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Reflexivity and Dependency*

Abstract

The introduction of exempt reflexives in Pollard and Sag (1992; 1994) and Reinhart and Reuland (1993) has led to a new characterization of 'picture-NP-reflexives', which are no longer considered anaphoric. These analyses, however, do not provide a clear concept of the term 'anaphor' any more, and cannot account for the existence of picture-NP-reflexives in languages without exempt reflexives. Focusing on object experiencer psych verbs in English, German, and Portuguese, we will propose a syntactic theory of anaphors. By 'syntactic' we mean that anaphors are not only resolved, but also introduced in syntax. Showing a reflexive form does not guarantee per se that a pronoun will become anaphoric, but in addition a local (or no too local) syntactic context is required. If such a context is not provided, the reflexive may become exempt, but once an anaphoric dependency has been introduced, it has to be resolved in syntax as well. The analysis will be applied to medium- and long-distance reflexives, reflexive binding in double object and impersonal constructions.

1. Introduction

The analyses of Pollard and Sag (1992; 1994) and Reinhart and Reuland (1993) answer why certain reflexive pronouns – so-called *picture-NP-reflexives* – behave anomalously in allowing co-reference with non-binding antecedents. These reflexives are exempt from Binding Theory's Principle A because Principle A only requires binding if a potential antecedent is available in a given local domain. The reflexive *himself* in (1) does not find a local antecedent in the domain of the predicate *picture* and hence becomes exempt from an application of Binding Theory. Just like the co-indexation of the pronoun *him* with the subject *John*, the co-indexation of the reflexive is not an instance of binding, but an indication of *co-reference*.

* This paper goes back to a series of talks I presented during early summer and winter 2004 in Mannheim (GGS 2004), Köln (Universität zu Köln), Seoul (LSK 2004), Leuven (HPSG 2004), and Leipzig (Universität Leipzig). For largely irrational reasons, I was unable to turn the talks into a paper, but Gereon Müller insisted on its production on a regular basis. So without Gereon, the paper would never have been written. I am deeply grateful that he proved his obstinacy on me, and also on his comments on an earlier version of this paper. I would also like to thank the audiences in the talks in 2004 for their comments and suggestions, Silke Fischer for helping to understand her analysis, and in particular Ana Luis for discussing the Portuguese data with me.

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(1) John$_1$ believed that pictures of himself$_1$/him$_1$ were on sale.

With the problem of non-complementarity of reflexives and pronouns eliminated, it even looked as if Binding Theory as a research topic was ceasing. After closer scrutiny, however, it turns out that innovative answers lead to new problems. To begin with, picture-NP-reflexives occur in languages that do not show independent justification for the existence of exempt reflexives. A case at hand is German, as can be illustrated by the ungrammaticality of the translation of (1) in (2).

(2) Hans$_1$ glaubte, dass Bilder von *sich$_1$/ihm$_1$ zum Verkauf standen.

There is no 'non-complementary distribution of anaphors and pronouns' in examples like (2). Yet German allows intrasentential binding with picture-NP-reflexives, as is illustrated in (3).

(3) a. Warum hat Claude Cahun$_1$ die Bilder von sich$_1$ zurückgehalten?
why has Claude Cahun the pictures of herself withheld
'Why has Claude Cahun withheld the pictures of herself?'

b. Wenn Sie$_1$ im Munzinger-Archiv einen Artikel über sich$_1$ finden,
if you in Munzinger archive an article about yourself find
dann ist Ihnen$_1$ dieser vor dem Erscheinen zur Kontrolle
then is you this before the appearance for examination
vorgelegt worden.
propounded was
'If you find an article about yourself in the Munzinger archive, it will have been propounded to you for examination before publication.'

c. Verständlich, dass er$_1$ keine konfusen Berichte über sich$_1$
it-stands-to-reason that he no confuse reports about himself
lesen mag.
read like
'It stands to reason that he does not like to read confuse articles about himself.'

As will be illustrated below, German fails every test for exempt reflexives, and yet allows picture-NP-reflexives. If picture-NP-reflexives exist in certain languages where exempt reflexives do not, severe doubt is cast on an analysis of the former in terms of the latter.[1]

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[1] This criticism does not only apply to the analysis of Pollard and Sag (1992; 1994), where the concept of an exempt reflexive follows directly from their Principle A (cf. definition (24) below), but also to the analysis of Reinhart and Reuland (1993). Reinhart and Reuland introduce the concept of a *syntactic predicate*, and exclude nominal heads that are not deverbal from this concept. For further discussion of Reinhart and Reuland's analysis, cf. section 3.

What is more, we are faced with a conceptual problem. The co-indexation in (1) is not an instance of binding, but of co-reference. The proposals differ sharply from earlier analyses in this respect, where anaphors have been classified as referentially deficient, thus being in need of a binding antecedent to receive an interpretation. These earlier proposals tacitly assume that being an anaphor (or not being an anaphor) is basically a lexical property. With exemptness pertinent in (1), it cannot be maintained that anaphors are analyzed as being referentially deficient.

The present paper tries to solve this problem by proposing a syntactic theory of anaphoric dependency.[2] It assumes that being a reflexive pronoun is indeed a lexical property. Anaphoric dependencies are not only resolved but also introduced in syntax. In a nutshell, the syntactic context may turn certain pronouns into dependent elements. Most syntactic theories assume – implicitly or explicitly – a closure on certain local domains, so that the local domain must not contain any open dependencies. Grammars do not derive sentences with missing arguments (unless they can be inferred and hence syntactically derived from the context) and by the same line of reasoning, they do not derive sentences that contain referential dependencies, which will explain why unbounded anaphors are excluded, while exempt *reflexives* are not.[3]

The present analysis will focus on reflexive pronouns in subjects of *object experiencer psych verbs* as e.g., *to worry*, *to annoy*, or *to make one's day*. Reflexive binding in object experiencer psych verbs (OE psych verbs for short) has been a benchmark for theories of OE psych verbs since their inception in Belletti and Rizzi (1988). We will assume that what looks like anaphoric binding into the subject of an OE psych verb is in fact another case of an exempt reflexive being co-indexed, yet not bound. If reflexive binding into the subject of an OE psych verb is in fact a case of exemptness, we expect that the phenomenon can only be observed in languages that allow exempt reflexives in general.

In section 2, we will discuss properties of reflexive binding into the subject of OE psych verbs. It will be shown that the syntactic distribution of reflexive binding into OE psych verbs is not uniform across languages. While the initial discussion will focus on the differences between English and German, we will turn to the anaphoric system of Portuguese to further illustrate the diver-

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[2] What we want to express by using the term *syntactic analysis* is that *syntax* does not only play a role in resolving anaphoric dependencies, but crucially *introduces* anaphoric dependencies (as opposed to a model where lexical reflexives are already marked as deficient in the lexicon). The present analysis thus rejects a lexicalist analysis of anaphoric binding, following the spirit of Borer (2005), but also the leading ideas of Gazdar et al. (1985), where syntactic dependencies are introduced through syntactic means.

[3] Pollard and Sag (1994, 266ff.) call reflexive pronouns that are exempt from Principle A *exempt anaphors*. As will become clear shortly, the term *exempt anaphor* is not only a misnomer, but strictly speaking contradictory. For the same reason, I will use the term *exempt reflexive* throughout.

gent properties of picture-NP-reflexives. In section 3, we will turn to the concept *anaphor* itself and introduce the idea that reflexivity is a property of lexical classes, while anaphoricity is a dependency, which is not only resolved in syntax, but also introduced by syntactic contexts. Sections 4 and 5 will present the analysis of the data presented in section 2, while double object constructions, and binding patterns inside NPs are discussed in section 6.

2. Reflexives, picture-NP-reflexives and psych verbs

2.1. Variation in the syntactic distribution of picture-NP-reflexives

The analyses of Pollard and Sag (1992; 1994) and Reinhart and Reuland (1993) illustrate that English picture-NP-reflexives appear in syntactic contexts where ordinary binding cannot apply.[4] In addition to the case already illustrated in (3), picture-NP-reflexives allow intersentential antecedents (4-a), non-commanding antecedents (4-b), and split antecedents (4-c).

(4) a. John$_1$ was upset. A picture of himself$_1$ in the museum had been mutilated.
b. [John$_1$'s campaign] required that pictures of himself$_1$ be placed all over town.[5]
c. John$_1$ told Mary$_2$ that pictures of themselves$_{1+2}$ were on sale.

None of the phenomena illustrated in (4) are grammatical in German. This is in line with our observation that examples like (1) are not acceptable in German (cf. example (2)). The following examples show that German does not allow intersentential, non-commanding, or split antecedents:

(5) a. *Ulrich$_1$ war sauer. Ein Bild von sich$_1$ war beschädigt worden.
Ulrich was upset a picture of himself had mutilated been
b. *[Schumachers$_1$ Reklamevertrag] verlangte eine Nacktaufnahme
Schumacher's promotion contract required a nude-picture
von sich$_1$.
of himself
c. *Ulrich$_1$ zeigte Klaus$_2$ einige Bilder von sich$_{1+2}$.
Ulrich showed Klaus some pictures of themselves

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[4] The pertinent data have in fact been observed in many publications since the 1970s, but have mostly been taken to be exceptional in nature. Zribi-Hertz (1989) led to a re-evaluation of the data.

[5] As a funny side effect, it should be noted that the grammar checker of my text processor suggests that *himself* be replaced by *him* in (4-b).

Despite the obvious opposition against syntactic contexts that suggest a treatment of picture-NP-reflexives as exempt, German picture-NP-reflexives require medium-distance binding (cf. Büring (2005, 243)). By 'medium-distance binding', we mean that a reflexive contained in an NP requires a commanding antecedent within the same clause. It might be possible that a picture-NP-reflexive is realized inside a stack of NPs, yielding structures like [[$_{NP}$ … N [$_{NP}$ … N P refl$_1$]] … V], as e.g. illustrated in (6).

(6) Der geschnappte Einbrecher$_1$ in einem HL-Supermarkt in Großaiting
the snapped burglar in a HL-supermarket in Großaiting
bei Augsburg zog [zwei "Krone"-Ausschnitte [$_{PP}$ mit Berichten
close-to Augsburg pulled two "Krone" clippings with reports
über sich$_1$]] aus der Tasche.
about himself out the pocket
'The burglar who was caught in a HL supermarket in Großaiting close to Augsburg pulled two clippings from the newspaper "Krone" out of his pocket, which contained reports about him.'

Given the contrasts between (4) and (5), one could give up the idea that reflexive binding can be defined across languages. Hence, two independent Principles A would be the result, one of which would turn picture-NP-reflexives into exempt reflexives, while the other renders these reflexives as anaphors. Such a move would allow a description of the basic facts in the languages in question, but it would be necessary to extend the analysis with every new language being analyzed. Focussing on the individual formulations of Principle A, a disjunctive analysis of picture-NP-reflexives would be prone to miss structural similarities across languages.

2.2. Picture-NP-reflexives and OE psych verbs

Languages typically include two different types of psych verbs. So-called subject experiencer psych verbs (SE psych verbs for short), as illustrated in (7), form a kind of norm, while OE psych verbs, as illustrated in (8) behave exceptionally. This exception is due to the assumption that the role *experiencer* generally occupies a higher rank than the role *theme*. The rank is respected in SE psych verbs, where the *experiencer* is realized as the higher-ranking subject, while the *theme* occupies the position of the object. In the case of OE psych verbs, we find the opposition situation: on the surface, the higher ranked thematic role is associated with the lower ranked grammatical function.

(7) John$_1$ fears [these pictures of himself$_1$].

(8) [$_S$ [These pictures of himself$_1$] [$_{VP}$ frighten John$_1$]].

Picture-NP-reflexives have been a benchmark for every theory of OE psych verbs. The problematic case is (8). If the linear appearance of *theme* and *experiencer* is mirrored in the configurational structure, the reflexive is not bound by its antecedent, as can be witnessed from the structure in (8). Starting with the analysis in Belletti and Rizzi (1988), this problem has been addressed by various means; in particular by assuming that the position of the subject in (8) is a derived one, and that the object experiencer at some syntactic level ordinarily binds the reflexive (cf. also Sabel (this volume)). This idea has been justified by assuming that the relevant predicates are unaccusative. Pesetsky (1995, 21ff.) has already argued against this view by showing that OE psych verbs can be passivized, which should not be possible if they were unaccusative verbs.

(9) a. Ghosts frighten Bill.
b. Bill is frightened by ghosts.

What is more, Pollard and Sag (1992, 278) provide examples of type (10) showing that even a reconstruction of the subject theme would not provide a configuration in which the antecedent were able to bind the reflexive contained in the theme for the simple lack of c-command.[6] Pollard and Sag (1994, 271) conclude that reflexives in OE psych verbs could be treated as exempt reflexives.

(10) $[_S$ [Nude pictures of himself$_1$ in various newspapers] made $[_{NP}$ John$_1$'s day]].

It is a basic tenet of both Pollard and Sag's and Reinhart and Reuland's proposals that local domains are responsible for determining whether a given reflexive has to be analyzed as exempt or not. The pertinent local configuration in (7), (8) and (10) is the same: a reflexive embedded into an NP without referential specifier. Hence, the analysis applied to (7) and (8) carries over to (10). Further evidence for treating picture-NP-reflexives in OE psych verb subjects as exempt reflexives comes from embedding psych verbs, as is illustrated in (11).

(11) John$_1$ said that pictures of himself$_{1/2}$ annoyed Peter$_2$.

If the reflexive in (11) were bound along the lines suggested in Belletti and Rizzi (1988), a co-indexation of the reflexive with the matrix subject should become impossible, counter to our observations. Such a co-indexation becomes available if the reflexive is analyzed as exempt.

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[6] It should be noted that examples like (10) become unacceptable if the antecedent is substituted by a quantified expression:

(i) *Pictures of himself$_1$ made every$_1$ man's day.

The unacceptability of this example is expected, since the quantifier cannot bind the reflexive.

As picture-NP-reflexives in OE psych verb subjects are classified as exempt, we can derive the prediction that picture-NP-reflexives should only appear as subjects of OE psych verbs in languages allowing exempt reflexives. With regard to Italian – the language which first showcased picture-NP-reflexives as OE psych verb subjects – the existence of exempt reflexives has already been confirmed by Napoli (1979), as is illustrated in (12-a) below.[7]

(12) a. Giorgio$_1$ raccontò a Maria che la fotografia di se$_1$ stesso erano
Giorgio told to Maria that the picture of REFLEXIVE was
in vendita.
on sale
'Giorgio told Maria that the picture of himself was on sale.'

b. Questi pettegolezzi su di sé$_1$ preoccupano Gianni$_1$ più
these rumours about REFLEXIVE concern Gianni much
meglio di ogni altra cosa.
more than any other case
'These rumours about himself concern Gianni much more than anything else.' (Belletti and Rizzi (1988, 312))

The opposite situation is given in German. German neither allows exempt reflexives nor picture-NP-reflexives as subjects of OE psych verbs. The ban on exempt reflexives was already illustrated in (5), the unacceptability of picture-NP-reflexives in OE psych verb subjects as can be witnessed in (13).[8]

(13) a. *Die Bilder von sich$_1$ gefielen den Kindern$_1$.
the pictures of themselves pleased the children

b. *Den Kindern$_1$ gefielen die Bilder von sich$_1$.
the children pleased the pictures of themselves

c. *Ich glaube, dass die Bilder von sich$_1$ den Kindern$_1$ gefielen.
I believe that the pictures of themselves the children pleased

d. *Ich glaube, dass den Kindern$_1$ die Bilder von sich$_1$ gefielen.
I believe that the children the pictures of themselves pleased

In example (13-a), the subject has been topicalized. In (13-b), the object experiencer has been topicalized. Both examples are equally unacceptable. To reduce the possible influence of topicalization, examples (13-c,d) employ subordinate clause structures. The examples remain unacceptable, irrespective of a possible scrambling of the object experiencer, which distinguishes (13-c) from (13-d). Example (14) further illustrates that OE psych verbs allow scrambling of the object experiencer over a theme that contains a co-indexed pronoun.

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[7] It should be noted however that the reflexive used in (12-a) is *se stesso*, while the morphologically simple *se* is used in (12-b).

[8] Cf. Frey (1993, 131, ex. 62-b).

(14) Da ihm$_1$ die Berichte über ihn$_1$ in der Presse nicht gefallen,
because him the reports about him in the press not please
wendet sich Popinga$_1$ schriftlich an die Zeitungen.
appealed REFL Popinga in-writing to the newspapers
'Popinga wrote an appeal to the newspapers, because he did not like the reports about himself in the press.'

In summary, it is highly plausible to assume that OE psych verb subjects may contain reflexives just in case the language in question allows exempt reflexives. English and Italian allow exempt reflexives together with reflexives contained in OE psych verb subjects, German allows neither exempt reflexives nor reflexives contained in OE psych verb subjects. Further evidence comes from Serbo-Croatian, as illustrated in Büring (2005, 242). Büring shows that Serbo-Croatian does not employ exemption (as illustrated by (15-a)), and just as expected, the use of a reflexive pronoun in an OE psych verb construction leads to ungrammaticality (15-b):

(15) a. *Ljutilo ga$_1$ je da je ona pokusala napasti covjeka kao sebe$_1$.
anger him did that did she try attack man like self
'It angered him that she tried to attack a man like himself.'
b. *Ona slika sebe$_1$ u Glasu Slavonije je mucila Petra$_1$ cijeli dan.
that picture self in Voice Slavonia did torture Peter whole day
'That picture of himself in the Voice of Slavonia tortured Peter the whole day.'

A treatment of reflexives in OE psych verbs in terms of exempt reflexivization is also corroborated by data from Dutch. Everaert (n.d.) points out that there is a strong tendency to use the logophoric reflexive *hemzelf* in Dutch OE psych verb constructions, as is illustrated in (16).

(16) De beschrijving van hemzelf$_1$/*zichzelf$_1$ als communist ergerde de
the characterization of himself as communist annoyed de
Gaulle$_1$.
Gaulle
'It annoyed de Gaulle that he was characterized as a communist.'

In addition to the pattern observed in (8), (11), and (13), the syntactic distribution of Portuguese *ele próprio* illustrates a further instantiation of reflexive binding in OE psych verbs, as will be illustrated in section 2.3. The examples in (13) illustrate that a co-indexation is impossible in German. The examples in (8) and (11) show that reflexives contained in an OE psych verb subject can be co-indexed with the object in the lower clause *and* with a subject in a higher clause. It would be a natural extension of this pattern to find a language where a reflexive in an OE psych verb subject can be co-indexed with the verb's object

in simple clauses, but is required to be co-indexed with a higher subject, if one is present. This language is Portuguese with the reflexive pronoun *ele próprio*.

2.3. External reflexive binding in Portuguese

The Portuguese non-clitic reflexives *si próprio* and *ele próprio* are derived from dative and nominative pronouns, combined with *próprio*. They may not occur freely, if a commanding antecedent is available, as is illustrated in (17) (cf. Branco and Marrafa (1999, 171)).

(17) A Rita$_1$ destruio o retrato dele$_2$ próprio / dela$_{1/*2}$ própria / de si$_{1/*2}$ própria.
the Rita$_{fem}$ destroyed the picture *of-he self of-she self of her self

In (17), *ele próprio* cannot occur freely since *a Rita* is a commanding antecedent, yet cannot bind *ele próprio* since the gender values of both phrases differ. A coindexation of both *ela própria* and *si própria* is not only fine, but also required. The latter reflexive differs from the former, in that *ele próprio* allows intrasentential non-local binding, while *si próprio* requires a local binding domain, as is further illustrated in (18). Following standard terminology, *ele próprio* is a long-distance anaphor.

(18) O João$_1$ disse que a Rita$_2$ destruio o retrato dele$_1$ / de si$_{*1/*2}$ próprio.
the João said that the Rita destroyed the picture of-he of him self

Since *ele próprio* will only require a binder if a commanding antecedent is available, it is free to occur as a matrix subject, and as part of the matrix subject.

(19) a. Ele próprio$_1$ pagou a conta.
he self payed the bill
b. O retrato dele$_1$ próprio foi pintado pela Maria$_2$.
the picture of-he self was painted by-the Maria
c. *O retrato de si$_1$ próprio foi pintado pela Maria$_2$.
the picture of him self was painted by-the Maria

As has been pointed out by Branco and Marrafa (1999, 171), *ele próprio* cannot be coindexed with a non-commanding antecedent, if a commanding antecedent is present (20-a), nor with split antecedents (20-b).

(20) a. *[$_{NP}$ O journalista [$_{RelS}$ que viu a Ana$_1$]] disse ao Carlos que
the journalist who saw the Ana said to Carlos that
ela$_1$ própria dançou na festa.
she self danced at party

b. *O João$_1$ disse à Maria$_2$ que viu fotografias deles$_{1+2}$ próprios à
the João said to Maria that saw pictures of-they selves at
venda.
sale

Only *ele próprio* may be realized in a OE-psych verb construction:

(21) a. Estas fotos dele$_1$ próprio assustaram o Luís.
these pictures of-he self frightened the Luís

b. *Estas fotos de si$_1$ próprio assustaram o Luís.
these pictures of him self frightened the Luís

If, however, the OE psych verb construction is realized in embedded structures, only external antecedents become acceptable and a coindexation of *ele próprio* with the lower object experiencer is blocked:

(22) a. O João$_1$ disse que estas fotos dele$_{1/*2}$ próprio assustaram o
the João said that these pictures of-he self frightened the
Luís$_2$.
Luís
'João said that these pictures of João frightened Luís.'

b. *A Ana$_1$ disse que estas fotos dele$_2$ próprio assustaram o
the Ana said that these pictures of-him self frightened the
Luís.
Luís
'Ana said that these pictures of Luís frightened Luís.'

Summing up, the following picture emerges: We have to distinguish between internal and external co-indexation of reflexives in OE psych verb constructions. German does neither allow internal (13), nor external co-indexation, as is further illustrated in (23).

(23) *Die Kommentatoren$_2$ meinten, dass dieses Bild von sich$_{1/2}$ den
the commentators uttered that this picture of self the
Kanzler$_1$ beeindruckte.
chancellor impressed

English allows both internal and external co-indexation, while Portuguese *ele próprio* allows internal co-indexation if no external antecedent is available, but

requires external co-indexation if an external antecedent is available.[9] In the following section, we will reconcile the distribution of exempt reflexives, reflexives in OE psych verb constructions with the concept of *anaphor* itself. In particular, we will raise the question whether a concept of *anaphor* can be identified behind the reflexive variation just offered.

3. Reflexivity and anaphoric dependencies

As was already mentioned in the introduction, various concepts of *anaphor* come to mind. In a definition of Principle A, as e.g. provided in Pollard and Sag (1992; 1994), and given below in (24), the concept seems to be a hypernym for reflexives and reciprocal pronouns. A similar decision is made in Büring (2005). The definition in (24) thus turns Binding Theory into a categorical theory.

(24) *Principle A* (Pollard and Sag (1994)):
Locally a-commanded anaphors must be locally a-bound.

In the model of Reinhart and Reuland (1993), reflexive pronouns do not bear the feature +R, which stands for 'being fully referential' (Büring (2005, 236)). This feature is employed in Reinhart and Reuland's *General Condition on A-Chains*, as given in (25).

(25) *General Condition on A-Chains* (Reinhart and Reuland (1993, 696)):
A maximal A-chain $(\alpha_1, \ldots, \alpha_n)$ contains exactly one link – α_1 – that is both +R and Case-marked.

As a consequence of (25), A-chains that solely consist of reflexive pronouns are prohibited. Although the concept *anaphor* is not directly employed in Reinhart and Reuland's analysis, the feature +R is crucial for the distinction between reflexive pronouns and non-reflexive NPs. Exemption is not covered by this feature itself but by the concept of a predicate – which turns Reinhart and Reuland's analysis into a categorical one as well, where the pertinent category is a verbal one.

(26) *Principle A* (Reinhart and Reuland (1993)):
A reflexive-marked syntactic predicate is reflexive.

According to this analysis, nominal heads are not treated as reflexive-marked syntactic predicates,[10] and hence do not require that a maximal A-chain is es-

[9] In fact, the distribution is not complete, as we could conceive a language where an external co-indexation is always required, i.e., reflexives contained in an OE psych verb were only acceptable if the predicate is embedded under another verb. The present analysis clearly predicts the existence of such a pattern (which would otherwise be quite surprising, as it seems that for the well-formedness of an element in a clause, the clause is actually required to be embedded).

tablished which would lead to local reflexive binding. It should be noted that the condition in (25) excludes the occurrence of Portuguese *ele próprio* as subject of a matrix predicate, unless Reinhart and Reuland would assume that it bears the feature +R.

The very idea that anaphors are referentially deficient entities that require a binder as an amendment is also problematic from the perspective of compositionality. Phrases like *likes himself* have a clear compositional interpretation, and this interpretation does not include a concept of deficiency. So, anaphors should more plausibly be seen as entities whose reference is syntactically forced, and not as entities without reference. This perspective also conforms to the behaviour of exempt reflexives. It seems much more plausible to assume that anaphors are elements that are turned into dependent entities by Binding Theory itself. The dependency does not emerge because a reflexive pronoun bears certain properties, but because it is embedded in a local syntactic structure with a given set of properties. Hence, we will assume that the syntactic distribution of anaphoric pronouns is driven by syntactic contexts and not by lexical specifications of the pronouns involved. In this view, an *anaphor* is a strictly syntactic entity (with repercussions in the interpretative component), while the concept *reflexive* is restricted to a designated form.

Much confusion has arisen in Binding Theory because a designated form (reflexivity) has been confounded with a syntactic dependency (anaphoricity). Reflexivity is obviously related to anaphoricity, and anaphoricity can only emerge if the language offers a designated form that can be employed to signal an anaphoric dependency. As Dimitriadis and Everaert (2004) have pointed out, a designated form can be a lexical reflexive pronoun, but it can also be a designated noun (as in Albanian), a derivational affix (as in Kannada), an inflectional affix (as in Russian), a clitic (as in French) or even a designated verbal auxiliary (as in Tamil). Again, talking about referentially deficient entities does not make sense if anaphoric dependencies are introduced morphologically, or even syntactically, as in Kannada, Russian, French, or Tamil.

The present analysis thus assumes that reflexivity is not a property of predicates, but a property of designated forms. If reflexivity is viewed as a property of predicates, as in the analysis of Reinhart and Reuland (1993), a distinction has to be drawn between predicates that can be reflexive and predicates that cannot be. This distinction is not only empirically problematic but also superfluous. As will become clear below, predicates of all kinds, be their heads verbal, nominal, or prepositional, may have complements (and specifiers) that introduce dependen-

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[10] Syntactic *predicates* in the strict sense of Reinhart and Reuland (1993, 678) are predicates that realize an external argument, which is part of their lexical conceptual structure. The concept of a predicate employed in Reinhart and Reuland (1993) bears thus close resemblance to the trigger feature [±ARG-S], which will be introduced in section 4.

cies. Reflexive predicates in the terminology of Reinhart and Reuland (1993) emerge if a dependency is introduced and resolved in the local domain of the same lexical head.

As a corollary, the present analysis argues strictly against the idea that anaphoric dependencies should be dealt with in the lexicon. Anaphoricity is a syntactic concept and is dependent on syntactic contexts. Hence, the present analysis rejects implementations of Principle A that rely on lexical argument structure as an explicandum, such as Pollard and Sag (1992; 1994). The comparison of closely related languages like English and German in section 2.1 has already revealed that an analysis that relies on lexical argument structure must admit that binding can be confined to this lexical domain in English, but not in German.

The languages under investigation (English, German, Portuguese) are similar insofar as the designated form can be called a reflexive pronoun. As we have seen in section 2.3, Portuguese reflexive pronouns can be analyzed as combinations of a pronoun with the adjective *próprio*, and likewise, one could argue that English reflexives are derived from a combination of a pronoun with the adverb *self*, but we will ignore issues of derivation presently and simply assume that the designated forms in these languages are indeed reflexive pronouns.

The designated forms do not differ from other elements employed in the lexicon (or as the output of a pre-syntactic derivational component). Anaphoric dependencies, however, emerge if such a designated form is realized in the domain of a syntactic trigger. Once the trigger is met, a syntactic dependency is indicated and thus in need of resolution. It is thus not the reflexive pronoun that leads to ungrammaticality; it is the syntactic context containing the reflexive pronoun. The resulting dependency requires a resolution, like other syntactic dependencies. A resolution takes place by identifying a proper antecedent in a given domain – this being a step which is not only familiar from other theories of anaphoric binding, but from models that deal with syntactic dependencies in general, as e.g. SLASH termination in GPSG (Gazdar et al. (1985)), or HPSG (Pollard and Sag (1994)), or in various minimalist models.

Ideally, the introduction of an anaphoric dependency is dependent on the conjoined presence of a designated form and a trigger. If either is missing, an anaphoric dependency will not emerge. While this is the picture familiar from English, it does not carry over to other languages. Let us illustrate the problem by again addressing medium-distance anaphoric binding in German, as already presented in (2) – in contrast to (1) – and (6). From the comparison of (1) and (2) we learn that German reflexive pronouns require a binder, while English reflexive pronouns do not. In the following, we will assume that the relevant feature for designated forms will be indicated through **R**, the value of which will be an *index n* with ϕ-features PERSON, NUMBER, and GENDER, represented as **R**(*n*). This feature is either lexically assigned or determined in a pre-syntactic

component. It is present in syntax only in the position where the designated element is syntactically inserted and will never project. Let us further assume that a syntactic trigger for the introduction of an anaphoric dependency will be any predicate that can have an articulated argument structure. Predicates showing the required argument structure will be marked as [+ARG-S], predicates not showing the necessary structure as [−ARG-S]. Obviously, verbs are always marked as [+ARG-S] and hence are prime candidates for the introduction of anaphoric dependencies. Thus any designated element bearing **R**(*n*) will immediately meet the trigger condition if it is realized as a syntactic object of a verb. In this case, the syntactic object will be marked as introducing a syntactic dependency. Anaphoric dependencies are indicated through the feature **D**, the value of which will be the index already introduced by **R**. Hence, in the present case, **D**(*n*) will be instantiated. The syntactic projection of **D** differs from the projection of **R**; while **R** never projects, **D** will project unless it is identified with another index. The local domain, in which identification, i.e., resolution, must take place, is again determined by the argument structure of the respective predicate. For the moment, let us assume that a resolution is required once all the syntactic arguments that have to be realized actually are realized by the predicate.[11] The general scheme for the resolution of anaphoric dependencies is given in (27).

(27) If a daughter of a phrase introduces an anaphoric dependency, then the index of the dependent can be identified with the index of the other daughter of the phrase.[12]

Now consider the structures for English and German in (28) and (29).

(28) $[_{S}\ NP_1\ [_{VP_{[\mathbf{D}(n)]}}\ V_{[+ARG\text{-}S]}\ NP_{[\mathbf{R}(n),\,\mathbf{D}(n)]}\ ]]$

(29) $[_{S}\ NP_1\ [_{VP_{[\mathbf{D}(n)]}}\ NP_{[\mathbf{R}(n),\,\mathbf{D}(n)]}\ V_{[+ARG\text{-}S]}\ ]]$

In both cases, $NP_{[\mathbf{R}(n)]}$ is syntactically realized in the context of $V_{[+ARG\text{-}S]}$ and hence receives the additional specification **D**(*n*). As **D**(*n*) cannot be resolved, it has to project to the VP level. After the verb has discharged each argument that is syntactically required, the value *n* of **D** at VP must be identified with the index of the subject, i.e., $n = 1$. As resolution has taken place, S does not bear a **D** feature. Let us next consider the structure of picture-NP-reflexives in (30).

(30) $[_{VP}\ V_{[+ARG\text{-}S]}\ [_{NP}\ \ldots\ N_{[-ARG\text{-}S]}\ \text{of/von}\ NP_{[\mathbf{R}(n)]}\ ]]$

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[11] We assume that the unexpressed subject of infinite verbs is not present on the COMPS value, and hence that infinite VPs define local binding domains. In the following analysis, the treatment of infinite VPs is not included for the sake of perspicuity, but the analysis proposed can be easily extended to deal with binding through the subject of an infinite verb.

[12] This condition embodies c-command, as it is the index of the other daughter, and not an index *contained* in the other daughter, which can be identified with the dependent index. As for governed PP, cf. section 6.

The feature **R**(*n*) is not realized in the context of a trigger (the verb is just too far away), and consequently, **D** will not be instantiated and hence not project. While this result would immediately account for exempt reflexives in English, it fails to account for the pattern observed for German in (2) and (6).

To distinguish between medium-distance bound anaphors on the one hand, and exempt reflexives on the other hand, we have to break up the conjunction of designated form and trigger. We assume that languages may chose between a strict interpretation of this conjunction, and a weak interpretation. In the strict interpretation, anaphoric dependencies are only introduced if a trigger is present in addition to a designated form. English is a language that obeys the strict interpretation. In the weak interpretation, the absence of a trigger does not lead to entirely ignoring the designated form, but to introduce a dependency into the syntax that has not been activated. Hence, the common representation of picture-NP-reflexives in (30) will have to be split up in the following representations for German and English:

(31) English:
$[_{\mathrm{VP}}\ \mathrm{V}_{[+\mathrm{ARG\text{-}S}]}\ [_{\mathrm{NP}}\ \ldots\ \mathrm{N}_{[-\mathrm{ARG\text{-}S}]}\ \text{of}\ \mathrm{NP}_{[\mathbf{R}(n)]}\ ]]$

(32) German:
$[_{\mathrm{VP}_{[\mathbf{D}(n)]}}\ \mathrm{V}_{[+\mathrm{ARG\text{-}S}]}\ [_{\mathrm{NP}_{[\cancel{\mathbf{D}}(n)]}}\ \ldots\ \mathrm{N}_{[-\mathrm{ARG\text{-}S}]}\ \text{von}\ \mathrm{NP}_{[\mathbf{R}(n),\,\cancel{\mathbf{D}}(n)]}\ ]]$

The representation in (31) is identical to the initial representation in (30). An **R** feature will not lead to a **D** feature unless a trigger is present. The representation in (32) for German introduces a new feature: $\cancel{\mathbf{D}}$ stands for an *inactive* dependency. An inactive dependency can be turned into an active dependency in the appropriate trigger context. Hence the inactive dependency present on the NP is turned into an *active* dependency on the VP level. Having become an active dependency, its resolution is required, and hence the ungrammaticality of (2) can be derived.

Summing up, the analysis of anaphoric dependencies rests on the following assumptions:[13]

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[13] Fischer (2006) presents a model of reflexive binding that is very similar to the one presented here, although she assumes derivational rules and ordered constraints (in the sense of Optimality Theory). The present model is expressed in terms of local representational constraints in the sense of Gazdar et al. (1985), and does in fact bear some resemblance to the treatment of missing constituents through the SLASH feature in the latter model. The empirical coverage of Fischer's model in comparison to the present model is not easily gauged, but the analysis presented in section 4 can handle cases of co-referential reflexives that do not c-command each other (cf. (i)) without further amendment.

(i) Peter und Maria gaben [den Eltern von sich] [ein Bild von einander].
Peter and Mary gave the parents of self a picture of each other

1. An anaphoric dependency is the result of an **R** feature present in a designated form in combination with an appropriate trigger. Categories that show an articulated argument structure typically introduce an appropriate trigger while nominals and other categories do not. Additional conditions for triggers may be required in individual languages.
2. Two alternatives ensue if an appropriate trigger is not present. Either the introduction of an anaphoric dependency will not take place at all, or an inactive anaphoric dependency is introduced.
3. **R** features never project in syntax.
4. Inactive anaphoric dependencies project as long as they have not been turned into active anaphoric dependencies.
5. Active anaphoric dependencies project unless they have been resolved.
6. A resolution of an anaphoric dependency requires an identification of the index of the dependency with an index of another phrase.
7. An upper bound may be required for resolution. If an upper bound is imposed, the resulting dependency is a short- to medium-distance dependency. If no upper bound is imposed, the resulting dependency is a long-distance dependency.

In the following section, we will spell out the workings of the aforementioned conditions in more detail for English and German.

4. Anaphoric dependencies in English and German

In the following, we will assume without further discussion that pronouns bearing the feature **R** are lexically reflexive. A phrase bearing the feature **R** with index *n* (*n* a natural number) is represented as $XP_{[\mathbf{R}(n)]}$; a phrase bearing the feature **D** with index *n* is represented as $XP_{[\mathbf{D}(n)]}$; a phrase bearing the feature ~~**D**~~ with index *n* is represented as $XP_{[\sout{\mathbf{D}}(n)]}$. Several cases of anaphoric binding may take place in parallel in a syntactic structure, and hence different numbers indicate different indices unless a dependency **D**(*n*) has been resolved by identifying it with index *m*, according to which *n* is set to *m*.

Further to the features **R**, **D**, and ~~**D**~~ already introduced in section 3, we assume mostly theory-neutral (or, as one could say, theory-compliant) features.

Neither the reflexive nor the reciprocal command each other in (i), and yet, they receive the same index, because the subject binds them simultaneously. The present proposal allows such one-to-many-relationships (cf. section 6), while Fischer's analysis proposes one-to-one relationships between binder and anaphor, but can be extended to deal with one-to-many relationships as well.

The feature [+ARG-S] is assigned to predicates that contain articulated argument structures, i.e., verbs but also event nominals (cf. section 6). Typically a fully articulated argument structure includes an external argument. Elements that bear [−ARG-S] do not show an external argument. The feature [+ARG-S] bears some resemblance to the concept of a COMPLETE FUNCTIONAL COMPLEX introduced in Chomsky (1986). As a HEAD feature, [±ARG-S] follows the projection of a lexical head. The feature [±LEX] indicates whether the head of a phrase is lexical or phrasal. LEX could be derived from the syntactic context in various ways, and we employ it as an abbreviation to indicate whether a given head is syntactically complex or not. Following a long tradition in binding theory starting with Chomsky (1981), we assume that the realization of a syntactic subject of a predicate plays a major role in determining binding domains. We will represent the syntactic realization of arguments through the feature COMPS, which is derived from the representation of valency in HPSG (Pollard and Sag (1994)). This feature is list-valued, and its value can either be an empty list, represented ⟨ ⟩, or a list containing specifications for syntactic arguments, as e.g. [COMPS⟨NP⟩]. We will assume that predicates bearing the specification [COMPS⟨NP⟩] are in need of a subject and predicates bearing the specification [COMPS⟨ ⟩] have saturated their argument structure.

This set of features allows us to define the formal conditions for the introduction of active and inactive anaphoric dependencies as given in (33), (34), and (35).

(33) *Active Dependency:*
Given a phrase Y with daughters X and ZP, where ZP bears the value **R**(*n*). ZP bears the value **D**(*n*) if and only if X is [+ARG-S].

(34) *Dependency:*
Given a phrase Y with daughters X and ZP, where ZP bears the value **R**(*n*). ZP bears the value **D**(*n*) if X is [+ARG-S], and the value ~~**D**~~(*n*) if X is [−ARG-S].

(35) *Activation:*
Given a phrase Y with daughters X and ZP, where ZP bears the value ~~**D**~~(*n*). ZP bears the value **D**(*n*) if X is [+ARG-S].

The projection of active and inactive anaphoric dependencies is governed by the condition in (36).

(36) *Dependency Projection:*
   a. A **D** value present on a daughter is also present on the mother, unless the index of the daughter not bearing **D** is identical to the **D** value.
   b. A ~~**D**~~ value present on a daughter is present on the mother unless the daughter's ~~**D**~~ value is identical to the daughter's **D** value.

Let us briefly discuss the aforementioned conditions. *Active Dependency* requires that not only **R**, but also a trigger be immediately present in the context of a reflexive pronoun for an anaphoric dependency to ensue. *Dependency* is a generalization of *Active Dependency*, not only covering the introduction of active, but also of inactive dependencies. *Activation* deals with the activation of inactive dependencies. It should be noted that activation amounts to copying the value of ~~**D**~~ to **D**, so that a phrase bearing the features ~~**D**~~ and **D** with identical values signals an activated dependency. Activated ~~**D**~~ values do not project, and the identity clause in condition (36-b) accounts for this. The gist of *Dependency Projection* can be summarized as follows: inactive dependencies project as long as they have not been activated, and active dependencies project as long as they are not resolved.

We have now presented conditions for the introduction and projection of **D** (and ~~**D**~~) values, and condition (36-a) already implicitly addresses the resolution of **D** values. In most general terms, the resolution of a **D** value takes place if the value is identified with the index of another daughter, as formulated in (27). The condition in (27), however, can only claim to be a necessary condition, a necessary condition that implicitly refers to a condition dealing with unresolved D values at the highest node in a syntactic derivation. This condition is made explicit in (37), but it should be noted that (37) is not strictly speaking part of the present proposal, since a general ban on *open dependencies* in complete structures must be imposed by any theory of grammar.

(37) *Open Dependencies:*
The maximal projection of a clause must not bear a value for **D**.

Taken together, the conditions in (27) and (37) are still too tolerant to deal with short- and medium-distance anaphors. To capture these, condition (27) must be further constrained by making the resolution of **D** dependent on the saturation of the argument structure of the predicate that triggered the introduction of the dependency, as given below in (38).[14]

(38) *Local Resolution:*
If a daughter of a phrase Y bears **D**(*n*) and Y is specified as [COMPS⟨ ⟩] then the other daughter of the phrase must bear index *n*; if Y is specified with a non-empty value for COMPS, then the index if the other daughter can bear index *n*.

[14] As will be discussed in section 5, condition (38) also accounts for the observation that German impersonal constructions must not introduce a reflexive (cf. (49)). It should be noted that *local resolution* in (38) does not require any modification to deal with cases of scrambling if we assume that scrambling, i.e., syntactic realization of more prominent arguments although less prominent arguments have to be realized, leads to a recording of the index of the more prominent argument. For a treatment of scrambling along these lines, cf. Kiss (2001).

Let us illustrate the workings of the conditions in (33), (34), (35), (36), and (38) for three different patterns in English and German.

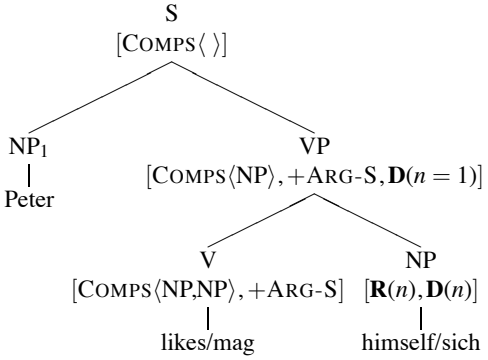
(39) a. Peter$_1$ likes himself$_{1/*2}$.
b. Peter$_1$ mag sich$_{1/*2}$.

(40) a. Peter$_1$ believed that pictures of himself$_1$ were on sale.
b. *Peter$_1$ glaubte, dass Bilder von sich$_1$ zum Verkauf standen.

(41) a. Peter$_1$ likes a picture of himself$_{1/2}$.
b. Peter$_1$ bevorzugt ein Bild von sich$_{1/*2}$.

With regard to simple transitive structures, as given in (39), English and German show the same pattern, which follows from the requirement that [+ARG-S]-heads form a trigger to immediately introduce **D** from **R**. Neither verb second, nor the base order of the verbs plays a role here; hence we use the schematic structure in (42) for English and German.

(42) *Relevant structure of (39a,b):*

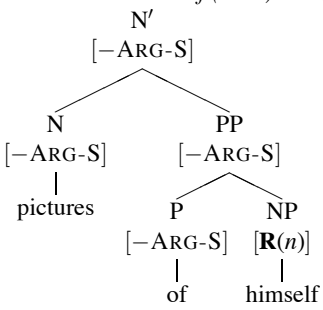


In (42), *himself* and *sich*, respectively, introduce **R**(n). The presence of **R**(n) together with [+ARG-S] on the verb leads to the reflexive NP being marked as **D**(n). According to (36), **D**(n) is projected to the VP level, where n is identified with the index of the subject NP. Identification is represented through equations of the form *dependent index* = *binding index* in (42) and the following structures. Exemption is blocked even in the English case for the following reasons: First, the **R**(n) and [+ARG-S] conspire to introduce **D**(n). While **R**(n) will never project, the projection of **D**(n) can only be stopped by the identification of n. Secondly, *Local Resolution* (38) requires that the dependency introduced by **D**(n) has to be resolved below S[COMPS⟨ ⟩].

The situation differs if picture-NP-reflexives are considered. The larger structure actually do not play a role in the English examples given in (40-a) and (41-a), as the introduction of a possible dependency is already barred inside the NP.

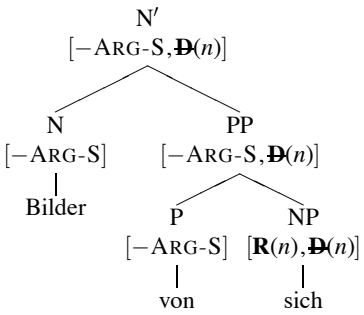
According to *Active Dependency* in (33), the presence of **R**(*n*) in itself is insufficient to trigger **D**(*n*) in English. While it does not matter whether the preposition *of* is treated as a syntactic head or a case marker (for governed prepositions, cf. section 6), we assume that *of* actually heads a PP. The preposition is marked as [−ARG-S], and consequently, no dependency is introduced in (40-a) and (41-a). The pertinent local structure is given in (43).

(43) *Relevant structure of (40-a) and (41-a):*

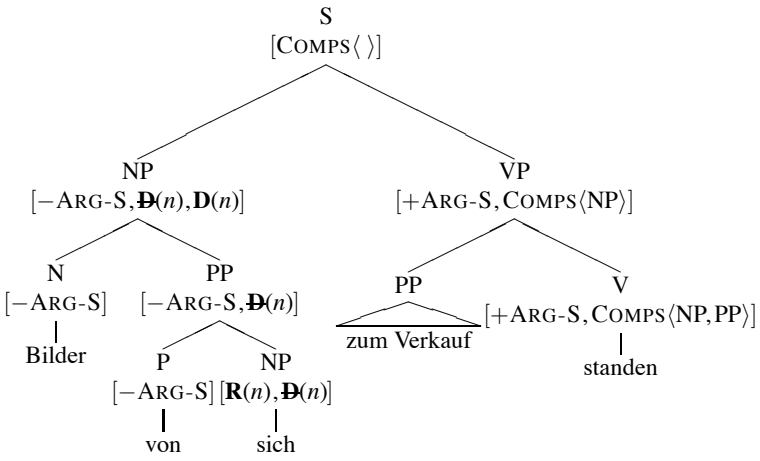


Picture-NP-reflexives are treated differently in German, since German allows the introduction of inactive dependencies according to (34). Consequently, a picture-NP-reflexive will introduce an inactive dependency in (40-b) and (41-b), but only the latter can be bound, as required by *Local Resolution* in (38). The structure of a picture-NP-reflexive in German is depicted in (44), and the analysis of the lower clause in (40-b) is given below in (45).

(44) Bilder von sich



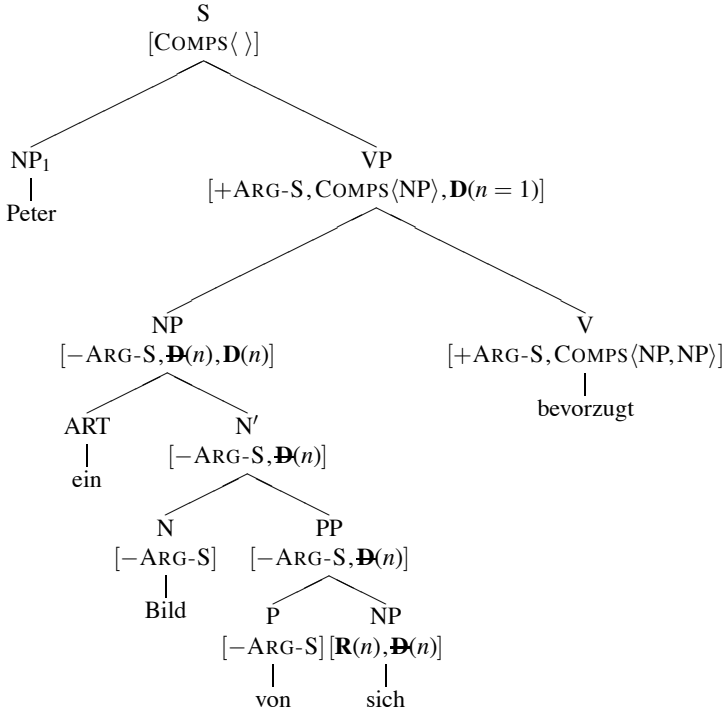
(45) *Peter$_1$ glaubte, dass [$_S$ Bilder von sich$_1$ zum Verkauf standen].



The presence of the feature [+ARG-S] on the VP activates the inactive dependency ~~**D**~~(*n*) on the subject. The resulting **D**(*n*), however, cannot be bound below S[COMPS⟨ ⟩], as would be required by *Local Resolution*. The dependent index *n* cannot be identified with any other index, as the VP does not offer one. If the structure of the English picture-NP-reflexive in (43) would be plugged into (45), a different picture would arise. As a dependency has never been introduced, there is no reason to resolve it either.

Finally, let us turn to the ordinarily bound picture-NP-reflexive in the German example (41-b).

(46) Peter$_1$ bevorzugt ein Bild von sich$_{1/*2}$.



In the analysis in (46), **R**(*n*) introduced by *sich* leads to the introduction and projection of ~~**D**~~(*n*) inside *ein Bild von sich*. In the context of V[+ARG-S], **D**(*n*) is activated and consequently projected as **D**(*n*) until it is identified with the index of the subject. The index of the subject is the only index that would allow identification, i.e., even if NPs higher up in the structure would provide indices, they could not be used for identification as *Local Resolution* requires S[COMPS⟨ ⟩] to not bear a **D** feature.

Although the examples presented in (39), (40), and (41) appear to be similar superficially, their respective grammaticality is determined by the different workings of the conditions (33), (34), (35), and (36). In the presence of the relevant trigger, German and English reflexives are turned into dependencies. But in the absence of a trigger, English and German behave rather differently, as English does not employ *inactive dependencies*. Hence the English examples (40-a) and (41-a) are no instances of binding. There is no dependency, while in the German cases (40-b) and (41-b), the reflexive leads to the introduction of an *inactive dependency* that is eventually activated. Once activated, the resolution

of the reflexive is required within the next sentential projection, which accounts for the difference in grammaticality in (40-b) and (41-b).

5. Exemption and reflexives in object experiencer psych verbs

Let us now return to reflexives in OE psych verbs. We have introduced the relevant data in (8), (11) for English, (13) for German, and (21) and (22) for Portuguese. A summary of the data is presented in (47) for easier reference.

(47) a. These pictures of himself$_1$ frighten John$_1$.
b. John$_1$ said that pictures of himself$_{1/2}$ annoyed Peter$_2$.
c. *Ich glaube, dass die Bilder von sich$_1$ den Kindern$_1$ gefielen.
d. Estas fotos dele$_1$ próprio assustaram o Luís$_1$.
e. *Estas fotos di si$_1$ próprio assustaram o Luís$_1$.
f. *A Ana$_1$ disse que estas fotos dele$_2$ próprio assustaram o Luís$_2$.
g. A Ana$_1$ disse que estas fotos dela$_1$ própria assustaram o Luís$_2$.

Nothing more has to be said about the grammaticality of the English examples in (47-a,b). The reflexive does not count as an anaphor in either case, and the co-indexations in (47-a,b) are direct consequences of the reflexive's status as a syntactically non-dependent pronoun. The grammaticality distribution in (47-a,b) should thus mirror the one of a personal pronoun, as illustrated in (48). Minimal differences might be due to factors like logophoricity (cf. Sells (1987)).

(48) a. These pictures of him$_1$ frighten John$_1$.
b. John$_1$ said that pictures of him$_{1/2}$ frighten Peter$_2$.

The ungrammaticality of the German example in (47-c) follows immediately from the discussion in section 4: The reflexive introduces an *inactive dependency*, which again leads to an active dependency that cannot be resolved in the syntactic domain of the lower clause. As the lower clause in (47-c) provides a domain in which the reflexive cannot be bound, the ungrammaticality of (47-c) can be compared to the ungrammaticality of reflexives in German impersonal constructions, as illustrated in (49). The reflexives in (49-c,f) introduce a dependency that again cannot be resolved in the relevant local domain.[15]

(49) a. Er$_{nom}$ friert.
he$_{nom}$ feels-cold
b. Ihn$_{acc}$ friert.
him$_{acc}$ feels-cold

[15] It should be noted that the examples (49-c,f) would be treated as an instance of exempt reflexivization in Pollard and Sag (1994).

c. *Sich$_{acc}$ friert.
REFL$_{acc}$ feels-cold
d. Er$_1$ sagte, dass er$_1$ friert.
he said that he feels-cold
e. Er$_1$ sagte, dass ihn$_1$ friert.
he said that him feels-cold
f. *Er$_1$ sagte, dass sich$_1$ friert.
he said that REFL feels-cold

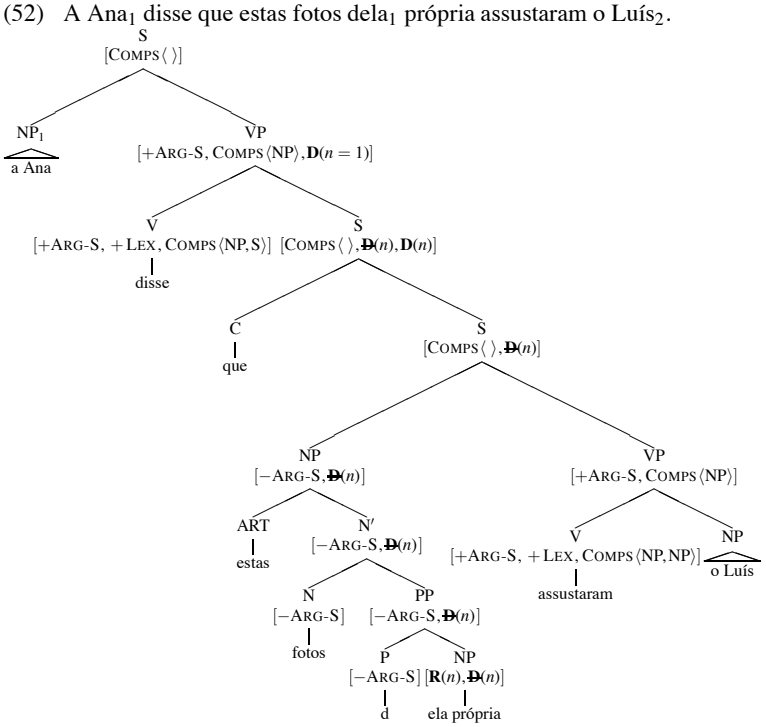
This leaves us with the grammaticality distribution of the Portuguese reflexives *si próprio* and *ele próprio* in examples (47-d,e,f,g). As Portuguese employs more than one reflexivization strategy, we may expect that the different reflexives introduce dependencies according to the application of conditions (33) *and* (34). Hence, we assume that the introduction of anaphoric dependencies may indeed be dependent on the *form* of the reflexive in addition to the other conditions already introduced. What is more, we must also account for the observation that the two reflexives differ w.r.t. to their binding domain: While *si próprio* clearly leads to short- to medium-distance anaphoric relations, *ele próprio* has been analyzed as a long-distance reflexive, as is already illustrated in (47-g). To analyze (47-d,f,g), we assume that the trigger for turning *ele próprio* into a dependency is the feature [+LEX], and that in the absence of [+LEX], i.e., in the presence of [−LEX], the **R** feature present in *ele próprio* leads to an inactive dependency only. With respect to the long-distance capabilities of *ele próprio*, we will assume that resolution will not be required to be local for this reflexive. Hence, we assume the following language-specific instantiation of (34) and (35) for Portuguese *ele próprio*, and we also assume that *Local Resolution* does not apply to the reflexive.

(50) *Dependency (Portuguese,* ele próprio*):*
Given a phrase Y with daughters X and ZP, where ZP bears the value **R**(*n*). ZP bears the value **D**(*n*), if X is [+ARG-S, +LEX], and the value ~~**D**~~(*n*) if X is [−ARG-S] or [−LEX].

(51) *Activation (Portuguese,* ele próprio*):*
Given a phrase Y with daughters X and ZP, where ZP bears the value ~~**D**~~(*n*). ZP bears the value **D**(*n*), if X is [+ARG-S, +LEX].[16]

[16] It should be clear by now that activation always repeats the initial statement of dependency projection.

(52) A Ana$_1$ disse que estas fotos dela$_1$ própria assustaram o Luís$_2$.



It should be noted that **D**(*n*) in (52) must be bound by the subject. If it were not, the clause would be marked with an open dependency and hence violate (37). In contrast to the ungrammaticality of (22-b), an instance of a violation of (37), examples like (19-a,b) are grammatical, because no active dependency has been introduced in the first place. We thus assume that matrix clauses must not bear open *active* dependencies, while *inactive* dependencies do not count as open.

Let us now turn to (47-e). The syntactic distribution of *si próprio* must not be handled by (50), for in this case, its ungrammaticality would remain without explanation. We have to repeat, however, that *si próprio* already differs from *ele próprio* in its lexical form: while the latter is derived from a fossilized nominative personal pronoun and the intensifier *próprio*, the former consists of the same intensifier, but a fossilized dative personal pronoun. As the forms are different, we may very well assume that the syntactic conditions for introducing a dependency are different as well. Hence we propose that the syntactic distribution of *si próprio* is not handled by (50) and (51), but by (33) and (35). In general, we may conclude that if a language employs more than one reflexivization strategy, it should also employ more than one resolution strategy. If the reader doubts this

conclusion, I would like to point out two well-known strategies to deal with reflexive pronouns, which build on the same insight: First, Chomsky (1981) did not only introduce Principle A of Binding Theory for reflexives and reciprocals, but also Principle B for other pronouns. The principles are justified on the observation that the forms of the pronouns differ from one another, and also that their syntactic distribution is not identical. The same considerations apply to *si próprio* and *ele próprio*. Second, languages that employ long-distance and short-distance reflexives are typically dealt with by introducing different conditions on their distribution. The pronouns *ele próprio* and *si próprio* clearly differ in that the one can be a long-distance anaphor, while the other can only be a medium-distance anaphor, and once again to employ two different conditions seems appropriate. To fully implement this idea, it becomes necessary to relativize the features **R**, **Đ**, and **D** to the different forms present in Portuguese, i.e., we do not only employ **R**(*n*), **Đ**(*n*), and **D**(*n*), but **R**(*si*, *n*), **Đ**(*si*, *n*), and **D**(*si*, *n*) alongside **R**(*ele*, *n*), **Đ**(*ele*, *n*), and **D**(*ele*, *n*). In fact we can assume that for the languages discussed in the present paper, the features **R**, **Đ**, and **D** are always relativized to the form of the reflexive. As there is only one reflexive form in English and German, the relativization does not change the conditions given above.[17] With (33) and (35) applying to (47-e), its analysis corresponds to the analysis of the ungrammatical German example (47-c), as analyzed in (45).

6. Double object constructions, governed prepositions and binding inside NP

Double object constructions present an interesting application of the model developed so far. First, they are interesting in that we can show that a dependency can be bound by an element that introduces a dependency itself. Secondly, we can explicitly address the role of governed prepositions. Now consider the examples in (53).

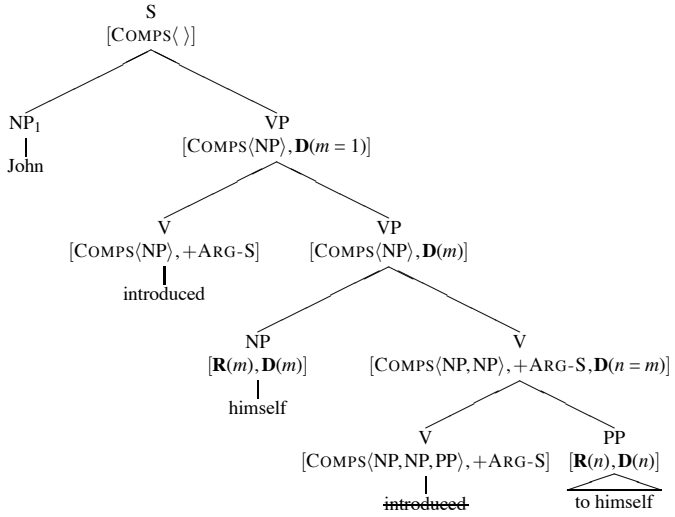
(53) a. In his schizophrenic phase, John$_1$ introduced himself$_1$ to himself$_1$.
b. *Lola$_2$ sold himself$_1$ to himself$_1$.

We will assume for the present purposes an analysis of English double object constructions in terms of verbal shell projections (Larson (1988)). In particular, we will assume that the *to*-PPs in (53) are subordinate to the reflexive NP-objects. To integrate governed prepositions into the present analysis, we apply the treatment of reflexive index projection in Pollard and Sag (1994) to the fea-

[17] Linguists sometimes assume that the syntactic distribution of the German reflexive pronoun *sich* differs from the combination of *sich* with the adverbial *selbst* (self). For a comprehensive treatment of *sich* and *sich selbst* cf. Fischer (2006).

ture **R**. Pollard and Sag (1994) assume that *nominal indices* can be born by PPs if the head is a governed preposition. Similarly, we allow an exception to the general rule that **R** will never project syntactically and assume that PPs headed by governed prepositions bear the **R** feature introduced by their complements. Consequently, *to himself* bears the specification **R**(*n*) inherited from *himself*. The analysis of (53-a) is given in (54).

(54) John$_1$ introduced himself$_1$ to himself$_1$.



The PP *to himself*, bearing **R**(*n*), is realized as a sister of the verb *introduced*, whose specification [+ARG-S] leads to the introduction of **D**(*n*) on *to himself*. This dependency is bound by identification with the index *m*, which is introduced by another reflexive pronoun that is also turned into an anaphor. The index *n* is hence identified by the index *m*, but the dependency introduced by the upper reflexive is still in need of identification. Eventually, it is identified and hence bound by the subject of the clause, and it follows from the transitivity of identity that the subjects and both anaphors bear the same index.[18] The ungrammaticality of (53-b) follows from the same reasoning: the second anaphoric dependency is not resolved, as there is no identification of the upper anaphor's dependency

[18] It should be noted that the analysis presented in (54) is not the only one available. Both dependencies could project to the level of the highest VP, where the subject binds both simultaneously. The result would be the same in the present case, but the second analysis is required to deal with picture-NP-reflexives inside double object constructions that do not command each other, as was already mentioned in fn. 12.

with the matrix subject. With an open dependency present at the root node of the clause, it violates condition (37).

Let us now turn to double object constructions with two PP objects. Jackendoff (1990) presents the following paradigm:

(55) a. I talked [$_{PP}$ to John and Bill]$_1$ [$_{PP}$ about themselves]$_1$.
b. *I talked [$_{PP}$ to themselves]$_1$ [$_{PP}$ about John and Bill]$_1$.
c. ??I talked [$_{PP}$ about John and Bill]$_1$ [$_{PP}$ to themselves]$_1$.
d. *I talked [$_{PP}$ about themselves]$_1$ [$_{PP}$ to John and Bill]$_1$.

We assume that the situation with two PP objects does not differ from the one with one PP object: both PPs may inherit the **R** marking of the reflexive. The ungrammaticality of (55-b) is derived straightforwardly: the lower PP cannot bind the dependency, as the dependency is only introduced after the lower PP has been syntactically realized. The near-ungrammaticality of (55-c) could be derived in the same fashion if we assume that scrambling does not extend binding options. If the *to*-PP remains the more prominent argument, a dependency introduced by the *to*-PP could only be resolved by identification with the matrix subject. Hence, an example like (56) should be grammatical under this analysis.

(56) Peter and Mary talked about Bill to themselves.

It remains to account for the ungrammaticality of (55-d). Any account of the ungrammaticality must depend on an analysis of scrambling in English. It might very well be that the preposed *about*-PP leads to ungrammaticality in itself, given that realizing the reflexive to the left of its antecedent would only be plausible if it should be indicated that the antecedent is in fact *not the antecedent*. It is a well-known fact that preposing in English changes coindexation options for reflexives, as can be illustrated by the following renowned example from Barss (1986):

(57) a. John$_1$ wonders which picture of himself$_{1/2}$ Bill$_2$ saw.
b. John$_1$ wonders whether Bill$_2$ saw a picture of himself$_{*1/2}$.

Issues of logophoricity might explain why a coindexation of *himself* with *John* leads to ungrammaticality in (57-b). But example (57-a) shows that preposing an exempt reflexive seems to lead to an extension of possible antecedents. Admitteldly, the examples in (57) differ from the ones in (55) in that the former but not the latter are instances of exempt reflexives. But if the main function of preposing a pronoun would actually be to change its coindexation options, then this function clashes with the non-availability of any antecedent in (55). Again, adding an antecedent, as in example (58) should lead to an improved judgement.

(58) Peter and Mary talked about themselves to Bill.

Interestingly, a pattern similar to (55) can be found in the nominal domain.

(59) a. [$_{NP}$ gifts [$_{PP}$ from John and Bill] [$_{PP}$ to themselves]]
b. *[$_{NP}$ gifts [$_{PP}$ from themselves] [$_{PP}$ to John and Bill]]
c. [$_{NP}$ gifts [$_{PP}$ to John and Bill] [$_{PP}$ from themselves]]
d. *[$_{NP}$ gifts [$_{to}$ themselves] [$_{PP}$ from John and Bill]]

The grammaticality pattern in (59) suggests that the reflexives introduce dependencies within nominal projections. We propose that the noun *gift* differs from *picture* and other nouns in allowing a fully articulated argument structure, and hence in bearing the specification [+ARG-S]. We will also assume that the structure of nouns with more than one argument mirrors the structure for verbs shown in (54). Finally, we will assume that the realisation of prepositional arguments inside NP is not as strict as the realisation of prepositional arguments in the verbal domain, to account for the distribution between (55-c) and (59-c). Given these two assumptions, the grammaticality of (59-a,c), as well as the ungrammaticality of (59-b,d) is accounted for: in each case, a dependency is introduced and in need of resolution *inside* NP. This condition cannot be met in (59-b,d).

It should be stressed, though, that the picture is not as simple as that, as surprisingly often, we find erratic binding patterns inside NPs. As an illustration, consider the following examples from Büring (2005, 235).

(60) a. C.B.'s father$_1$ resented his wife for [$_{NP}$ her$_2$ low opinion about himself$_1$].
b. Even so, [$_{NP}$ his$_2$ remarks about herself$_1$] were uncalled for.
c. Unfortunately, you have a tendency to allow [$_{NP}$ your$_2$ obviously muddled, rather juvenile feelings about myself$_1$] to cloud your judgment.

It is not implausible to assume that *opinion*, *remark*, and *feelings* are derived nominals. Yet, the examples show the behaviour of exempt reflexives, indicating that the analysis suggested for (59) should not be applied to (60). While we find reflexives as complements of derived nominals in (60) that show the behaviour predicted of picture-NP reflexives, Reinhart and Reuland (1993, 681f.) present the examples in (61-b,c), where apparently exempt reflexives show sensitivity to referential specifiers of N.

(61) a. The picture of himself that John saw in the post office was ugly.
b. *Your picture of himself that John saw in the post office was ugly.
c. *Mary's letters to Sarah about himself obsessed him.

It would be possible to speculate about the ungrammaticality of (61-b,c) in terms of the present analysis, but I refrain from doing so. Clearly, much more empirical research is required to account for the full range of binding patterns found inside of NPs, and in addition, the syntactic analysis of nominals, and derived nominals, is still an open issue. As long as the grammaticality distribution remains unclear with regard to variation among speakers and dialects, the best we can

do is to point out the predictions of the grammar. If the analysis suggested for (59) is basically correct, we predict that a reflexive as a complement of a derived nominal can only be bound in the local domain of the nominal, if the nominal realizes all the arguments it could realise. Hence, an external antecedent like the subject in (58) would not save an otherwise ungrammatical phrase, as illustrated in (62) below.

(62) *[Peter and Mary]$_1$ talked about gifts to themselves$_1$ from John and Bill.

As the present analysis offers an account for the undisputed data discussed above, I take it as a good starting point for an initial classification of the disputed data presented in this section, hence applying Chomsky's suggestion (Chomsky (1957, 14)) that "[i]n many intermediate cases we shall be prepared to let the grammar itself decide, when the grammar is set up in the simplest way so that it includes the clear sentences and excludes the clear nonsentences."

7. Conclusion

We have presented a syntactic treatment of anaphoric dependencies that builds on the insight that a distinction has to be drawn between reflexivity and anaphoricity. Reflexivity is a lexical property of certain noun classes (or more generally, a formal property of linguistic entities). In languages like English, German, Portuguese, and Serbo-Croatian, a reflexive pronoun is introduced into the syntax to signal an anchor for a possible anaphoric dependency. It depends on the syntactic environment of the reflexive whether or not a dependency will be established. An anaphoric dependency can be established directly, if a given trigger is met, or can be postponed until a given trigger is met. The latter case typically results in mediumdistance anaphoric binding, which must be sharply distinguished from exempt reflexives. Exempt reflexives are the result from a combination of a syntactic environment which does not provide an appropriate trigger for an anaphoric dependency, and an introduction rule which force immediate establishment of an anaphoric dependency. Reflexives in OE psych verb constructions can be treated as a case of exemption, which results in the prediction that reflexives in OE psych verbs should only appear in languages allowing for exemption.

Bibliography

Barss, Andrew (2001): Chains and Anaphoric Dependence: On Reconstruction and Its Implications. PhD thesis, MIT, Cambridge, Massachusetts.

Belletti, Adriana and Luigi Rizzi (1988): 'Psych-Verbs and θ-Theory', *Natural Language and Linguistic Theory* 6, 291–352.

Borer, Hagit (2005): *Structuring Sense Volume 1: In Name Only*. Oxford, Oxford University Press.

Branco, António and Palmira Marrafa (1999): Long-Distance Reflexives and the Binding Square of Opposition. *In:* G. Webelhuth, J.-P. Koenig and A. Kathol, eds, *Lexical and Constructional Aspects of Linguistic Explanation*. CSLI Publications, Stanford, pp. 163–177.
Büring, Daniel (2005): *Binding Theory*. Cambridge University Press, Cambridge.
Chomsky, Noam (1957): *Syntactic Structures*. Mouton, The Hague.
Chomsky, Noam (1981): *Lectures on Government and Binding*. Foris, Dordrecht.
Chomsky, Noam (1986): *Knowledge of Language*. Praeger, New York.
Dimitriadis, Alexis and Martin Everaert (1999): Typological Perspectives on Anaphora. *In:* P. Suihkonen and B. Comrie, eds, *International Symposium on Deictic Systems and Quantification in Languages Spoken in Europe and North and Central Asia. Collection of Papers*. Udmurt State University, Iževsk, pp. 51–67.
Everaert, Martin (no date): Reflexives in Discourse. Ms., Utrecht University/Nijmegen University.
Fischer, Silke (2006): 'Matrix Unloaded: Binding in a Local Derivational Approach', *Linguistics* 44, 913–935.
Frey, Werner (1993): *Syntaktische Bedingungen für die semantische Interpretation: Über Bindung, implizite Argumente und Skopus*. Akademie Verlag, Berlin.
Gazdar, Gerald, Ewan Klein, Geoffrey Pullum and Ivan Sag (1985): *Generalized Phrase Structure Grammar*. Harvard University Press, Cambridge, Massachusetts.
Jackendoff, Ray (1990): 'On Larson's Treatment of the Double Object Construction', *Linguistic Inquiry* 21, 427–456.
Kiss, Tibor (2001): Configurational and Relational Scope Determination in German. *In:* W. D. Meurers and T. Kiss, eds, *Constraint-Based Approaches to Germanic Syntax*. CSLI Publications, Stanford, pp. 141–176.
Larson, Richard K. (1988): 'On the Double Object Construction', *Linguistic Inquiry* 19, 335–391.
Napoli, Donna Jo (1979): 'Reflexivization across Clause Boundaries in Italian', *Journal of Linguistics* 15, 1–28.
Pesetsky, David (1995): *Zero Syntax: Experiencers and Cascades*. MIT Press, Cambridge, Massachusetts.
Pollard, Carl and Ivan A. Sag (1992): 'Anaphors in English and the Scope of Binding Theory', *Linguistic Inquiry* 23, 261–303.
Pollard, Carl and Ivan A. Sag (1994): *Head-Driven Phrase Structure Grammar*. University of Chicago Press, Chicago.
Reinhart, Tanya and Eric Reuland (1993): 'Reflexivity', *Linguistic Inquiry* 24, 657–720.
Sabel, Joachim (this volume): Derivational Binding and the Elimination of Uninterpretable Features.
Sells, Peter (1987): 'Aspects of Logophoricity', *Linguistic Inquiry* 18, 445–479.
Zribi-Hertz, Anne (1989): 'Anaphor Binding and Narrative Point of View: English Reflexive Pronouns in Sentence and Discourse', *Language* 65, 695–727.

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