.

     Lastly, when we look at focus particles, such as in (42), it is also unclear how object prominence could help with getting a strict reading of the reflexive. First there is the problem of how *only* could associate with the F-marked object. Assuming *only* modifies the DP *she*$_2$, then it does not c-command the reflexive and thus cannot associate with it.

(42)   *predicted unacceptable:*

       a.   Mary is really unpopular.
       b.   #Only she$_2$ likes herSELF$_2$.

Even if we change our assumptions so that *only* is considered a clausal modifier, and could somehow associate with the F-marked object from this position, the situation would still be problematic. The sentence would have the denotation in (43), and would therefore be true if and only if Mary likes no one other than Mary (e.g., Mary likes herself and she does not like Bill, or Sue, or John). It is a reading which contrasts the people that Mary likes. In the context of (42), this is clearly not what the sentence is intended to mean – the context supports a reading in which the sentence contrasts Mary-likers, not the people Mary likes.

(43) $[\![$ [$_{\text{TP}}$ only [$_{\text{TP}}$ she$_2$ $\lambda 2$ [$_{\text{TP}}$ t$_2$ [$_{\text{VP}}$ likes herSELF$_{\{F,2\}}$]]]] $]\!]$
       $= \forall q[q \in$ {that Mary likes $x : x \in D_e$}$\& T(q) \leftrightarrow q =$ that Mary likes Mary]

     To summarize, then, the results of experiment 1 suggest that strict reflexives with focused antecedents are acceptable, but, given previous observations in the literature regarding a prominence shift to object in these contexts, we cannot tell if the results are con-

clusively showing us this. It is possible that participants were interpreting the sentences they read as having object prominence rather than subject prominence. This means that if reflexives with strict readings are accompanied by object prominence, they might be compatible after all with the bound-variable-only assumption, raising a different question for discourse congruence, namely, why can we have object prominence in contexts which would require subject prominence.

Determining where participants place prosodic prominence bears directly on the question of whether we can maintain the assumption of bound-variable-only reflexives with strict readings. For at least the parallelism cases and question-answer pairs, having object prominence, in addition to subject prominence, could provide a way to maintain bound-variable-only reflexives. On the other hand, if strict readings in focus contexts only bear object prominence, then it is not clear that the bound-variable-only assumption can be maintained.

3.4 Experiment 2

3.4.1 Design and predictions

In order to test whether speakers place prosodic prominence on the subject antecedent or the object reflexive, and test the claims in the literature that having object prominence should help with strict readings, a production experiment was run with a similar design as experiment 1. It consisted of two sub-experiments, each with a 2x2x2 design crossing anaphor type, reference, and focus type. Again, the data from each experiment were combined into one dataset for analysis.

Experimental items were created for each focus type as before, along the lines of (32) above, which contained a context, a target sentence, and information on how to interpret the pronouns and reflexives that occur in the target sentence. The only difference with regard to the items from the judgement experiment is that no information pertaining to primary stress was indicated in the target sentence.

Figure 3.3 shows the predicted ratings for each condition. Based on experiment 1, it is predicted that co-referential pronouns will be unacceptable when prosodic prominence is on the subject. If prosodic prominence falls on the object pronoun, this should equally be unacceptable, since it would generate object alternatives in a subject alternative context. With regards to co-referential reflexives, if Spathas (2013) and Fiengo and May (1994) are

correct, reflexives that bear prosodic prominence should be rated higher than reflexives which instead have antecedents that bear prosodic prominence. For the disjoint reference conditions, if prosodic prominence falls on the subject, the predictions for pronouns and reflexives would be the same as experiment 1, with pronouns being rated as acceptable and reflexives as unacceptable. If prosodic prominence falls on the object, both pronouns and reflexives should be unacceptable. Thus, we predict an interaction between Anaphor, Reference, and Prominence.
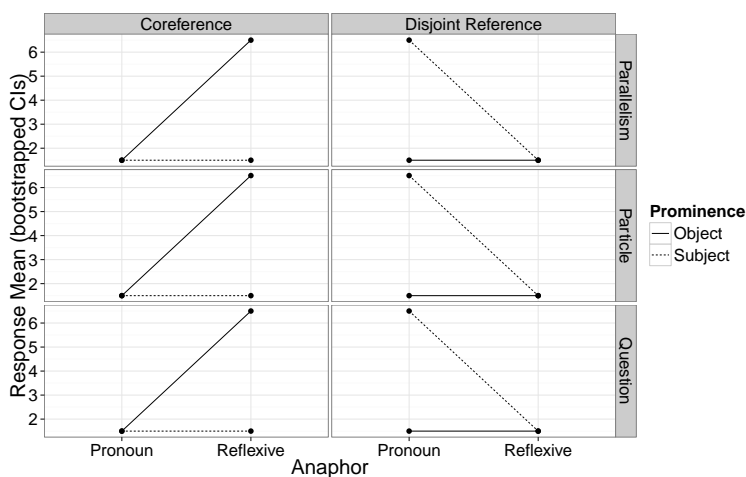

Figure 3.3: Predicted effect of prominence on response

3.4.2 Methods and materials

As in experiment 1, the analysis was run on a dataset which combined both 2x2x2 sub-experiments. Both sub-experiments had 8 items per focus type, for a total of 16 item in each sub-experiment. Again, no fillers were used.

16 native English speaking participants (different from experiment 1) were recruited through McGill's Prosody Lab. These 16 subjects participated in each sub experiment, and they saw only one condition from each of the 8 items per focus type. Participants were instructed to silently read the context and target sentence until felt they understood the dialogue. When they were ready, they were recorded saying the entire dialogue. Participants were instructed to speak as naturally as possible and to try to imagine they were describing a real scenario to someone. After they recorded themselves, they were then instructed to rate the sentence that they just said on a scale of 1 to 7, with 1 being unnatural and 7 being natural. Thus, the production experiment aims to provide information

which was lacking in the first experiment, namely, where participants placed prosodic prominence in the sentences that they rated.

The choice of a production experiment, where participants read the target sentences aloud and rated them afterwards, has an advantage over just a judgement experiment in that it gives information about how participants thought of pronouncing the sentences which they are rating. With just a judgement experiment there is no way to gather this information. For the production experiment methodology used here, it allows us to get additional information about what they did with prosodic prominence with the sentences they were asked to rate.

Another option would have been to prerecord sentences, and have participants rate these instead. Using this methodology, the decision on how to pronounce the target sentences is not made by the speakers themselves. As we will see in the following sections, speakers sometimes did accent the object reflexive, but other times kept the accent on the subject. And that by allowing speakers to read and then rate the sentences they produce, we also get information on the the proportion of responses with object prominence compared to subject prominence, which we would not get if sentences had been prerecorded.

Lastly, the recorded data was then annotated for prosodic prominence, either on the subject, object, or verb, and this annotation was based on perceived relative intensity.

3.4.3 Analysis and results

With regard to prosodic prominence, the empirical data shows that there are differences between the focus types with regard to the proportion of responses bearing subject prominence, compared to object prominence.

When looking at the proportion of responses that bear subject prominence, as shown in Figure 3.4, we see that subject prominence occurs less often for parallelism constructions and question-answer pairs, meaning that strict readings in both parallelism constructions and question-answer pairs are accompanied most often with object prominence.
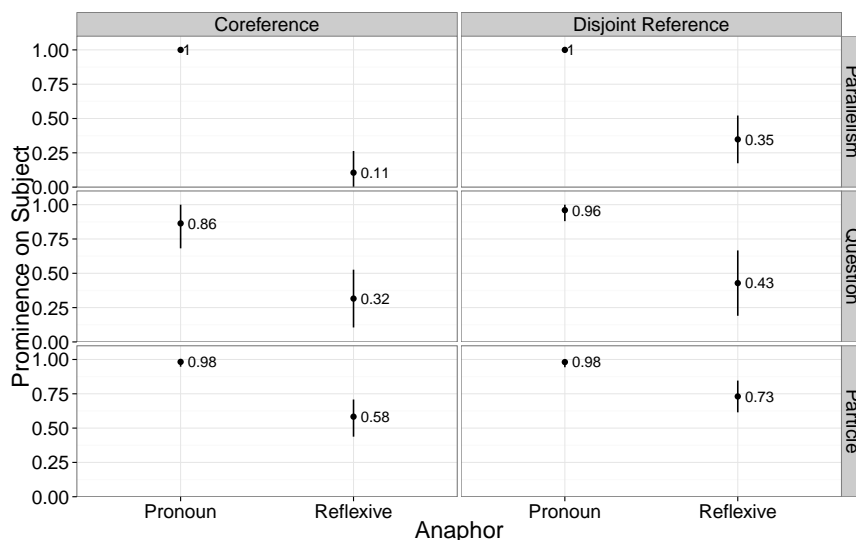
Figure 3.4: The proportion of subject prominence responses

The results also show that strict reflexives are rated as acceptable when either the subject or the object bears prosodic prominence, as seen in the graph in Figure 3.5 which plots the effect of prominence, reference and anaphor type across the three different focus types. With regard to the acceptability of strict reflexives, Figure 3.5 shows that strict reflexives are rated as acceptable with object prominence for all three focus types, and also that strict reflexives are rated as acceptable with subject prominence for all the focus types. But, we also see the differences between focus types here as well, with subject prominence occurring less often for parallelism constructions and question-answer pairs. Looking at the data for parallelism constructions we see that subject prominence is really quite rare, with only two reported responses occurring with subject prominence. Strict readings with reflexives with focus particles, on the other hand, are most often accompanied by subject prominence.

Figure 3.5: The effect of prominence on reflexive rating

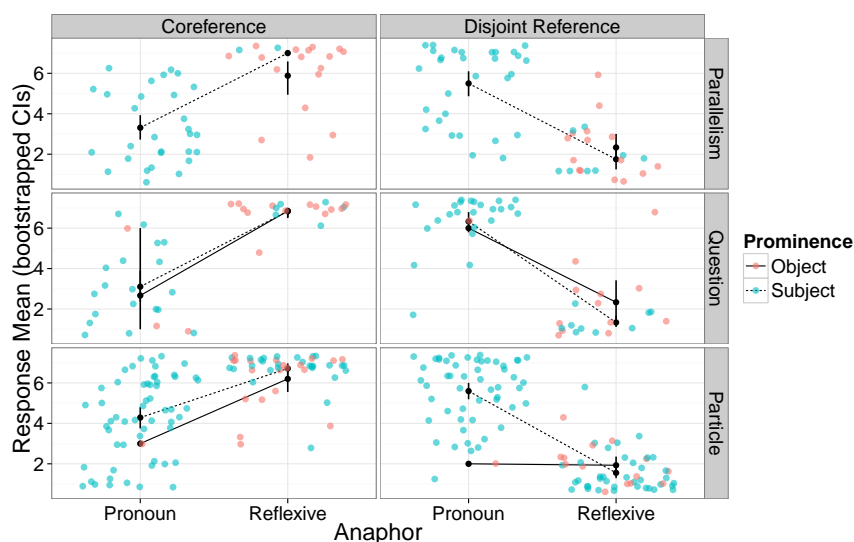A linear mixed model was fitted to the data with the predictors and interactions of: Anaphor, Reference, Anaphor:Reference, Reference:Type, Reference:Prominence, Anaphor: Prominence, Anaphor: Reference: Type, and Anaphor:Reference:Prominence. In addition, the model included by-participant random intercepts and slopes for the predictors and interactions of: Anaphor:Reference:only vs. QA/and[7], Reference:Prominence, Anaphor:Reference, Type, Reference, and Anaphor. No by-item random intercepts and slopes were included in the model. Before fitting the model, predictors were standardized, with Anaphor, Reference, and Prominence being sum-coded and Type being-helmert coded so that there was a contrast between focus particles on one hand, and questions and parallelism constructions on the other, and a second contrast between questions and parallelism constructions.

The R^2 of the model is 0.82, indicating that the model explains 82% of the variance in response, and this model was compared using a likelihood ratio test to a fully crossed model with all possible predictors and interactions, and by-participant and by-item random slopes, again, for all possible predictors and interactions which showed that this fitted model is not significantly different from the full model ($\chi^2(20) = 8.98, p = 0.99$).

Table 3.2 shows the model coefficient estimates, standard errors, degrees of freedom, t-values, and p-values, showing a significant effect of Reference, and significant interac-

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[7]Only vs. QA/and refers to the contrast between focus particles on one hand, and question-answer pairs and parallelism constructions on the other.

tions of Anaphor:Reference, Reference:only vs QA/and, and Anaphor:Reference:QA vs and.

	Estimate	Std. Error	df	t-value	p-value
Anaphor	-0.21	0.13	17.6	-1.59	0.13
Reference	-0.65	0.15	100.2	-4.31	<0.001
Anaphor:Reference	-1.65	0.20	36.9	-8.40	<0.001
Reference:only vs. QA/and	-0.14	0.04	315	-3.46	<0.001
Reference:QA vs. and	0.03	0.09	320.6	0.37	0.71
Reference:Prominence	-0.05	0.15	55.3	-0.34	0.74
Anaphor:Prominence	-0.12	0.09	362.8	-1.32	0.19
Anaphor:Reference:only vs. QA/and	0.11	0.05	14.8	2.08	0.06
Anaphor:Reference:QA vs. and	-0.29	0.09	313.3	-3.34	<0.001
Anaphor:Reference:Prominence	-0.20	0.14	317.5	-1.40	0.16

Table 3.2: Model coefficient estimates, standard errors, degrees of freedom, t-values and p-values, intercept omitted

3.4.4 Discussion

The aim of this experiment was to answer, on one hand, the same questions as experiment 1 – namely, what are the judgements for strict readings of reflexives and pronouns in focus contexts and how do they differ? In addition, this experiment also aimed to see if the place of primary stress affected the acceptability of strict reflexives.

Just as in the first experiment, the results do not match the predictions as determined by the the dominant view in the literature. First, with regard to the acceptability of strict readings in general, we predict based on some claims in the literature that these readings should be unacceptable. But, in experiment 2, we find a significant interaction effect between Anaphor Type and Reference, which can be interpreted such that reflexives are in fact acceptable and that they are rated as more acceptable than pronouns.

Previous claims in the literature also predicted that there would be an effect of prominence on the rating of strict reflexives. If Spathas and Fiengo and May are correct, object prominence in the question-answer pair conditions should be fine, while subject prominence should not. Interestingly, we can see in the results of experiment 2 that there is no significant interaction between Anaphor, Reference, and Prominence, which indicates that the rating of reflexives does not change depending on prominence. Strict readings with subject prominence are not rated differently from reflexives with object prominence.

If prominence had an effect on reflexive rating, as suggested by the literature, then reflexives with object prominence would be rated differently than reflexives with subject prominence, and would have resulted in an interaction between Anaphor, Reference and Prominence.

Given these results, we see that Fiengo and May's (1994) claim that strict reflexives are more natural with object prominence is not quite correct. Strict readings with either subject prominence or object prominence are rated as natural. We do see perhaps a preference difference, though, with object prominence occurring, in general, more often than subject prominence, and also with object prominence occurring more often for some focus types than for others[8], but we do not observe an acceptability difference.

The results from this experiment also show that Spathas's (2010) claim object prominence affects the acceptability of strict reflexives is also not correct. Recall that Spathas follows the standard assumption in the literature that strict reflexives with subject prominence are unacceptable, but when prominence shifted to the object reflexive, this reading became marginally acceptable. Firstly, strict reflexives with subject prominence are acceptable; secondly, strict reflexives with object prominence are not generally judged as marginal. We see in 3.5 that strict reflexives with object prominence are as acceptable as disjoint reference pronouns, which are uncontroversially grammatical constructions.

To summarize, the results of this second experiment show that reflexives with focused antecedents are indeed acceptable and that the place of prominence does not affect acceptability, counter to what is predicted by the claims in the literature. Reflexives that bear primary stress are rated just as acceptable in contexts supporting strict readings as reflexives whose antecedent bears primary stress. Yet, despite being rated as equally acceptable, reflexives bearing prosodic prominence occur more often than reflexives whose antecedents bear prosodic prominence.

The question now is to determine how strict readings of reflexives with either subject prominence or object prominence can be accounted for. We have seen already that standard assumptions regarding reflexives and discourse congruence cannot predict the acceptability of strict readings under either stress pattern. As shown in Section 3.1, if the subject bears prosodic prominence, and reflexives must be bound variables, then only sloppy readings are predicted to be possible. This problem could be avoided though if reflexives could be co-referential with their antecedents.

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[8]Object prominence is preferred in parallelism constructions and QA-pairs, whereas subject prominence is preferred with focus particles.

Turning to object prominence, as shown in Section 3.3, if just the object reflexive bears prosodic prominence, and reflexives are assumed to be bound variables, strict readings would not be considered congruent in the discourse context. This problem could be avoided if, in addition to the object bearing prosodic prominence, the subject was also stressed. Crucially, though, previously reported judgements in the literature and the results reported here do not show strict readings in focus contexts occurring with both subject and object stress; it is either one or the other. Furthermore, unlike the cases with subject prominence, which could allow for strict readings as long as reflexives are co-referential, it is unclear that co-referential reflexives would help the problem that arises for strict readings with object prominence.

3.5 Summary

We began looking at readings of reflexives in focus contexts to see whether they could provide insight into whether reflexives must always be interpreted as bound variables. The results of both the judgement and production experiments show that strict reflexives in focus contexts are acceptable, suggesting that the bound-variable-only assumption of SBT is incorrect.

In addition, experiment 2 shows that strict reflexives are possible under two different intonational contours: first, when the antecedent of the reflexive bears prosodic prominence, and second when the reflexive itself bears prosodic prominence. The question at this point is how these strict readings can be accounted for under both intonational contours. It seems clear that when the antecedent of the reflexive bears prosodic prominence, i.e., when there is subject prominence, strict reflexives can be accounted for by allowing the reflexive to be co-referential with its antecedent. Take the question-answer pairs case, for example, in (44). If the reflexive can be co-referential, then a set of alternatives, such as in (45a), can be derived, thus predicting the acceptability of strict readings in focus contexts, such as in the question-answer pair in (45).

(44)   *Who likes Mary$_2$?*
         SHE$_{F,2}$ likes herself$_2$

(45)   a. $[\![_{\text{TP}}$ SHE$_{F,2}$ $[_{\text{VP}}$ likes herself$_2$ $]]\!]^{g,f}$ = {that x likes Mary $: x \in D_e$}
         b. $[\![$Who likes Mary$]\!]$ = {John likes Mary, Mary likes Mary, Bill likes Mary}

The assumption of co-referential reflexives, though, will not help the situation when there is object prominence. Regardless of whether the reflexive is interpreted as a bound variable or co-referentially, the set of alternatives derived when the reflexive bears prosodic prominence will be of the form {that Mary likes $x : x \in D_e$ }, predicting question-answer congruence to not follow, parallelism constructions to not be acceptable, and *only* constructions to not be acceptable in contexts supporting a strict reading. To the best of my knowledge, Spathas, in a series of papers (Spathas, 2010, 2012, 2013) is the only one to have previously provided an account of this mismatch. The question-answer congruence puzzle raised by Spathas, though, will not be addressed here, and I leave it as an open issue for further research.

The remainder of this dissertation is concerned with strict readings which are accompanied with subject prominence. When the subject bears prosodic prominence, the problem for strict readings in focus constructions is the same as previously observed for ellipsis: if reflexives must be bound variables, then strict readings are predicted to be unacceptable, counter to speakers' judgements. In both cases, the availability of strict readings seems to suggest that reflexives have the option of being co-referential with their antecedents, counter to SBT's Condition A.

3.5.1 Vehicle change

Chapter 2 presented one way that is available in the literature for allowing reflexives to be co-referential – namely, Fiengo and May's (1994) vehicle change approach to strict reflexives in VP-ellipsis.

Recall from Section 2.6.1 that F&M assume a version of Condition A in which reflexives are just required to have a local c-commanding antecedent, leaving open the possibility of the reflexive being interpreted as either co-referential with, or as semantically bound by, their antecedents.

In their theory, they allow for DPs to take on different morphological guises in parallel elements through the process of vehicle change, as in (46). This process, for example, is what is assumed to be responsible for strict reflexives in VP ellipsis, where it allows a co-referential reflexive in the antecedent VP to take on the form of a co-referential pronoun in the elided VP, thus avoiding the Condition A violations that would follow if the elided anaphor remained a reflexive.

(46)   *Vehicle change*

In a reconstruction, a DP can take any syntactic form as long as its indexical struc-
ture (type and value) is unchanged (modulo identity for β occurrences).

(47)   a.   John$_1$ defended himself$_1$ before Bill did.

b.   John$_1$ [$_{VP}$ defended [$_{DP}$ himself$_1$]] before Bill [$_{VP}$ defended [$_{DP}$ himself$_1$] → [$_{DP}$ him$_1$]]

When it comes to strict readings in focus constructions, F&M do briefly discuss that
they are available, and present a vehicle change account for these readings. For this
account, strict readings in focus constructions arise in a slightly different way than for
VP-ellipsis. Strict readings in VP-ellipsis are attributed to a reflexive undergoing vehi-
cle change to a pronoun, whereas for focus, they assume that the DP is originally an
R-expression which undergoes vehicle change to a reflexive. For their focus account to
work, the reflexive must be interpreted as co-referential with its antecedent, since vehi-
cle change requires a DP to maintain its type and value. R-expressions are by definition
referential, thus their referential type must be maintained under vehicle change, meaning
that if it is changing to a reflexive, this reflexive must also be referential.

To see how this works, take for example the question-answer pair in (48). For F&M,
vehicle change allows the discourse to be acceptable since it allows substitutions of DPs
in parallel elements. Assuming that the parallel elements here are the VPs of the question
and the answer, then the referential DP *Mary* of the question can undergo vehicle change
to a referential reflexive in the answer, as in (49).

(48)   *Who saw Mary?*
         SHE$_{F,2}$ saw herself$_2$.

(49)   Who [$_{VP}$ saw [$_{DP}$ Mary]]
         SHE$_{2,F}$ [$_{VP}$ saw [$_{DP}$ Mary] → [$_{DP}$ herself$_2$]]].

Thus, for F&M, rather than strict readings being a problem for Condition A, they see it
as a problem for Condition C. The R-expression in the answer would encounter a Con-
dition C violation, and thus undergoes vehicle change to a reflexive. Since the reflexive
maintains the type and value of the R-expression, it can be felicitously used in answer
to the question. The reflexive in their analysis crucially maintains the indexical type of
the DP in the question, and a co-referential reflexive is the only option in this instance.

The option of the R-expression undergoing vehicle change to a bound-variable reflexive would be unavailable, since this would change the indexical type of the DP, given (46): a referential DP cannot undergo vehicle change to a bound-variable DP.

It should be noted, though, that once we assume Rooth's (1992b) alternative semantics for focus framework, the acceptability of the question-answer pair in (48) can be predicted without the need to invoke the process of vehicle change. For examples such as (48), as soon as we allow for a binding theory with co-referential reflexives, as Fiengo and May (1994) do, a set of alternatives can be derived from the answer which satisfies the requirements for question-answer congruence as assumed by Rooth (1992b). A set of alternatives of the form {that x saw Mary $: x \in D_e$} would be derived from the answer, and the denotation of the question, i.e., {John saw Mary, Bill saw Mary, ...}, would be a subset of this set, and the dialogue would be predicted to be felicitous. Thus, with just the adoption of co-referential reflexives and alternative semantics for focus, the interpretation problem posed by strict reflexives could be solved, without the need for vehicle change.

Chapter 4

Co-referential reflexives

Chapters 2 and 3 show that Condition A of SBT, where reflexives are necessarily bound variables, faces problems in that it cannot predict the acceptability of strict readings of reflexives in both ellipsis and focus contexts. On the other hand, if reflexives were allowed to be co-referential with their antecedents, strict readings of reflexives would not be a problem. Instead of reflexives being bound variables only, the acceptability of strict reflexives seems to suggest the need for reflexives to be able to be anaphoric with their antecedents. This anaphoricity could be established through either semantic binding or co-reference. Thus, rather than Condition A requiring reflexives to be bound variables only, a Condition A is needed which can capture the generalization in (1), and allows reflexives the option of being interpreted as bound or co-referential.

(1)   Reflexives must be anaphoric (through co-reference or semantic binding) with a local c-commanding antecedent.

4.1   A disjunctive Condition A

This section attempts to capture the generalization in (1) through a modified version of SBT's Condition A. In (2), SBT's Condition A requires reflexives to be semantically bound in their local domain. One simple way of modifying (2) to allow for co-referential reflexives is to make it a disjunctive condition, explicitly stating which interpretive options are

available for reflexives, such as in (3)[1].

(2)   *Condition A (SBT)*: a reflexive must be semantically bound in its local domain

(3)   *Condition A (modified)*: A reflexive must be a variable bound by or co-referential with a local c-commanding antecedent

The Condition A in (3) is essentially the descriptive generalization in (1), but with this version of Condition A in hand, SBT would be able to predict the acceptability of strict reflexives in focus constructions. As seen in Chapters 2 and 3, if reflexives can be co-referential, then the strict readings will follow.

    While this modified version of Condition A would capture the generalization in (1), it is not the most theoretically desirable way of accounting for their anaphoric nature. First, the Condition A in (3) does not provide a reason as to why reflexives can have the option of being anaphoric through either co-reference or binding. It captures the anaphoric nature of reflexives by explicitly stating which relationships are acceptable for the reflexive to be in with its antecedent, and does not give an explanation as to why reflexives can be interpreted in either of these two ways, other than that this is just what we happen to observe.

    Second, we would ideally want a version of Condition A which captures the anaphoric nature of reflexives in a unified way, or in the simplest way possible. But, in the modified SBT approach taken here, the disjunctive Condition A does not capture this anaphoric nature of reflexives without making the theory more complex. Condition A must refer to two distinct theoretical concepts – that of semantic binding and co-reference. To sum up, while (3) captures the generalization, it does not provide a deeper explanation as to why reflexives have these interpretive options; furthermore, the modification results in a more complex Condition A, which is also not theoretically desirable. The question at this point is: can we do better?

4.2   Building Condition A into the compositional semantics

We have seen so far that capturing the co-referential and bound-variable nature of reflexives in the modified SBT presents a theoretical challenge: a disjunctive Condition A such

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[1]A similar suggestion is made in passing in the literature by Büring (2005, p. 141), who notes that "the only immediate way to capture this behavior would seem to be to reformulate Binding Condition A so as to require that reflexives be either semantically or syntactically bound within their local domain."

as in (3) has theoretical disadvantages.

As an alternative, this section presents the approach to Condition A effects suggested by Sauerland (2013), in which Condition A effects are accounted for by an argument identity presupposition. Under this approach, the co-referential and bound-variable nature of reflexives is a consequence of Condition A, rather than having to be explicitly stated, as in SBT, and therefore it provides a more informative reason as to why reflexives have these interpretive options. Moreover it allows this aspect of reflexive interpretation to be captured without the need for a disjunctive condition, and is thus simpler and more theoretically desirable.

In brief, the presuppositional approach to Condition A assumes that a reflexive introduces a presupposition to a two-place predicate that its two arguments are identical. The overall goal of Condition A here is the same as in SBT – namely, it aims to account for the distribution and interpretation of reflexives. But, the basic idea of this approach is that the distribution and interpretation of reflexives will follow from the presuppositional requirement of the predicate.

The assumption that reflexives introduce an argument identity presupposition to a predicate has the effect of ensuring that a reflexive will only be used felicitously when it acts as an argument to a two-place predicate whose other argument has the same denotation. Furthermore, it gives the reflexive the option of being interpreted as either a variable bound by or co-referential with its antecedent. In both instances, the presupposition of the predicate will be satisfied.

4.2.1   The role of *self*

At the core of the presuppositional account is the idea that Condition A is concerned with the identity of the arguments of a two-place predicate. Thus, binding theory's focus shifts from being about the well-formedness of the relationship between DPs – as in SBT, where Condition A is concerned with the relationship between the reflexive and its antecedent – to the well-formedness of predicates and their arguments. The intuition that binding theory is predicate-based has precedent in the literature in the binding theory of Reinhart and Reuland (1993), which is adopted also by Sauerland (2013), who considers the presuppositional approach to Condition A as a "semantically precise" version of their theory.

Reflexive marking

Since the presuppositional account has its basis in the binding theory of Reinhart and Reuland (1993) (R&R), this section first briefly outlines how they capture the distribution of reflexives and pronouns, and what the role of reflexives is in their theory. For R&R, reflexives are taken to be morphologically complex, consisting of a pronoun plus a *self* morpheme, such as in (4)[2].

(4)   [$_{DP}$ pronoun [$_{NP}$ self]]

When a reflexive acts as an argument to a two-place predicate, they assume it *reflexive marks* the predicate, where reflexive marking has the effect of adding a requirement to the predicate that its arguments must be identical. Reflexive marking is crucial to their reformulation of the binding conditions, which are concerned with the well-formedness of predicates, which they define as in (5) below. The Condition A in (5a) requires that if a predicate is reflexive marked, it must in fact be reflexive (i.e., have co-indexed arguments); the Condition B in (5b) requires that, if a predicate's arguments are co-indexed, then it must also be reflexive marked. Given that reflexive marking is introduced by reflexives, Condition A will apply to those predicates which take reflexives as arguments, and Condition B applies to predicates whose arguments are identical, regardless of whether it takes a reflexive, pronoun, or R-expression as an argument.

(5)   a.   Condition A: A reflexive marked predicate is reflexive
        b.   Condition B: A reflexive predicate is reflexive marked

(6)   a.   A predicate is reflexive marked if it is: 1) lexically reflexive, 2) has an argument
              that is a *self*-anaphor
        b.   A predicate is reflexive if it has two co-indexed arguments

To see how these binding conditions capture reflexive and pronoun distribution, consider the examples in (7) and (8). One of the main facts that binding theory needs to account for is that pronouns and reflexives are generally in complementary distribution. For example, in simple transitive constructions such as (7), the reflexive can have a local antecedent, whereas a pronoun cannot; in (8) the reflexive cannot have a non-local antecedent, whereas the pronoun can.

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[2]R&R cite Postal (1966), Vergnaud (1987) as some of the earliest proposals for morphologically complex reflexives.

(7)   John$_1$ likes himself$_1$/*him$_1$.

(8)   John$_1$ thinks that he$_1$/*himself$_1$ likes Mary.

The binding conditions in (5), plus R&R's definitions regarding reflexive marking and reflexivity in (6), are able to account for the complementary distribution of reflexives and pronouns. In order to account for the observation in (7), we turn to the structures in (9).

(9)   a.   *[$_{TP}$ John$_1$ [$_{VP}$ likes him$_1$]]
        b.   *[$_{TP}$ John $\lambda1$ [$_{TP}$ t$_1$ [$_{VP}$ likes him$_1$]]]

R&R's binding theory allows reflexives and pronouns to be interpreted as both free and bound variables, as long as the requirements of the predicate are met. So, we consider both options in (9) and see that regardless of whether the pronoun is interpreted as a free or a bound variable, it will be predicted to be unacceptable by Condition B since the predicate in both cases would be considered reflexive (co-indexed arguments), but would not be appropriately reflexive marked (no self anaphor).

On the other hand, if one of the co-indexed arguments of the predicate is a reflexive, as in (10), then Condition B will be satisfied (again, regardless of whether the reflexive is interpreted as a free or bound variable); the reflexive predicate will be suitably reflexive marked. Note also that Condition A is satisfied in (10) as well. The presence of the reflexive will reflexive mark the predicate, and in this example, the reflexive marked predicate does indeed have two co-indexed arguments.

(10)   a.   [$_{TP}$ John$_1$ [$_{VP}$ likes him$_1$-self]]
        b.   [$_{TP}$ John $\lambda1$ [$_{TP}$ t$_1$ [$_{VP}$ likes him$_1$-self]]]

As we see in the structures in (10), the reflexive can either be a free or bound variable, yet the predicate-based Condition A will rule these structures as ungrammatical. The predicate *like* in both cases ends up being reflexive marked since it takes *himself* as an argument; R&R's Condition A requires that a reflexive marked predicate be reflexive (i.e., have co-indexed arguments), yet we can see that this reflexive marked predicate is not reflexive, since *himself* and *Mary* are not co-indexed. A pronoun in this configuration on the other hand would be grammatical. As (12) shows, if the embedded predicate took a pronoun as its argument, then neither Condition A or Condition B would rule this out, since there are no reflexive marked or reflexive predicates to which they would apply.

(11)   a.   *[$_{TP}$ John$_1$ thinks [$_{CP}$ that himself$_1$ likes Mary]]

         b.   *[$_{TP}$ John λ1 [$_{TP}$ t$_1$ thinks [$_{CP}$ that himself$_1$ likes Mary]]]

(12)   a.   [$_{TP}$ John thinks [$_{CP}$ that he likes Mary]]

         b.   [$_{TP}$ John λ1 [$_{TP}$ t$_1$ thinks [$_{CP}$ that he$_1$ likes Mary]]]

Thus, we see that the facts that motivate the binding conditions of SBT can be captured alternatively by well-formedness conditions on predicates. Reflexives play a key role in this theory and R&R aim to capture the intuition regarding reflexives that if the arguments of a predicate are intended to be identical, then the only way to acceptably express this is through the use of a reflexive; similarly, if a reflexive is used, it will only be acceptable when the predicate it combines with has identical arguments.

The argument identity requirement that reflexives impose on predicates is captured through the assumption of reflexive marking. Furthermore, it should be noted that re-flexive marking can be seen as the unique meaning contribution of the *self* morpheme. Given the assumption of morphologically complex reflexives, reflexives differ from pronouns only in the presence of the *self* morpheme. Since we see that regular pronouns do not impose an identity requirement on the predicates they combine with, but reflexives do, we can conclude this requirement emerges from the presence of *self*.

We have seen how R&R's predicate-based binding theory can account for reflexive distribution, but what does their theory entail about reflexive interpretation? With regard to reflexive interpretation, they note that there is nothing in their predicate-based binding theory which forces the reflexive to be interpreted as a bound variable (p. 674), but, based on their assumption that reflexives are unambiguous in focus constructions, they still essentially have reflexives being interpreted as bound variables only. To do this, they supplement their binding theory with Grodzinsky and Reinhart's (1993) proposal that if two DPs are co-indexed, and variable binding is possible, then that co-indexation has no other option but to be interpreted as variable binding, unless co-reference would give rise to a different interpretation.

This means that the sentence in (13) is predicted to only have one reading – the sloppy reading in which John is the only self-liker. The strict reading is predicted to be unacceptable. In order to get a reading of this sentence which reports that there are no other John-likers, the reflexive in the prejacent of *only* would have to be co-referential with *John*. But, under R&R's assumptions, the only way for a reflexive to be co-referential is if it is not co-indexed with its co-argument, as in (13a). Given their Condition A though, this

structure will be ruled out since the predicate is reflexive marked (an argument is a self-anaphor), but not reflexive (it does not have co-indexed arguments).

(13)   Only John likes himself.

    a.   [$_{TP}$ John$_1$ likes himself$_2$]
    b.   [$_{TP}$ John$_1$ likes himself$_1$]

The only grammatical option for the reflexive then under R&R's assumptions is if it is co-indexed with its co-argument. Condition A would be satisfied, but, since the arguments are co-indexed, this co-indexation can only be interpreted as variable binding. As previously shown in Chapter 3, if the reflexive is a bound variable, we cannot derive a reading of (13) where John is the only John-liker.

4.2.2   Semantically encoding reflexive marking

Building on R&R's intuition regarding the role of reflexives, Sauerland (2013) semantically encodes reflexive marking as a presupposition introduced by *self*. He proposes that *self* denotes a partial identity function, as in (14), where it combines with a two-place predicate, and does not change the value or type of that predicate, but adds a requirement in the form of a presupposition that the arguments of the predicate be identical.

(14)   *self adds a presupposition (Sauerland):*
    $[\![\text{self}]\!] = \lambda P_{e,et}.\lambda x.\lambda y : x = y.P(x)(y)$

This denotation has the effect of ensuring that a reflexive will only acceptably occur when the predicate takes another argument which has the same denotation as the reflexive – namely, when the predicate's arguments are identical – otherwise it would result in a presupposition failure. In fact, if the predicate's arguments are not identical, then a contradictory presupposition arises, which, as proposed by Gajewski (2002) and Abrusán (2014), gives rise to judgements of ungrammaticality. Given the denotation of *self* in (14), we see that *self* must move to adjoin to a two-place predicate, as there would be a type mismatch if it remained in situ. In addition, the trace of *self* would also have to be assumed to be semantically vacuous in order for the LF (15) to be interpretable. Thus, the LF for a simple transitive sentence with a reflexive argument would be as in (15) – with movement of *self* to combine with the predicate *like* – and its denotation would be as in

(16)[3]. Assuming that 2 maps to John and, that John likes John, the sentence will be true, but if 2 maps to someone other than John, then a presupposition failure would arise and the sentence would be unacceptable.

(15)   [$_{TP}$ John [$_{VP}$ [$_V$ self [$_V$ likes]] [$_{DP}$ him$_2$ t$_{self}$]]]]

(16)   [[John self-likes him$_2$]]^g = λw : g(2)=John. John likes g(2) in w

It should be noted that while this movement of *self* is not inherently problematic, there is potentially a syntactically simpler way of encoding the presupposition of *self* which would not require movement, or a semantically vacuous trace. We could assume instead that *self* has the denotation in (17), where it can remain in situ and still have the same effect of adding an argument identity presupposition to the two-place predicate[4]. The LF for the same transitive sentence but with this version of *self* would be as in (18), and its denotation would be as in (19) (assuming 2 → John), and as we can see it would be identical to the denotation in (16) above.

(17)   *self adds a presupposition: version 2*
         [[self]] = $\lambda x_e.\lambda P_{e,et}.\lambda y_e : x = y.P(x)(y)$

(18)   [$_{TP}$ John [$_{VP}$ likes [$_{DP}$ him$_2$-self]]]

(19)   [[John likes him$_2$-self]]^g = λw : g(2)=John. John likes g(2) in w

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[3]I assume for ease of discussion in this section that the reflexive is a free variable. Section 4.2.3 addresses the predictions when the reflexive is assumed to be a bound variable.
[4]While this denotation of *self* would not require movement for simple transitive constructions, movement would still be necessary in ECM constructions with reflexives, such as in (i).

(i)   John expected himself to win.

In order to account for ECM constructions, Sauerland follows Lechner (2012) and assumes that a two-place predicate is formed via movement which *self* can take as an argument. Under Sauerland's denotation of *self* this would involve movement of the matrix subject, then movement of the embedded subject, and then movement of *self*.

(ii)   [$_{TP}$ John [him$_3$ [self [λ2 [λ1 [$_{TP}$ t$_1$ expected [$_{TP}$ t$_2$ to win]]]]]]]]]

Under the denotation of *self* proposed here in (17), only the movement of the matrix and embedded subjects are needed, as in (iii).

(iii)   [$_{TP}$ John [him$_1$-self [λ2 [λ1 [$_{TP}$ t$_1$ expected [$_{TP}$ t$_2$ to win]]]]

The denotation in (17) differs from (14) in that *self* now takes two arguments. Whereas the denotation in (14) is a function which takes something of type e, et as an argument and returns something of type e, et, the denotation in (17) is a function which takes an individual x and a two-place predicate P, and returns a function of type e, t, which is defined only for those predicates whose argument is identical to x. But despite this difference, the effect is the same – *self* has the effect of adding the requirement that the two place predicate it combines with must have identical arguments in order to be felicitously used. If the arguments are not identical then the denotation of the sentence will be unacceptable.

To summarize, in a predicate-based binding theory such as that of R&R, the role of the reflexive is to mark the predicate as having identical arguments. Sauerland encodes this reflexive marking as a presupposition, but the question at this point is: what evidence is there that the meaning of *self* is presuppositional?

To answer this, we turn to some of the characteristic properties of presuppositions discussed in the literature. The examples and discussion that follow are modelled on Beaver and Geurts (2013), Sudo (2012), and Chierchia and McConnell-Ginet (1990). To begin with, as Chierchia and McConnell-Ginet (1990, p. 283) point out: "the hallmark of a presupposition is that it is taken for granted in the sense that its assumed truth is a precondition for felicitous utterance of the sentence and places a kind of constraint on discourse contexts that admit the sentence for interpretation." Thus, the presupposition of a sentence is intuitively thought to be information which the speaker assumes to be true or uncontroversial, and can be seen to put a restriction on the truth conditions of a sentence. For example, from the sentence in (20a) – *John stopped smoking* – we can infer (20b) – namely, that *John smoked before*. This inference can be considered presuppositional, since in order for (20a) to be be felicitously uttered, the speaker must assume that John did in fact smoke before.

(20)   a.   John stopped smoking.
       b.   John smoked before.

If the presupposition is false, this would result in the sentence not being judged as outright false, but as "if the speaker is making the wrong assumptions" (Sudo, 2012, p. 23). Thus, if someone said that John stopped smoking and John never smoked before, the intuition would be that the speaker made the incorrect assumptions about what John's previous smoking habits were.

In addition to these intuitions which characterize presuppositions, they are also typi-

cally set apart from other inferences based on their projection behaviour. It is standardly observed that presupposition triggers embedded under negation, questions, and conditional antecedents (termed the S-family by Chierchia and McConnell-Ginet), will project to the sentence as a whole, thus confirming their status as background information. For example, in all three environments below in (21), the inference that *John smoked before* still holds.

(21)　a.　John did not stop smoking.
　　　　b.　Did John stop smoking?
　　　　c.　If John stopped smoking, he should be congratulated.

Asserted meanings, on the other hand, do not survive these embedding tests. Take the sentence in (22a), which gives rise to the same inference as we saw previously for (20a). Despite the sameness in meaning, the inference that *John smoked before* in (22b) does not survive embedding under the negation, questions, or conditional antecedents, as in (23), and can thus be considered part of the asserted meaning of the sentence rather than part of the background information.

(22)　a.　John is a former smoker.
　　　　b.　John smoked before.

(23)　a.　John is not a former smoker.
　　　　b.　Is John a former smoker?
　　　　c.　If John is a former smoker, he should avoid being in the smoking area.

Can we use intuitions and the S-family test to tell whether the argument identity inference reflexives introduce is part of the presupposed or asserted content? The short answer is that it does not seem possible to do this. The inference that we have been assuming the reflexive gives rise to in a sentence such as (24a) is that *John=John*.

(24)　a.　John likes himself.
　　　　b.　John=John

We have also outlined the following intuitive characteristics for presuppositions: 1) that the truth of the inference they give rise to is necessary for the sentence to be felicitously uttered, 2) they place constraints on the contexts in which the sentence can be true, and 3) they are considered background information (survive the S-family test). In uttering

a sentence such as (24a), the speaker is committed to the truth of *John=John*; in fact, the speaker must be, since the inference is a tautology. If we consider that it is not the case that *John=John*, then this results in a contradiction since it is impossible for John to not be identical to John. Thus, the inference must be necessarily true.

So, while this in part patterns with characteristic 1), it does not pattern with characteristic 2). Since when the argument identity inference is true, it is necessarily true, it amounts to not putting any constraint at all on the truth conditions of the sentence. If it is not putting any constraint on the sentence's truth conditions, then this is equivalent to saying there is no presupposition present in the first place. On the other hand, when the argument identity inference is false, it results in a contradiction, and then the inference does seem to be placing a constraint on the truth conditions of the sentence[5].

Lastly, the third characteristic applied to the argument identity inference is also inconclusive. If, when the presupposition is true, the truth conditions of the sentence are indistinguishable from when there is no presupposition at all, then we cannot hope to detect its projection behaviour – if there is basically no inference, then it cannot be tested to see if it projects or not. If we do assume that the argument identity inference is presuppositional, then we must conclude that it is a special type of presupposition in the sense that we cannot run the standard tests of presupposition projection.

In fact, given the nature of the inference we could, in principle, encode it as part of the asserted meaning of the sentence without changing the predictions about the overall meaning of a sentence including a reflexive. If we choose to instead encode the requirement of identical arguments as part of the asserted meaning, *self* could have a denotation such as that in (25).

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[5]A potential avenue for further testing the nature of the inference that reflexive *self* gives rise to could come from examples such as (i) (adapted from Safir (2004)).

(i)   John was looking at a statue of his likeness at the museum when, unfortunately, an earthquake struck, and John knocked himself over.

The reflexive is clearly acceptable in this sentence, yet the two arguments of the predicate are not identical; one argument refers to the statue of John, and the other refers to John the person. Under the assumptions made in this dissertation, the reflexive should not be acceptable in this sentence. This indicates that the inference that *self* gives rise to might not be an identity presupposition after all, and hence not tautological or contradictory. Instead, the inference that *self* give rise to might be a presupposition which has projection behaviour which could be testable, say for example, if it required some sort of equivalence between arguments, rather than identity.

(25)   *self contributes to the asserted content*
         $[\![\text{self}]\!] = \lambda x_e.\lambda P_{e,et}.\lambda y_e.P(x)(y) \wedge x = y$

The denotation in (25) is a function which again takes two arguments, an individual x and a two-place predicate P, and returns a function of type e, t, just as in (17); instead of encoding the argument identity requirement as a presupposition, it is part of the asserted content. Thus instead of returning a partial function of type e, t, it returns a total function which maps every y in D_e to true if $P(x)(y)$ and $x = y$, and to false otherwise. If we take the same simple transitive sentence we used previously, but assume the denotation of *self* in (25), the denotation of the sentence would be as in (26). Again, assuming g(2) maps to John, and that John likes John, the sentence will be true, and false if g(2) maps to someone other than John. In the case where g(2) maps to someone other than John, a contradiction would arise. Following Gajewski (2002) and Abrusán (2014) this would result in the sentence being judged as ungrammatical. Thus, we see that encoding the contribution of *self* as part of the asserted content can also ensure that a reflexive would only felicitously occur when both arguments of the predicate have the same denotation.

(26) $[\![\text{John}_2 \text{ likes him}_2\text{-self}]\!]^g$ = that John likes g(2) and g(2)=John

In sum, the nature of the inference reflexives are assumed to give rise to is unclear, and it is not possible to tell conclusively whether the contribution of *self* is presuppositional or part of the asserted meaning of the reflexive. Since both options in (17) and (25) are viable, we could ask at this point what advantage encoding reflexive marking as a presupposition would have over encoding it as part of the asserted content. For reasons that will be discussed in more detail in Section 4.3, one crucial argument in favour of encoding the contribution of *self* as a presupposition is that it allows us to explain the presence of strict reflexives in focus and ellipsis contexts, as part of a larger phenomenon of weakened presupposition projection – grouping it along with other presuppositional elements, such as ϕ-features, which appear to display similar behaviour as reflexives in focus and ellipsis contexts. For the discussion that follows, I will assume, along with Sauerland, that the contribution of *self* is presuppositional in nature, and therefore adopt the use presuppositions as a tool to place a well-formedness constraint on sentences that do not intuitively behave like they gives rise to a presuppositional inference.

Lastly, it should be noted that the presuppositional approach to Condition A, as outlined here, does not have anything to say directly regarding the locality and c-command

requirements that the Condition A of SBT imposes on reflexives. This issue is discussed in more detail in Chapter 6, Section 6.2.3, which considers the possibility of these requirements being captured by the theory of movement.

4.2.3 Accounting for the anaphoric nature of reflexives

We are now in a position to see how a presuppositional approach to Condition A fares compared to the SBT approach discussed in Section 4.1 with regard to capturing the generalization in (1).

   As seen in Section 4.1, co-referential reflexives are unproblematic in this presuppositional approach. A sentence such as *John₂ likes himself₂*, could have an LF such as =(27) (=(18)), where the reflexive is co-referential.

(27)   [$_{TP}$ John [$_{VP}$ likes [$_{DP}$ him$_2$-self]]]

The sentence would be predicted to be acceptable, since co-reference will satisfy the argument identity presupposition of *self*. If the assignment function maps 2 to John, then both arguments of the predicate *like* will have the same denotation since they refer to the same individual. The argument identity presupposition will therefore be satisfied and the sentence predicted to be acceptable.

(28) $[\![(27)]\!]^g = \lambda w$: John=John. John likes John in w

The sentence could also have an LF in which the reflexive is a bound variable, as in (29); again, the argument identity presupposition of *self* will be satisfied. The arguments of the predicate are bound by the same operator, and therefore cannot help but have the same denotation. The argument identity presupposition will necessarily be satisfied in this case, since there is no way for the arguments to have denotations which differ, due to being bound by the same operator.

(29)   [$_{TP}$ John $\lambda 2$ [$_{TP}$ t$_2$ likes him$_2$-self]]

(30) $[\![(29)]\!]^g = \lambda w$: John=John. John likes John in w

   Thus, under a presuppositional approach to Condition A, we see that both bound and co-referential reflexives are predicted as acceptable as a consequence of Condition A. Since binding theory is concerned with the presupposition of the predicate being met,

both interpretive options of co-reference and variable binding are allowed, since the presupposition introduced by *self* will end up being satisfied in both cases. In addition, the presuppositional approach also avoids the complexity introduced to the theory by a disjunctive Condition A. Here, Condition A is reduced to a presuppositional requirement that both arguments of a two-place predicate be identical, and does not need to make reference to two distinct theoretical concepts in order to account for the anaphoric nature of reflexives. So, for reasons of theoretical simplicity, this approach fares better than the disjunction approach to Condition A.

4.2.4 Strict reflexives: a first attempt

In order to incorporate co-referential reflexives into binding theory in a satisfactory way, we have adopted a view in which reflexive distribution and interpretation is regulated through presuppositions. This section addresses the question of whether strict reflexives in focus and VP-ellipsis constructions can be accounted for under the assumptions outlined so far in the presuppositional approach to Condition A.

With regard to focus, the presuppositional approach to Condition A, at this point, predicts that only the set of alternatives derived from the bound interpretation of the reflexive are possible. As (31) shows, the set of alternatives derived from an LF in which the reflexive is bound by a focused antecedent would be as in (31a), and the set of alternatives derived from an LF in which the reflexive is co-referential would be as in (31b).

(31)   a. $[\![\text{MARY}_F \ \lambda1 \ t_1 \ \text{likes her}_1 \ \text{self}]\!]^{g,f} =$
            $\{\lambda w : x = x.x \ \text{likes} \ x \ \text{in} \ w : x \in D_e\}$
       b. $[\![\text{MARY}_F \ \text{likes her}_1 \ \text{self}]\!]^{g,f} =$
            $\{\lambda w : x = \text{Mary}.x \ \text{likes Mary in} \ w : x \in D_e\}$

In both cases, the presupposition of *self* would be present in the set of alternatives as well, but would only be non-contradictory in the case where the pronominal part of the reflexive is bound (i.e., in (31a) and not in (31b)). In (31a), when the reflexive is a bound variable, the arguments of the predicate in the alternatives are identical, but in (31b), when the reflexive is referential, the arguments are clearly not identical, and therefore a presupposition failure would occur. Since the alternatives in (31b) would be predicted to be unacceptable, it would incorrectly rule out the possibility of strict readings.

For strict readings in ellipsis constructions, the theory so far does not do any better.

This is most clearly illustrated with the strict readings that occur when the reflexive is in the ellipsis clause, as in (32a)[6]. If we assume a focus matching approach to ellipsis resolution, the problem for VP ellipsis will be the same as the problem observed for strict readings in focus constructions. Namely, the presupposition of *self* would be present and unsatisfied in the set of alternatives derived from the ellipsis clause. The set of alternatives derived from the ellipsis clause when the reflexive is co-referential would be as in (32b), and while this would be enough for focus matching to occur, the sentence in (32a) would still be predicted to be unacceptable due to a presupposition failure in the alternative set, since the arguments of the predicate are not identical – one argument denotes the set of individuals and the other argument denotes *Sally*.

(32)   a. $[_{\text{TP}_A}$ BILL$_F$ is proud of Sally$_2$] and $[_{\text{TP}_E}$ SHE$_{F,2}$ is ~~proud of her$_2$~~ self] too.
       b. $[\![\text{TP}_E]\!]^{g,f} = \{\lambda w : x = \text{Sally}.x$ is proud of Sally in $w : x \in D_e\}$

In sum, the problem in both focus and ellipsis constructions is that the presupposition of *self* carries over into the set of alternatives where it ends up not being satisfied. The presuppositional approach to Condition A would not run into problems, though, if there were a mechanism in the grammar which allowed the presupposition of *self* to be ignored in the set of alternatives.

(33) $[\![\text{MARY}_F$ likes her$_1$ self$]\!]^{g,f} =$
       $\{\lambda w : x = \cancel{\text{Mary}}.x$ likes Mary in $w : x \in D_e\}$

(34) $[\![\text{TP}_E]\!]^{g,f} = \{\lambda w : x = \cancel{\text{Sally}}.x$ is proud of Sally in $w : x \in D_e\}$

As we will see in the following section, this is essentially the solution to the problem proposed by Sauerland (2013).

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[6]Strict readings with a reflexive in the antecedent clause remain unproblematic under the presuppositional approach to Condition A and ellipsis resolution via focus matching. Since the anaphor in the elided clause is assumed to be a pronoun and not a reflexive, the set of alternatives will not have an argument identity presupposition, as in (ib). *self* then introduces a presupposition that needs to be satisfied only in the antecedent clause. If 1 maps to *John*, as it does in (ia), the presupposition will be satisfied.

(i)   JOHN$_F$ defended himself before BILL$_F$ did.
      a. $[\![\text{JOHN}_F$ defended him$_1$ self$]\!]^{g,o} = \lambda w : \text{John}=\text{John}. $ John defended John in w
      b. $[\![\text{BILL}_F$ defended him$_1]\!]^{g,f} = \{\text{that } x \text{ defended John } : x \in D_e\}$

4.3 Strict reflexives through weakened presupposition projection

Once we adopt a presuppositional account of Condition A effects, strict reflexives in VP-ellipsis and focus still remain problematic. Following Rooth's (1992a) intuition in assuming that the mechanisms involved in ellipsis resolution are the same as those involved with focus, we see that the problem for both phenomena is the same: the presupposition of *self* is present and unsatisfied in the set of focus alternatives. This problem could be avoided, though, if the presupposition of *self* could be ignored or absent in the set of alternatives.

An account along these lines has been proposed by Sauerland (2013), who argues that certain presuppositions have the option of being absent in a focused phrase's alternative set; in other words, the presuppositions display weakened projection in the set of alternatives. Weakened presupposition projection is an independent empirical phenomenon, and the presuppositional content of other elements such as definite determiners and change of state verbs has been observed to be weakened in certain environments (Abusch (2002); Walker (2012) amongst others). The basic idea, then, is that the behaviour of reflexives is an instance of this already established phenomenon. So, if Condition A is encoded as a presupposition, then strict readings can be accounted for as an instance of weakened projection. While Sauerland's account primarily addresses strict reflexives in focus phenomena, we will see in this section that it can extend to VP-ellipsis as well.

4.3.1 Weakened projection

The phenomenon of weakened presupposition projection has been observed for presuppositional elements such as, for example, the uniqueness presupposition of definite determiners, ϕ-features, and chance of state verbs. Sauerland presents an account of weakened projection where only purely presuppositional elements can optionally have their presupposition absent in the set of focus alternatives. In other words, only presuppositional elements whose semantic contribution is to add nothing but a presupposition can be absent in the set of focus alternatives. He captures this by positing a principle such as in (35)[7].

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[7]The principle in (35), while not identical to Sauerland's, captures the essential idea of his proposal. For the time being it leaves open the precise definition of "purely presuppositional" – which can be paraphrased as: an element whose semantic contribution is to add nothing but a presupposition.

(35)   *Weakened projection principle*
        If the non-focus interpretation of a word ω is purely presuppositional, then it can
        be satisfied in: $[\![\omega]\!]^{g,o}$ and $[\![\omega]\!]^{g,f}$, or $[\![\omega]\!]^{g,o}$.

What the principle in (35) does is allow only elements that contribute nothing but a pre-
supposition to have their content absent in a set of alternatives. With this principle in
hand, Sauerland is able to link the behaviour of reflexives in focus contexts to other simi-
lar observations with presuppositional elements, such as pronominal ϕ-features.

In the context of focus, the ϕ-features of pronouns have been observed to not necessar-
ily be interpreted in the focused phrase's set of alternatives. For example, the sentence in
(36) is ambiguous between a reading where the person and number (first person singular)
features of the pronoun are present in the set of alternatives, as in (36a), and one in which
the first person singular features of the pronoun are absent in the set of alternatives, (36b).

(36)   Only $I_{1,F}$ did my$_1$ homework.

        a.   No one but me did my homework. (strict)
        b.   No one but me did their homework. (sloppy)

Since Cooper (1983), it is often assumed that ϕ-features on pronouns are presupposi-
tion triggers. In the framework of Heim and Kratzer (1998) as explicated in Heim (2008a),
this is implemented by assuming that these features are adjoined to the pronoun, as in
(37a), and denote partial identity functions, as for example in (37b) for person and (37c)
for number.

(37)   a.   [1st [singular [me$_1$]]]
        b. $[\![1st]\!] = \lambda x : x$ includes speaker $.x$
        c. $[\![singular]\!] = \lambda x : x$ is an atom $.x$

Assuming the denotations in (37b) and (37c), the contribution of the person and num-
ber ϕ-features would be considered purely presuppositional, since they solely add a pre-
supposition to the asserted content. Since they are purely presuppositional, they have the
option of weakened projection and therefore multiple readings will arise depending on
whether the presuppositions apply in both ordinary and focus semantic values or just the
ordinary semantic value. If the first option is chosen, then the reading in (36a) will arise,
and if the presupposition is absent in the focus semantic value, thus only applying in the

ordinary semantic value, the reading in (36b) will arise.

As seen in Chapter 2, reflexives in examples such as (38) can give rise to strict readings in focus contexts, as in (38a), or sloppy readings, as in (38b)[8].

(38)   Only MARY$_{F,2}$ likes herself$_2$.

    a.   No one but Mary likes Mary. (strict)

    b.   No one but Mary likes themselves. (sloppy)

Furthermore, given the denotation of *self* in (17) (=(39)), it is evident that *self* can be considered purely presuppositional – it does not change the denotation of the predicate it combines with, and only adds presuppositional content – namely that the predicate's arguments are identical.

(39) $\llbracket \text{self} \rrbracket = \lambda x_e . \lambda P_{e,et} . \lambda y_e : x = y . P(x)(y)$

Since *self* is purely presuppositional, it has the option of projecting into the set of focus alternatives or not, and different sets of alternatives will arise depending on which projection option is taken, predicting multiple readings of reflexives to be possible.

4.3.2   Sloppy readings

First let's consider the situation where the presupposition of *self* projects into the set of focus alternatives. If the presupposition projects, then it appears that its presuppositional requirements can only be satisfied when the reflexive is a bound variable.

The sentence previously seen in (38) can have the LF in (40), when the reflexive is a bound variable. The presupposition would be satisfied in the ordinary semantic value of this LF, since the first argument of the predicate is *Mary* and so is its second argument. It is necessarily satisfied in the case of variable binding, since if the subject and object

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[8]Sauerland himself claims that strict readings are only possible in focus contexts with ECM verbs, as in (i), and not with simple transitive verbs. But, as we saw in Chapter 3, the experimental results show that this is not the case, and strict readings in focus contexts are completely acceptable with simple transitive verbs as well.

    (i)   Only ROMNEY$_{1,F}$ expected himself$_1$ to win.

        a.   No one but Romney expected themselves to win. (sloppy)

        b.   No one but Romney expected Romney to win. (strict)

For explication of his analysis, I will use simple transitives rather than ECM verbs.

are bound by the same operator, they have no option but to have the same denotation. Consequently, the presupposition is also satisfied in the focus semantic value – both arguments of the predicate are identical, with the first argument denoting a set of individuals and the same for the second. This predicts the acceptability of the set of alternatives of the form $\{$that x $likes$ $x : x \in D_e\}$.

(40) $[_{TP}$ MARY$_F$ $\lambda1$ t_1 $[_{VP}$ likes her$_1$ self$]]$

    a. $[\![(40)]\!]^{g,o}$ = λw: Mary=Mary . Mary likes Mary in w
        = that Mary likes Mary
    b. $[\![(40)]\!]^{g,f}$ = $\{\lambda w : x = x.x$ likes x in $w : x \in D_e\}$
        = $\{$that x likes $x : x \in D_e\}$

When the reflexive is co-referential on the other hand, as in the LF in (41), and the presupposition of *self* projects, the argument identity presupposition is only satisfied in the ordinary semantic value. The first argument that the predicate takes is *Mary* (if g maps 1 to Mary) and the second argument is also *Mary*, the argument identity presupposition therefore is satisfied. But this is not the case in the focus semantic value – the first argument that the predicate takes is again *Mary*, but the second argument of the predicate is a set of individuals. This means that when the presupposition of *self* projects, then the set of alternatives derived when the reflexive is co-referential is predicted to be unacceptable.

(41) $[_{TP}$ MARY$_F$ $[_{VP}$ likes her$_1$ self$]]$

    a. $[\![(41)]\!]^{g,o}$ = λw: Mary=Mary. Mary likes Mary in w
        = that Mary likes Mary
    b. $[\![(41)]\!]^{g,f}$ = $\{\lambda w : x =$ Mary.x likes Mary in $w : x \in D_e\}$

Thus, we see that when the argument identity presupposition projects, only a set of alternatives of the form $\{$that x likes $x : x \in D_e\}$ is possible. If focus phenomena make use of this set of alternatives, then a sloppy reading will arise. For example, if the prejacent of *only* in the sentence in (38) (=(42a)) has the LF in (40), and *only* takes the set of alternatives in (40b) as an argument, it will have the denotation in (42b), which gives rise to the sloppy reading that *no one but Mary likes themselves*.

(42)   a.   Only $\text{MARY}_{1,F}$ likes herself$_1$

     b. $[\![(42a)]\!]^{g,o} = \forall q[q \in \{\lambda w : x = x.x \text{ likes } x \text{ in } w : x \in D_e\}\&T(q) \leftrightarrow q = $ Mary likes Mary]

4.3.3   Strict readings

Given the weakened projection principle, the presupposition of *self* also has the option of not projecting into the set of alternatives. If *self*'s presupposition does not project, then the LF in which the pronominal part of the reflexive is co-referential – (41) (=(43a)) will no longer be predicted to be unacceptable and will give rise to the set in (43b), where the presupposition of *self* is absent.

(43)   a.   [$_{TP}$ MARY$_F$ [$_{VP}$ likes her$_1$ self]]

     b. $[\![(43a)]\!]^{g,f}$

        = $\{\lambda w : x = \text{Mary}.x \text{ likes Mary in } w : x \in D_e\}$

        = $\{\text{that } x \text{ likes Mary} : x \in D_e\}$

With the acceptability of a set of alternatives of the form $\{\text{that } x \text{ likes Mary} : x \in D_e\}$, we can now account for the strict reflexives with focus particles, parallelisms, and question answer pairs. For focus particles, the sentence with *only* in (44) would have the truth conditions in (46), and gives rise to the reading that *no one but Mary likes Mary*, which will correctly be predicted to be acceptable in the context of (44).

(44)   *Mary$_1$ is really unpopular.*
     Only $\text{SHE}_{F,1}$ likes herself$_1$

(45)   [$_{TP}$ only [$_{TP}$ $\text{SHE}_{F,1}$ [$_{VP}$ likes her$_1$ self]]]

(46) $[\![(45)]\!] = \forall q[q \in \{\text{that } x \text{ likes Mary} : x \in D_e\}\&T(q) \leftrightarrow q = \text{that Mary likes Mary}]$

For parallelisms, the second conjunct can now acceptably contrast with the first conjunct, since the denotation of the first is an element of the second's alternative set, as in (48).

(47)   *John$_2$ and Mary$_1$ have a lot in common.*
     $\text{HE}_{2,F}$ likes her$_1$ and $\text{SHE}_{F,1}$ likes herself$_1$.

(48)   a. $[\![\text{first conjunct}]\!]^{g,o} = \text{that John likes Mary}$

     b. $[\![\text{second conjunct}]\!]^{g,f} = \{\text{that } x \text{ likes Mary} : x \in D_e\}$

And lastly, for question-answer pairs, question-answer congruence will follow, since the denotation of the question would now be a subset of the answer's alternative set, as in (50).

(49)   *Who likes Mary$_1$?*
        SHE$_{F,1}$ likes herself$_1$.

(50)   a. $[\![\text{question}]\!]^{g,o}$ = {John likes Mary, Sue likes Mary, Mary likes Mary}
        b. $[\![\text{answer}]\!]^{g,f}$ = {that x likes Mary $: x \in D_e$}

Turning now to strict readings in VP-ellipsis, while Sauerland (2013) does not apply this weakened projection analysis to strict reflexives in ellipsis, he does mention in passing that his solution for focus constructions would also explain the acceptability of strict readings in ellipsis constructions.

To see why, recall that under the assumption of a focus matching approach to ellipsis resolution, the problem of strict reflexives in VP-ellipsis constructions such as (51) is the same as it is for focus – specifically, that the presupposition of *self* is present and unsatisfied in the set of focus alternatives derived from the ellipsis clause. If the set of alternatives derived from the ellipsis clause is as in (52) and the argument identity presupposition of *self* must be satisfied in this set, it is clearly not, since the two arguments of the predicate are not the same.

(51)   [$_{\text{TP}_A}$ BILL$_F$ is proud of Sally$_2$] and [$_{\text{TP}_E}$ SHE$_{F,2}$ is ~~proud of herself$_2$~~] too.

(52) $[\![\text{TP}_E]\!]^{g,f}$ = {$\lambda w : x = $ Sally.x likes Sally in $w : x \in D_e$}

This problem can be solved with the addition of the assumption of weakened presupposition projection, since it allows the presupposition requirement of *self* to be absent in the alternative set, as in (53).

(53) $[\![\text{TP}_E]\!]^{g,f}$
        = {$\lambda w : x = \text{\sout{Sally}}.x$ likes Sally in $w : x \in D_e$}
        = {that x likes Sally $: x \in D_e$}

Thus, the arguments of the predicate can acceptably differ as they do in (53). Ellipsis resolution would proceed as outlined in Chapter 2, and the VP in (51) can be elided since the ellipsis clause has an antecedent whose denotation is an element of its set of focus

alternatives, therefore predicting strict readings to acceptable.

While the assumption of weakened projection is needed for strict reflexives in constructions such as (51), it is not needed for standard strict readings in constructions such as (54). What appears to be the strict reading of the reflexive in the elided clause can arise from the anaphor being a pronoun and not a reflexive. Even though the anaphor in the elided clause is a pronoun, ellipsis resolution can proceed under focus matching since the denotation of the antecedent, as in (54a), will be an element of the elided clause's set of focus alternatives, as in (54b).

(54) $[_{\text{TP}_A}$ JOHN$_{1,F}$ defended himself$_1$] before $[_{\text{TP}_E}$ BILL$_F$ did ~~defend him~~$_T$].

    a. $[\![\text{TP}_A]\!]^{g,o}$ = that John defended John

    b. $[\![\text{TP}_E]\!]^{g,f}$ = {that x defended John $: x \in D_e$}

Despite this, weakened projection could still be argued to be needed for strict readings in ellipsis constructions such as (54), as long as we assume a stronger version of the focus condition on ellipsis resolution, such as that proposed by Merchant (1999).

For Merchant, not only does the ellipsis clause have to be focus matched by the antecedent clause, the antecedent clause must also be focus matched by the ellipsis clause; Merchant proposes the licensing condition on ellipsis in (55) (p. 34).

(55)   A VP in constituent C_E can be elided if there is a constituent C_A, where:

    a. $[\![C_A]\!]^{g,o} \in [\![C_E]\!]^{g,f}$, and

    b. $[\![C_E]\!]^{g,o} \in [\![C_A]\!]^{g,f}$

If a constituent can only be elided under the conditions in (55), then strict reflexives in standard examples such as (54), repeated in (56), will be problematic for the same reasons as we have seen before – the presupposition of *self* will be unsatisfied in the set of alternatives.

Without the assumption of weakened projection, the presupposition of the reflexive in the antecedent clause will project into the set of focus alternatives and will not be satisfied. As shown in the set of alternatives derived from the antecedent clause in (58b), the arguments of the predicate are not identical, thus predicting (56) to be unacceptable.

(56) $[_{\text{TP}_A}$ JOHN$_{1,F}$ defended himself$_1$] before $[_{\text{TP}_E}$ BILL$_F$ did ~~defend him~~$_T$].

(57) $[\![\text{TP}_A]\!]^{g,o} \in [\![\text{TP}_E]\!]^{g,f}$

    a. $[\![\mathrm{TP}_A]\!]^{g,o} =$ that John defended John

    b. $[\![\mathrm{TP}_E]\!]^{g,f} = \{\lambda w : x = \mathrm{John}.x \text{ defended John in } w \; : x \in D_e\}$

(58) $[\![\mathrm{TP}_E]\!]^{g,o} \in [\![\mathrm{TP}_A]\!]^{g,f}$

    a. $[\![\mathrm{TP}_E]\!]^{g,o} =$ that Bill defended John

    b. $[\![\mathrm{TP}_A]\!]^{g,f} = \{\text{that } x \text{ defended John } : x \in D_e\}$

But, with the additional assumption of weakened projection, this problem can be avoided. The argument identity presupposition of *self* does not project into the alternative set, thus allowing the predicate in (58b) to take two non-identical arguments, as required to derive the strict reading in (56), so we see that even under Merchant's stronger condition on ellipsis resolution, strict readings can be accounted for.

    The conclusion at this point is that weakened projection is definitely be needed in order to account for strict readings in ellipsis constructions when there is a reflexive in the elided clause. But, with regard to the strict readings when the reflexive is in the antecedent clause, weakened projection would only be needed under a stronger semantic identity approach to ellipsis resolution.

    In sum, a presuppositional theory of Condition A with weakened projection is thus able to predict the acceptability of multiple sets of alternatives when a reflexive is present, further predicting that both strict and sloppy readings will be possible for reflexives. When the reflexive is a bound variable and its presupposition projects, then a set of alternatives of the form $\{\text{that } x \text{ likes } x : x \in D_e\}$ is derived, predicting sloppy readings to be possible in phenomena that make use of alternative sets. And, with the addition of weakened projection to the theory, when the reflexive is co-referential and does not project, a set of alternatives of the form $\{\text{that } x \text{ likes Mary } : x \in D_e\}$ is derived, predicting strict readings to be available.

4.4 Summary

To summarize, this chapter began by considering how co-referential reflexives could be built into SBT. While SBT can be modified to allow for co-referential reflexives, it can only do so by stipulating which relationships the reflexive is permitted to be in with its antecedent, resulting in the theoretically undesirable disjunctive Condition A. As an alternative, a presuppositional approach to Condition A was outlined, following Sauerland

(2013), which avoids the theoretical difficulties encountered by the modified SBT while also allowing for co-referential reflexives.

While the presuppositional approach to co-referential reflexives has theoretical advantages, strict readings were shown to still be problematic in both focus and ellipsis constructions, unless further assumptions are made regarding the projection behaviour of the reflexive presupposition in the focus alternatives. Without any additional assumptions, the argument identity presupposition that the reflexive introduces will not be satisfied in the set of focus alternatives. Despite this, the problem could be solved if the presuppositional requirement of the reflexive could be ignored in the alternative set adopting Sauerland's (2013) proposal of accounting for strict reflexives as instances of weakened presupposition projection.

4.4.1 Condition A assesses syntactic binding only

With regard to building in co-referential reflexives into binding theory, this chapter has explored two options, but it should be noted that we have already seen another approach outlined in Chapter 2 – namely, that of Fiengo and May (1994) – which would also appear to avoid the theoretical problems of the disjunctive Condition A, putting it on a par with the presuppositional approach. As seen in Chapter 2, for F&M, binding theory is concerned with syntactic binding, which they assume can be assessed at LF. The Condition A they assume is defined in (59).

(59)   *Condition A (F&M)*: reflexives must be syntactically bound in their local domain

All that is required for a reflexive to be syntactically bound, assuming Chomsky (1995), is for it to have a co-indexed, c-commanding antecedent. Since binding theory is concerned with syntactic binding, this leaves open the possibility of both interpretive options for reflexives satisfying Condition A's requirements. The reflexives in the LFs in (60), for example, show that both a bound-variable or co-referential reflexive can count as syntactically bound, thus satisfying (59). The co-referential reflexive is c-commanded and co-indexed with *John*, and so is the bound-variable reflexive.

(60)   a. $[_{TP}$ John$_1$ likes himself$_1]$
        b. $[_{TP}$ John$_1$ $\lambda 1$ t$_1$ likes himself$_1]$

From a theoretical point of view, F&M's way of capturing the anaphoric nature of

reflexives in Condition A fares better than the disjunctive Condition A, since it avoids having to refer to two theoretical concepts in its definition. By formulating Condition A to be concerned with syntactic binding only, both interpretive options end up being a consequence of Condition A, rather than being explicitly stated. But, compared to the presuppositional approach, F&M's syntactic binding approach is on a par – both approaches allow for co-referential reflexives as a consequence of how Condition A is formulated, and avoid having to postulate a disjunctive Condition A.

While these two approaches allow for co-referential reflexives, when it comes to accounting for strict reflexives, the presuppositional approach is more advantageous in that it paves the way for strict reflexives to be tied to other empirical observations – namely, it allows us to explain strict reflexives as part of an independently established pattern, namely, that of weakened presupposition projection. Thus, the presuppositional approach links the behaviour of reflexives to observations outside the domain of ellipsis. Vehicle change, on the other hand, is a mechanism proposed just to account for apparent binding condition violations under ellipsis.

With regard to strict reflexives, the weakened projection approach is comparable to Fiengo and May's (1994) vehicle change approach, and can be seen as the semantic equivalent of their syntactic analysis. Both analyses assume co-referential reflexives and a process in which binding theory requirements can be obviated in both focus and ellipsis constructions. But, whereas F&M's Condition A is syntactic and derives strict reflexives through the syntactic process of vehicle change, Sauerland assumes a semantic Condition A and derives strict reflexives through the semantic process of weakened projection.

As seen in Chapter 2 and 3, F&M can account for the strict reflexive data in (61) - (63), by assuming a syntactic Condition A which allows co-referential reflexives and, the process of vehicle change – a process whose domain of application is syntactic structures. In (61), strict reflexives arise from the reflexive in the elided VP undergoing vehicle change to a pronoun, thus avoiding a Condition A violation. And, in (62) and (63), strict readings arise from the R-expression undergoing vehicle change to a reflexive, thus avoiding what would be a Condition C violation.

(61) a. John defended himself before Bill did.
      b. $[_{VP_E}$ defend himself $\rightarrow$ him]

(62) a. Bill is proud of Sally and she is too.
      b. $[_{VP_E}$ proud of Sally $\rightarrow$ herself]

(63)   a.   Who likes Mary? SHE$_F$ likes herself.

         b.   [$_{\text{VP}_{Answer}}$ likes Mary → herself]

While this analysis is able to account for the data, as Merchant (1999, p. 33) notes in a discussion on vehicle change effects in ellipsis, "it [vehicle change] does not advance our understanding of the phenomenon very much". Vehicle change comes across as rather ad hoc, since it is a process proposed to specifically account for what seem to be binding condition violations in ellipsis and focus constructions, and does not provide any insight into why this phenomenon occurs in the first place.

On the other hand, the semantic account pursued here does not face the same criticism, since it does provide insight into the phenomenon. By encoding Condition A as a presupposition and allowing this to undergo weakened projection, we have a deeper explanation of why these vehicle change effects occur in ellipsis and focus constructions – the reflexive's behaviour is linked to the already well established empirical phenomenon of weakened presupposition projection.

4.4.2   Differences from Sauerland (2013)

In this chapter I have argued for a presuppositional approach to Condition A effects and strict readings of reflexives, following Sauerland (2013), but along the way has modified some of his original assumptions. First, while I adopt the assumptions of *self* contributing a presuppositional requirement to a predicate, and that this presupposition can be absent in the set of focus alternatives, I assume a different denotation of *self*, opting for one which would not force syntactic movement of the morpheme[9].

Further details with regard to the behaviour of purely presuppositional elements are also abandoned here – namely that purely presuppositional elements that adjoin at the head level cannot have optional weakened projection. Sauerland's reason for this assumption is based on his reported judgements regarding the readings available for reflexives which act as objects to transitive verbs in focus contexts. He claims that the unbound reading in constructions such as (64) is unavailable. The experimental results in Chapter 3 show that this is clearly not the case, and thus the assumptions that he makes in order to get the unbound readings to be predicted as unavailable, are no longer needed.

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[9]At least movement would not be necessary for the basic transitive cases. For ECM cases, movement would still be necessary, but would only require movement of the entire reflexive pronoun, which seems syntactically more plausible than movement of the morpheme separately.

(64)   a.   Only MARY$_{2,F}$ likes herself$_2$.

         b.   No one other than Mary likes Mary

The assumed ungrammaticality of strict reflexives with transitive verbs creates a problem for Sauerland, in that he is left with trying to explain why unbound alternatives are possible with ECM verbs, but not with simple transitive verbs. This leads him to the assumption that the weakened projection principle does not apply when the presuppositional element is adjoined at the level of the phrase head[10]. In his account, since *self* adjoins to the transitive verb head, the presupposition introduced by *self* must be satisfied in both the ordinary and focus semantic values, thus allowing for only bound alternatives to arise. Given the experimental results presented in Chapter 3, these predictions do not coincide with speakers' judgements and we do, in fact, want unbound alternatives to arise with transitive verbs. Thus, this assumption about which level the weakened projection principle can apply to can be abandoned.

Not only do the experimental reflexive judgements not support this assumption, but it seems ad hoc to begin with, meant only to account for the judgements he reports in (64). There is evidence that other purely presuppositional elements can adjoin to a head and still have the option of weakened projection in alternative sets. For example, in (65) (Sauerland's (3)), suppose that *waitress* is analyzed as having a presupposition that its argument is female, and composed of the morphemes *waiter* and *-ess*, where *-ess* attaches to the head noun and is responsible for contributing the presuppositional content. It then seems that this presupposition is ignored in the alternatives of (65), thus showing that

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[10]Recall that under his denotation of *self*, it is required to move to adjoin to a two-place predicate. For transitive verbs, it will move to adjoin to the V-head, but for ECM verbs an appropriate two-place predicate needs to be formed. Lechner (2012) proposes that an appropriate predicate is formed by the movement of the matrix subject, followed by the embedded subject tucking in to a position between the existing λ operator and its argument, (i).

(i)   [$_{TP}$ only [$_{TP}$ ROMNEY$_F$ [himself [$\lambda 2$ [$\lambda 1$ [$_{TP}$ t$_1$ expected [$_{TP}$ t$_2$ to win]]]]]]]

Lechner assumes that the denotation of the reflexive is that of a reflexivizing function, which then moves to adjoin to this newly created two-place predicate. But under Sauerland's assumptions regarding reflexives this movement would translate into the movement of just *self* to a position where it is adjoined the two-place predicate, as in (ii) for example. Note that this movement targets the phrase level itself.

(ii)   [$_{TP}$ only [$_{TP}$ ROMNEY$_F$ [him$_3$ [self [$\lambda 2$ [$\lambda 1$ [$_{TP}$ t$_1$ expected [$_{TP}$ t$_2$ to win]]]]]]]]

Thus, Sauerland assumes that the crucial difference between ECM verbs and simple transitives in allowing strict reflexives in focus alternatives or not stems from this difference in level of adjunction.

the weakened projection principle can, in fact, be applicable to elements that attach at the head level.

(65)   *John, Mary, and Bill all worked as waiters. But John and Bill moved on to different jobs.* Only MARY$_F$ is still a waitress.

Despite these deviations, the basic intuition of his account – a presuppositional Condition A and weakened projection – is a more theoretically desirable approach to binding theory and strict reflexives than a syntactic-binding-only Condition A and vehicle change. However, the precise characterization of which presuppositions show weakened projection behavior turns out to be problematic, which we will turn to in the next chapter.

Chapter 5

Some issues for weakened projection

Following Sauerland (2013), Chapter 4 presents a way of accounting for strict reflexives by encoding Condition A as a presupposition and allowing this presupposition to be absent in the set of focus alternatives through the process of weakened projection. It was argued that this account is essentially a semantic approach to the phenomena previously accounted for in the literature by the syntactic approach of vehicle change, and that it has an advantage over the vehicle change analysis in that it provides an explanation as to why these effects occur. Specifically, they are instances of weakened presupposition projection. For weakened projection to occur though, the account assumes that the presupposition must be purely presuppositional, i.e., it must be an element which contributes nothing but a presupposition to the element it combines with.

This chapter discusses some problematic data regarding the generalization that only purely presuppositional elements can be absent in focus alternatives. If Sauerland's generalization is correct, then we would expect that all purely presuppositional elements should be able to have their contribution absent, not just the presuppositions of ϕ-features and reflexives, while on the other hand, all non-purely presuppositional elements should not have this option. Counter to this prediction, I show that some purely presuppositional elements cannot be absent, while some non-purely presuppositional elements can. In light of these problems, two other approaches are considered which have been claimed in the literature to explain the absence of certain presuppositions in focus alternatives, namely Walker's (2012) generalization that it is only soft presupposition triggers which can be absent in focus alternatives, and Heim's (2008a) feature transmission account for ϕ-features which relies on the underspecification of presuppositional elements to explain their absence in focus alternatives.

This chapter argues that both of these approaches to presupposition absence in focus alternatives do not fare any better than Sauerland's since they are also only able to capture a subset of the data and in the end run into problems extending to the crucial case of accounting for the absence of *self*'s presupposition, which is needed for predicting the acceptability of strict readings of reflexives.

5.1 Weakened projection and pure presuppositionality

In order to account for strict readings of reflexives and sloppy readings of pronouns in focus contexts, such as in (1) and (2) respectively, Sauerland (2013) proposes a weakened projection principle in which only purely presuppositional elements can be absent in the set of focus alternatives.

(1) a. Only MARY$_{2,F}$ likes herself$_2$.
     b. No one other than Mary likes Mary. Bill doesn't like Mary, Sue doesn't like Mary.

(2) a. Only I$_{1,F}$ did my$_1$ homework.
     b. No one but me did my homework. Bill didn't do his homework, Sue didn't do her homework.

Assuming the denotation in (3) for *self* and the denotation in (4) for the ϕ-features first person, singular, we see that reflexives are taken to introduce an argument identity presupposition and the first person, singular features are taken to introduce presuppositions which requiring that the individual it combines with has a denotation which includes the speaker and is an atom. The sentences in (1) and (2) in the contexts above seem to be interpreted as if the argument identity and gender presuppositions, respectively, are absent in the set of focus alternatives alternatives.

(3) $[\![\text{self}]\!] = \lambda x_e.\lambda P_{e,et}.\lambda y_e : x = y.P(x)(y)$

(4) a. $[\![\text{1st}]\!] = \lambda x : x$ includes speaker $.x$
     b. $[\![\text{singular}]\!] = \lambda x : x$ is an atom $.x$

If we just consider the denotations in (3) and (4), what they have in common seems to be that they are elements whose semantic contribution is to add nothing but a presup-

position. This observation is the basis behind Sauerland's generalization that weakened projection occurs when an element is purely presuppositional, and he captures this generalization through the weakened projection principle in (5).

(5)   *Weakened projection (Sauerland version)*
        If the non-focus interpretation of a word ω is purely presuppositional, then it can be satisfied in: $[\![\omega]\!]^{g,o}$ and $[\![\omega]\!]^{g,f}$, or only $[\![\omega]\!]^{g,o}$.

Informally, an element that is purely presuppositional can be thought of as adding a presupposition to the elements it combines with while at the same time not changing the asserted content of these elements. Sauerland first defines it for ϕ-features as in (6). Under this definition, the denotation in (4a) for the first person feature will be considered purely presuppositional since its denotation is an identity function on a subdomain of type e – namely, the subdomain of individuals which includes the speaker.

(6)   If the non-focus interpretation of a word ω is the identity function on some subdomain of type τ, i.e., $[\![\omega]\!]^g = \mathrm{id}_S$ for $S \subset D_\tau$, then it is purely presuppositional.

Turning to reflexives, he notes that the definition of purely presuppositional in (6) would not be applicable to *self*. While his proposed denotation of *self* in (7) below is an identity function – it takes a predicate of type *e,et* and returns that same predicate, it is not an identity function on a subdomain of predicates of type *e,et*. In order resolve this problem he proposes a further definition of what is considered purely presuppositional, as in (8). Thus, he assumes that an element can be purely presuppositional as long as it fits either one of these definitions in (6) or (8).

(7) $[\![\mathrm{self}]\!] = \lambda P_{e,et}.\lambda x.\lambda y : x = y.P(x)(y)$

(8)   A functor F applied to function g is purely presuppositional if both of the following hold:
        a.   F doesn't change the type of g
        b.   wherever F(g) is defined, g is defined too and F(g) and g have the same result

Even though Sauerland defines a way for his version of *self* to be considered purely presuppositional, it should be noted that under the definition of purely presuppositonal

in (8), the syntactically simpler denotation of *self* proposed in Chapter 4, seen previously above in (3), would not count as purely presuppositional since it first combines with an individual, and changes the type of this element it combines with before combining with a predicate. Despite not fitting this formal definition, I propose that the syntactically simpler denotation of *self* is intuitively contributing nothing but a presupposition to the predicate it combines with as well, and should be thought of as a purely presuppositional element. This is not a major problem for the weakened projection account or the syntactically simpler definition of *self*, and could be avoided if the formal definition in (8) of purely presuppositional were modified to encompass this revised denotation of *self* in (3). This section does not attempt to provide such a formal definition, but instead examines two more serious issues for the assumption that only purely presuppositional elements can have their presuppositions weakened in focus alternatives.

While the ϕ-feature and reflexive data seem to support the idea of weakened projection through pure presuppositionality, there are two major problems for this analysis. First is that there are instances where certain purely presuppositional elements do not seem to have the option of weakened projection, and second, there are instances where non-purely presuppositional elements do. This casts doubt on the principle in (5) and suggesting that the generalization regarding what can and cannot display weakened projection should be reformulated.

5.1.1 The case of *again*

With regard to the first problem, we will look at the projection behaviour of the presupposition trigger *again*. In the literature there are conflicting claims regarding whether *again* can or cannot be interpreted in the focus alternatives. On one hand, Beck (2006) claims that it can be absent, which if true, would not be problematic for Sauerland's account. On the other hand, Walker (2012) claims that it cannot be absent, which would present a problem since it would be an instance where a purely presuppositonal element cannot undergo weakened projection.

We first turn to the semantic contribution of *again* in non-focus contexts. In (9a), the adverb *again* can be interpreted as adding the presupposition that the event it modifies had happened previously (example from Beck and Johnson (2004)).

(9) a. Sally opened the door again.
     b. Presupposes: Sally had opened the door before.

Assuming a denotation for *again* as in (10) (based on Von Stechow (1996)), it takes a property of eventualities P and an eventuality e and adds the presupposition that there exists an eventuality e' which occurred previously. Note that this interpretation of *again* can be considered purely presuppositional since it does not change the asserted content of the event it modifies, but merely adds the presupposition that it had happened before.

(10) $[\![\text{again}]\!] = \lambda P.\lambda e : \exists e'[e'{<}e \wedge P(e') = 1].P(e)$

Turning to the projection properties of *again*, we would expect, if Sauerland's generalization is correct, that the presupposition of *again* should be able to be absent from the set of focus alternatives, and there are in fact reported judgements in the literature regarding the projection behaviour of *again* which would support this view. For example, Beck (2006, p.290) claims, based on the example in (11b), that the presupposition of *again* does not have to be present in the set of focus alternatives. If *again* were present in the set of alternatives it would give rise to a universal presupposition, i.e., the presupposition would hold for each alternative. In (11b), *again* introduces the presupposition that I called John before, but does not seem to have to introduce the presupposition that I called each of the alternatives to John before, since the sentence in (11b) could acceptably be uttered in a context such as (13), which is compatible with the reading in (12).

(11)   a.   Who did you call?
         b.   I only called JOHN$_F$ again.

(12)   I had called John before, and today I called no one but John. I did not call Bill. I did not call Sue.

(13)   *Context: I can call one person a week. Last week I called John, and this week I called John.*

The presupposition of *again*, if it were present in the alternatives, would not be satisfied in this scenario, since I did not call Sue and Bill last week, and Beck claims that since the sentence could acceptably be uttered in this context, the contribution of *again* can be absent for the alternatives. Based on her claim, we therefore might conclude at this point that (11b) does support the purely presuppositional approach to weakened projection.

The conclusion that (11b) supports the purely presuppositional approach to weakened projection is not without complications though. First, there are conflicting claims in the literature regarding *again*'s projection behaviour. Counter to Beck, Walker (2012) argues

that the presupposition of *again* cannot be absent from the set of focus alternatives, and reports that the sentence in (14b) cannot have the reading in (15) in the context of (14a).

(14) a. *Context: The Rose & Crown only serves beer. New legislation makes it illegal to serve either beer or wine. A few weeks later, the legislation is lifted.*
      b. #The Rose & Crown only serves BEER$_F$ again.

(15) The R&C served beer before, and they serve nothing but beer now. The R&C does not serve wine.

The context in (14a) is set up to test the projection behaviour of *again* since it does not satisfy the presupposition of the alternatives, i.e., it does not satisfy the presupposition that the Rose & Crown served wine before. If the presupposition cannot be absent in the alternatives, this will lead to a presupposition failure and the sentence should be judged as unacceptable. On the other hand, if the presupposition can be absent, the sentence should be judged as acceptable in this context. Walker claims that (14b) is not acceptable under the reading in (15), which would therefore indicate, counter to Beck, that the contribution of *again* cannot be absent from the alternatives.

At this point it seems that these previously reported judgements lead to contradictory conclusions. One factor that may underlie the discrepancy in judgements is that the scope of *again* is not controlled for in these examples. In both cases, *again* is sentence final in which case it could potentially take scope above or below the focus particle *only*.

(16) a. [only [subj v obj] again]]
      b. [[only [subj v obj]] again]

Problematically, the context which Beck uses to claim that the contribution of *again* is absent in the set of alternatives is also compatible with the reading which would arise if *again* took scope above *only*, in which case, it would necessarily be absent from the alternatives.

If *again* takes scope over *only*, it gives rise to the reading in (17), which presupposes that I called no one but John before, and would be true in the scenario in (13), where I called only John last week, and only John this week.

(17) again > only
      It is again the case that I called no one but John. (i.e., I called no one but John

before and I called no one but John today.)

Now, consider a situation where *again* takes scope below *only*, but assume that it does not contribute to the set of alternatives. If this is the case, then the sentence will give rise to the reading we saw previously in (12), which would also be true in the scenario in (13). Thus, when *again* is sentence-final and being interpreted in the context of (13), it is unclear whether the sentence is being judged as acceptable with *again* taking scope below *only* and having its presupposition absent in the set of alternatives or with *again* being outside the scope of *only*, where the presupposition of *again* would not occur in the set of alternatives in the first place.

In order to avoid this problem, and clarify the judgements, the scope of *again* needs to be controlled for so that it necessarily takes scope below *only*. The examples in (19) and (22) below correct for this problem by positioning *again* pre-verbally, where it has no option but to be within the scope of *only*. Once we do this, judgements seem to be that the contribution of *again* can and must be present in the alternatives.

First, we see that *again* can contribute to the meaning of the alternatives. In (19) below, in the context of (18), it appears that the presupposition of *again* can acceptably be present in the focus alternatives, giving rise to the reading paraphrased in (20).

(18)   *Context:*
   a.   Students that forgot their homework last week: John, Bill, Sue
   b.   Students that forgot their homework this week: John

(19)   a.   Who forgot their homework this week?
   b.   Only JOHN$_F$ has again forgotten his homework.

(20)   John forgot his homework before, and this week no one but John has forgotten his homework. Sue forgot her homework before, but this week she hasn't forgotten her homework. Bill forgot his homework before, but this week he hasn't forgotten his homework.

That the contribution of *again* must be present in the alternatives comes from the unacceptability of (22) in the context of (21). Judgements on this example are that it is unacceptable under the interpretation where the contribution of *again* is absent in the alternatives. In order to be acceptable, it seems that that the alternatives to John, i.e., Sue and Bill, need to have forgotten their homework last week, thus indicating that *again* must be present in

the alternatives[1].

(21)   *Context:*

    a.   Students that forgot their homework last week: John, and no one else.
    b.   Students that forgot their homework this week: John, and no one else.

(22)   a.   Who forgot their homework this week?
    b.   #Only JOHN$_F$ has again forgotten his homework.

(23)   John has forgotten his homework before, and this week, no one but John has forgotten his homework. Sue hasn't forgotten her homework. Bill hasn't forgotten his homework.

The unacceptability of (22) poses a problem for the purely presuppositional approach to weakened projection. If weakened projection followed the generalization in (5), then (22) would be predicted to be acceptable. Since *again* is purely presuppositional, it should have the option of weakened projection. Counter to this prediction, (22) shows that it does not have this option, thus suggesting that weakened projection based on pure presuppositionality is incorrect.

5.1.2   The case of *the*

Another problem for weakened projection via pure presuppositionality is the observation that some non-purely presuppositonal elements can display weakened projection behaviour. For example, definite determiners are thought to trigger an existential and a uniqueness presupposition and are standardly assumed to not have purely presuppositonal denotations, as seen in (24).

(24) $[\![\text{the}]\!] = \lambda f_{e,t} :$ there is exactly one x such that $f(x) = T$.
    the unique y such that $f(y) = T$

But, as Walker (2012) and Sauerland (2013) (citing von Heusinger (2007)) observe, definite determiners do seem to be able to have their uniqueness presupposition absent in the set

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[1]It should be noted that in German the sentence in (22) is judged to be ambiguous. Smeets (2015) looks at similar data in Dutch and German which suggests that an *only DP* can reconstruct to take scope under an adverb. Thus, the ambiguity of (22) in German might arise from the ability of *only john* to reconstruct under the scope of *again*.

of alternatives. The context of (25a) does not support the uniqueness presupposition of the alternatives to *the German professor*. Despite this, the sentence in (25b) is acceptable and can have the reading in (26) where the alternatives do in fact not presuppose there is a unique professor of another nationality.

(25)   a.   *Context: At a party there is one German professor, two Dutch professors and two French professors.*

            b.   John only talked to the GERMAN$_F$ professor.

(26)   There is a unique German professor, and John talked to no other professors/no one but the German professor. He did not talk to any French professor, he did not talk to any Dutch professor.

If weakened projection followed the generalization in (5), then (25a) would be predicted to be unacceptable since the definite determiner is not purely presuppositional.

Sauerland admits that this example is problematic for his analysis, but that this is only so under the assumption that the uniqueness presupposition of definite DPs comes from a definite determiner denotation, such as that seen in (24), which is not purely presuppositional. In order to account for the acceptability of (25b), he assumes the approach to DPs he proposes in Sauerland (2003), and that the uniqueness presupposition of definite DPs results from the ϕ-feature *singular*. In this approach, DPs are always complements to a ϕ-head, such as in (27).

(27)   [$_{\phi P}$ singular [$_{DP}$ the German professor]]

Assuming that ϕ-features have presuppositional denotations as previously defined in (4), then the feature *singular* is considered purely presuppositional under the definition seen previously in (6) – it is interpreted as a restricted identity function — and thus has the option of weakened projection. When this feature does not project into the alternatives, we get the reading in (26), where the alternatives do not presuppose a unique professor of another nationality.

Thus, depending on one's assumptions, definite determiners can be seen as consistent with the purely presuppositional approach to weakened projection. Furthermore, it is not clear whether the use of the definite determiner as an argument for the purely presuppositional approach is even relevant for testing this generalization in the first place, since it seems to be possible to account for the uniqueness presupposition's absence regardless of

whether the definite determiner is purely presuppositional or not.

If we assume that F-marking is not on the adjective but instead the entire DP, despite prosodic prominence falling on the adjective, then the reading in (26) could be accounted for via the mechanisms needed anyways for focus interpretation. If F-marking is on the DP, alternatives to $[_{\text{DP}_F}$ the GERMAN professor] would be from the set of individuals.

(28) $[\![\text{DP}_F \text{ the GERMAN professor}]\!]^{g,f} = \{x : x \in D_e\}$

In which case, *a/any French professor* is a viable alternative or *a/any Dutch professor* or any other individual for that matter, which would explain the reading we get in (26) where John talked to no one but the German professor. This means that the examples based on definite determiners might not be very informative for the question of which presuppositions do not have to project into the set of alternatives, but, at least based on the case of *again*, it does seem that weakened projection via pure presuppositionality is problematic.

To summarize, while Sauerland's analysis of weakened projection through pure presuppositionality can account for reflexives and ϕ-features, the argument for definite determiners supporting this generalization is not particularly strong – depending on one's assumptions it could be argued for or against the generalization, or not even be relevant for testing the generalization to begin with. But, even more problematic for the purely presuppositional approach to weakened projection is the data with *again* which demonstrate that a purely presuppositional element cannot undergo weakened projection and whose semantic contribution must be present in the set of alternatives.

5.2   Weakened projection and soft presupposition triggers

There are other potential ways proposed in the literature of characterizing what elements can undergo weakened projection. One such proposal is that of Walker (2012) who argues that weakened projection in focus alternatives is something that can occur only for soft presupposition triggers. His insight can be captured in a weakened projection principle such as (29) below.

(29)   Weakened Projection (Walker version)
         If a word ω is a soft presupposition trigger, then its presupposition can be satisfied in: $[\![\omega]\!]^{g,o}$ and $[\![\omega]\!]^{g,f}$, or only $[\![\omega]\!]^{g,o}$.

This section outlines the arguments supporting this view of weakened projection, first turning to a discussion on the distinction between soft and hard triggers, then examining whether the generalization in (29) can account for the presence or absence of presuppositions in focus alternatives in all the relevant cases - particularly with *again*, ϕ-features, and reflexives.

5.2.1 Soft and hard presupposition triggers

Abusch (2002) makes a distinction between what she terms soft and hard presupposition triggers. The two types of presupposition triggers can be distinguished from each other based on their projection behaviour in certain environments, such as disjunctions and speaker ignorance contexts. According to Abusch, soft presupposition triggers are those triggers which are "easily suspendable", whereas hard presupposition triggers which are not. To exemplify this contrast, she uses the verb *continue* compared to the additive particle *too*. What is interesting about these two presuppositional elements is that they can give rise to similar presuppositions, as seen in (30) and (31), but, when these triggers are embedded in a disjunction their presuppositions display different projection behaviour.

(30) a. John will continue to miss meetings.
      b. presupposes: John missed meetings previously.

(31) a. John will miss today's meeting too.
      b. presupposes: John missed meetings previously.

When these presuppositional elements are embedded in a disjunction, the presupposition of *continue* can be suspended and seems to not project to the sentence as a whole, as seen by the acceptability of (32), whereas the presupposition of *too* does seem to project, as seen by the unacceptability of (33). That (32) is acceptable is evidence that the presupposition of *continue* does not project, since if it did, a contradiction would arise between the denotation of the first disjunct and the presupposition of the second, leading to it being judged as unacceptable. And, since (33) is unacceptable this can be taken as evidence that the presupposition of *too* does project to the sentence as a whole, leading to a contradiction between the denotation of the first disjunct and the presupposition of the second.

(32)   Either John went to the previous meetings or he will continue to miss meetings.

(33)   #Either John went to the previous meetings or he will miss today's meeting too.

It should be noted that certain presuppositions embedded in disjunctions have been previously observed to be suspended and thus not project to the sentence as a whole by Karttunen (1973), who shows that disjunctions can act as filters for certain presuppositions, allowing some presuppositions to project to the sentence as a whole, but filtering out others. Specifically, Karttunen proposes that disjunctions filter out the presuppositions of the second disjunct which are entailed by the negation of the first disjunct. What Abusch shows though, is that this filtering condition does not always work. In both (32) and (33), the presupposition of the second disjunct is entailed by the negation of the first disjunct, yet only in (32) can it be felicitously suspended. Based on the different projection behaviour of *too* and *continue* Abusch thus argues for two different types of presupposition triggers – hard triggers, those that behave like *too* which cannot be suspended, and soft triggers, those that behave like *continue* which can.

The projection behaviour in disjunctions is not the only diagnostic that has been discussed in the literature to determine if a presupposition is hard or soft. Simons (2001), makes a similar observation with regard to the projection behaviour of certain presuppositions in contexts where the speaker is ignorant with regard to the presupposition.

It is standardly assumed that if a speaker utters a sentence with an element which triggers a presupposition, they are then committed to the truth of that presupposition. This means that if a speaker is ignorant with regard to the truth of the presupposition, that sentence should not be able to be felicitously uttered. Based on this reasoning, if the presupposition projects to the sentence as a whole in a speaker ignorance context, it will result in the sentence being judged as unacceptable, but on the other hand, if it does not project, then the sentence should be judged as acceptable.

This differing behaviour can be seen for the presupposition triggers *stop* compared to *again*. While these two presupposition triggers can have similar presuppositions in non-speaker ignorance contexts, as shown in (34) and (35), they show different projection behaviour in contexts where the speaker is ignorant with regard to the truth of the presupposition.

(34)   Jane stopped smoking.

      a.   presupposes: Jane smoked before.

(35)   Jane is smoking again.

    a.   presupposes: Jane smoked before.

When these sentences are embedded a context where the speaker is ignorant with regard to the presupposition, such as in (36) and (37), the sentence with *stop* is judged to be felicitous, indicating that it does not project in this context, but the sentence with *again* is judged to be infelicitous, suggesting that it does project.

(36)   *Context: I have no idea whether Jane ever smoked before, but I see she's chewing on her pencil a lot, which ex-smokers seem to do.*
    So perhaps Jane recently stopped smoking.

(37)   *Context: I have no idea whether Jane ever smoked before, but I saw her have a cigarette at lunch.*
    # So perhaps Jane is smoking again.

In sum, just as with disjunctions, speaker ignorance contexts show that the same presupposition can display different projection behaviour. Abusch assumes that this differing behaviour stems from the type of presupposition trigger which the presupposition arises from, and argues for the need to distinguish between two different types of presupposition triggers – namely, soft triggers (like *continue* and *stop*) which can be suspended in these contexts and hard triggers (like *too* and *again*) which cannot.

5.2.2   Soft and hard triggers in focus alternatives

At this point we are now able to turn to Walker's claim that weakened projection in focus alternatives is available to only soft presupposition triggers. Walker himself is concerned with what he assumes is the weakened projection of the definite determiner in focus alternatives in examples which we saw previously in (25a) in Section 5.1.2, repeated in here (38b).

(38)   a.   *Context: At a party there is one German professor, two Dutch professors and two French professors.*
    b.   John only talked to the GERMAN$_F$ professor.

In the literature it has previously been argued that *the* is a hard presupposition trigger.

Based on examples such as in (39), Abbott (2006) claims that the definite determiner cannot be suspended in speaker ignorance contexts, since it is not be possible for the speaker to utter (39) while being ignorant to whether there is an owner of the book or not. But as Walker points out, examples such as (39) are only testing the projection behaviour of the existential presupposition of the definite, and not its uniqueness presupposition.

(39)   #Possibly no one owns this book, but if I find the owner I will return it.

Since it appears to be the uniqueness presupposition that is absent in focus alternatives, Walker instead tests its projection behaviour in disjunctions and speaker ignorance contexts, concluding that it is a soft trigger based on the acceptability of (40) and (41). In (40), the sentence can be felicitously uttered even though each disjunct has conflicting presuppositions, meaning that they do not project to the sentence as a whole. And in (41), the question appears to be felicitous despite the speaker being ignorant of how many solutions there are to the question.

(40)   a.   *Context: In a historical setting with a pope and a counterpope, a council is being held in order to settle the conflict by agreeing on one unique pope, but it is yet unclear whether this will succeed.*
       b.   After the council, either the pope will unite Rome, or the popes will tear it apart.

(41)   a.   *Context: Pina needs a linear equation A to have exactly one solution. I do not know how many solutions A has. When I meet Pina she seems happy.*
       b.   Did you find the solution for A?

Thus it seems that the uniqueness presupposition of definite determiners can be considered a soft presupposition trigger, which motivates Walker to propose that it is soft triggers which can undergo weakened projection.

At this point it should be noted that the example in (38b) above, where the uniqueness presupposition of *the* is absent from the alternatives, can possibly be explained without the need to make reference to the presupposition trigger type. As this chapter argued for previously in Section 5.1.2, the absence of the presupposition could be explained through just making reference to the mechanisms needed for focus interpretation. If the entire DP was F-marked, and not just the adjective, then this DP, presuppositions and all, would be replaced by a set of individuals in the alternatives.

Despite the definite determiner case not being the strongest example to support his generalization in (29), Walker does show that other soft presupposition triggers do display weakened projection in focus alternatives. To test whether the presupposition projects or not in the focus alternatives, Walker creates contexts where the presupposition of the alternatives (if it did project) would be false or whose truth value is undetermined. The basic idea is that if the presupposition did project, this would result in the sentence being infelicitous, but it would be felicitous if the presupposition is weakened[2].

To illustrate Walker's generalization I will use the already established soft presupposition trigger *stop* and the hard trigger *again*[3]. First, as a point of comparison, we see that the presuppositions of soft and hard triggers do have the option of projecting into the alternatives, as seen in (42) for the soft trigger *stop* and (45) for the hard trigger *again*.

The context in (42) supports a reading of the sentence in (43) where the presupposition of *stop* is interpreted in the set of alternatives, i.e., in the context the presupposition that *stop* triggers is true for the alternatives – it is true that the pub served wine before, and it is true that the pub served cocktails before. With regard to judgements, it does seem to be the case that the sentence in (43) can acceptably have the reading paraphrased in (44).

(42)   Context: The pub is undergoing some renovations and unfortunately has to limit the types of drinks it serves during this time.

   a.   Pre-renovations: beer, wine, cocktails

   b.   During-renovations: wine, cocktails

(43)   The pub only stopped serving BEER$_F$.

(44)   The pub served beer before and doesn't serve beer now. The pub served wine before and serves wine now. The pub served cocktails before and serves cocktails now.

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[2]It should also be noted that in contexts where the truth value of the presupposition is undetermined, it is standardly assumed that local accommodation of the presupposition is possible, as is the case for disjunctions and speaker ignorance contexts, but, this appears to not be an option in focus contexts.

Walker leaves it as an open issue as to why weakened projection in contexts where the truth value of the presupposition is undetermined should differ in focus alternatives from other environments which display weakened projection, such as disjunctions. I also have no explanation to offer here, but this difference should be kept in mind, when assessing the readings of sentences in contexts where the truth of the presupposition of the alternatives is undetermined.

[3]The sentences discussed below with *stop* are Walker's original examples, or modifications of his examples. The sentences with *again* are new examples which control for the scope of *again*, ensuring that it is within the scope of focus and thus must be included in the set of alternatives.

For hard triggers, the situation is similar. As seen previously in (18), repeated here in (45) and (46b), the hard trigger *again* can be present in the alternatives, giving rise to the reading paraphrased in (47), where it is presupposed that each of the alternatives to John had forgotten their homework before.

(45)   Context:
         a.   Students that forgot their homework last week: John, Bill, Sue
         b.   Students that forgot their homework this week: John

(46)   a.   Who forgot their homework this week?
         b.   Only JOHN$_F$ has again forgotten his homework.

(47)   John forgot his homework before, and this week no one but John has forgotten his homework. Sue forgot her homework before, but this week she hasn't forgotten her homework. Bill forgot his homework before, but this week he hasn't forgotten his homework.

These two triggers behave differently though when it comes to option of their presupposition being absent in the focus alternatives. Whereas the soft trigger *stop* can be absent in the alternatives, the hard trigger *again* cannot. Walker's example (35), here (49), exemplifies this for *stop*. This sentence seems to be able to have the reading paraphrased in (50) where the presupposition of *stop* is absent in the alternatives, i.e., the sentence does not have to presuppose that the Rose & Crown served wine before. The fact that (49) is acceptable in the context in (48) suggests that the presupposition of *stop* is absent from the alternatives since, if it were present, it would not be satisfied in this context and the sentence would be judged as infelicitous.

(48)   Context: The Lamb & Lion serves beer and wine, but the Rose & Crown only serves beer. New legislation makes it illegal to serve either beer or wine but pubs will be financially compensated for this, based on what kind of alcohol they served before. The Lamb & Lion stopped serving wine and beer. They will get £540.

(49)   The Rose & Crown only stopped serving BEER$_F$. They will get £250.

(50)   The Rose & Crown served beer before and is not serving beer now. The R&C did not stop serving wine.

For hard triggers, the option of their presupposition being absent from the focus alternatives does not appear to be available. We saw this previously with *again*, repeated here in (51) and (52b). In the context of (51), the presupposition of *again*, if it did project in the alternatives, is false, since I only called John. If the presupposition can be absent, then no presupposition failure should arise and the sentence should be judged as acceptable. On the other hand, if the presupposition cannot be absent, the sentence should be judged as unacceptable. Speakers do judge (52b) as unacceptable in this context, thus supporting the view that it cannot be absent in the alternatives.

(51)   Context:

         a.   Students that forgot their homework last week: John
         b.   Students that forgot their homework this week: John

(52)   a.   Who forgot their homework this week?
         b.   #Only JOHN$_F$ has again forgotten his homework.

(53)   John has forgotten his homework before, and this week, no one but John has forgotten his homework. Sue hasn't forgotten her homework. Bill hasn't forgotten his homework.

In addition to looking at the projection behaviour of *stop* and *again*, Walker observes the same projection pattern with other hard triggers, such as *also* and other soft triggers, such as *aware* to support his generalization that it is only soft triggers which can undergo weakened projection in focus alternatives. I leave it to the reader to examine these other cases in Walker's paper, and for the purposes here, *stop* and *again* are sufficient to show the general pattern of projection behaviour of hard and soft presupposition triggers in focus alternatives.

Looking at this account compared to Sauerland's, it has the advantage of being able to explain the weakened projection behaviour of definite determiners (assuming they are instances of weakened projection in the first place) while still assuming a standard approach to their denotation. But more importantly, it can also account for the absence of weakened projection for *again*. Since *again* is a hard presupposition trigger and if weakened projection is only available for soft triggers, it is therefore predicted to not be able to have its presupposition weakened. The question at this point is whether it can also account for the weakened projection we observe with ϕ-features and with reflexives.

5.2.3 ϕ-features and reflexives

This section attempts to extend Walker's generalization of weakened projection to ϕ-features and reflexives. We will see that ϕ-features and reflexives do not behave like soft presupposition triggers in speaker ignorance contexts and disjunctions, and thus should not be considered soft presupposition triggers. Problematically, if they can not be considered soft presupposition triggers, this predicts they should not be able to be absent in focus alternatives, counter to what is observed.

Turning first to ϕ-features, it has been previously noted by Sudo (2012, p.28) that the gender features of pronouns cannot be suspended in speaker ignorance contexts, suggesting that the presuppositions of ϕ-features are not soft triggers. He gives the following example in (54), where the speaker is ignorant as to the gender of the individual the pronoun refers to, and it appears that neither the masculine or feminine form can be felicitously used[4]. In this example it doesn't seem possible for the gender presupposition to be presupposed by the sentence as a whole, or locally accommodated, as both lead to the sentence being infelicitous. Thus it seems to be the case that ϕ-features behave like other hard presupposition triggers in these contexts, such as previously seen with *again* in in (37), repeated here in (55).

(54)   #I don't know if this person, Jesse, is a boy or girl, although I have met {him, her} several times.

(55)   #I have no idea whether Jane ever smoked before, but I saw her go for a smoke at lunch, so perhaps Jane is smoking again.

Sudo also argues that ϕ-feature presuppositions are not soft triggers based on their projection behaviour in disjunctions. Recall that, according to Abusch (2002), soft triggers do not project to the sentence as a whole in disjunctions, whereas hard triggers must project to the sentence as a whole. If the presupposition of the second disjunct must project, for example, and is contradictory with the first disjunct then the sentence will be judged as infelicitous. The example in (56) is from Sudo (2012), and we see that the sentence is judged as infelicitous. The reason for the infelicity, under Sudo and Abusch's assump-

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[4]Interestingly, these sentences seem to become OK when both pronouns occur as a disjunction as in (i), raising the question of why the ϕ-features would cause an infelicity in (54) but not in (i).

(i)   I don't know if this person, Jesse, is a boy or girl, although I have met him or her several times.

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tions, would be that the ϕ-feature presuppositions of the second disjunct project to the sentence as a whole, and contradict with the first disjunct. If the ϕ-feature presuppositions project to the sentence as a whole, they must be hard presupposition triggers[5].

(56) #Either Jesse is really a boy, or she hangs out with boys.

Context appears to make the infelicity even clearer. In (56), there is the possibility that the speaker does in fact know the gender of *Jesse*, but the example in (57) removes this possibility. Given the context in (57), it does not seem possible for the gender presupposition to have weakened projection.

(57) *Context: I was listening to a new voice-message on my phone from someone whose voice I do not recognize.*
      #Either this is a man, or she has a really deep voice.

Given (54), (56), and (57). it seems that ϕ-features should be classified as hard presupposition triggers. Yet, despite this conclusion, it should be noted that Sudo also points out a potential problem with the unacceptability of (54) and (56). He gives the example in (58), judged as marginal, thus making it not entirely clear if the gender presupposition can be suspended or not.

(58) ?I don't know if Jesse is a boy or girl, but it's possible that she is a girl.

Does this mean that ϕ-features should be considered soft triggers? While (58) may be possible, it seems to be the case that it is not preferred for the gender presupposition to be suspended in these speaker ignorance contexts.

While Sudo does not provide an explanation as to why ϕ-features resist readings in which their presupposition is suspended, the main reason for bringing this point up here is that in the classification of soft/hard triggers Abusch (2002) states that soft triggers are those which are easily suspendable. Even if examples such as (58) are possible, they are

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[5]Note that this conclusion differs from the standard view of presupposition projection in disjunctions. Since Karttunen (1973), the standard view is that disjunctions are filters, allowing some presuppositions to project, namely, when the presupposition of one of the disjuncts is entailed by the negation of the other disjunct. Under these filtering conditions, the infelicity in examples such as (56) and (57) would indicate that ϕ-features are not presuppositional in the first place. Using examples such as (56), this is what is argued for by Yanovich (2010)).

In contrast to this view, Abusch and Sudo revise Karttunen's filtering generalization, and conclude that only presuppositions triggered by weak triggers can be filtered in disjunctions.

not preferred or easy to get, and therefore we should probably not classify them as soft triggers. If we assume that ϕ-features are not soft triggers then this presents a problem for Walker's weakened projection account. Since we observe that ϕ-features can be weakened in focus alternatives, we have an instance of a hard trigger displaying weakened projection, counter to his proposed generalization in (29).

The case of reflexives presents more of a challenge than ϕ-features with regard to determining their soft or hard presupposition status. As discussed in Chapter 4, Section 4.2.2, the projection behaviour of the reflexive inference seems impossible to test. When the presupposition is true, it is trivially true, and thus the truth conditions of the sentence are essentially the same as if there was no presuppositional requirement. If the presuppositional requirement is not there, then there is no projection behaviour to test by embedding the reflexive in a disjunction or a speaker ignorance context. Therefore, we have no way of testing whether reflexives are soft presupposition triggers or not. While it is clear that ϕ-features are not soft presupposition triggers, it is unclear what the status of the reflexive *self* is. In the absence of evidence for *self* being a soft or hard trigger, we cannot say with any certainty whether Walker's weakened projection generalization can account for its absence in focus alternatives.

To summarize, while Walker's generalization can account for the projection behaviour of elements which Sauerland's analysis could not, such as *again*, it runs into problems with ϕ-features and reflexives. It does not seem to be the case that they can both be classified as soft presupposition triggers. This is problematic for Walker's account which predicts weakened projection in focus alternatives for soft triggers only, and thus we are in essentially the same position as we were before – being able to account for some instances where presuppositions are absent in focus alternatives, but not in all observed instances.

5.3 Under-specified pronouns and feature transmission

So far we have seen that the weakened projection approaches to the absence of presuppositions in focus alternatives are problematic, particularly for ϕ-features and *self*. This section explores the possibility that the absence of ϕ-feature and reflexive presuppositions in focus alternatives is not an instance of weakened projection, but is instead the result of pronouns being underlyingly under-specified for these presuppositions, in other words, the presupposition is not present for the pronoun at LF. The basic idea of this under-

specification approach is that if the presupposition is not present at LF, then it cannot be present and interpreted in the focus alternatives.

This underspecification approach to presupposition absence has been developed in the literature with reference to ϕ-feature presuppositions specifically. Heim's (2008a) version of the underspecification approach relies on two assumptions: first, that pronouns can be under-specified, which will account for the lack of ϕ-feature interpretation, and second, that ϕ-feature morphology can be acquired through feature transmission, essentially agreement, which accounts for the ϕ-feature morphology that these pronouns surface with at PF.

To the best of my knowledge, this approach has not been previously considered as possibly extending to strict reflexives in focus contexts. With the adoption of a presuppositional approach to Condition A though, an underspecification approach could in theory be feasible. Through the assumption of underspecification, the reflexive presupposition of *self* on the pronoun could be absent at LF and thus absent in the focus alternatives, and the assumption of a PF agreement process could potentially account for the pronoun being morphologically realized as a reflexive. As we will see in this section though, extending this approach to reflexives is not so simple, and requires a number of ad hoc assumptions, making it in the end an undesirable approach to strict reflexives.

5.3.1 Underspecification and ϕ-features

To begin with, the underspecification analysis is concerned with accounting for data such as in (59) and (60) below, which exemplify the phenomenon where the ϕ-features of bound pronouns appear to be absent in focus alternatives and VP ellipsis (examples from Heim (2008a))[6]. For example, we see in (59)=(2) that this sentence can be understood as though the 1st person features of *my* are not being interpreted in the set of alternatives. As Heim also observes, this phenomenon is not just restricted to focus contexts, and the ϕ-features of bound pronouns can also be absent in VP ellipsis. As (60) shows, the 3rd person masculine features of *his* in the antecedent VP are not interpreted as present in the elided VP.

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[6]The absence of ϕ-feature presuppositions was originally observed for fake indexicals, i.e., 1st and 2nd person pronouns with bound-variable interpretations. Heim (2008a) presents evidence that this phenomenon is more general, applying not just to the ϕ-features of 1st and 2nd person bound-variable pronouns, but to the ϕ-features of all bound-variable pronouns.

(59)   Only I did my homework. (Bill didn't do his homework, Sue didn't do her home-
        work, you didn't do your homework, etc.)

(60)   John did his homework but I didn't ~~do my homework~~.

In order to account for the absence of ϕ-feature presuppositions in these examples,
Heim assumes that bound-variable pronouns have the option of having their ϕ-feature
presuppositions absent at LF, and only surface with specific ϕ-feature morphology at PF
through agreement with their antecedent DP. If this option is chosen, then the bound
pronoun will have no ϕ-features at LF, thus when the set of focus alternatives is derived
from this LF, the presuppositions will be absent.

Turning to the details of this account, it first assumes, as we have seen previously in
(4) and following Cooper (1983), that ϕ-features are part of the extended DP projection,
adjoining to the pronoun, and are presuppositional in nature. Heim (2008a) then assumes
that there is a difference between bound and free variable pronouns with regard to how
these ϕ-features can be realized. If the pronoun is a bound variable then it can either
have its ϕ-features fully specified in the underlying structure or have them not specified.
Free pronouns on the other hand only have the first option available to them, and must
have their ϕ-features specified. For example, the pronoun *I* in (61) is a free variable, and
must have all of its ϕ-features specified underlyingly as in the (61a). The pronominal part
of the possessive *my* though, as a bound variable, could underlyingly have either of the
structures in (61b), with no specified ϕ-features, or all of of them specified[7].

(61)   [$_{TP}$ I$_2$ λ 1 [t$_1$ did my$_1$ homework]]

        a.   [$_{DP}$ 1st [sg [pro$_2$]]]
        b.   [$_{DP}$ pro$_1$] or [$_{DP}$ 1st [sg [pro$_1$]]]

In addition to these assumptions, this account also assumes that there is a PF require-
ment that a DP must be realized with a set of ϕ-features, presumably based on the ob-
servation that we do not see overt pronouns occurring without ϕ-feature morphology.
Therefore, if the pronoun has its ϕ-features underlyingly absent, there must be some way

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[7]I assume that the possessive pronoun *my* has the complex DP structure in (i), and it is the pronominal
DP in the specifier position which can be free or bound and thus have either structure in (61b).

(i)   [$_{DP}$ [$_{DP}$ pro] ['s]]

for that pronoun to acquire a set of ϕ-features at PF. In order to meet this requirement Heim assumes a feature transmission operation which is defined in (62). Given this definition, bound-variable pronouns will inherit the ϕ-features of their antecedent DP. (63) exemplifies this process where a possessive bound pronoun has its ϕ-features absent underlyingly but at PF the features of its antecedent DP, *I*, are copied on to it, leading to its realization as 1st person, singular *my*[8].

(62)   *Feature Transmission under Variable Binding* (Heim, 2008a, p.50)
         In the derivation of PF, all features of a DP must be copied onto all variables that it binds.

(63)   a.   LF: $[_{TP} [_{DP}$ 1st [sg [pro$_2$]]] $\lambda 1$ [t$_1$ did [[$_{DP}$ pro$_1$]'s] homework]]
         b.   PF: $[_{TP} [_{DP}$ 1st [sg [pro$_2$]]] $\lambda 1$ [t$_1$ did [[$_{DP}$ 1st [sg [pro$_1$]]]'s] homework]]

With these assumptions in place we can now see how an account of the absence of ϕ-feature presuppositions in focus alternatives and VP ellipsis will proceed. First take the focus example in (64). The LF for the prejacent of *only* can be as in (65) where the bound-variable pronoun does not have any ϕ-features to be interpreted. From this LF, the set of alternatives in (66) would arise. Since the ϕ-features of the pronoun are absent in the LF, they will also be absent in the set of alternatives.

(64)   Only I$_{2,F}$ did my$_2$ homework

(65) $[_{TP} [_{DP}$ 1st [sg [pro$_2$]]]$_F$ $\lambda 1$ [t$_1$ did [[$_{DP}$ pro$_1$]'s] homework]]

(66) $[\![(65)]\!]^{g,f}$ = {that x did x's homework $: x \in D_e$}

The denotation of *only* makes use of this set of alternatives, and the overall denotation of the sentence would be as in (67), giving rise to the reading where *no one but me did their homework*.

(67) $[\![(64)]\!]^{g,o}$ = $\forall q[q \in$ {that x did x's homework $: x \in D_e$}$\&T(q) \leftrightarrow q =$ that I did my homework]

Lastly, the under-specified bound-variable pronoun cannot remain without ϕ-features at PF. Feature transmission will therefore apply so that the pronoun acquires a set of features

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[8]Note that under the definition in (62) movement traces would also inherit the features of the DP that binds them. Since the focus here is on pronouns, I simplified the PF in (63) by leaving this feature transmission for movement traces out.

and the result of this process would be as seen in (68), where the pronoun is overtly realized with the 1st person singular features of its antecedent DP.

(68)   PF: [$_{\text{TP}}$ only [[$_{\text{DP}}$ 1st [sg [pro$_2$]]]$_F$ λ1 [t$_1$ did [$_{\text{DP}}$ 1st [sg [pro$_1$]]]'s homework]]]

We now turn to VP ellipsis, and while Heim does not go through a derivation for these constructions, the sloppy reading of the pronoun in the elided clause can also be accounted for in a similar way as we saw for focus – i.e., with the assumption of an underlyingly under-specified pronoun. To see how this reading would be derived under a focus matching approach to ellipsis resolution, we need to first assume that the pronoun of the ellipsis clause is under-specified for its ϕ-features at LF as in (70). From this LF, the set of alternatives in (71) would be derived, namely $\{x$ did x's homework $: x \in D_e\}$.

(69)   [$_{\text{TP}_A}$ John$_1$ did his$_1$ homework] but [$_{\text{TP}_E}$ I$_{2,F}$ didn't ~~do my$_2$ homework~~]

(70)   [$_{\text{TP}_E}$ [$_{\text{DP}}$ 1st [sg [pro$_2$]]]$_F$ λ1 [t$_1$ did [[$_{\text{DP}}$ pro$_1$]'s] homework]]

(71) $\llbracket$TP$_E\rrbracket^{g,f}$ = {that x did x's homework $: x \in D_e$}

For VP ellipsis to occur it must have a focus matching antecedent. To assess focus matching we turn to the denotation of the antecedent clause, which can have the LF in (72) and the denotation in (73), which is the proposition that *John did John's homework*[9]. Since this proposition is an element of the set of alternatives of the ellipsis clause, the VP can acceptably be elided.

(72)   [$_{\text{TP}_A}$ [$_{\text{DP}}$ 3rd [masc [sg [John]]]] λ1 [t$_1$ did [[$_{\text{DP}}$ pro$_1$]'s] homework]]

(73) $\llbracket$TP$_A\rrbracket^{g,o}$ = John did John's homework.

With regard to feature transmission, this would apply to both the bound pronoun of the antecedent clause and ellipsis clause, although we only see the effect of this process for the antecedent clause since it is the only bound pronoun which is phonologically overt. As seen in (74), the 3rd person singular features of *John* would be copied onto the possessive pronoun which would be realized morphologically as *his*.

(74)   PF: [$_{\text{TP}_A}$ [$_{\text{DP}}$ 3rd [masc [sg [John]]]] λ1 [t$_1$ did [[$_{\text{DP}}$ 3rd [masc [sg [pro$_1$]]]]'s] home-

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[9]Here I have assumed that the pronoun of the antecedent clause is under-specified for its ϕ-features, but the acceptability of ellipsis under focus matching does not depend on this assumption. The same denotation would arise if it was specified as well, and focus matching would still occur.

work]]

At this point it should also be noted that this approach will only predict the accept-ability of VP ellipsis in examples such as (69) when the pronoun of the ellipsis clause underlyingly does not have any ϕ-features specified. If the pronoun is specified for its ϕ-features at LF, as in (75), the set of alternatives derived from this LF would include the 1st person singular presuppositions as in (76). (76) defines a set where it is presupposed that the alternatives are individuals which include the speaker and are singular. It is clear that the denotation of the antecedent clause in (73) is not an element of this set, and VP ellipsis would be predicted to be unacceptable.

(75) $[_{TP_E}$ $[_{DP}$1st [sg [I]]]$]_F$ $\lambda 1$ [t_1 did [$_{DP}$ 1st [sg [pro$_1$]]]'s] homework]]

(76) $[\![TP_E]\!]^{g,f}$ = $\{\lambda w : x$ includes speaker and x is an atom. x did x's homework in w : $x \in D_e\}$

To summarize, it seems to be the case that by assuming underlyingly under-specified pronouns we can have what looks to be the same result as weakened projection, i.e., the absence of pronominal ϕ-feature presuppositions in focus alternatives. In this approach, the absence of ϕ-feature presuppositions can be accounted for without assuming that they are undergoing weakened projection. The reason for their absence in the set of alterna-tives in this account is that the features which trigger them are also absent at LF, thus the presupposition is not being weakened in any way since it is not there to begin with.

5.3.2 Underspecification and variable binding

The data discussed in Heim (2008a) show that the absence of ϕ-features in sets of alter-natives is a phenomenon that occurs with bound-variable pronouns, and based on this she assumes that it is only bound-variable pronouns which can have their ϕ-features under-specified. This section discusses the motivation for this assumption and argues that the phenomenon is broader than assumed by Heim, and that underspecification for ϕ-features is available not just for bound-variable pronouns but whenever co-variation is possible.

We first turn to the question of whether free variables can be under-specified. One reason for assuming that free variable pronouns cannot be under-specified comes from the issue that would arise trying to explain the morphology that they surface with in the

absence of an antecedent DP with which to inherit features from. This problem is evident in sentences such as in (77) where the pronoun *my* must be interpreted as a free variable since there is no c-commanding antecedent that could possibly act as its binder.

(77)   John did my_1 homework. (where $1 \rightarrow$ Mary and Mary is the speaker)

If the pronoun is under-specified for its ϕ-features it would just be an indexed pronoun $[_{DP}$ $pro_1]$ underlyingly, yet we see that it surfaces with with 1st person morphology. It is clear that feature transmission will not be applicable here since there is no c-commanding antecedent with which it can agree, which raises the question as to how this morphology can be acquired for the under-specified pronoun.

   Another reason for not assuming that free variables can be under-specified is that there appears to be no evidence which supports this interpretive option. When a bound-variable pronoun is under-specified, its interpretation is no longer restricted to a particular subset of individuals, which we saw evidence for in focus contexts. Underspecification does not seem to have the same effect for free variables. A free variable pronoun with an index 1, for example, whether it is under-specified or not, cannot be interpreted as making reference to anyone other than the individual that the assignment function maps 1 to[10]. As seen in (78), regardless of whether the pronoun is specified or under-specified for its ϕ-features, it appears that the set of alternatives in each case is essentially the same, as shown in (79).

(78)   Only $JOHN_F$ did my_1 homework. (where $1 \rightarrow$ Mary and Mary is the speaker)

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   [10]In other words, its interpretation cannot co-vary and the sentence in (78) could not have a reading where: John did Mary's homework, Bill did not to Sue's homework, and Sally did not do Lucy's homework. Interestingly, this kind of co-variation has been observed to be possible for 1st and 2nd person pronouns. Charnavel (2015) notes that the sentence in (ia) can have the reading where both subject and object co-vary in the alternatives, as in (ib).

(i)   *Context: Tom to Sue, in a ballroom dancing class.*
      a.   Only I_F make you swirl.
      b.   No other dancer makes his partner swirl. Bill doesn't make Mary swirl. Peter doesn't make Lucy swirl, etc.

(79)   a.   specified:

{$\lambda w :$ g(1) includes speaker $. x$ did g(1)'s homework in $w : x \in D_e$}

= {Sue did Mary's homework, Bill did Mary's homework, ...}

   b.   under-specified:

{that x did g(1)'s homework $: x \in D_e$}

= {Sue did Mary's homework, Bill did Mary's homework, ...}

In sum, there is little reason to assume that free variables can have the option of under-specification for ϕ-features. On the other hand, bound variables do appear to have this option. Based on just this difference between free and bound variables, we could assume, along with Heim, that the option of underspecification is available for bound variables only. One problem with this assumption though is that there is evidence of ϕ-feature absence on pronouns in configurations where variable binding is arguably impossible.

With regard to this problem we turn to Tomioka (1999), who observes that sloppy readings in VP ellipsis and focus can occur in the absence of variable binding. In the examples of (80) and (81) (based on his (7) for VP ellipsis and (54) for focus) binding of the pronoun is assumed to be impossible since the antecedent of the pronoun is embedded in an island where it does not c-command the pronoun, nor can the antecedent move to a position where it can c-command the pronoun, since movement out of an island is generally assumed to be blocked. Despite this, the pronoun interpretation co-varies in the elided VP and focus alternatives and giving rise to the sloppy reading.

(80)   *Context: The police officers downtown have a habit of insulting people they arrest. John experienced this when he was arrested, but Sue got off easier when she was arrested.*
The officer who arrested John$_1$ insulted him$_1$, but the one who arrested SUE$_{2,F}$ didn't ~~insult her~~$_2$.

(81)   Only [the officer who arrested JOHN$_{1,F}$] insulted him$_1$. (The officer who arrested Sue didn't insult her).

Furthermore, what is of particular interest for our purposes here is that we can also see that in the sloppy readings of these sentences, the presuppositions of the pronoun *him* are not present in the elided VP or the focus alternatives. These data therefore seem to behave in the same way that Heim observed for (59) and (60) above. These sentences presumably do not involve bound-variable pronouns due to the lack of c-command between the pronoun and antecedent, thus suggesting that the phenomenon is not limited to

bound-variable pronouns and that a revision of Heim's original generalization is needed.

So how can these readings be accounted for? First, while Tomioka does not observe or address the absence of presuppositional content[11], he does account for the co-variation that arises by assuming that the object pronoun is an e-type pronoun.

It seems that the pronouns in (80) and (81) above can be paraphrased as definite descriptions, where *him* in these cases refers to *the person that the officer arrested*, which in these examples is a more roundabout way of saying *John*. Following the proposal for e-type pronouns of Cooper (1979) as interpreted by Heim and Kratzer (1998), the pronoun is assumed to have the structure in (82), where it is composed of a definite determiner, a free variable of type *e,et*, and a variable (usually bound) of type *e*, here R and *pro* respectively.

(82) $[_{DP}$ the $[_{NP}$ R$_5$ pro$_2$ $]]$

Assuming 5 maps to the relation between officers and the people they arrest, the semantic value of R would be the function $\lambda x.\lambda y.\text{arrest}(y)(x)$. This function takes the pronoun, which eventually gets bound by the complex DP subject, as an argument, and the resulting denotation would be: $\lambda y.\text{arrest}(y)(g(2))$. The semantic value of the DP as a whole would then be *the unique person that g(2) arrested*.

With the assumption of e-type pronouns, sloppy readings in constructions without variable binding can arise. To see how this works for the VP-ellipsis example in (80) (=(83), consider the LFs in (84) and (85), for the antecedent and ellipsis clauses of (80). In both LFs the VP takes an e-type pronoun as an argument, the R variable of this DP denotes the relation between officers and the people they arrest, and the pronominal part is bound by the subject of each clause respectively.

(83)   The officer who arrested John$_1$ insulted him$_1$, but the one who arrested SUE$_{2,F}$ didn't ~~insult her~~$_2$.

(84) $[_{TP_A}$ [the officer who arrested John]$_2$ t$_2$ insulted $[_{DP}$ the R$_5$ pro$_2$ $]]]$

(85) $[_{TP_E}$ [the officer who arrested SUE$_F$]$_3$ t$_3$ insulted $[_{DP}$ the R$_5$ pro$_3$ $]]]$

In terms of licensing VP ellipsis under a focus matching approach, we see that the VP of the ellipsis clause does have a focus matching antecedent, and thus can acceptably be

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[11]His original examples show co-variation in focus alternatives and VP ellipsis where the gender of the pronoun remains the same. The examples in (80) and (81) were modified to show that not only does the pronoun co-vary, but that the gender presupposition can also be absent.

elided. From the LF in (84) the antecedent clause has the denotation in (86), and from the LF (84) the set of alternatives in (87) are derived. Given these denotations, TP_A is an element of TP_E's set of alternatives and therefore the VP has a focused matched antecedent and ellipsis is possible.

(86) $[\![(84)]\!]^{g,o}$
        = that the officer who arrested John insulted the person they arrested
        = that the officer who arrested John insulted John

(87) $[\![(85)]\!]^{g,f}$
        = {that the officer who arrested x insulted the person they arrested $: x \in D_e$}
        = {that the officer who arrested x insulted x $: x \in D_e$}

The sloppy readings without variable binding in focus constructions also follow with the assumption of e-type pronouns. The prejacent of *only* in (81) would have the LF in (88) where the predicate *insult* takes and e-type pronoun object.

(88)   [$_\text{TP}$ [$_\text{DP}$ the officer who arrested JOHN$_F$] $\lambda 2$ t_2 insulted [$_\text{DP}$ def [R$_5$ pro$_2$]]]

The set of alternatives derived from this LF would be as in (89).

(89) $[\![(88)]\!]^{g,f}$ = {that the officer who arrested x insulted the person that they arrested $:$ $x \in D_e$}

When *only* takes this set of alternatives as an argument, the denotation of the sentence in (81) would be as in (90), which can be paraphrased as *No officer but the one who arrested John insulted the person they arrested*, and would be true in a scenario where John was insulted by the officer that arrested him but Sue was not insulted by the officer who arrested her.

(90) $[\![(81)]\!]^{g}$ =
        $\forall q[q \in$ {that the officer who arrested x insulted the person that they arrested $:$ $x \in D_e$}$\& T(q) \leftrightarrow$ that the officer who arrested John insulted John}

What is relevant here for the discussion on underspecification is that these examples not only show that sloppy readings can occur without variable binding, but that the e-type pronoun ([$_\text{DP}$ def R pro]) appears to also not have its ϕ-features present in the set of focus alternatives. If it did the denotation of the e-type pronoun would be restricted to

male individuals in the focus alternatives, which we see is not the case for the examples in (80) and (81).

This suggests that Heim's original assumption about underspecification for bound variables only is insufficient. Instead, underspecification would have to be assumed to be available whenever co-variation is possible, which will include both the bound-variable and e-type uses of pronouns[12]. If only bound-variable and e-type pronouns can have their presuppositions absent at LF, then one consequence of this assumption is that only bound-variable or e-type pronouns will be able to have their presuppositions absent in the set of focus alternatives.

5.3.3 Underspecification and reflexives

The question at this point is whether this revised assumption on underspecification can account for the absence of *self*'s presupposition in strict readings of reflexives. This section argues that while the absence of ϕ-features in focus alternatives can be accounted for with the assumption of underspecification, this approach faces serious problems when it comes to accounting for reflexives, namely, it does not seem to be extendable to reflexives without the addition of a number of ad hoc assumptions.

In order to see why, first recall that the underspecification approach now accounts for the absence of ϕ-feature presuppositions by assuming that bound-variable and e-type pronouns are under-specified for their ϕ-feature presuppositions at LF, and that the ϕ-features morphologically realized on a pronoun at PF are the result of feature transmission, a process which copies the features of the pronoun's antecedent DP onto it. To extend this to reflexives, the basic idea would be to say that the reflexive is under-specified at LF for its argument identity presupposition, since this is the presupposition we want to be absent at LF and consequently be absent in the set of alternatives.

This account runs into problems from the onset though. First, given the discussion in Section 5.1.2, underspecification is assumed to be possible for bound variables or e-type pronouns, and thus we would have to assume that the reflexive is one of these two anaphors. E-type pronouns do not seem applicable here, and thus we are left to assume the reflexive is a bound variable. Under this assumption, the LF for the prejacent of *only*

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[12]It should be noted that with this modification regarding underspecification, the definition of feature transmission in (62) would also have to be modified. Since the e-type pronoun lacks a c-commanding antecedent, feature transmission through binding is not an option, and thus feature transmission would have to be expanded to somehow allow the copying of features for e-type pronouns as well.

in (91) would be as in (92).

(91)   Only JOHN$_{1,F}$ likes himself$_1$.

(92)   [$_{TP}$ JOHN$_F$ $\lambda1$ [$_{TP}$ t$_1$ [$_{VP}$ likes him$_1$]]]

From this LF we would derive the set of alternatives in (93) without the reflexive presupposition, but problematically, this set would not be of the necessary form to predict the acceptability of strict readings (see Chapter 3).

(93) $[\![(92)]\!]^{g,f}$ = {that x likes $x : x \in D_e$}

Instead, underspecification would have to be assumed to be available for free variables as well in order to get a set of alternatives of the right form for strict readings, such as in (94).

(94)   a.   [$_{TP}$ John$_{1,F}$ [$_{VP}$ likes him$_1$]]]
        b. $[\![(94a)]\!]^{g,f}$ = {that x likes John $: x \in D_e$}

In allowing the LF in (94a) we need to abandon the assumption that free variables cannot be under-specified. As argued for in Section 5.3.2, there is good reason to assume that free variables do not have this option. Therefore we are stuck in a situation where, on one hand we do not want to allow free variables to be under-specified, but when we consider the reflexive data we do. At this point the only way I can see accounting for this would be to disallow free variables to be under-specified for ϕ-feature presuppositions, but make an exception in allowing underspecification for the reflexive presupposition. While this might work, it seems ad hoc and not particularly informative.

Another problem arises when we try to extend the idea of agreement to explain the under-specified pronoun being morphologically realized as a reflexive. First recall that for ϕ-features, an under-specified pronoun surfaces with the morphology that it does through an agreement process where it inherits the ϕ-features of its antecedent DP. For example, an underlyingly under-specified pronoun with the antecedent *John* that is specified for its ϕ-features, as in [$_{DP}$ *3rd [sg. [masc [John]]]*], will surface with 3rd person, singular, masculine morphology through agreement.

Turning to reflexives, this agreement process is problematic since the antecedent DP of the under-specified pronoun does not carry any reflexive marking which could be passed down to the object pronoun. In order to remedy this we could introduce further reflex-

ive specific assumptions, such as the addition of a phonetically empty reflexive operator which the pronoun could agree with at PF such as in (95). With regard to LF and the semantic component, if such an operator was introduced it would presumably add an argument identity presupposition and as such would need to be in a position which takes scope above focus so that its meaning contribution would not be included in the alternatives.

(95)   PF: [OP_{self} [only [JOHN$_F$ likes him$_1$-self]]]

To summarize, the feature transmission account provides a way to explain the absence of ϕ-feature presuppositions in focus and ellipsis constructions that does not rely on weakened projection, but problematically this account cannot easily be extended to reflexives. The absence of ϕ-features presuppositions are explained by the assumption of under-specified ϕ-features at LF. If the ϕ-feature presuppositions of a pronoun are not present at LF, then they will also not be present in the set of alternatives derived from this LF. The morphology that appears on an unspecified pronoun is the result of a process which copies onto it the features of its antecedent DP. In attempting to extend this account to reflexives, it seems that in order for it to work, it requires the addition of a number of ad hoc assumptions, making it an undesirable approach for strict readings of reflexives.

5.4   Towards a new generalization

After looking at these three previous approaches in the literature to the absence of presuppositions in alternatives, the question of how to correctly characterize when a presupposition can or cannot be absent in focus alternatives still remains. The generalizations examined in this chapter all face the same problem, namely, they can only manage to capture a subset of the data. This section outlines a direction for a different generalization based on how the presuppositional element relates to phrase that is F-marked.

We first turn to the absence of ϕ-feature and *self* presuppositions in focus alternatives. With regard to ϕ-features and *self*, we want to be able to account for the following observations:

- The absence of *self*'s presupposition for co-referential reflexives, i.e. strict readings of reflexives, exemplified by sentences such as (96).

(96)   Only JOHN$_{1,F}$ likes him$_1$-self. (Mary doesn't like John)

- The absence of ϕ-feature presuppositions for bound-variable pronouns, i.e., sloppy readings of pronouns, exemplified by (97).

(97)   Only JOHN$_{1,F}$ did his$_1$ homework. (Mary didn't do her homework)

- The absence of ϕ-feature presuppositions for e-type pronouns, i.e. sloppy readings of pronouns without variable binding, exemplified in (98).

(98)   Only the officer who arrested JOHN$_{1,F}$ insulted him$_1$. (Mary wasn't insulted by the officer who arrested her)

What all of these cases have in common is that the object DP is anaphoric in some way to the F-marked phrase, whether it is through variable binding, e-type anaphora, or co-reference, which suggests that what could be responsible for the absence of the presuppositions on these DPs is their link to the focused phrase.

Further evidence that the ϕ-features of a DP can be absent when it is anaphoric to the F-marked phrase comes from sloppy readings of reflexives which illustrate another instance where the ϕ-features of a bound-variable reflexive can be absent in the alternatives. In (99) the masculine features of the bound-variable pronoun do not have to be interpreted in the alternatives.

(99)   Only JOHN$_F$ λ1 t$_1$ likes [$_{DP}$ 3.sg.masc.him$_1$ self]. (Mary doesn't like Mary)

The phenomenon seems to be even broader if we consider examples such as (100). The copula construction in (100) expresses a membership relation between the two DPs – the subject is an element of the set denoted by the object, and thus we can think of the two DPs as linked by this membership relation. Assuming that the DP *a waitress* denotes the set of individuals that are waiters and presupposes that the elements of the set it denotes are female, then it appears that this gender feature needs to be absent in the alternatives to get the reading in (100). The acceptability of examples such as (100) suggests that this phenomenon is not just restricted to the presuppositions of elements that are anaphoric with the F-marked DP, but to elements that are in some way linked to the F-marked phrase.

(100) *Context: John, Mary, and Bill all worked as wait-staff at a restaurant. But John and Bill moved on to different jobs.*
       Only MARY$_F$ is still a waitress.

The phenomenon seems to be even broader still when we consider the examples in (101) and (102) where we can observe the absence of ϕ-feature and *self* presuppositions in phrases that are themselves F-marked. The pronominal DP in (101) would carry 3rd person, singular, masculine presuppositions. When this DP is focused, these features restrict the denotation of the pronoun in the ordinary semantic value, but the alternatives to the pronoun are not similarly restricted, as seen by the possibility of the alternatives being female, or 1st person or 2nd person.

(101) Only HE$_{1,F}$ likes Bill. (Mary doesn't like Bill, I don't like Bill, you don't like Bill).

We can see the presupposition of *self* (and also ϕ-features) being absent from the alternatives in (102). We have been assuming that *self* restricts the interpretation of the object pronoun by saying it is equivalent to the denotation of the subject DP. Thus, in (102) *self* restricts the denotation of *him* by saying its denotation is equivalent to *John*. Again, *self* can be seen to restrict the denotation of the reflexive in the ordinary semantic value, but the alternatives to the reflexive are not similarly restricted, i.e., the denotation of the object DP does not have to be equivalent to the denotation of the subject DP.

(102) John only likes himSELF$_F$. (John doesn't like Mary, John doesn't like you, John doesn't like me)

This effect of focus on the presuppositions of the DP that is F-marked has previously been discussed in Section ? for presuppositional elements other than ϕ-features and *self*. For example, the presence of F-marking also seems to be responsible for the absence of the uniqueness presupposition in the example in (103) previously discussed by Sauerland (2013), Walker (2012), and von Heusinger (2007).

(103) *At a party there is one German professor, two Dutch professors and two French professors.*
       John only talked to [the GERMAN professor]$_F$.

As previously mentioned in Section 5.1.2, assuming that the DP is F-marked, rather than the adjective, alternatives to [the GERMAN professor]$_F$ would be from the set of individuals. And as we can see in (103), this set is not restricted to unique individuals, and *a/any French professor* is a viable alternative or *a/any Dutch professor* or any other individual.

To sum up, all of these examples combined point towards a generalization where the absence of a presupposition in the focus alternatives depends on how it relates to the F-marked phrase. It appears as if the linked phrases are behaving as if they are F-marked. Instead of a weakened projection generalization based on different types of presuppositions or the underspecification of presuppositional elements, (104) defines a focus based generalization where the presuppositions of DPs that are F-marked or linked to an F-marked phrase can be absent, where "linked to" encompasses the relationships of being bound by the F-marked DP, co-referential with the F-marked DP, denoting the same thing as the F-marked DP (e-type pronouns), or denoting a set in which the F-marked is an element (waitress example)[13].

(104)   The presuppositions of F-marked DPs or DPs linked to an F-marked DP can be absent in focus alternatives.

Furthermore, when we consider examples such as (105), being linked to the F-marked phrase seems to be required for the absence of the presupposition. In the sentence in (105a), the DP *the waitress* is not linked to the F-marked phrase, and in the absence of it being linked to the F-marked phrase, judgements appear to differ from sentences such as

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[13]This weakened projection generalization would also seem to make interesting cross-linguistic predictions. As observed in Drummond and Shimoyama (to appear) (citing Kishida (2012)), reflexive predicates in Japanese do not give rise to strict readings. These predicates are derived by affixing *self* to the verb, such as in (i).

(i)   Mary-ga   Bill-yorimo hageshiku ziko-hihan-shi-ta
       Mary-NOM Bill-than   severely   self-criticism-do-PAST
       a.   Mary criticized herself more severely than Bill criticized himself. (sloppy)
       b.   *Mary criticized herself more severely than Bill criticized her. (strict)

If we tried to account for this data in another approach to weakened projection, such as the purely presuppositional approach, one would have to explain why *self* could not undergo weakened projection here, even though it is purely presuppositional.

But, if presuppositional content can only be absent when it is F-marked or linked to the F-marked phrase, then it predicts the absence of the strict reading in constructions like (i), since *self* is not F-marked or linked to the F-marked phrase, and it makes this prediction without having to make any additional assumptions about *self* when it is affixed to a verb.

(100), with most informants saying it is unacceptable[14].

(105)   *Context: At the restaurant, I was served my food by a female waiter, while Mary was*
         served by a male waiter, and so was Bill. At the end of the meal …

    a.   Only I_F tipped the waitress that served me.

    b.   #/?? I tipped the waitress that served me. Mary didn't tip her waiter, Bill
         didn't tip his waiter.

The question at this point is why F-marking or being linked to an F-marked DP would
have this effect on presuppositions. For the cases where the DP is F-marked, the reason
seems straightforward. As discussed in Section 5.1.2, the presuppositions of F-marked
DPs could be absent due to the way alternative semantics for focus interprets F-marked
phrases. An F-marked DP is interpreted in the alternatives as if it were replaced by a
set comprised of elements of the same semantic type. Thus an individual denoting DP
which is F-marked would have an alternative semantic value which is a set of individuals.
For the cases above, under the assumption that it is the entire extended DP which is F-
marked, thus including presuppositional elements such as *self* or ϕ-features, then, when
this F-marked DP is interpreted, these presuppositions will be absent in the alternatives,
as the whole DP be interpreted as just a set of individuals.

What is not so clear now is why DPs linked to the F-marked DP behave in this manner.
We will first start off by trying to define a better notion of what "linked to" means in the
generalization in (104). One potential way of characterizing this would be to say that the
presuppositions of the linked DPs are those presuppositions which seem to be internally
satisfied, i.e., are presuppositions which can be assessed internal to the sentence. If we
look at the denotations of the prejacent of *only* in (106)-(109), the presuppositions of the
linked DP are satisfied by virtue of looking at the denotation of the F-marked constituent.
For example in (106), under the assumption that *John* is a name for reserved for only male
individuals, and that this is marked in the grammar somehow, then the presupposition
of *his* is satisfied by looking at the denotation of *John*.

(106)   Only $\text{JOHN}_{1,F}$ did his$_1$ homework

    a.   [JOHN_F $\lambda 1$ [t$_1$ did 3rd.sg.masc.pro$_1$ homework]]

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[14]Although it should be noted that there were a range of judgements, with some speakers saying (105a)
is perfectly acceptable with the reading in (105b), but most saying it is "weird" or that they get the reading,
but only if they assumed that speaker had made a mistake and meant to say *waiter*.

b. $[\![(106a)]\!]^{g,o} = \lambda w$: John is male. John did John's homework in w

The same would be the case for the example in (107), the presuppositions of the e-type pronoun are satisfied by the denotation of *John*.

(107) Only the officer that arrested JOHN$_{1,F}$ insulted him$_1$

  a. [[the officer who arrested JOHN$_{1,F}$] $\lambda 2$ [t$_2$ insulted [3.sing.masc.the R$_5$ pro$_2$]]]

  b. $[\![(107a)]\!]^{g,o} = \lambda w$: John is male. the officer who arrested John insulted John in w

For the presupposition of *self* in (108), we know the denotation of the object, and need only to look at the denotation of the subject to assess the truth of the argument identity presupposition. Since the denotation of the subject is identical to that of the object, the presupposition is satisfied.

(108) Only JOHN$_{1,F}$ likes himself$_1$

  a. [JOHN$_{1,F}$ likes him$_1$-self]

  b. $[\![(108a)]\!]^{g,o} = \lambda w$: John=John. John likes John in w

To deal with the example in (109) we need to assume that *Mary* is a name reserved for female individuals and that this is marked in the grammar somehow, and if this is the case, then the presupposition introduced by *waitress*, that the individual it combines with is female, is satisfied just by looking at the denotation of the subject *Mary*.

(109) Only MARY$_F$ is still a waitress.

  a. [MARY$_F$ is still a waitress]

  b. $[\![(109a)]\!]^{g,o} = \lambda w$: Mary is female. Mary is a waiter in w

Furthermore, characterizing the generalization in terms of internally satisfied presuppositions allows us to capture the absence of *again*'s presupposition. It is clear that the presupposition of *again* cannot be satisfied just by looking at the focused phrase, or by looking at any part of the internal structure of the sentence for that matter. In order for *again*'s presupposition in (110) to be assessed, we need to look at the context external to the sentence.

(110)   Only JOHN$_F$ kicked the ball again

    a.   [[JOHN$_F$ kicked the ball] again]

    b. $[\![(110a)]\!]^{g,o} = \lambda w :$ John kicked the ball before. John kicked the ball now in w

This idea of internally-satisfied presuppositions does have some potential problems. For example, in order to account for the cases where there is a gender presupposition absent in the set of alternatives, it relies on the assumption that the F-marked DP is already specified for its gender, i.e., that proper names like Mary or John are already specified for feminine or masculine, and that this gender is not determined by context. If this were the case, then we would expect that when context must determine the gender of the F-marked DP, weakened projection in the focus alternatives would not be possible. Counter to this prediction, it does seem to be the case that weakened projection is possible. As shown in (111a), the gender of the F-marked DP is determined by the context, and yet, the sentence is judged as clearly acceptable by speakers with the reading in (111b).

(111)   *Context: John, Mary and Bill were all waiters at a restaurant. After a few months, John and Bill moved on to different jobs. Both you and I are talking about who still a waiter at the restaurant. I see Mary on the other side of the room and point to her and say . . .*

    a.   Only [THAT person]$_F$ is still a waitress.

    b.   No one but Mary is still a waitress. John is not still a waiter. Bill is not still a waiter.

To sum up, at this point we seem to have a more concrete notion of what "linked to" means in the generalization in (104). It seems as though it is the presuppositions which are internally satisfied by the focused DP which can be absent from focus alternatives, but at this point it is still not clear exactly how this idea of a presupposition being internally satisfied could be implemented so as to account for examples such as (111a). Furthermore, while this idea gives us a better way of describing the phenomenon, it still does not tell us why an internally satisfied presupposition can be absent.

To this end, it could potentially pave the way for an account which is, in its its basic intuition, essentially that of Heim (2008a) – the presupposition is, in fact, absent at LF, and therefore absent in the alternatives.

The following discussion sketches out how this may proceed with strict reflexives. To do this we would require the assumption of Heim's (1991) Maximize Presupposition in the grammar, defined in (112) by Chemla (2008).

(112)   *Maximize Presupposition:*
         Among a set of alternatives, use the felicitous sentence with the strongest pre-
         supposition

Let us also assume that the reflexive has the denotations in (113) as competing alterna-
tives, one where the presupposition of *self* is present, and one where it is absent.

(113)   a. $[\![\text{him}_1\text{-self}]\!]^g = \lambda P.\lambda y : g(1) = y.P(y)(g(1))$
         b. $[\![\text{him}_1]\!]^g = g(1)$

Maximize Presupposition would force us to use the element with the strongest presup-
position, and in the case of reflexives, it would force us to use the one with the argument
identity presupposition, not without. At first glance, this would be problematic since it
means the presupposition of *self* would be present in the set of focus alternatives, which
we do not want for strict reflexives.

    But, having an internally satisfied presupposition could help the situation. In the
cases where the presupposition is internally satisfied, the structural configuration of the
sentence seems to have the same effect on the meaning of the sentence as marking the
presupposition in the compositional semantics. For example, in (114), if the presupposi-
tion of *self* was not present, the grammar would still give rise to an denotation which is
equivalent to when the presupposition was there.

(114)   John$_1$ likes himself$_1$.

         a. $[\![[_{\text{TP}}\text{ John}_1\text{ likes him}_1\text{-self}]]\!] = \lambda w : \text{John=John. John likes John in } w$
         b. $[\![[_{\text{TP}}\text{ John}_1\text{ likes him}_1]]\!] = \text{that John likes John}$

The idea would be that, since the grammar ensures the same denotation as if the presup-
position was marked in the compositional semantics, the reflexive alternative without
the presupposition can be used. Essentially, Maximize Presupposition would not see the
unmarked reflexive in this structural configuration as being presuppositionally weaker.
This would allow an LF to be possible without the presupposition present, and therefore
also not be present in the set of alternatives. At this point further research is needed as
to the precise formulation of an account along these lines, and I leave it as an open issue
as to whether this would be a viable account to the absence of certain presuppositions in
focus alternatives.

5.5 Summary

This chapter began by discussing some of the problems that follow from an account of weakened projection based on pure presuppositionality, and considered two other ways in which the absence of presuppositions in focus alternatives could arise. Despite there being various generalizations proposed in the literature as to when a presupposition can or cannot be absent in focus alternatives, it is evident from the proposals examined here that they can only account for a subset of the data. Sauerland's purely presuppositional approach is able to capture the absence of ϕ-features, *self*'s argument identity presupposition, and the uniqueness presupposition of definite determiners, but cannot account for *again*, or soft triggers like *stop* – the former is a case of a purely presuppositional element which cannot be ignored, and the latter is a case of a non-purely presuppositional element which can be. Walker's soft presupposition approach is able to capture the behaviour of *stop*, *again*, and definite determiners but not ϕ-features and *self*. And Heim's feature underspecification and transmission approach, while it works for ϕ-feature absence in alternatives could not easily extend to the absence of *self*.

Taking into consideration the full set of data, I propose that the absence of a presupposition from focus alternatives is not based necessarily on presupposition type, but instead on how the presuppositional element interacts with the F-marked DP. When the presuppositional element is part of the F-marked DP, the absence of the presupposition is accounted for as a consequence of how alternative semantics interprets F-marked DPs in general, namely by replacing the F-marked phrase with an alternative semantic value which is a set of elements of the same semantic type.

In the other cases where a presupposition can be absent, the presuppositional element is linked to the F-marked DP in some way, and this chapter presented a way of characterizing this through the notion of internally satisfied presuppositions. This intuition may provide a direction towards an account or presupposition absence in focus alternatives, but it is unclear at this point how to precisely implement this idea.

Chapter 6

Summary and open issues

6.1 Summary

The primary focus of this dissertation is on the interpretation of reflexive pronouns. It begins by examining their assumed interpretation in SBT. Condition A of SBT aims to capture the fact that the antecedent of the reflexive must be local and must be in a c-commanding position. One way of ensuring a c-commanding antecedent is to assume that reflexives can only be interpreted as bound variables, since c-command is necessary for semantic binding to hold. This dissertation questioned the basic bound-variable-only assumption of SBT by examining the interpretation of reflexives in VP-ellipsis and focus constructions in English, and argued that a revision of Condition A is necessary, where reflexives can be interpreted as either co-referential with or a variable bound by their antecedent.

Chapters 2 and 3 presented data showing that, in ellipsis and focus phenomena, reflexives can give rise to a strict reading. The strict reading in ellipsis constructions is one where the denotation of the reflexive is the same in both antecedent and ellipsis clauses, such as in (1). And for focus constructions, the strict reading is one where the denotation of the reflexive stays the same in both the ordinary semantic value and the set of focus alternatives, such as in (2).

(1) a. John$_1$ defended himself$_1$ before Bill did.
     b. = John defended John before Bill defended John

(2) a. Only JOHN$_{1,F}$ likes himself$_1$.

  b. = No one other than John likes John. (Bill doesn't like John. Mary doesn't like John.)

This dissertation argued that these readings of reflexives cannot be accounted for with the assumption that reflexives can only be interpreted as bound variables, and that in order to account for the full range of configurations that strict readings arise in, reflexives which are co-referential are needed.

Chapter 2 investigated previous accounts in the literature for strict readings of reflexives in ellipsis constructions. It has long been observed that reflexives can give rise to strict readings in VP-ellipsis. Accounts of these readings have predominantly aimed to keep SBT assumptions in tact, including the assumption that reflexives can only be interpreted as bound variables. They maintain the bound-variable-only assumption for reflexives by assuming that the anaphor in the elided VP is not actually a reflexive in the first place. In Hestvik's anaphor raising approach, the anaphor of the elided VP is a movement trace, and in Büring's focus matching approach, the anaphor of the elided VP is a non reflexive pronoun. This chapter presented data showing that both of these approaches are insufficient and cannot account for the full range of configurations in which strict readings can arise. The movement approach is unable to account for strict readings involving islands for movement, and the focus matching approach is unable to account for strict readings where the anaphor of the elided VP must be a reflexive.

Furthermore, Chapter 2 showed that these problematic readings would no longer be problematic as long as reflexives could be co-referential with their antecedents, and explored how, with the addition of co-referential reflexives, strict readings could be accounted for under both a syntactic or semantic identity approach to ellipsis resolution. For the former, strict readings could arise from co-referential reflexives alongside the assumption of Fiengo and May's (1994) vehicle change, and for the latter, they arise just from a binding theory that allows co-referential reflexives.

Chapter 3 investigated how strict readings might arise in focus constructions. Unlike strict readings of reflexives in VP-ellipsis, strict readings in focus constructions have been largely left unexplored and are often claimed to be unavailable. The experimental evidence presented in this chapter shows that strict readings of reflexives are in fact judged to be acceptable, counter to previous claims in the literature. This is again problematic for a binding theory which assumes that reflexives can only be interpreted as bound variables

– the set of alternatives derived from an LF in which the reflexive is a bound variable will be of the wrong form for predicting the acceptability of strict readings in focus phenomena. Just as with ellipsis constructions, this chapter showed that strict readings would be unproblematic as long as reflexives could be co-referential with their antecedents.

With the need for co-referential reflexives established, Chapter 4 explored two ways in which co-referential reflexives could be predicted as acceptable in binding theory. The first way presented was a modification of SBT's Condition A, where the most immediate way of incorporating co-referential reflexives in SBT is to stipulate both interpretive options. Condition A is formulated to require that reflexives be anaphoric with their antecedents through either variable binding or co-reference. The result of this modification is a disjunctive Condition A which was argued to be theoretically undesirable.

A second way of capturing the co-referential nature of reflexives was presented based on Sauerland (2013), where Condition A requirements are built into the compositional semantics through an argument identity presupposition triggered by the presence of the morpheme *self*. From a theoretical point of view, this way of formulating Condition A fares better than the modification of SBT since it avoids a disjunctive condition in the grammar, and the co-referential nature of reflexives is a consequence, rather than a stipulation, of Condition A. Furthermore, a presuppositional approach to Condition A establishes a way for strict readings of reflexives to be tied into a larger phenomenon – namely, that of weakened presupposition projection. This chapter presented Sauerland's (2013) weakened projection account of strict reflexives, and argued that one of the major advantages to this approach is that it provides a more insightful way of accounting for these readings than was previously offered in the literature, such as Fiengo and May's (1994) vehicle change account.

Despite these advantages, Sauerland's (2013) weakened projection approach to strict reflexives is not without problems. Chapter 5 presented some issues regarding his assumptions on how weakened projection proceeds. In Sauerland's account, for a presupposition to be weakened in the set of focus alternatives, it needs to be classified as purely presuppositional. While this works for reflexives and other cases, such as presuppositional ϕ-features, it makes a number of incorrect predictions elsewhere. Purely presuppositional elements such as *again* do not appear to be able to undergo weakened projection, thus raising the question of how to correctly characterize what can and cannot undergo weakened projection.

This chapter considered two other possible options to explain the absence of a reflex-

ive's presupposition in focus alternatives. The first was to see whether reflexives fall into Walker's (2012) generalization on weakened projection based on the soft/hard presupposition trigger distinction; the second was to explore a non-weakened projection account previously proposed for ϕ-features by Heim (2008b), where the absence of a presupposition in the focus alternatives arises from that presupposition being absent at LF. This chapter argues that both of these approaches run into problems explaining the absence of the reflexive's argument identity presupposition.

In light of these problems, Chapter 5 also presented a new direction for what the correct generalization may be. Instead of basing weakened projection on the type of presupposition (i.e., purely presuppositional or not, soft versus hard) weakened projection in focus alternatives seems to be based on the relationship the presuppositional element has with the focused/F-marked phrase.

To sum up, the take home message here is primarily that reflexives cannot just be interpreted as bound variables, counter to SBT assumptions. Strict readings, where reflexives would need to be interpreted as co-referential, have been shown to be rated as acceptable experimentally in focus constructions, and they also seem to be readily available in naturally occurring language use, as shown in Chapter 1, repeated here in (3) and (4)[1].

(3)   *even*

     a.   Miles Matheson [is] the man everyone loves to hate, but nobody actually does anything about. **Even he hates himself**, for all the terrible things he's done to people.
          ("Revolution episode 14 review: The Night The Lights Went Out In Georgia", Den of Geek, 2013 TV-show review)

     b.   I'm so good at swimming **even I hate myself**.
          (website selling t-shirts and buttons)

     c.   Hegel is often described as a mystic. Indeed, **even he describes himself as one**.
          ("Hegel and the Hermetic Tradition", Glenn Alexander Magee, 2001 book)

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[1]Another point of interest with strict readings of reflexives in these focus constructions is that they seem easier to get with first and second person reflexives than with third person reflexives. I leave it as an open question as to why this is the case.

(4)   *only*

    a.   Only you can make yourself quit.

         (icanquit.com, online forum on quitting smoking)

    b.   **Only I can help myself**. But I can't even do that right.

         (ehealthforum.com, online forum for mental health)

    c.   **Only HE sees himself that way**, and virtually no one else could reasonably agree to such a crazy notion.

         ("SPS2: Breaking Bad, White Privilege, and The Ghost of Rollerblading Past", One Rollerblading Magazine, 2013 article)

Furthermore, this phenomenon does not seem to be specific to English. Strict readings are observed to be possible in Spanish, for example, with reflexive clitics, such as in (5).

(5)   ... pero lo mas importante es hacerle entender que solo el se puede ayudar solo el tiene la solucion a su problema.

    '... but the most important thing is to make him understand that only he can help himself, only he has the solution to his problems.'

What is interesting with examples such as (5) is that it rules out the possibility of the reflexive being somehow focused and strict readings arising only when the reflexive bears prosodic prominence. Here we see strict readings arising when it is impossible for the reflexive, as a clitic, to bear prosodic prominence. While the scope of this dissertation is limited to English, the analysis pursued here does make predictions for reflexives cross-linguistically which can be explored in subsequent research.

    Lastly, this dissertation also showed that strict reflexives are judged as natural and acceptable in ellipsis constructions. Thus, based on the availability of strict readings in ellipsis and focus constructions,I argued that reflexives need to be able to be interpreted as co-referential with their antecedents, and we therefore end up with a theory in which reflexive interpretation is similar to that of pronoun interpretation – both types of anaphors can be interpreted as free or bound variables. We have also seen that there is both a syntactic way and a semantic way of accounting for these interpretive options with reflexives, but the semantic way ultimately seems more insightful. It leads us to the study of weakened presupposition projection and how a reflexive presupposition fits into this phenomenon. With the addition of the strict reflexive data, there appears to be a real challenge for future research in formalizing what can and cannot undergo weakened pro-

jection in focus alternatives.

6.2   Open Issues

In addition to the open issues of chapter 5 regarding how to formalize the descriptive generalization of what can and cannot undergo weakened projection, there are quite a few areas for future research raised by the experimental results and the assumption of a presuppositional approach to Condition A. This section briefly outlines a few such areas.

6.2.1   Reflexives with object prominence

The experimental results in Chapter 3 raise some questions which this dissertation did not address. One comes from the production experiment, which showed that in focus contexts, object prominence on reflexives is preferred to subject prominence for strict readings. That strict readings are more naturally occurring with object prominence has also previously been observed by Spathas (2010, 2013) and Fiengo and May (1994), thus the results support their observation.

(6)   Who likes Mary$_2$?
       She$_2$ likes herSELF$_{F,2}$

Section 3.3 outlined how these sentences would be problematic for SBT (i.e., for bound-variable reflexives), but it should be noted that they are also problematic for a binding theory that allows for co-referential reflexives. We see that even with co-referential reflexives, strict readings will not arise with prosodic prominence on the object reflexives. If the sentence in (6) has the LF in (7), the set of alternatives derived would be of the form {Mary likes $x : x \in D_e$}.

(7)   LF: [$_{TP}$ She$_2$ likes herSELF$_{F,2}$]

Focus phenomena that make use of this set of alternatives will only be acceptable when the discourse provides a set of alternatives that contrast with the object. For the example in (6), question-answer congruence will not follow since the denotation of the question is not a subset of the set of alternatives derived from the answer.

In order for question-answer congruence to follow, Spathas argues that reflexives should be interpreted as reflexivizing functions, as in (8).

(8) $[\![\text{herself}]\!] = \lambda R_{e,et}\lambda x.R(x)(x)$

Abstracting away from the details of his account, the main point he makes is that if reflexives are interpreted as reflexivizing functions, then, when they bear object prominence in a sentence such as (6), they will derive a set of alternatives which includes both alternatives to the object and alternatives to the subject, as in (9).

(9)   {Mary likes Mary, Mary likes John, John likes Mary, ...}

Given this set of alternatives, question-answer congruence will follow in a discourse such as (6) since the denotation of the question (which includes just subject alternatives, i.e., {Mary likes Mary, John likes Mary, Sue likes Mary, ...}) is a subset of this set.

Thus, based on strict readings in focus constructions with object prominence, Spathas argues for a different view of reflexive interpretation argued for in this dissertation. One problem for the reflexivizing function view, though, is that it is problematic for the cases of strict reflexives examined in this dissertation, in which there is subject prominence. For example, if the reflexive in the LF in (10) denotes a reflexivizing function rather than an individual denoting variable, the set of alternatives would be as in (11d), and it is clear that the denotation of the question in (6) is not a subset of this set, and question-answer congruence would not be predicted to follow.

(10) $[_{\text{TP}}\ \text{SHE}_{\{2,F\}}\ [_{\text{VP}}\ \text{likes herself}\ ]]$

(11)   a. $[\![\text{herself}]\!]^{g,f} = \{\lambda R \in D_{e,et}.\lambda z \in D_e.R(z)(z)\}$
          b. $[\![\text{likes}]\!]^{g,f} = \{\lambda x \in D_e.[\lambda y \in D_e.y \text{ likes } x]\}$
          c. $[\![\text{SHE}_{\{2,F\}}]\!]^{g,f} = \{x : x \in D_e\}$
          d. $[\![\text{SHE}_{\{2,F\}} \text{ likes herself}]\!]^{g,f} = \{\text{that } x \text{ likes } x : x \in D_e\}$

Clearly we want to be able to predict the acceptability of both options, and whatever the account may be for strict readings with object prominence, it should not rule out the possibility of strict readings with subject prominence.

6.2.2 Condition B obviations

The second issue that arises from the experimental results of Chapter 3 is the finding that pronouns are judged to be unacceptable with local antecedents in focus contexts, such as in (12).

(12)   *Mary did a terrible thing but none of her friends hate her for it.*
        Only $SHE_{1,F}$ hates her_1.

While one might think this is unsurprising, given that Condition B requires a pronoun to be free in its local domain (i.e., not have a local antecedent), it often claimed in the literature by, for example, Grodzinsky and Reinhart (1993) that Condition B can be obviated in focus configurations such as in (12), counter to the experimental results reported here.

That claim that Condition B can be obviated in focus contexts is one of the supporting data points for Grodzinsky and Reinhart's (1993) Rule-I approach to anaphora distribution, and thus the finding that they are unacceptable presents a challenge to their theory of anaphor resolution. In their theory, binding conditions apply to semantic binding only, whereas co-reference relations are regulated by the interface rule, Rule-I, which compares two LFs – one in which the pronoun is referential and one where it is a bound variable – and allows a pronoun to be co-referential with a local antecedent as long as this co-reference gives you something that binding cannot – a distinguishable interpretation.

(13)   *Rule-I*:
        DP A cannot co-refer with DP B if replacing A with C, C a variable bound by B, yields and indistinguishable interpretation.

In this system, if the pronoun in the sentence in (12), for example, is interpreted as co-referential, then its distribution falls within the domain of Rule-I and not binding theory. Rule-I compares the interpretation of the sentence when the pronoun is co-referential to when it is bound, as in (14)

(14)   a. $[\![$only [$SHE_{1,F}$ $\lambda 1$ t_1 hates $her_1]]\!]^g$ = No one but Mary hates themselves
        b. $[\![$only [$SHE_{1,F}$ hates $her_1]]\!]^g$ = No one but Mary hates Mary

Since binding and co-reference in the presence of *only* do give rise to different truth conditions, then Rule-I will allow the pronoun to be co-referential, despite its antecedent being

local. Thus predicting the sentence in (12) to be acceptable, counter to the experimental results presented in this dissertation.

These results present a challenge not only for Grodzinsky and Reinhart (1993) but for the subsequent accounts in the literature of Condition B obviations, such as that of Heim (2008b) and Roelofsen (2008). While it is clear that in the focus contexts tested in Chapter 3, Condition B obviations were unacceptable, it is unclear that they are always unacceptable in focus contexts. For example, it does seem that Condition B can be obviated in constructions such as (15)-(18), thus raising the question of what distinguishes these focus contexts from the experimental focus contexts of Chapter 3.

(15)   *Farnsworth*: [Even $I_{1,F}$ laughed at me$_1$] when I built this alien cross-species genetic analyser. (Futurama S05E05, from McKillen (2014))

(16)   *The whole town is angry with Bart and he's seen spray-painting "I hate Bart Simpson" on a tower. He turns to the crowd below and says:*
       See, [$I_{1,F}$ hate me$_1$ too]! (The Simpsons S18E18, from McKillen (2014))

(17)   The wife blamed me, the patient blamed me, the kids blamed me, and [$I_{1,F}$ blamed me$_1$]. (Side Effects, 2013 film, from Slabakova and White (2013))

(18)   *Sherlock:* You sat there watching me getting beaten to a pulp.
       Mycroft: I got you out.
       Sherlock: No, [$I_{1,F}$ got me$_1$ out]. (Sherlock S03E01)

At this point, then, more research is needed regarding the extent to which Condition B obviations are possible, and how this fits into a theory of anaphor resolution.

6.2.3   Condition A's locality and c-command requirements

In order to account for strict readings of reflexives, this dissertation adopted a presuppositional approach to Condition A which is able to account for the interpretation requirements that we observe reflexives to have; it has nothing to say directly, however, about accounting for the locality and c-command requirements typically associated with SBT's Condition A. It is uncontroversial that reflexives require a local c-commanding antecedent, as they are unacceptable when this c-command relationship is absent, as in (19a), and are unacceptable in configurations where the antecedent is non-local, as in (19b).

(19)   a.   *John$_1$'s mother likes himself$_1$
       b.   *John$_1$ thinks that I hate himself$_1$

How does the presuppositional account to Condition A fare in capturing these locality and c-command requirements of reflexives? First turning to the c-command requirement, it does seem that a presuppositional Condition A can predict the unacceptability of (19a).

(20) $[\![(19a)]\!]^g = \lambda w :$ John's mother = John. John's mother likes John in w

Thus, the sentence in (19a) would be unacceptable due to a presupposition failure – the arguments of *like* are not identical.

While it can predict the unacceptability of (19a), it does not seem to be able to ensure that reflexives must always have a c-commanding antecedent. There is nothing, given the assumptions of Chapter 4, which would prevent the sentence in (21a) below, where the reflexive is not c-commanded by its antecedent, from potentially having the LF in (21b).

(21)   a.   *Him$_1$-self likes John$_1$
       b.   [$_{TP}$ John [[him$_1$ self] [$\lambda 2$ [$\lambda 1$ [t$_2$ likes t$_1$]]]]

The LF is possible due to the assumptions that we have already been required to make for ECM constructions. Sauerland (2013), following Lechner (2012), allows the creation of a two place predicate for ECM constructions in order to account for sentences such as (22).

(22)   Romney$_1$ expected him$_1$-self to win

ECM constructions are problematic for the presuppositional approach since the reflexive is an argument of a predicate which does not have another argument identical to it, thus the presupposition of *self* would not be satisfied and incorrectly rule the sentence in (22) out. This can be fixed, though, by the creation of a two place predicate, first by moving the matrix subject, followed by movement of the embedded subject, which tucks in to a position between the existing λ operator and its argument, as in (23a).

(23)   a.   [$_{TP}$ Romney [him$_1$ self [$\lambda 2$ [$\lambda 1$ [$_{TP}$ t$_1$ expected [$_{TP}$ t$_2$ to win]]]]]
       b. $[\![(23a)]\!]^g = \lambda w :$ Romney=Romney. Romney expects Romney to win in w

A similar process could therefore be assumed to derive the LF in (21b), where a two place

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predicate could be formed by movement of *John*, then *himself*, and the denotation of this LF would be as in (24).

(24) $[\![(21b)]\!]^g = \lambda w : \text{John=John. John likes John in } w$

The presupposition of *self* would be satisfied, thus incorrectly predicting the sentence in (21a) to be acceptable. At this point, it seems that something further needs to be said about why these movements are possible for ECM constructions but not for the construction in (21a). Thus, without further assumptions about the theory of movement, the presuppositional account falls short with regard to capturing the c-command requirement of reflexive distribution.

   With regard to this, we see that in order to derive the LF in (21b) we have to assume that the object DP moves over the co-indexed pronominal part of the complex reflexive subject. This movement results in a configuration which is similar to that which gives rise to weak crossover effects, and thus there does seem to be precedent for a ban on this type of movement. As observed by Postal (1971), a wh-element cannot undergo movement over a pronoun to bind it, such as in (25). Similar effects are also found with LF movement, such as in (26) (example from Heim and Kratzer (1998)), where the QDP does not seem to be able to undergo movement over the pronoun to bind it.

(25)   a.   Who$_1$ did his$_1$ mother see?
        b.   *[$_{TP}$ Who $\lambda 1$ did [$_{TP}$ [his$_1$ mother] see t$_1$]]

(26)   a.   The shark next to him$_1$ attacked every driver$_1$.
        b.   *[$_{TP}$ every driver $\lambda 1$ [$_{TP}$ [the shark next to him$_1$] attacked t$_1$]]

Thus, if the movement in (25) and (26) is banned, then likewise, the movement in (21b) should be banned.

   Turning to ECM cases, it seems that the first movement of *Romney* would not give rise to a crossover effect, since it does not cross over any co-indexed pronouns. The movement of the complex DP *him$_1$-self* arguably could also be seen as not giving rise to a crossover effect. While the entire complex reflexive moves over the trace of *Romney*, it is not co-indexed with the trace, or in other words, it does not bind the trace, and could therefore

be considered a permissible movement[2].

Turning to the locality requirement of reflexives, the situation is similar. The presuppositional account of Condition A does seem to be able to predict the unacceptability of (27a). Without any movements assumed, this sentence would have the denotation in (27b), which results in a presupposition failure, since the arguments of the predicate *hate* are not identical.

(27)   a.   *John$_1$ thinks that I hate him$_1$-self

        b. $[\![(27a)]\!]^g = \lambda w$: I=John. John thinks that I hate John in w

But, it also seems to be the case that movement of the subject and the reflexive in the way done for ECM cases would problematically provide a way to get around this. A two-place predicate could be formed, as shown in the LF in (28a), and this LF would have the denotation in (28b), and a presupposition failure would not arise.

(28)   a.   [$_{TP}$ John [him$_1$ self [$\lambda 2$ [$\lambda 1$ [t$_1$ thinks [that I hate t$_2$]]]]]]

        b. $[\![(28a)]\!] = \lambda w$: John=John. John thinks that I hate John in w

There also do not seem to be any weak crossover effects arising from the movements in (28a), which would subsequently rule this LF out. Thus, if movement of the DPs in (28a) are not constrained in some way, we end up with an interpretable structure which we do not want to be interpretable. A potential solution to this problem could come from further investigation into the theory of movement, and how it could rule these LFs out.

Ideally, the locality requirement of reflexives would be a consequence of the locality constraints already needed for movement. In (28a), the reflexive moves out of the embedded clause to the matrix clause, but if movement must be clause-bound, then this would result in an unacceptable LF. Based on sentences such as in (29), QR is thought to be clause-bound (example from Fox (2000) citing Moltmann and Szabolcsi (1994)).

(29)   a.   One girl knows that every boy bought a present for Mary.

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[2]There is yet one other possibility to consider as to why the sentence in (21a) is unacceptable. The unacceptability could arise not from Condition A, but from Condition C. Condition C is motivated by data which show that R-expressions cannot have an antecedent internal to the sentence in which they occur. However one decides to formulate Condition C, it will need to account for this fact. In (21a), the reflexive pronoun could be considered the antecedent to *John*, since both DPs are intended to refer to the same individual. Thus, the sentence could be ruled out, since the R-expression is occurring in a configuration typically observed to be unacceptable for R-expressions.

   b.   *[$_{TP}$ every boy $\lambda1$ [one girl knows [$_{CP}$ that [$_{TP}$ t$_1$ bought a present for Mary]]]]

The reading that would arise if *every boy* QR-ed out of the embedded clause to take scope over the subject of the matrix clause would be: for every boy x, there is one girl y, such that y knows that x bought a present for Mary unavailable for these sentences. This reading does not seem to be available for this sentence, thus suggesting that the movement necessary to derive this reading is not possible. This therefore supports the conclusion that covert movement is clause-bound, in which case, reflexive movement could also be thought to be clause-bound, and the LF in (28a) could be ruled out.

Complicating this conclusion, though, are sentences such as (30), which Fox notes exhibit an exception to the clause-boundedness of QR. The reading that would arise from the LF in (30) is: for every boy x, there is a (different) person y, such that y expects Sue to marry x. This reading does seems to be available for the sentence, thus indicating that QR is not always clause-bound.

(30)   a.   Someone expects Sue to marry every boy.
       b.   [$_{TP}$ every boy $\lambda1$ [$_{TP}$ someone expects [$_{TP}$ Sue to marry t$_1$]]]

We might conclude at this point that the locality of reflexive movement cannot be derived from the locality of covert movement, since it does not seem to be the case that covert movement is always clause bound. Quantifier scope has been said to more generally be able to escape from infinitivals, for example, the sentence *Someone promised me to solve every problem*, can have a reading where *every boy* takes scope out of the embedded clause over the subject of the matrix clause[3]. And, it is interesting to note that in the configurations where QR does not seem to be clause-bound, as in (30), reflexive movement also does not seem to be clause bound, as in (23a).

To sum up, this section has briefly discussed how the locality and c-command requirements typically associated with reflexives could potentially be accounted for by looking at constraints on movement. It is clear that in order to account for the locality and c-command requirements of reflexives, something further would need to be said about the

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[3]Although the generalization of quantifier scope being able to escape from infinitivals is not without exceptions. Taking ECM cases as an example, as Fox (2000) and also Lechner (2012) note, QR seems to be clause-bound in some cases from ECM constructions and other times not, such as in (i).

(i)   a.   Somebody believed [every man to be married to Mary] ($\forall > \exists$)
      b.   #Someone believed [Mary to be married to every man] (*$\forall > \exists$)

theory of movement, otherwise, the presuppositional approach to Condition A cannot ensure a local c-commanding antecedent for a reflexive. But, this direction does seem promising, since the movements we want to rule out for reflexives are seen to be unacceptable in other configurations involving covert movement. Thus, if this approach is on the right track for Condition A, we would end up with an account of reflexive interpretation and distribution which relies on presuppositions and the theory of movement. This is arguably a simpler approach binding theory and Condition A effects, since the interpretation requirements of reflexives are built into the compositional semantics, and the distribution requirements are a consequence of the theory of movement – no specific binding theory condition needs to be stipulated in the grammar.

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Appendices

Appendix A

Materials for experiment 1

A.1   Sub-experiment 1

Parallelism

(1)   Item 1

    a.   **Condition 1: pronoun, co-reference**
John and Mary have a lot in common. He admires her and SHE admires her. [where she=Mary, her=Mary]

    b.   **Condition 2: reflexive, co-reference**
John and Mary have a lot in common. He admires her and SHE admires herself. [where she=Mary, herself=Mary]

    c.   **Condition 3: pronoun, disjoint reference**
John and Mary have a lot in common in their opinion about Jane. He admires her and SHE admires her. [where she=Mary, her=Jane]

    d.   **Condition 4: reflexive, disjoint reference**
John and Mary have a lot in common in their opinion about Jane. He admires her and SHE admires herself. [where she=Mary, herself=Jane]

(2)   Item 2

    a.   **Condition 1: pronoun, co-reference**
John and Mary did the same thing after she made a silly mistake. He laughed at her and SHE laughed at her. [where she=Mary, her=Mary]

    b.   **Condition 2: reflexive, co-reference**

John and Mary did the same thing after she made a silly mistake. He laughed at her and SHE laughed at herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**
John and Mary did the same thing after Jane made a silly mistake. He laughed at her and SHE laughed at her. [where she=Mary, her=Jane]

d. **Condition 4: reflexive, disjoint reference**
John and Mary did the same thing after Jane made a silly mistake. He laughed at her and SHE laughed at herself. [where she=Mary, herself=Jane]

(3) Item 3

a. **Condition 1: pronoun, co-reference**
John and Mary feel the same way. She respects him and HE respects him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**
John and Mary feel the same way. She respects him and HE respects himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**
John and Mary feel the same way about Bill. She respects him and HE respects him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**
John and Mary feel the same way about Bill. She respects him and HE respects himself. [where he=John, himself=Bill]

(4) Item 4

a. **Condition 1: pronoun, co-reference**
John and Mary did the same thing after their marriage fell apart. She blamed him and HE blamed him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**
John and Mary did the same thing after their marriage fell apart. She blamed him and HE blamed himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**
John and Mary did the same thing after Bill's marriage fell apart. She blamed him and HE blamed him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**
John and Mary did the same thing after Bill's marriage fell apart. She blamed

him and HE blamed himself. [where he=John, himself=Bill]

(5) Item 5

    a. **Condition 1: pronoun, co-reference**
John and Mary have a lot in common. He trusts her and SHE trusts her. [where she=Mary, her=Mary]

    b. **Condition 2: reflexive, co-reference**
John and Mary have a lot in common. He trusts her and SHE trusts herself. [where she=Mary, herself=Mary]

    c. **Condition 3: pronoun, disjoint reference**
John and Mary have a lot in common in their opinion of Jane. He trusts her and SHE trusts her. [where she=Mary, her=Jane]

    d. **Condition 4: reflexive, disjoint reference**
John and Mary have a lot in common in their opinion of Jane. He trusts her and SHE trusts herself. [where she=Mary, herself=Jane]

(6) Item 6

    a. **Condition 1: pronoun, co-reference**
John and Mary feel the same way. He despises her and SHE despises her. [where she=Mary, her=Mary]

    b. **Condition 2: reflexive, co-reference**
John and Mary feel the same way. He despises her and SHE despises herself. [where she=Mary, herself=Mary]

    c. **Condition 3: pronoun, disjoint reference**
John and Mary feel the same way about Jane. He despises her and SHE despises her. [where she=Mary, her=Jane]

    d. **Condition 4: reflexive, disjoint reference**
John and Mary feel the same way about Jane. He despises her and SHE despises herself. [where she=Mary, herself=Jane]

(7) Item 7

    a. **Condition 1: pronoun, co-reference**
John and Mary have a lot in common. She doubts him and HE doubts him. [where he=John, him=John]

    b. **Condition 2: reflexive, co-reference**

John and Mary have a lot in common. She doubts him and HE doubts himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**
John and Mary have a lot in common regarding Bill. She doubts him and HE doubts him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**
John and Mary have a lot in common regarding Bill. She doubts him and HE doubts himself. [where he=John, himself=Bill]

(8)   Item 8

a. **Condition 1: pronoun, co-reference**
John and Mary did the same thing when he was attacked. She defended him and HE defended him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**
John and Mary did the same thing when he was attacked. She defended him and HE defended himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**
John and Mary did the same thing when Bill was attacked. She defended him and HE defended him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**
John and Mary did the same thing when Bill was attacked. She defended him and HE defended himself. [where he=John, himself=Bill]

Question-Answer pairs

(9)   Item 9

a. **Condition 1: pronoun, co-reference**
Who admires Mary? Well, I'm not sure of the others, but I know this: SHE admires her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**
Who admires Mary? Well, I'm not sure of the others, but I know this: SHE admires herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**
Who admires Jane? Well, I'm not sure of the others, but I know about Mary: SHE admires her. [where she=Mary, her=Jane]

    d.   **Condition 4: reflexive, disjoint reference**

Who admires Jane? Well, I'm not sure of the others, but I know about Mary: SHE admires herself. [where she=Mary, herself=Jane]

(10)   Item 10

    a.   **Condition 1: pronoun, co-reference**

Who laughed at Mary? Well, I'm not sure of the others, but I know this: SHE laughed at her. [where she=Mary, her=Mary]

    b.   **Condition 2: reflexive, co-reference**

Who laughed at Mary? Well, I'm not sure of the others, but I know this: SHE laughed at herself. [where she=Mary, herself=Mary]

    c.   **Condition 3: pronoun, disjoint reference**

Who laughed at Jane? Well, I'm not sure of the others, but I know about Mary: SHE laughed at her. [where she=Mary, her=Jane]

    d.   **Condition 4: reflexive, disjoint reference**

Who laughed at Jane? Well, I'm not sure of the others, but I know about Mary: SHE laughed at herself. [where she=Mary, herself=Jane]

(11)   Item 11

    a.   **Condition 1: pronoun, co-reference**

Who respects John? Well, I'm not sure of the others, but I know this: HE respects him. [where he=John, him=John]

    b.   **Condition 2: reflexive, co-reference**

Who respects John? Well, I'm not sure of the others, but I know this: HE respects himself. [where he=John, himself=John]

    c.   **Condition 3: pronoun, disjoint reference**

Who respects Bill? Well, I'm not sure of the others, but I know about John: HE respects him. [where he=John, him=Bill]

    d.   **Condition 4: reflexive, disjoint reference**

Who respects Bill? Well, I'm not sure of the others, but I know about John: HE respects himself. [where he=John, himself=Bill]

(12)   Item 12

    a.   **Condition 1: pronoun, co-reference**

Who blamed John? Well, I'm not sure of the others, but I know this: HE

blamed him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**

Who blamed John? Well, I'm not sure of the others, but I know this: HE blamed himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

Who blamed Bill? Well, I'm not sure of the others, but I know about John: HE blamed him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

Who blamed Bill? Well, I'm not sure of the others, but I know about John: HE blamed himself. [where he=John, himself=Bill]

(13) Item 13

a. **Condition 1: pronoun, co-reference**

Who trusts Mary? Well, I'm not sure of the others, but I know this: SHE trusts her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**

Who trusts Mary? Well, I'm not sure of the others, but I know this: SHE trusts herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**

Who trusts Jane? Well, I'm not sure of the others, but I know about Mary: SHE trusts her. [where she=Mary, her=Jane]

d. **Condition 4: reflexive, disjoint reference**

Who trusts Jane? Well, I'm not sure of the others, but I know about Mary: SHE trusts herself. [where she=Mary, herself=Jane]

(14) Item 14

a. **Condition 1: pronoun, co-reference**

Who despises Mary? Well, I'm not sure of the others, but I know this: SHE despises her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**

Who despises Mary? Well, I'm not sure of the others, but I know this: SHE despises herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**

Who despises Jane? Well, I'm not sure of the others, but I know about Mary: SHE despises her. [where she=Mary, her=Jane]

    d. **Condition 4: reflexive, disjoint reference**

       Who despises Jane? Well, I'm not sure of the others, but I know about Mary: SHE despises herself. [where she=Mary, herself=Jane]

(15)   Item 15

    a. **Condition 1: pronoun, co-reference**

       Who doubts John? Well, I'm not sure of the others, but I know this: HE doubts him. [where he=John, him=John]

    b. **Condition 2: reflexive, co-reference**

       Who doubts John? Well, I'm not sure of the others, but I know this: HE doubts himself. [where he=John, himself=John]

    c. **Condition 3: pronoun, disjoint reference**

       Who doubts Bill? Well, I'm not sure of the others, but I know about John: HE doubts him. [where he=John, him=Bill]

    d. **Condition 4: reflexive, disjoint reference**

       Who doubts Bill? Well, I'm not sure of the others, but I know about John: HE doubts himself. [where he=John, himself=Bill]

Item 16

a. **Condition 1: pronoun, co-reference**

   Who defended John? Well, I'm not sure of the others, but I know this: HE defended him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**

   Who defended John? Well, I'm not sure of the others, but I know this: HE defended himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

   Who defended Bill? Well, I'm not sure of the others, but I know about John: HE defended him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

   Who defended Bill? Well, I'm not sure of the others, but I know about John: HE defended himself. [where he=John, himself=Bill]

A.2   Sub-experiment 2

Only

(16)   Item 1

   a.   **Condition 1: pronoun, co-reference**
   Mary did a terrible thing but no one hates her for it. Only SHE hates her. [where she=Mary, her=Mary]

   b.   **Condition 2: reflexive, co-reference**
   Mary did a terrible thing but no one hates her for it. Only SHE hates herself. [where she=Mary, herself=Mary]

   c.   **Condition 3: pronoun, disjoint reference**
   Jane did a terrible thing and no one hates her for it except Mary. Only SHE hates her. [where she=Mary, her=Jane]

   d.   **Condition 4: reflexive, disjoint reference**
   Jane did a terrible thing and no one hates her for it except Mary. Only SHE hates herself. [where she=Mary, herself=Jane]

(17)   Item 2

   a.   **Condition 1: pronoun, co-reference**
   Mary did a terrible thing and no one likes her because of it. Only SHE likes her. [where she=Mary, her=Mary]

   b.   **Condition 2: reflexive, co-reference**
   Mary did a terrible thing and no one likes her because of it. Only SHE likes herself. [where she=Mary, herself=Mary]

   c.   **Condition 3: pronoun, disjoint reference**
   Jane did a terrible thing and no one likes her for it except Mary. Only SHE likes her. [where she=Mary, her=Jane]

   d.   **Condition 4: reflexive, disjoint reference**
   Jane did a terrible thing and no one likes her for it except Mary. Only SHE likes herself. [where she=Mary, herself=Jane]

(18)   Item 3

   a.   **Condition 1: pronoun, co-reference**
   John was really unpopular in the election and no one voted for him. Only

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HE voted for him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**

John was really unpopular in the election and no one voted for him. Only HE voted for himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

Bill was really unpopular in the election and no one voted for him except for John. Only HE voted for him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

Bill was really unpopular in the election and no one voted for him except for John. Only HE voted for himself. [where he=John, himself=Bill]

(19) Item 4

a. **Condition 1: pronoun, co-reference**

John won a prestigious award and thought he deserved praise, but no one praised him for it. Only HE praised him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**

John won a prestigious award and thought he deserved praise, but no one praised him for it. Only HE praised himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

Bill won a prestigious award and no one praised him for it except John. Only HE praised him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

Bill won a prestigious award and no one praised him for it except John. Only HE praised himself. [where he=John, himself=Bill]

(20) Item 5

a. **Condition 1: pronoun, co-reference**

Mary is a narcissist and no one loves her. Only SHE loves her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**

Mary is a narcissist and no one loves her. Only SHE loves herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**

Jane is a narcissist and no one loves her except Mary. Only SHE loves her. [where she=Mary, her=Jane]

    d. **Condition 4: reflexive, disjoint reference**

       Jane is a narcissist and no one loves her except Mary. Only SHE loves herself. [where she=Mary, herself=Jane]

(21)   Item 6

    a. **Condition 1: pronoun, co-reference**

       Mary wrote a bad poem, but no one criticized her for it. Only SHE criticized her. [where she=Mary, her=Mary]

    b. **Condition 2: reflexive, co-reference**

       Mary wrote a bad poem, but no one criticized her for it. Only SHE criticized herself. [where she=Mary, herself=Mary]

    c. **Condition 3: pronoun, disjoint reference**

       Mary was really harsh on Jane compared to the others. Only SHE criticized her. [where she=Mary, her=Jane]

    d. **Condition 4: reflexive, disjoint reference**

       Mary was really harsh on Jane compared to the others. Only SHE criticized herself. [where she=Mary, herself=Jane]

(22)   Item 7

    a. **Condition 1: pronoun, co-reference**

       John failed to finish the race, but no one judged him for it. Only HE judged him. [where he=John, him=John]

    b. **Condition 2: reflexive, co-reference**

       John failed to finish the race, but no one judged him for it. Only HE judged himself. [where he=John, himself=John]

    c. **Condition 3: pronoun, disjoint reference**

       Bill failed to finish the race and no one judged him for it except John. Only HE judged him. [where he=John, him=Bill]

    d. **Condition 4: reflexive, disjoint reference**

       Bill failed to finish the race and no one judged him for it except John. Only HE judged himself. [where he=John, himself=Bill]

(23)   Item 8

    a. **Condition 1: pronoun, co-reference**

       John is self-absorbed and no one adores him. Only HE adores him. [where

he=John, him=John]

b. **Condition 2: reflexive, co-reference**

John is self-absorbed and no one adores him. Only HE adores himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

Bill is self-absorbed and no one adores him except John. Only HE adores him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

Bill is self-absorbed and no one adores him except John. Only HE adores himself. [where he=John, himself=Bill]

Even

(24) Item 9

a. **Condition 1: pronoun, co-reference**

Mary is a truly terrible person and everyone hates her for it. Even SHE hates her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**

Mary is a truly terrible person and everyone hates her for it. Even SHE hates herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**

Mary usually doesn't hate anyone, but Jane is a truly terrible person. Even SHE hates her. [where she=Mary, her=Jane]

d. **Condition 4: reflexive, disjoint reference**

Mary usually doesn't hate anyone, but Jane is a truly terrible person. Even SHE hates herself. [where she=Mary, herself=Jane]

(25) Item 10

a. **Condition 1: pronoun, co-reference**

Mary is a purely delightful person and everyone likes her for it. Even SHE likes her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**

Mary is a purely delightful person and everyone likes her for it. Even SHE likes herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**

Mary usually doesn't like people, but Jane is a purely delightful person. Even SHE likes her. [where she=Mary, her=Jane]

d. **Condition 4: reflexive, disjoint reference**

Mary usually doesn't like people, but Jane is a purely delightful person. Even SHE likes herself. [where she=Mary, herself=Jane]

(26)   Item 11

a. **Condition 1: pronoun, co-reference**

John was really popular in the election and everyone voted for him. Even HE voted for him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**

John was really popular in the election and everyone voted for him. Even HE voted for himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

John normally doesn't vote, but Bill was extremely persuasive this year. Even HE voted for him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

John normally doesn't vote, but Bill was extremely persuasive this year. Even HE voted for himself. [where he=John, himself=Bill]

(27)   Item 12

a. **Condition 1: pronoun, co-reference**

John won a prestigious award and everyone praised him for it. Even HE praised him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**

John won a prestigious award and everyone praised him for it. Even HE praised himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

John doesn't give out praise easily, but Bill won a very prestigious award. Even HE praised him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

John doesn't give out praise easily, but Bill won a very prestigious award. Even HE praised himself. [where he=John, himself=Bill]

(28)   Item 13

a. **Condition 1: pronoun, co-reference**

Mary is well loved by everyone. Even SHE loves her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**

Mary is well loved by everyone. Even SHE loves herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**

Mary usually doesn't love anyone, but Jane is supremely charming. Even SHE loves her. [where she=Mary, her=Jane]

d. **Condition 4: reflexive, disjoint reference**

Mary usually doesn't love anyone, but Jane is supremely charming. Even SHE loves herself. [where she=Mary, herself=Jane]

(29) Item 14

a. **Condition 1: pronoun, co-reference**

Mary wrote the worst poem in the world, and everyone criticized her for it. Even SHE criticized her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**

Mary wrote the worst poem in the world, and everyone criticized her for it. Even SHE criticized herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**

Mary is generally not critical, but Jane wrote the worst poem in the world. Even SHE criticized her. [where she=Mary, her=Jane]

d. **Condition 4: reflexive, disjoint reference**

Mary is generally not critical, but Jane wrote the worst poem in the world. Even SHE criticized herself. [where she=Mary, herself=Jane]

(30) Item 15

a. **Condition 1: pronoun, co-reference**

John failed to finish the race, and everyone judged him for it. Even HE judged him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**

John failed to finish the race, and everyone judged him for it. Even HE judged himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

John is usually not judgemental, but Bill failed to run as much as one metre in the race last week. Even HE judged him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

John is usually not judgemental, but Bill failed to run as much as one metre in the race last week. Even HE judged himself. [where he=John, himself=Bill]

(31)   Item 16

a. **Condition 1: pronoun, co-reference**

John is an accomplished artist and everyone adores him. Even HE adores him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**

John is an accomplished artist and everyone adores him. Even HE adores himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

John usually doesn't adore anyone but then again, Bill's music is heartbreakingly brilliant. Even HE adores him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

John usually doesn't adore anyone but then again, Bill's music is heartbreakingly brilliant. Even HE adores himself. [where he=John, himself=Bill]

Appendix B

Materials for experiment 2

B.1   Sub-experiment 1

Parallelism

(1)   Item 1

    a.   **Condition 1: pronoun, co-reference**
        John and Mary have a lot in common. He admires her and she admires her.
        [where she=Mary, her=Mary]

    b.   **Condition 2: reflexive, co-reference**
        John and Mary have a lot in common. He admires her and she admires herself.
        [where she=Mary, herself=Mary]

    c.   **Condition 3: pronoun, disjoint reference**
        John and Mary have a lot in common in their opinion about Jane. He admires
        her and she admires her. [where she=Mary, her=Jane]

    d.   **Condition 4: reflexive, disjoint reference**
        John and Mary have a lot in common in their opinion about Jane. He admires
        her and she admires herself. [where she=Mary, herself=Jane]

(2)   Item 2

    a.   **Condition 1:pronoun, co-reference**
        John and Mary did the same thing after she made a silly mistake. He laughed
        at her and she laughed at her. [where she=Mary, her=Mary]

    b.   **Condition 2: reflexive, co-reference**

John and Mary did the same thing after she made a silly mistake. He laughed at her and she laughed at herself. [where she=Mary, herself=Mary]

    c.   **Condition 3: pronoun, disjoint reference**

John and Mary did the same thing after Jane made a silly mistake. He laughed at her and she laughed at her. [where she=Mary, her=Jane]

    d.   **Condition 4: reflexive, disjoint reference**

John and Mary did the same thing after Jane made a silly mistake. He laughed at her and she laughed at herself. [where she=Mary, herself=Jane]

(3)   Item 3

    a.   **Condition 1: pronoun, co-reference**

John and Mary feel the same way. She respects him and he respects him. [where he=John, him=John]

    b.   **Condition 2: reflexive, co-reference**

John and Mary feel the same way. She respects him and he respects himself. [where he=John, himself=John]

    c.   **Condition 3: pronoun, disjoint reference**

John and Mary feel the same way about Bill. She respects him and he respects him. [where he=John, him=Bill]

    d.   **Condition 4: reflexive, disjoint reference**

John and Mary feel the same way about Bill. She respects him and he respects himself. [where he=John, himself=Bill]

(4)   Item 4

    a.   **Condition 1: pronoun, co-reference**

John and Mary did the same thing after their marriage fell apart. She blamed him and he blamed him. [where he=John, him=John]

    b.   **Condition 2: reflexive, co-reference**

John and Mary did the same thing after their marriage fell apart. She blamed him and he blamed himself. [where he=John, himself=John]

    c.   **Condition 3: pronoun, disjoint reference**

John and Mary did the same thing after Bill's marriage fell apart. She blamed him and he blamed him. [where he=John, him=Bill]

    d.   **Condition 4: reflexive, disjoint reference**

John and Mary did the same thing after Bill's marriage fell apart. She blamed

him and he blamed himself. [where he=John, himself=Bill]

(5)   Item 5

    a.   **Condition 1: pronoun, co-reference**
John and Mary have a lot in common. He trusts her and she trusts her. [where she=Mary, her=Mary]

    b.   **Condition 2: reflexive, co-reference**
John and Mary have a lot in common. He trusts her and she trusts herself. [where she=Mary, herself=Mary]

    c.   **Condition 3: pronoun, disjoint reference**
John and Mary have a lot in common in their opinion of Jane. He trusts her and she trusts her. [where she=Mary, her=Jane]

    d.   **Condition 4: reflexive, disjoint reference**
John and Mary have a lot in common in their opinion of Jane. He trusts her and she trusts herself. [where she=Mary, herself=Jane]

(6)   Item 6

    a.   **Condition 1: pronoun, co-reference**
John and Mary feel the same way. He despises her and she despises her. [where she=Mary, her=Mary]

    b.   **Condition 2: reflexive, co-reference**
John and Mary feel the same way. He despises her and she despises herself. [where she=Mary, herself=Mary]

    c.   **Condition 3: pronoun, disjoint reference**
John and Mary feel the same way about Jane. He despises her and she despises her. [where she=Mary, her=Jane]

    d.   **Condition 4: reflexive, disjoint reference**
John and Mary feel the same way about Jane. He despises her and she despises herself. [where she=Mary, herself=Jane]

(7)   Item 7

    a.   **Condition 1: pronoun, co-reference**
John and Mary have a lot in common. She doubts him and he doubts him. [where he=John, him=John]

    b.   **Condition 2: reflexive, co-reference**

John and Mary have a lot in common. She doubts him and he doubts himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**
John and Mary have a lot in common regarding Bill. She doubts him and he doubts him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**
John and Mary have a lot in common regarding Bill. She doubts him and he doubts himself. [where he=John, himself=Bill]

(8) Item 8

a. **Condition 1: pronoun, co-reference**
John and Mary did the same thing when he was attacked. She defended him and he defended him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**
John and Mary did the same thing when he was attacked. She defended him and he defended himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**
John and Mary did the same thing when Bill was attacked. She defended him and he defended him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**
John and Mary did the same thing when Bill was attacked. She defended him and he defended himself. [where he=John, himself=Bill]

Question-Answer pairs

(9) Item 9

a. **Condition 1: pronoun, co-reference**
Who admires Mary? Well, I'm not sure of the others, but I know this: She admires her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**
Who admires Mary? Well, I'm not sure of the others, but I know this: She admires herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**
Who admires Jane? Well, I'm not sure of the others, but I know about Mary: She admires her. [where she=Mary, her=Jane]

d. **Condition 4: reflexive, disjoint reference**
Who admires Jane? Well, I'm not sure of the others, but I know about Mary: She admires herself. [where she=Mary, herself=Jane]

(10) Item 10

a. **Condition 1: pronoun, co-reference**
Who laughed at Mary? Well, I'm not sure of the others, but I know this: She laughed at her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**
Who laughed at Mary? Well, I'm not sure of the others, but I know this: She laughed at herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**
Who laughed at Jane? Well, I'm not sure of the others, but I know about Mary: She laughed at her. [where she=Mary, her=Jane]

d. **Condition 4: reflexive, disjoint reference**
Who laughed at Jane? Well, I'm not sure of the others, but I know about Mary: She laughed at herself. [where she=Mary, herself=Jane]

(11) Item 11

a. **Condition 1: pronoun, co-reference**
Who respects John? Well, I'm not sure of the others, but I know this: He respects him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**
Who respects John? Well, I'm not sure of the others, but I know this: He respects himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**
Who respects Bill? Well, I'm not sure of the others, but I know about John: He respects him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**
Who respects Bill? Well, I'm not sure of the others, but I know about John: He respects himself. [where he=John, himself=Bill]

(12) Item 12

a. **Condition 1: pronoun, co-reference**
Who blamed John? Well, I'm not sure of the others, but I know this: He

blamed him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**

Who blamed John? Well, I'm not sure of the others, but I know this: He blamed himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

Who blamed Bill? Well, I'm not sure of the others, but I know about John: He blamed him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

Who blamed Bill? Well, I'm not sure of the others, but I know about John: He blamed himself. [where he=John, himself=Bill]

(13) Item 13

a. **Condition 1: pronoun, co-reference**

Who trusts Mary? Well, I'm not sure of the others, but I know this: She trusts her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**

Who trusts Mary? Well, I'm not sure of the others, but I know this: She trusts herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**

Who trusts Jane? Well, I'm not sure of the others, but I know about Mary: She trusts her. [where she=Mary, her=Jane]

d. **Condition 4: reflexive, disjoint reference**

Who trusts Jane? Well, I'm not sure of the others, but I know about Mary: She trusts herself. [where she=Mary, herself=Jane]

(14) Item 14

a. **Condition 1: pronoun, co-reference**

Who despises Mary? Well, I'm not sure of the others, but I know this: She despises her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**

Who despises Mary? Well, I'm not sure of the others, but I know this: She despises herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**

Who despises Jane? Well, I'm not sure of the others, but I know about Mary: She despises her. [where she=Mary, her=Jane]

d. **Condition 4: reflexive, disjoint reference**
Who despises Jane? Well, I'm not sure of the others, but I know about Mary: She despises herself. [where she=Mary, herself=Jane]

(15)   Item 15

a. **Condition 1: pronoun, co-reference**
Who doubts John? Well, I'm not sure of the others, but I know this: He doubts him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**
Who doubts John? Well, I'm not sure of the others, but I know this: He doubts himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**
Who doubts Bill? Well, I'm not sure of the others, but I know about John: He doubts him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**
Who doubts Bill? Well, I'm not sure of the others, but I know about John: He doubts himself. [where he=John, himself=Bill]

Item 16

a. **Condition 1: pronoun, co-reference**
Who defended John? Well, I'm not sure of the others, but I know this: He defended him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**
Who defended John? Well, I'm not sure of the others, but I know this: He defended himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**
Who defended Bill? Well, I'm not sure of the others, but I know about John: He defended him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**
Who defended Bill? Well, I'm not sure of the others, but I know about John: He defended himself. [where he=John, himself=Bill]

B.2   Sub-experiment 2

Only

(16)   Item 1

    a.   **Condition 1: pronoun, co-reference**
Mary did a terrible thing but no one hates her for it. Only she hates her.
[where she=Mary, her=Mary]

    b.   **Condition 2: reflexive, co-reference**
Mary did a terrible thing but no one hates her for it. Only she hates herself.
[where she=Mary, herself=Mary]

    c.   **Condition 3: pronoun, disjoint reference**
Jane did a terrible thing and no one hates her for it except Mary. Only she
hates her. [where she=Mary, her=Jane]

    d.   **Condition 4: reflexive, disjoint reference**
Jane did a terrible thing and no one hates her for it except Mary. Only she
hates herself. [where she=Mary, herself=Jane]

(17)   Item 2

    a.   **Condition 1: pronoun, co-reference**
Mary did a terrible thing and no one likes her because of it. Only she likes
her. [where she=Mary, her=Mary]

    b.   **Condition 2: reflexive, co-reference**
Mary did a terrible thing and no one likes her because of it. Only she likes
herself. [where she=Mary, herself=Mary]

    c.   **Condition 3: pronoun, disjoint reference**
Jane did a terrible thing and no one likes her for it except Mary. Only she
likes her. [where she=Mary, her=Jane]

    d.   **Condition 4: reflexive, disjoint reference**
Jane did a terrible thing and no one likes her for it except Mary. Only she
likes herself. [where she=Mary, herself=Jane]

(18)   Item 3

    a.   **Condition 1: pronoun, co-reference**
John was really unpopular in the election and no one voted for him. Only he

voted for him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**

John was really unpopular in the election and no one voted for him. Only he voted for himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

Bill was really unpopular in the election and no one voted for him except for John. Only he voted for him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

Bill was really unpopular in the election and no one voted for him except for John. Only he voted for himself. [where he=John, himself=Bill]

(19) Item 4

a. **Condition 1: pronoun, co-reference**

John won a prestigious award and thought he deserved praise, but no one praised him for it. Only he praised him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**

John won a prestigious award and thought he deserved praise, but no one praised him for it. Only he praised himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

Bill won a prestigious award and no one praised him for it except John. Only he praised him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

Bill won a prestigious award and no one praised him for it except John. Only he praised himself. [where he=John, himself=Bill]

(20) Item 5

a. **Condition 1: pronoun, co-reference**

Mary is a narcissist and no one loves her. Only she loves her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**

Mary is a narcissist and no one loves her. Only she loves herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**

Jane is a narcissist and no one loves her except Mary. Only she loves her. [where she=Mary, her=Jane]

   d. **Condition 4: reflexive, disjoint reference**
       Jane is a narcissist and no one loves her except Mary. Only she loves herself.
       [where she=Mary, herself=Jane]

(21) Item 6

   a. **Condition 1: pronoun, co-reference**
       Mary wrote a bad poem, but no one criticized her for it. Only she criticized
       her. [where she=Mary, her=Mary]

   b. **Condition 2: reflexive, co-reference**
       Mary wrote a bad poem, but no one criticized her for it. Only she criticized
       herself. [where she=Mary, herself=Mary]

   c. **Condition 3: pronoun, disjoint reference**
       Mary was really harsh on Jane compared to the others. Only she criticized
       her. [where she=Mary, her=Jane]

   d. **Condition 4: reflexive, disjoint reference**
       Mary was really harsh on Jane compared to the others. Only she criticized
       herself. [where she=Mary, herself=Jane]

(22) Item 7

   a. **Condition 1: pronoun, co-reference**
       John failed to finish the race, but no one judged him for it. Only he judged
       him. [where he=John, him=John]

   b. **Condition 2: reflexive, co-reference**
       John failed to finish the race, but no one judged him for it. Only he judged
       himself. [where he=John, himself=John]

   c. **Condition 3: pronoun, disjoint reference**
       Bill failed to finish the race and no one judged him for it except John. Only
       he judged him. [where he=John, him=Bill]

   d. **Condition 4: reflexive, disjoint reference**
       Bill failed to finish the race and no one judged him for it except John. Only
       he judged himself. [where he=John, himself=Bill]

(23) Item 8

   a. **Condition 1: pronoun, co-reference**
       John is self-absorbed and no one adores him. Only he adores him. [where

he=John, him=John]

b. **Condition 2: reflexive, co-reference**

John is self-absorbed and no one adores him. Only he adores himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

Bill is self-absorbed and no one adores him except John. Only he adores him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

Bill is self-absorbed and no one adores him except John. Only he adores himself. [where he=John, himself=Bill]

Even

(24)   Item 9

a. **Condition 1: pronoun, co-reference**

Mary is a truly terrible person and everyone hates her for it. Even she hates her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**

Mary is a truly terrible person and everyone hates her for it. Even she hates herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**

Mary usually doesn't hate anyone, but Jane is a truly terrible person. Even she hates her. [where she=Mary, her=Jane]

d. **Condition 4: reflexive, disjoint reference**

Mary usually doesn't hate anyone, but Jane is a truly terrible person. Even she hates herself. [where she=Mary, herself=Jane]

(25)   Item 10

a. **Condition 1: pronoun, co-reference**

Mary is a purely delightful person and everyone likes her for it. Even she likes her. [where she=Mary, her=Mary]

b. **Condition 2: reflexive, co-reference**

Mary is a purely delightful person and everyone likes her for it. Even she likes herself. [where she=Mary, herself=Mary]

c. **Condition 3: pronoun, disjoint reference**

Mary usually doesn't like people, but Jane is a purely delightful person. Even she likes her. [where she=Mary, her=Jane]

d. **Condition 4: reflexive, disjoint reference**

Mary usually doesn't like people, but Jane is a purely delightful person. Even she likes herself. [where she=Mary, herself=Jane]

(26) Item 11

a. **Condition 1: pronoun, co-reference**

John was really popular in the election and everyone voted for him. Even he voted for him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**

John was really popular in the election and everyone voted for him. Even he voted for himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

John normally doesn't vote, but Bill was extremely persuasive this year. Even he voted for him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

John normally doesn't vote, but Bill was extremely persuasive this year. Even he voted for himself. [where he=John, himself=Bill]

(27) Item 12

a. **Condition 1: pronoun, co-reference**

John won a prestigious award and everyone praised him for it. Even he praised him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**

John won a prestigious award and everyone praised him for it. Even he praised himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

John doesn't give out praise easily, but Bill won a very prestigious award. Even he praised him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

John doesn't give out praise easily, but Bill won a very prestigious award. Even he praised himself. [where he=John, himself=Bill]

(28) Item 13

   a.   **Condition 1: pronoun, co-reference**

      Mary is well loved by everyone. Even she loves her. [where she=Mary, her=Mary]

   b.   **Condition 2: reflexive, co-reference**

      Mary is well loved by everyone. Even she loves herself. [where she=Mary, herself=Mary]

   c.   **Condition 3: pronoun, disjoint reference**

      Mary usually doesn't love anyone, but Jane is supremely charming. Even she loves her. [where she=Mary, her=Jane]

   d.   **Condition 4: reflexive, disjoint reference**

      Mary usually doesn't love anyone, but Jane is supremely charming. Even she loves herself. [where she=Mary, herself=Jane]

(29)   Item 14

   a.   **Condition 1: pronoun, co-reference**

      Mary wrote the worst poem in the world, and everyone criticized her for it. Even she criticized her. [where she=Mary, her=Mary]

   b.   **Condition 2: reflexive, co-reference**

      Mary wrote the worst poem in the world, and everyone criticized her for it. Even she criticized herself. [where she=Mary, herself=Mary]

   c.   **Condition 3: pronoun, disjoint reference**

      Mary is generally not critical, but Jane wrote the worst poem in the world. Even she criticized her. [where she=Mary, her=Jane]

   d.   **Condition 4: reflexive, disjoint reference**

      Mary is generally not critical, but Jane wrote the worst poem in the world. Even she criticized herself. [where she=Mary, herself=Jane]

(30)   Item 15

   a.   **Condition 1: pronoun, co-reference**

      John failed to finish the race, and everyone judged him for it. Even he judged him. [where he=John, him=John]

   b.   **Condition 2: reflexive, co-reference**

      John failed to finish the race, and everyone judged him for it. Even he judged himself. [where he=John, himself=John]

   c.   **Condition 3: pronoun, disjoint reference**

John is usually not judgemental, but Bill failed to run as much as one metre in the race last week. Even he judged him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

John is usually not judgemental, but Bill failed to run as much as one metre in the race last week. Even he judged himself. [where he=John, himself=Bill]

(31) Item 16

a. **Condition 1: pronoun, co-reference**

John is an accomplished artist and everyone adores him. Even he adores him. [where he=John, him=John]

b. **Condition 2: reflexive, co-reference**

John is an accomplished artist and everyone adores him. Even he adores himself. [where he=John, himself=John]

c. **Condition 3: pronoun, disjoint reference**

John usually doesn't adore anyone but then again, Bill's music is heart-breakingly brilliant. Even he adores him. [where he=John, him=Bill]

d. **Condition 4: reflexive, disjoint reference**

John usually doesn't adore anyone but then again, Bill's music is heart-breakingly brilliant. Even he adores himself. [where he=John, himself=Bill]