Backward binding through the looking glass of Dutch anaphors

Differentiating logophoric and non-logophoric anaphors[1]

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Abstract
Backward binding remains an unresolved phenomenon, despite its relevance for Binding Theory. This paper presents a new dataset in order to help elucidate the issue: the morphologically rich Dutch anaphors. The overt distinction in Dutch between non-logophoric and logophoric anaphors proves useful in laying bare subtle deficiencies in and differences between the accounts, otherwise obscured by the cross-linguistic tendency for non-logophoric and logophoric anaphors to be homophonous. This distinction is used to empirically evaluate three proposed accounts of backward binding with experiencer object psych-verbs, Reinhart and Reuland (1993), Minkoff (2004), and Landau (2010), showing all three to be unable to fully cope with this new data.

1. Introduction

Despite the wealth of work on Binding Theory, the phenomenon of *backward binding* is still a matter of controversy. This paper sheds some further light on the issue by utilizing the morphologically rich Dutch pronominal system as a data set. First, the phenomenon of backward binding and the problem it poses for standard assumptions about the syntactic representation of the relation between antecedents and anaphors is explained in Section 2. Subsequently, Section 3 surveys three proposed solutions to the phenomenon of backward binding, showing them all to make predictions that cannot be tested with the current backward binding data, which is unable to distinguish between anaphors used logophorically and non-logophorically. Subsequently, Section 4 introduces the rich Dutch pronominal system as a diagnostic to overcome this. Sections 5 proceeds to use this diagnostic to test the predictions of the theories laid out in Section 3, finding them all unable to fully account for the Dutch data.
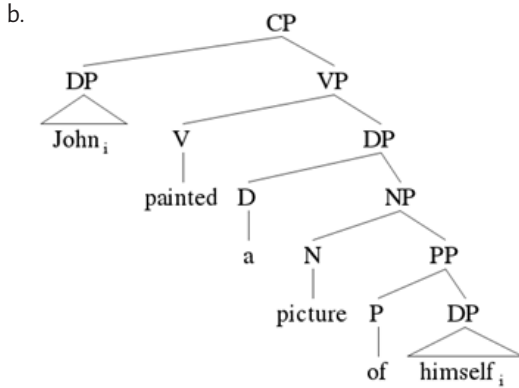
2. Backward Binding

Backward binding refers to binding relations where the structural hierarchy is such that the antecedent does not c-command the anaphor it binds. These structures seem to violate the requirement, known as Condition A, that anaphors be locally bound by a c-commanding antecedent. (1) is an example of a sentence abiding by Condition A, with the anaphor
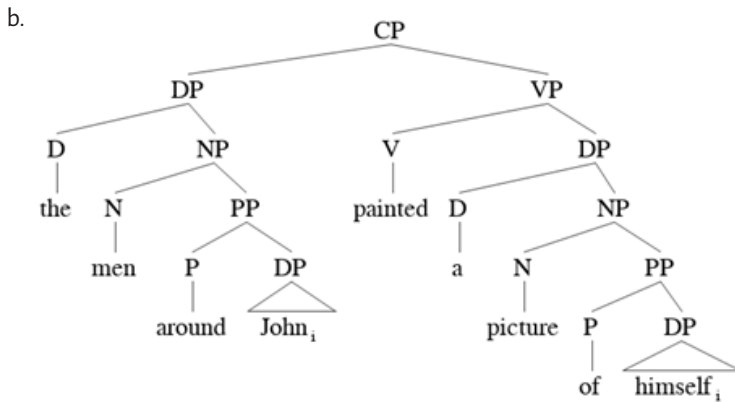
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himself c-commanded by the antecedent *John*. This does not hold for (2), which, conse-
quently, violates Condition A and is ill-formed. (3) shows an example of backward binding,
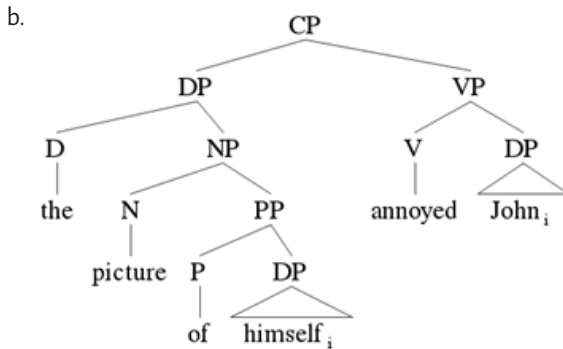with *himself* not c-commanding *John*, yet being well-formed.

(1)   a.   *The women around John$_i$ painted a picture of himself$_i$.
      b.

```
                          CP
          ┌────────────────┴────────┐
         DP                        VP
        /△\               ┌─────────┴────────┐
       John_i            V                   DP
                         │           ┌────────┴────┐
                      painted        D            NP
                                     │       ┌─────┴─────┐
                                     a       N          PP
                                             │       ┌───┴───┐
                                          picture    P      DP
                                                     │      /△\
                                                     of   himself_i
```

(2)   a.   John$_i$ painted a picture of himself$_i$.
      b.

```
                                      CP
              ┌────────────────────────┴────────────────────┐
             DP                                             VP
       ┌──────┴──────┐                          ┌───────────┴────────┐
       D            NP                          V                   DP
       │       ┌─────┴─────┐                 painted        ┌────────┴────┐
      the      N          PP                                D            NP
               │       ┌───┴───┐                            │       ┌─────┴─────┐
              men      P      DP                            a       N          PP
                       │      /△\                                   │       ┌───┴───┐
                    around  John_i                              picture    P      DP
                                                                           │      /△\
                                                                           of   himself_i
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(3)   a.   The picture of himself$_i$ annoyed John$_i$.
      b.

```
                              CP
              ┌────────────────┴────────────────┐
             DP                                 VP
       ┌──────┴──────┐                    ┌──────┴──────┐
       D            NP                    V            DP
       │       ┌─────┴─────┐            annoyed       /△\
      the      N          PP                        John_i
               │       ┌───┴───┐
            picture    P      DP
                       │      /△\
                       of   himself_i
```

Because backward binding structures challenge the standard assumptions about the syntactic representation of the relation between antecedents and anaphors, they are important to investigate. Consequently, the problem has been an enduring topic of discussion since the 80s. However, despite this longstanding interest, no single fully satisfactory account has, as yet, been agreed on.
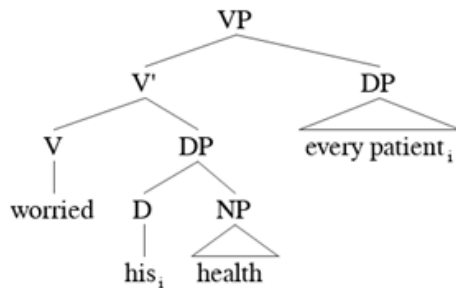
This paper will focus on the most frequent and, therefore, intensely discussed cases of backward binding: those involving psych predicates, in particular experiencer-object (EO) psych-verbs. These verbs convey a state of mind in the experiencer in the object position, causally related to the subject, as in (4).

(4)   The dog startled John.

Importantly, with these types of psych-verbs the subject is assumed to be initially merged in a VP-internal position, before moving to subject position. This syntactic feature is the basis for the seminal paper attempting to reconcile backward binding in EO psych-verb contexts with Binding Theory: Belletti and Rizzi (1988). They argue that the subjects of these verbs are initially merged in a position that is c-commanded by the experiencer, as shown in (5), and that Condition A can be satisfied at that point in the derivation.
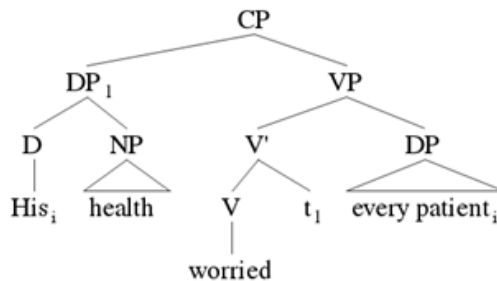
(5)   a. [[worried [his$_i$ health]] [every patient]$_i$]
      b.

$$
\begin{array}{c}
\text{VP} \\
\diagup\diagdown \\
\text{V'}\text{DP} \\
\diagup\diagdown\diagup\diagdown \\
\text{V}\text{DP}\text{every patient}_i \\
\end{array}
$$

V: worried
DP: D NP
D: his$_i$
NP: health

      c. [His$_i$ health]$_1$ worried t$_1$ [every patient]$_i$.
      d.

$$
\begin{array}{c}
\text{CP} \\
\diagup\diagdown \\
\text{DP}_1\text{VP} \\
\end{array}
$$

DP$_1$: D NP
D: His$_i$
NP: health
VP: V' DP
V': V t$_1$
V: worried
DP: every patient$_i$

(adapted from Reinhart (2001), ex. 4a)

However, as Reinhart (2001) shows, this solution only works with the non-causative Subject Matter theta-role. She argues that EO psych-verbs select either a Causer or a Subject

Matter, besides the Experiencer, and that Belletti and Rizzi's solution is only applicable when Subject Matter is selected. This is evidenced by the infelicity of sentences such as (6), which differ from those in (5) only in that a Causer role is selected rather than a Subject Matter.

(6) ?? His$_i$ doctor's letter worried [every patient]$_i$.

(Reinhart (2001), ex. 34b)

Evidently, this means that even in their initial positions the Experiencer DP in sentences with a Causative subject, such as (1), does not c-command the DP containing the anaphor, raising serious challenges for Belletti and Rizzi's account. To overcome these, various refinements have been proposed over the years. However, none have managed to resolve the issue without introducing new and controversial syntactic mechanisms, which is, preferably, to be avoided.

Approaching the issue from another angle, a frequently proposed solution to backward binding is to categorize these anomalous binding configurations as instances of logophoricity rather than actual binding. *Logophoricity* refers to long-distance, discourse-dependent, and coreferential use of anaphors, as in (7a), rather than the non-logophoric locally bound use, as in (7b)[2]. However, in English, as in many languages, logophors and non-logophors are homophonous, making it hard to test predictions regarding their respective distributions.

(7)   a. John$_i$ felt overwhelmed. It had never before occurred to himself$_i$ how beautiful the sun really is.
      b. John$_i$ had invited himself$_i$ to the party, much to the displeasure of the host.

The following section will review three theories that make use of the notion of logophoricity in accounting for backward binding, showing how the lack of overt distinction between logophors and non-logophors makes it impossible to test some of their predictions.

3. Proposed Accounts

The first account of backward binding to be discussed is provided by Reinhart and Reuland (1993). They start by noting that Conditions A and B of standard Binding Theory, given in (8), predict anaphors and pronouns to be strictly complementary. However, as shown in (9), this is not actually the case for all constructions.

(8)   *Condition A*
      An anaphor is bound in its governing category.

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2   For the sake of convenience, I will refer to non-logophoric anaphors as *non-logophors*, and logophoric anaphors as *logophors*.

Condition B
A pronoun is free in its governing category.

(Reinhart and Reuland (1993), ex. 5)

(9) a. Max saw a gun near himself/him.
     b. Lucie counted five tourists in the room apart from herself/her.

(Reinhart and Reuland (1993), ex. 7)

To resolve this, they propose to modify Conditions A and B as in (10), with (11) giving the definitions needed to interpret them.

(10) *Condition A*
     A reflexive-marked syntactic predicate is reflexive.

     Condition B
     A reflexive semantic predicate is reflexive-marked.

(Reinhart and Reuland (1993), ex. 41)

(11) Definitions
     a. The syntactic predicate formed of (a head) P is P, all its syntactic arguments, and an external argument of P (subject). The syntactic arguments of P are the projections assigned theta-role or Case by P.
     b. The semantic predicate formed of P is P and all its arguments at the relevant semantic level.
     c. A predicate is reflexive iff two of its arguments are coindexed.
     d. A predicate (formed of P) is reflexive-marked iff either P is lexically reflexive or one of P's arguments is a SELF-anaphor.

(Reinhart and Reuland (1993), ex. 40)

Note that these still entail the old Condition B, albeit with the governing category taken as the semantic predicate: a pronoun, which does not mark a predicate as reflexive, cannot be used to refer to an entity that is an argument in its own semantic predicate. Similarly, the new Condition A still requires anaphors, which do mark a predicate as reflexive, to be locally bound, albeit with the governing category taken as the syntactic predicate.

Because the governing categories for anaphors and pronouns are now different the strict complementarity between them is broken. The sentences in (9) can now be accounted for: the preposition heads do not form syntactic predicates because they do not have external arguments, per (11a), meaning the new Condition A is inapplicable, and because the prepositions in (9) form their own single-argument semantic predicates, they can never be reflexive, and Condition B is inapplicable. Therefore, nothing is left to rule out either a pronoun or an anaphor, resulting in the possibility of using either.

Applying Reinhart and Reuland's (1993) theory to backward binding with psych predi-
cates, examples such as (3), reproduced as (12a), can now be straightforwardly accounted
for. In fact, they mirror the non-complementarity between anaphors and pronouns that
provided the impetus for Reinhart and Reuland's account, as shown in (12b), and are ame-
nable to the same analysis.

(12) a. Pictures of himself$_i$ annoyed John$_i$.
      b. Pictures of him$_i$ annoyed John$_i$.

The syntactic predicate *annoyed* is not reflexive-marked, and its semantics are not reflex-
ive, taking *pictures of himself* rather than *himself* as an argument. *Pictures* is not a syntactic
argument, as it lacks an external argument, and, taking only one argument, is not reflex-
ive. Thus, neither Condition A nor B applies, meaning that nothing rules out either (12a) or
(12b). This also implies that, like *him* in (12b), *himself* in (12a) does not necessarily refer to
John. (13) bears this out, showing that *himself* can refer to salient extra-sentential discourse
entities.

(13) Jake$_i$ was quite proud of it for its aesthetic value. That the picture of himself$_i$ im-
      mensely annoyed John$_j$ was only a bonus.

This means that, as Reinhart and Reuland (1993) argue, anaphors in backward binding
constructions are not bound, but merely corefer, and are, thus, logophors. Due to the ho-
mophony of logophors and non-logophors, however, this prediction cannot be tested.
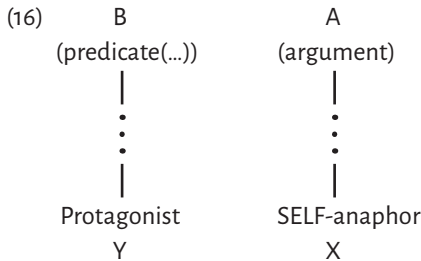
A very different account is proposed by Minkoff (2004), who attempts to strictly delin-
eate the environments susceptible to backward binding using the notion of a backward
coreference domain (BCD), given in (14). This BCD is then used in his Principle E, in (15), to
license backward binding. *Free SELF-anaphors* are defined as anaphors that are not bound,
while a *Protagonist* refers to a referent possessing potential consciousness that the speaker
identifies with.

(14) X is in the backward coreference domain of Y if and only if there exist two nodes
      A and B such that B is predicated of A, A dominates X, and B dominates Y.

(15) *Principle E*
      A free SELF-anaphor must corefer with, and be in the backward coreference do
          main of, a Protagonist.

(Minkoff (2004), ex. 18, 28)

What does this mean in practice? Firstly, BCDs combine semantic and syntactic structure,
always following the schematic in (16), where node A (e.g. a DP) is an argument for the
predicate of node B (e.g. a VP), and node B dominates the Protagonist that is coreferential
with the SELF-anaphor, which is dominated by node A.

(16) B   A
   (predicate(...))   (argument)
         | |
         .   .
         .   .
         .   .
         | |
   Protagonist   SELF-anaphor
         Y   X

Let us see if this can account for our examples of backward binding with EO psych-verbs. In (3), reproduced as (17), *annoyed John* serves as node B, dominating the Protagonist *John*. *The picture of himself* is node A, dominating the free SELF-anaphor *himself*. As (17) conforms to the structure in (16), *himself* is indeed in the BCD of *John*, abiding by principle E.

(17) The picture of himself$_i$ annoyed John$_i$.

However, Minkoff's account (2004) implies, and he explicitly confirms this, that backward binding is always coreferential and logophoric (p. 491). Again, however, this cannot be tested because there is no way to distinguish logophors from non-logophors in backward binding contexts.

A third proposal regarding the licensing of backward binding in EO psych-verb constructions is given by Landau (2010). He posits that backward binding "is licensed by the causative nature of the construction rather than its psych properties," given the acceptability of sentences such as the Italian (18a) and the English (18b) (p. 151). These sentences, utilizing causative verbs, lack psych-verbs yet show the same possibilities for backward binding as found in EO psych-verb constructions. However, their semantics retain a similar configuration with the subject causally connected to a mental state in the experiencer object. As these examples do not feature psych-verbs, they cannot be accounted for by solutions based on the syntax of EO psych-verbs, such as Belletti and Rizzi (1988) or its proposed refinements.

(18) a. *Questi pettegolezzi su di sè$_i$ hanno persuaso   Gianni$_i$ a partire.*
          these rumors   about SELF have persuaded Gianni to leave
          "These rumors about himself$_i$ persuaded Gianni$_i$ to leave."

      b. Pictures of herself$_i$ used to make Sue$_i$ blush.

(Pesetsky (1995), ex. 123a, 125d)

Landau (2010) does not further develop this account, but he raises an interesting suggestion. That a causative, yet not agentive, subject licenses backward binding is supported by examples such as those in (19). (19a-b) show that exchanging the psych verb for an agent/theme verb, requiring an agentive rather than causative subject, makes backward binding infelicitous. (19c-d) show that forcing an agentive reading using *deliberately*, only licensed with agents, on an EO psych-verb has the same effect.

(19) a. Articles about himself$_i$ in the Times worried/*attacked John$_i$.
     b. That picture of himself$_i$ annoys/*flatters John$_i$.

(adapted from Pesetsky (1995), ex. 144c-d)

     c.   A clone of himself$_i$ frightened John$_i$.
     d.*?A clone of himself$_i$ deliberately frightened John$_i$.

(Cheung and Larson (2015), ex. 123a)

Though Landau (2010) does not touch upon the issue of logophoricity, his theory implies that there is no difference between the backward binding possibilities of logophoric and non-logophoric anaphors. However, the homophony of logophors and non-logophors leaves us, once again, unable to test this prediction.

4. Dutch Anaphors as a Diagnostic

This paper presents a new diagnostic to overcome the problems in assessing the predictions of the theories laid out above, caused by the cross-linguistic tendency for homophony of non-logophoric anaphors and logophoric anaphors: the morphologically rich Dutch anaphors. In Dutch, logophors and non-logophors are morphologically distinct, providing a fine-grained tool to test the various theories regarding their distribution, otherwise obscured by their identical form. (20a) gives the Dutch 3SG non-logophor, and (20b) the corresponding logophor. (21a), lacking an intra-sentential antecedent, shows that the non-logophor cannot be used logophorically. (21b) shows that the logophor cannot be used as a reflexive.

(20) a. zichzelf
         HIM-/HERSELF

     b. hemzelf
         HIMSELF

(21) a. *Jan$_i$ voelde zich overdonderd.   Het was *zichzelf/hemzelf$_i$ nog nooit*
         Jan felt   SELF overwhelmed. it   was himself   yet never
         opgevallen hoe mooi   de zon eigenlijk is.
         noticed   how beautiful the sun really   is
         "Jan$_i$ felt overwhelmed. It had never yet occurred to himself$_i$ how beautiful the sun really is."

     b. *Jan$_i$ had zichzelf$_i$/*hemzelf$_i$ voor het feest uitgenodigd, tot groot*
         Jan had himself   for the party invited   to great
         ongenoegen van de gastheer.
         displeasure of the host
         "Jan$_i$ had invited himself$_i$ to the party, much to the displeasure of the host."

Applying the Dutch pronominal system to backward binding, it becomes clear that both

the non-logophor and logophor are possible in such environments, as shown in (22).

(22) *De foto van zichzelf$_i$/hemzelf$_i$ irriteerde Jan$_i$.*
     the photo of himself   irritated Jan
     "The picture of himself$_i$ annoyed Jan$_i$."

As already discussed, the structure of psych-verbs may be involved in backward binding. Dutch patterns with English in this respect, as shown in (23), with a Subject Matter subject enabling backward binding, but a Causer subject blocking it.

(23) a. *Zijn$_i$ gezondheid irriteerde* [*elke patient*]$_i$.
       his health   irritated every patient
       "His$_i$ health annoyed [every patient]$_i$."

      b.??*Zijn$_i$ doktor's brief irriteerde* [*elke patient*]$_i$.
        his doctor's letter irritated every patient
        "His$_i$ doctor's letter annoyed [every patient]$_i$."

<div align="right">(adapted from Reinhart (2001), ex. 34)</div>

By virtue of its morphologically distinct non-logophoric and logophoric anaphors, Dutch can shed light on the role of logophoricity in backward binding. The next section will use the Dutch pronominal system as a tool to evaluate the predictions of the three proposed accounts of backward binding laid out above.

5. Evaluation of the Proposed Accounts

Starting with the account of Reinhart and Reuland (1993), example (21b), reproduced as (24a), is correctly predicted to be felicitous only with the non-logophor *zichzelf*, and not the logophor *hemzelf*.

(24) a. *Jan$_i$ had zichzelf$_i$/*hemzelf$_i$ voor het feest uitgenodigd, tot groot*
       jan had himself   for the party invited,   to great
       ongenoegen van de gastheer.
       displeasure of the host
       "Jan$_i$ had invited himself$_i$ to the party, much to the displeasure of the host."

      b. *Jan$_i$ voelde zich overdonderd. Het was *zichzelf$_i$/hemzelf$_i$ nog nooit*
       jan felt SELF overwhelmed. it was himself   yet never
       opgevallen hoe mooi de zon eigenlijk is.
       noticed how beautiful the sun really is
       "Jan$_i$ felt overwhelmed. It had never yet occurred to himself$_i$ how beautiful the sun really is."

Since the predicate *uitgenodigd* 'invited' has two arguments bearing the same index, it is reflexive. Per Condition B, it must then be reflexive-marked. This is accomplished by *zichzelf*, which, being a non-logophoric anaphor, reflexive-marks the predicate. On the

other hand, *hemzelf* is not felicitous, as, being a logophor, it does not reflexive-mark the reflexive predicate, violating Condition B. Likewise, examples such as (24b), with extra-sentential reference, are predicted to only allow logophors: *zichzelf* reflexive-marks the predicate *opgevallen* 'noticed,' but the predicate is not reflexive, lacking coindexed arguments. Consequently, Condition A is violated. As *hemzelf* does not mark the predicate as reflexive, no Condition is violated. Reinhart and Reuland's account also predicts that if *hemzelf* in (24a) is not coindexed with *Jan*, the sentence becomes felicitous. As shown in (25), this is borne out.

(25) *Jacob$_i$ voelde zich   blij   dat hij zo vroeg was opgestaan. Dat was*
      Jacob felt   SELF happy that he so early was risen.   that was
      echter   snel   over nadat Jan$_j$ hemzelf$_i$ zo hard raakte.
      however quickly over after Jan himself so hard hit
      "Jacob$_i$ felt happy he had risen so early. That was over quickly, however, after Jan$_j$ hit himself$_i$ so fiercely."

Having verified the validity of the account for more standard binding contexts, we can now test whether the Dutch distribution of non-logophors and logophors in backward binding with EO psych-verbs matches the predictions of Reinhart and Reuland. (26) shows that it does. As the predicate *foto's* 'photos' has no external argument, it is not a syntactic predicate. It also lacks coindexed arguments, meaning it is not a reflexive semantic predicate. Therefore, both Condition A and B do not apply, meaning that neither the logophor nor the non-logophor are ruled out.

(26) *Foto's   van zichzelf$_i$/hemzelf$_i$ irriteerden Jan$_i$.*
      photos of himself   irrated   Jan
      "Pictures of himself$_i$ annoyed Jan$_i$."

However, a problem arises when looking at the possibilities for extra-sentential reference. Consider (27): *zichzelf* is able to refer to the intra-sentential *Jan*, but not to the extra-sentential *Jacob*, while the logophoric *hemzelf* can refer to both. This is not predicted by Reinhart and Reuland, and raises the suspicion that logophors attain their referentiality via coreference, which may be extra-sentential, while non-logophoric anaphors, apparently requiring an intra-sentential antecedent even when not constrained by the new Conditions, still require actual binding. This brings us back to the problem that in sentences featuring backward binding the anaphor is not c-commanded by its antecedent.

(27) *Jacob$_i$ was er   aardig trots   op voor zijn esthetische waarde. Dat de*
      Jacob was there quite proud of for its aesthetic   value. that the
      foto   van zichzelf$^*_{i/j}$/hemzelf$_{i/j}$ Jan$_j$ immens   irriteerde was slechts een*
      photo of   himself   Jan immensely irritated was only   a
      bonus.
      bonus.
      "Jacob$_i$ was quite proud of it for its aesthetic value. That the picture of himself$_{i/j}$ immensely annoyed Jan$_j$ was only a bonus."

Reinhart and Reuland's account, then, cannot fully account for the distribution of logophors and non-logophors in the Dutch data.

Moving on, Minkoff (2004) predicts that all backward binding is logophoric. However, as shown in (26) above, both logophors and non-logophors are available for backward binding in Dutch. Furthermore, as discussed, (27) shows that the non-logophoric *zichzelf* seems to utilize binding rather than coreference even in a backward binding context. Moreover, as Minkoff's BCDs do not extend beyond sentential boundaries, the account fails to generate the extra-sentential logophoric coreference necessary for examples such as the *hemzelf* variant of (27).

These issues can be resolved by modifying Minkoff's account to apply only to non-logophoric free SELF-anaphors, while leaving logophors to be constrained by their own separate principles. In that case, the facts are seemingly accounted for. However, a key aspect of *zichzelf*, as a non-logophoric anaphor, is that it does not abide by logophoric constraints such as having to be bound by a Protagonist, as shown in (27), where *zichzelf* must refer to the intra-sentential *Jan*, rather than the established Protagonist *Jacob*. Dropping the Protagonist requirement obviates Minkoff's entire reason for postulating an account in the first place: the contrast between sentences such as (28a) and (28b).

(28) a. That book about herself$_i$ hit Sara$_i$.
     b.* That book about itself$_i$ hit [the Hope diamond]$_i$.

<div align="right">(Minkoff (2004), ex. 18, 28)</div>

A further problem is that Minkoff's account overgenerates contexts licensing backward binding, as any sentence containing a free SELF-anaphor in its subject would be expected to be able to corefer with the object, as long as it contained a Protagonist. Examples such as the Italian (29) show this not to be the case.

(29)*Questi pettegolezzi su di   séi   descrivono Gianni$_i$ meglio di   ogni*
     these rumors   about SELF describe   Gianni better than any
     biografia   ufficiale.
     biography official
     "These gossips about himself$_i$ describe Gianni$_i$ better than any official biography."

<div align="right">(Belletti and Rizzi (1988), ex. 57b)</div>

Minkoff's account (2004), then, is unable to satisfactorily account for the Dutch backward binding data with its overt distinction between logophoric and non-logophoric anaphors.

Turning to the theory posited in Landau (2010), which predicts only non-agentive causative contexts to license both logophoric and non-logophoric backward binding, (30a) shows Dutch allows both logophors and non-logophors in such contexts, as expected. However, (30b) shows that Dutch also allows logophoric backward binding in agentive contexts.

(30) a. *De kloon van zichzelf$_i$/hemzelf$_i$ beangstigde Jan$_i$.*
      the clone of   himself   frightened Jan
      "The clone of himself$_i$ frightened Jan$_i$."

    b. *De kloon van *?zichzelf$_i$/hemzelf$_i$ vermoordde Jan$_i$.*
      the clone of   himself   murdered Jan
      "The clone of himself$_i$ murdered Jan$_i$."

It could be posited that an agentive context blocks the binding that non-logophoric anaphors require, but does not interfere with the less constrained coreference utilized by logophors. However, besides still requiring an account of the binding of the non-logophor in examples such as (30a), such a solution goes against the idea that agentive verbs completely block backward binding. Furthermore, it cannot account for the ill-formedness of the logophoric interpretation of the agentive (19d), repeated as (31), which should be fine if English anaphors are ambiguous between logophoric and non-logophoric interpretations.

    (31)*?A clone of himself$_i$ deliberately frightened John$_i$.

                            (Cheung and Larson (2015), ex. 123a)

However, we have looked only at causal contexts with and without agentivity, which is to say, volitionality. To further tease apart the roles played by causation versus volitionality, we should look at the possibilities for backward binding in contexts that entail only volitionality, without causation. In his study of thematic proto-roles, Dowty (2001) gives *John is ignoring Mary* as a construction entailing only volitionality (p. 572). Attempting to use backward binding in that context results in ill-formedness in English, as evidenced by (32a). Furthermore, as (32b) shows, *cause*, given by Dowty as a verb that entails only causation, does allow backward binding in English. These results are expected if causality licenses backward binding and volitionality blocks it.

    (32) a.* The clone of himself$_i$ is ignoring John$_i$.
        b. The clone of himself$_i$ causes John$_i$ to worry.

In Dutch, by contrast, both contexts are fine with the logophor, but infelicitous with the non-logophor, as shown in (33). This is unexpected. An interfering factor here, however, is the necessity for the complementizer *dat* 'that' and a finite subordinate clause in (33b) and similar examples, which always blocks binding, as illustrated in (34), negating the usefulness of the comparison. Looking only at (33a), then, the non-causative context should, according to Landau's account, not allow backward binding. This is not borne out. Furthermore, the same problem is encountered as above: if the Dutch logophor is possible in (33a), why not the English logophoric interpretation of (32a)?

(33) a. *De kloon van *?zichzelf$_i$/hemzelf$_i$ negeert Jan$_i$.*
the clone of himself ignores Jan
'The clone of himself$_i$ ignores Jan$_i$.'

b. *De kloon van *?zichzelf$_i$/hemzelf$_i$ veroorzaakt dat Jan$_i$ zich zorgen*
the clone of himself causes that Jan SELF worries
maakt.
makes
'The clone of himself$_i$ causes Jan$_i$ to worry.'

(34) a. *Jan$_i$ beloofde zichzelf$_i$ beter te kleden.*
John promised himself better to dress
'Jan promised to dress better'

b **Jan$_i$ beloofde dat zichzelf$_i$ beter zou kleden.*
Jan promised that himself better would dress
'Jan promised that himself would dress better'

We are left with more of a puzzle than we started with. Perhaps an interpretative difference between bound and coreferential usage is complicating the judgements of the English examples, or some structural difference between Dutch and English causes these examples to behave differently. In any case, Landau's theory (2010) proves unable to account for the possibility of logophoric backward binding in non-causative contexts in Dutch.

6. CONCLUSION

As shown, all three accounts, though coming some way toward resolving the issue ultimately face serious challenges in accounting for backward binding with EO psych-verbs when the Dutch data, with its differentiation between non-logophoric and logophoric anaphors is introduced. Reinhart and Reuland (1993) cannot explain why the Dutch anaphor is constrained to intra-sentential reference, Minkoff (2004) is unable to account for the fact that the Dutch anaphor does not necessarily refer to a Protagonist in backward binding contexts, as well as overgenerating possibilities for backward binding, and an account based on the suggestions given in Landau (2010) cannot explain the acceptability of logophors in agentive backward binding contexts in Dutch.

However, the finer-grained analysis of these proposals made possible by the morphologically rich Dutch pronominal system, with its distinct logophoric and non-logophoric anaphors, proves its value as a diagnostic tool, and the dataset presented above should be considered in any future account of backward binding. ■

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