

THE REFERENTIAL PROPERTIES OF DUTCH PRONOUNS AND DEMONSTRATIVES: IS SALIENCE ENOUGH?*

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Abstract

According to many researchers, the form of referring expressions is connected to the accessibility/topicality of their referents: The most reduced referring expressions refer to highly accessible referents, whereas fuller expressions refer to less accessible referents. Thus, in languages with full and reduced pronouns, full forms are said to refer to less accessible referents. In this paper, we investigate these claims by looking at Dutch, which has full and reduced pronouns and demonstratives. We report here the results of a sentence-completion study as well as an eye-tracking experiment that we conducted, and argue that the results are only partly compatible with a straightforward accessibility-based approach to referential form. More specifically, our results suggest that the full vs. reduced pronoun choice is not triggered by referent salience, but the choice of a demonstrative over a pronoun is. Corpus examples indicate that use of full form of pronouns may in fact be prompted by contrast. Overall, these results – as well as work on Finnish and Estonian (Kaiser 2003) – show that different anaphoric forms within one language can be sensitive to different factors, and their referential properties cannot be captured by a unified notion of salience.

1. Introduction

Many researchers assume that the referential forms of a language follow a so-called accessibility hierarchy, and that the form of a referring expression is connected to the accessibility/salience of its referent. The claim is that the most reduced referring expressions refer to the most accessible referents, and less reduced expressions refer to less accessible referents, as shown in (1) (e.g. Ariel 1990, Givón 1983, Gundel, Hedberg & Zacharski 1993). Thus, in languages with full and reduced pronominal forms, full forms refer to less accessible referents (see Bresnan 2001, Cardinaletti & Starke 1999). The correlation between referential form and antecedent salience is claimed to hold even when there is no ‘informational difference’ between referential forms, i.e. even when the forms do not differ in the amount of semantic information they provide about the referent. For example, Ariel (2001) notes that the English pronoun *it* and the demonstratives *this/that* “are indistinguishable with respect to the description they provide for the intended referent (an inanimate object)” and emphasizes that according to her approach, these forms differ only “in terms of the processing instructions they mark: personal pronouns mark a higher degree of accessibility than demonstrative pronouns” (Ariel 2001:29).

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(1)
null > reduced pronoun > full pronoun > demonstrative > full NP ... etc

most salient
referent

less salient
referent

The questions we would like to address in this paper are whether we can really rank all referential expressions of a language along a unified salience hierarchy. Might it not be the case that different referential expressions are sensitive to different kinds of factors that go beyond salience? The outline of this paper is as follows: In the remainder of section 1, we discuss the nature of the Dutch anaphoric paradigm and review existing work on the referential properties of Dutch anaphors. In section 2, we discuss the sentence completion experiment and its results, and in section 3 we turn to the eyetracking experiment. Section 4 reports on the results of a preliminary corpus study which we conducted to investigate whether the notion of contrast guides use of certain anaphoric forms. Section 5 concludes the paper and also points out some directions for future study and connections to work in other languages.

1.1 Dutch referential forms

In this section we discuss Dutch third person pronouns and demonstratives, and review existing work about their referential properties. First, let us consider pronouns. The singular third person pronouns *zij/ze* ‘full form/reduced form of she’ and *hij/ie* ‘full form/reduced form of he’ show a striking asymmetry. Both the full (*zij*) and the reduced (*ze*) form of the feminine pronoun are used in colloquial and Standard Dutch. However, even though the full form of the masculine pronoun, *hij*, is also used in both registers, the reduced form *ie* is a clitic that is restricted to the spoken language. Even in spoken Dutch, it only occurs in particular phonological contexts, especially after [-t] and some other consonants (e.g. *Heeft-ie dat gedaan?* ‘Has-he that done?’, see Donaldson 1997:56). Due to its clitic status, *ie* cannot occur sentence-initially in subject position, whereas the feminine short form *ze* can occur sentence-initially, as illustrated in (2a,b) below.

	full form	reduced form ¹
(i) Masculine pronoun:	<i>hij</i> (he)	<i>ie</i> (he)
(ii) Feminine pronoun:	<i>zij</i> (she)	<i>ze</i> (she)

(2a)
Hij/*ie gelooft er niets van. (Haeseryn *et al.* 1997:253).
He-NOM believes there none of
‘He doesn’t believe any of it.’

(2b)
Zij/ze gelooft er niets van. (Haeseryn *et al.* 1997:253).
She-NOM believes there none of
‘She doesn’t believe any of it.’

¹ The reduced forms are always unstressed, whereas the full forms are often, but not always, stressed (Haeseryn *et al.* 1997:252).

In sum, in Standard Dutch, there are two pronominal forms that can be used for feminine referents, *ze* and *zij*, but only one form for masculine referents, *hij*. This brings us to the question: how do *ze* and *zij* differ in their referential properties, if they do? To the best of our knowledge, relatively little has been said about this distinction in the literature. The best-known reference grammar of Dutch (Haeseryn *et al.* 1997:252) notes that the full forms are used in cases of contrast, and provide ex. (3), with the second person pronoun *jou* ‘you’. However, they do not say more about what kind of contrast they mean. Already, however, it seems that these observations do not fit the assumptions made in some of the accessibility-hierarchy theories that the full forms of pronouns are used to refer to less salient forms than the reduced forms.

(3)

Hij bedoelt *jou* niet, maar Mark. (italics in original)

He means *you* not, but Mark.

‘He isn’t referring to *you*, he means Mark.’

In addition to personal pronouns, the demonstrative *die* (‘that’) is used to refer to human antecedents in Dutch.² According to Haeseryn *et al.* (1997:306), demonstratives are used for referents that have just been introduced into the conversation while pronouns are used for ‘old information’. Findings from a corpus study of demonstratives by Rullmann (2001) fit with these claims. Rullmann analyzes his data using Centering Theory (Grosz, Joshi and Weinstein 1995), and notes that while pronouns prefer topical or discourse-old antecedents, demonstratives refer back to antecedents which are not topics or which are new information (both are low-ranked on the Cf-list, Rullmann claims). Similarly, in another corpus-based investigation, Comrie (1997) finds that demonstratives have nontopical antecedents.

(3a)

Toen Jan_i de straat opging, kwam hij een oude vriend_j tegen. Hij_i/Die_j zeg hallo.

When Jan_i went into the street, he ran into an old friend_j. He_i/That_j said hello.

(Rullmann 2001)

(3b)

Mark_i kwam Arthur_j tegen. Die_j droeg een regenjas. Hij_j huiverde.

Mark_i ran into Arthur_j. He_j was wearing a raincoat. He_j was shivering. (Rullmann 2001)

In sum, a review of the existing work on the Dutch anaphoric paradigm indicates that the demonstrative *die* is used for entities that are new information and/or non-topics, the pronoun *hij* is used for salient, topical referents, and according to Haeseryn *et al.*’s grammar, the choice of *zij* over *ze* has to do with contrast of some kind. However, as mentioned earlier, accessibility-hierarchy theories make different predictions about the choice of *zij* vs. *ze*. According to these kinds of theories, the most reduced forms are used for the most salient referents, and less reduced forms for less salient referents. Thus, extending these claims to Standard Dutch, we would predict that (i) in the masculine paradigm, *hij* is used for more salient referents than *die* (*hij* >> *die*), and (ii) in the feminine paradigm, *ze* is used for more salient referents than *zij*, which in turn is used for more salient referents than *die* (*ze* >> *zij* >> *die*).

² The proximal demonstrative *deze* ‘this’ can also be used in this anaphoric way, but it is felt to be significantly more formal (Haeseryn 1997:307) and seems to occur more rarely than *die*, even in written standard Dutch. As in English, the demonstratives *die* and *deze* can also be used as pronominal modifiers (e.g. this man, that man) but we will not address that use here. (see Kirsner & van Heuven (1988), Kirsner, van Heuven & Vermeulen (1987) for the pragmatic properties of *die* and *deze* when used in this way).

Thus, it seems that there exists a fairly clear consensus concerning the referential properties of *hij* and *die*, at least on a basic level, but that there are two competing claims concerning the choice between *ze* and *zij*. Some claim that what matters is salience, whereas others view contrast as being what triggers use of *zij*. In the subsequent sections, we investigate these questions in more detail by means of a sentence completion experiment, an eyetracking experiment and a corpus study.

2. Sentence completion experiment

In the sentence completion experiment, we investigate the referential properties of *hij*, *die*, *ze* and *zij* to see if they are sensitive to the salience of the antecedent. In light of the finding that subjects are more salient than objects (e.g. Brennan, Friedman & Pollard 1987, and many others), we predict that *hij* is more likely to refer to a preceding subject than *die* (*hij* >> *die*), and *ze* is more likely to refer to a preceding subject than *zij*, which is more likely to refer to a preceding subject than *die*. (*ze* >> *zij* >> *die*).

Forty native Dutch speakers participated in the experiment, and their task was to provide continuations for written sentence fragments. The critical stimuli were SVO sentences with either two clearly masculine or two clearly feminine arguments. Each sentence was followed by the first word of the next sentence, which was either *hij*, *die*, *ze* or *zij* (see (4)). Thus, there were four conditions: (i) masculine with *hij*, (ii) masculine with *die*, (iii) feminine with *ze* and (iv) feminine with *zij*. (We did not test feminine with *die*, due to reasons of experiment length.)

(4a)

De brandweerman kneep de bokser speels. Hij/Die.....
The fireman pinched the boxer jokingly. He...

(4b)

De serveerster kneep de onderwijzeres speels. Ze/Zij....
The waitress pinched the teacher³ ('teacheress') jokingly. She....

All verbs used were action/agent-patient verbs (as defined by Stevenson *et al.* 1994). Continuations were coded according to which of the referents in the preceding sentence the participants chose as the referent of the anaphor, i.e. subject or object.

2.1 Sentence completion results

Figure 1 shows the 'subject-object difference score' for each of the four referential forms. We computed, on the basis of the raw numbers of continuations (160 in total for each of the four forms), how many more subject continuations than object continuations there were.⁴ Thus, positive numbers indicate a subject preference and negative numbers indicate an object preference.

³ The word *onderwijzeres* has a feminine suffix and thus clearly morphologically marked as being female. The nouns were designed to be as clear in their gender properties as possible: either they were morphologically marked for gender or their gender was otherwise clear (e.g. king vs. queen).

⁴ However, not all continuations could be clearly coded as referring to the subject or object of the preceding sentence (they were coded as 'unclear' or 'other', depending on the type of continuation). As a result, it is never the case that all 160 data points (per condition) were either subject or object interpretations.

The continuations reveal that the pronoun *hij* and the demonstrative *die* have clear referential biases. As predicted, *hij* has a very strong subject bias, and *die* has an even stronger object bias. However, the patterns for the feminine pronouns, *ze* and *zij*, are somewhat less clear. Both forms have a preference for the preceding subject rather than the preceding object. However, the feminine full form *zij* clearly does not pattern like the demonstrative *die* in the masculine paradigm (which is not surprising, since *die* also exists in the feminine paradigm). Moreover, despite sharing a preference for the subject over the object, *ze* and *zij* actually differ significantly in terms of their likelihood of referring to a preceding subject or object: The short form *ze* is more likely to refer to a preceding subject than the long form *zij* (see Kaiser 2003 for further analyses and discussion).

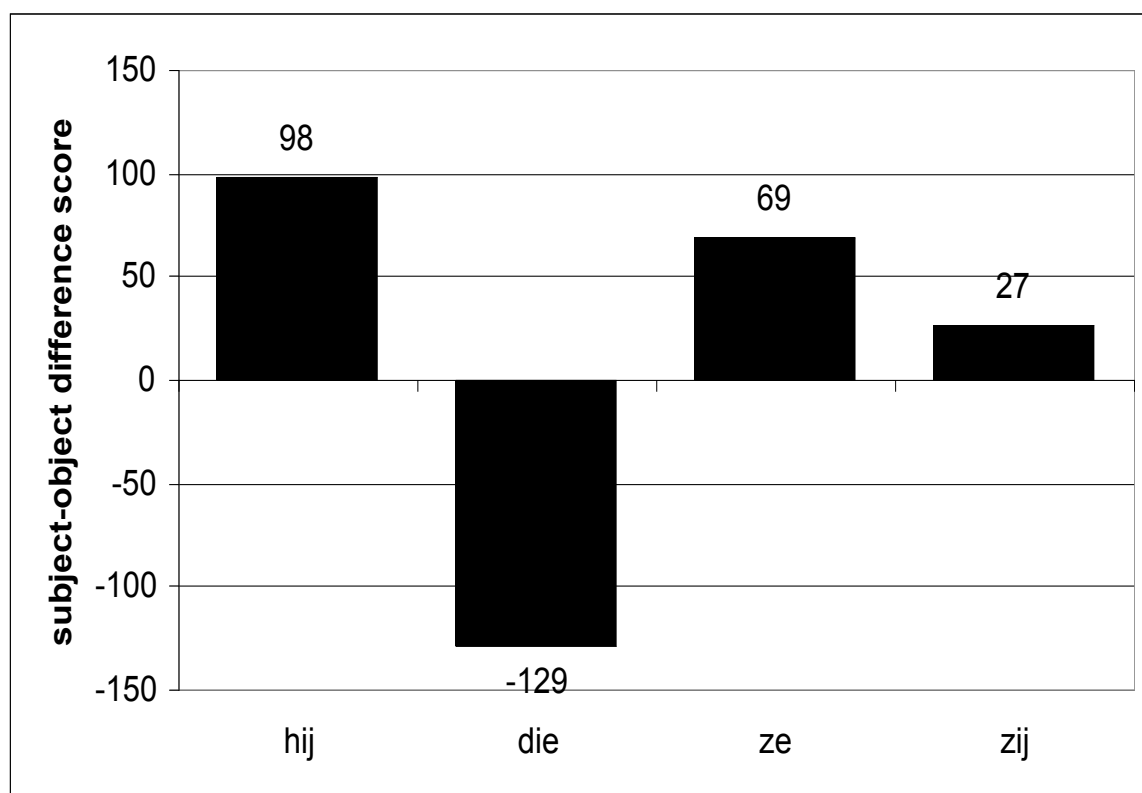


Figure 1. Preference for preceding subject vs. preceding object for each anaphoric form. (Positive numbers reflect a preference for the subject. Negative numbers reflect a preference for the object.)

2.2 Discussion

The prediction that pronouns refer to highly salient referents and demonstratives to less salient ones is supported by the continuation patterns for the masculine pronoun *hij* and the demonstrative *die*. However, the prediction that the choice between full vs. reduced forms is also salience-driven is not clearly supported. The two feminine forms tested here both show a preference for subjects over objects, but this preference is stronger for the short form *ze* than the long form *zij*. *Zij* does not pattern like the demonstrative *die*, but neither does it act quite like the short pronoun *ze*. Clearly, the overall pattern we see for *zij* is much closer to the referential properties of *ze* than those of *die*.

How do these results fit with the two claims that have been made regarding the referential properties of the long pronominal form, namely that (i) it is used for less salient referents than the short form, or that (ii) it is used in cases of contrast?

Let us first consider the claim that the full form is used for less salient referents than the reduced form. The sentence completion results do not support a claim that *zij* refers to referents that are *markedly* less salient than the ones that *ze* refers to, since if this were the case, we would presumably see a clear object preference with *zij*, as we see with the demonstrative *die* in the masculine conditions. So, perhaps we can uphold a weaker claim that *zij* is ranked only slightly below *ze* on the salience scale? However, as we will see in the next section, we should not make too much of this purported salience difference between *ze* and *zij*, since it is not replicated in the results of the eye-tracking experiment.

Now, let us turn to the claim that the full form *zij* is used in cases of contrast. The experiment here has nothing to say directly about the effects of contrast, since that was not tested here, and in fact we will return to the topic of contrast at the end of this paper. However, it is worth pointing out that if contrast is the only relevant factor for *zij*, then we do not necessarily expect the antecedents of *zij* to show any strong bias towards one grammatical role over another, since entities in any grammatical position can be interpreted as being contrastive. Thus, the weak subject preference for *zij* that we see in the sentence completion results is not incompatible with the contrast hypothesis; we could interpret it as a sign that *zij* can refer to either subjects or objects. Moreover, one also should keep in mind that even if contrast is a relevant factor for the use of *zij*, there is no reason why, say, grammatical role could not matter as well.

3. Eyetracking experiment

In this section, we turn to the results of an on-line eyetracking study that investigates the incremental interpretation of the anaphoric forms in Dutch. The sentence completion study gives us off-line data about people's interpretation of the pronouns. Here, with the eyetracking experiment, we can investigate the same hypotheses as were sketched above for the sentence completion experiment, but in a highly incremental manner that offers us a direct measure of the temporal properties of on-line anaphor resolution. The advantage of on-line methods is that they can provide information that off-line tasks cannot. For example, if multiple factors contribute to referent choice, we might be able to disentangle them by looking at reference resolution incrementally.

Sixteen native Dutch-speaking participants, mainly students at the University of Nijmegen, took part in the experiment. Participants were shown, on a computer screen, color pictures of simple scenes involving human or animal characters, and heard a brief pre-recorded story about the scene. Their task was to look for any mismatches between the story and the picture. Participants' eye movements (i.e. where they look in the scene as they listen to the story) were recorded with a digital video camera. The video tapes were later analyzed to see which characters in the picture were fixated over time.

A total of 16 target items (i.e., scene-story pairs) were constructed, each with two human characters. The verbal story for each target item contained a sentence with two masculine or two feminine human referents, followed by the critical sentence beginning with the anaphor *ze*, *zij*, *hij* or *die*. There were four conditions: (1) masculine with *hij*, (2) masculine with *die*, (3) feminine with *ze*, and (4) feminine with *zij*. All verbs were, again, agent-patient verbs. Neutral intonation was used throughout. A sample item is in (5).

(5a) Feminine version

Het begon uit de hand te lopen in het klaslokaal.

‘Things were getting out of hand in the classroom.’

De leerlinge stak de lerares speels met een scherp potlood.

‘The student poked the teacher jokingly with a sharp pencil.’

Ze/Zij was gekleed in een groene trui, omdat het buiten koud was.

‘**Ze/Zij** was wearing a green sweater, because it was cold outside.’

Het lijkt erop dat ze naar de rector moeten.

‘It looks like they will have to go see the principal.’

(5b) Masculine version

Het begon uit de hand te lopen in het klaslokaal.

‘Things were beginning to get out of hand in the classroom.’

De leerling stak de leraar speels met een scherp potlood.

‘The student poked the teacher jokingly with a sharp pencil.’

Hij/Die was gekleed in een groene trui, omdat het buiten koud was.

‘**Hij/Die** was wearing a green sweater, because it was cold outside.’

Het lijkt erop dat ze naar de rector moeten.

‘It looks like they will have to go see the principal.’

Before moving onto the results, let us consider how we predict people’s eye-movements to pattern in the different conditions. In accordance with common assumptions in the literature, we might predict that the most reduced forms (in the masculine paradigm *hij*, and in the feminine paradigm *ze*) are used for the most salient referents, and less reduced forms for less salient referents (in the masculine paradigm *die*, and in the feminine paradigm *zij*)⁵. This, combined with the well-known finding that subjects are more salient than objects (e.g. Brennan, Friedman & Pollard 1987, and many others), leads to the prediction that *hij* and *ze* are more likely to refer to the subject of a preceding sentence than *die* and *zij*. However, if on the other hand, the referential properties of the full form *zij* involve contrast and not salience, then we do not necessarily expect it to show a clear preference for one antecedent over the other.

3.1 Eye-tracking results

Figure 2 shows ‘subject advantage score’, which refers to the difference between the proportion of time was spent looking at the subject and the proportion of time that was spent looking at the object, during three time windows, for the four conditions. Thus, positive numbers indicate a subject preference, and negative numbers indicate an object preference. The first time window is 0-19 frames (0-333 milliseconds, where 0 is the onset of the anaphoric expression), the second time window is 20-39 frames (333-666 ms), and the third time window is 40-59 frames (666-1000 ms).

We see that, for the masculine pronoun *hij*, we initially have a slight object preference right after the onset of the pronoun, but that this develops into a very strong subject preference over time. The demonstrative *die* has a clear object preference that becomes stronger over time. These two forms thus pattern as predicted. For the feminine conditions, however, the pattern does not fit with the predictions. The reduced form *ze* initially has a weak object

⁵ As noted earlier, feminine referents can also be referred to with *die* and thus if we were to test feminine *die* and feminine *zij*, we would not expect them to pattern the same.

preference right after the onset of the anaphor, but this develops into a subject preference. Similarly, the full form *zij* shows a clear subject preference, and does not show any sign of being used to refer to less salient referents than *ze*. On the whole, the graph shows that the pronouns *hij*, *ze* and *zij* behave in the same way—i.e. they prefer subjects over objects—and thus differ from the demonstrative *die*. The finding that *hij*, *ze* and *zij* show increased looks to the subject, whereas *die* does not, results in a significant gender-pronoun interaction starting approximately 400-800 ms after the pronoun. Thus, the eye-movements also show a pattern incompatible with an accessibility-hierarchy type explanation.

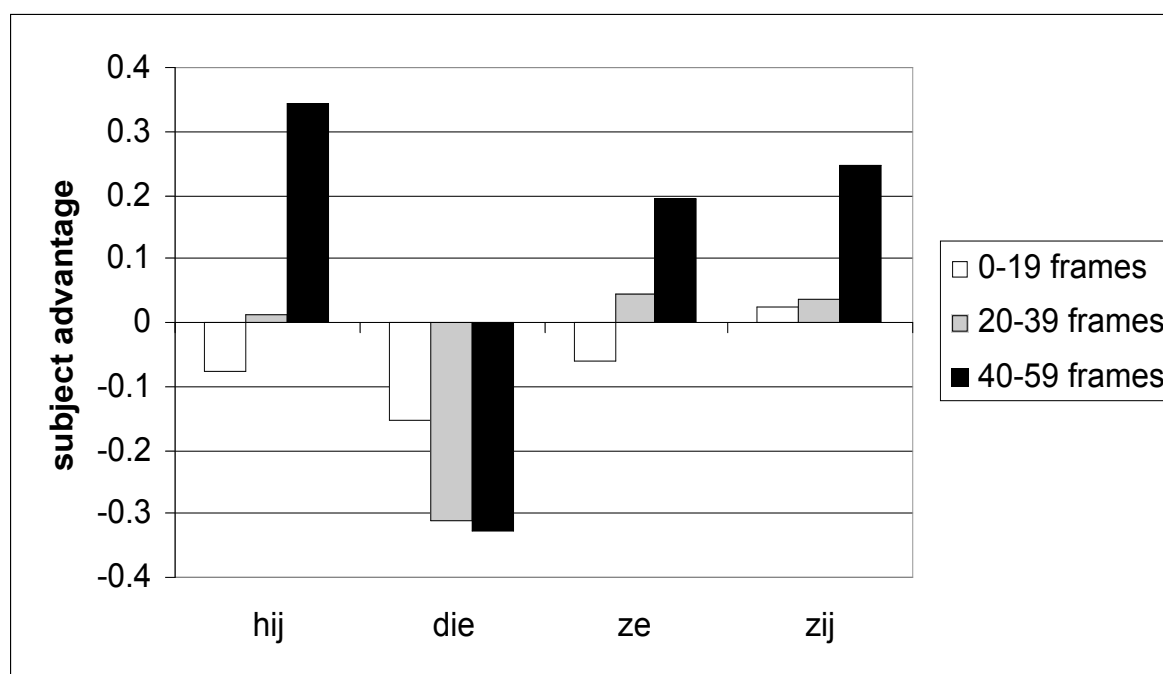


Figure 2. The difference between the proportion of time spent looking at the subject and the proportion of time spent looking at the object, during three time windows (Positive numbers indicate a subject preference, and negative numbers indicate an object preference. Note: There are 30 frames per second.)

3.2 Discussion

Overall, the results of the eye-tracking study show that the pronoun *hij* ‘he’ and the demonstrative *die* ‘that’ differ in their referential properties: *hij* is significantly more likely than *die* to be interpreted as referring to the subject of the preceding sentence, from which we can infer that *hij* is used to refer to more salient referents than *die*. However, this pattern does not extend to the long and short form of the feminine pronouns, *ze* and *zij*, since both tend to be interpreted as referring to the subject of the preceding sentence in the eye-tracking experiment.

Thus, contra accessibility-based approaches, the eyetracking results indicate that the full form of the feminine pronoun is not used to refer to less salient or less prominent referents than the reduced form. In other words, it looks like the referential properties of these two forms cannot be defined in terms of salience. This brings up two important questions. First, how does the finding that *ze* and *zij* both show a subject preference in the eyetracking data square with the results of the sentence completion study, where *ze* and *zij* both showed a subject preference but *ze* had a significantly stronger subject preference than *zij*? Second, we are inevitably faced with the question of what governs the choice of *ze* vs *zij*, if it is not the salience of the antecedent? To shed some light on this question, we conducted a small corpus

study which investigates naturally-occurring uses of *zij*. As we will see in the next section, many occurrences of *zij* have to do with contrast, not salience.

4. Preliminary corpus study

Thirty-five occurrences of *zij* in matrix subject position were analyzed. These tokens are from a novel by Renate Dorrestein, *Het Hemelse Gerecht* (Pandora, 1990). Each item was coded for the following factors:

- (i) grammatical role of the most recent instantiation of the antecedent
- (ii) distance between occurrence of *zij* and most recent mention of antecedent (e.g., in same sentence but different clauses; separated by one or more main clauses etc.)
- (iii) whether the referent of *zij* was being contrasted with other referents
- (iv) whether there were any competing referents present (i.e. singular feminine referents) between the mention of the antecedent and the pronoun *zij*.

4.1 Results, discussion

As Figure 3 shows, in our corpus *zij* prefers preceding subjects over objects, which matches the eye movement patterns:

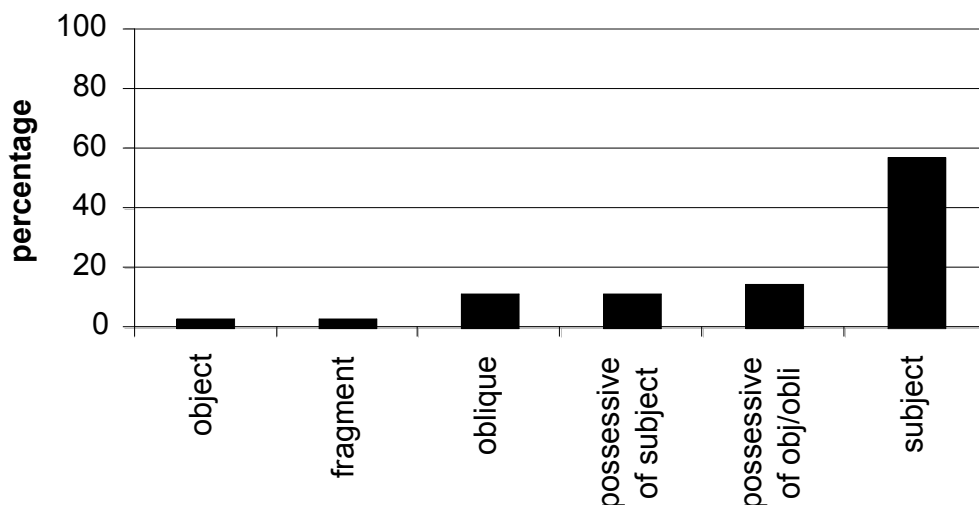


Figure 3. Grammatical role of antecedent of *zij*

However, what does this corpus study tell us about what prompts use of *zij* over *ze*? If *ze* is the most reduced form, what is the referential function of *zij*? For example, what role does contrast play? The other factors that were used in the coding reveal that the majority of the occurrences of *zij* in our corpus fit into one of the following categories:

- (a) The referent of *zij* is in a contrast relation to other entities in the discourse
- (b) If the referent of *zij* is not in a contrast relation to anything, *zij* refers to a non-subject
- (c) If neither (a) nor (b) holds – i.e. *zij* refers to a preceding subject that does not contrast with anything else – then the mention of the antecedent is separated from the pronoun by at least one main clause.

First, let us consider some examples where *zij* is used in cases of contrast. This was the most common context for *zij*. In (6a), it is clear that the two sisters who are the main characters in the novel, Irthe and Ange, are being compared in terms of their hair. Irthe has long hair, whereas Ange wears hers short. In (6b), Ange contrasts with Gilles in that she cannot see outside whereas he seems to be able to.

(6a) “...” roept Irthe uit, terwijl ze de lange rode haren over haar schouder zwiert. Anges haar is eerder rossig, **zij** dragt het kortgeknipt... (Het Hemelse Gerecht, 19)
 “...” *Irthe calls out while she tosses her long red hair over her shoulder. Ange’s hair is more reddish-brown, **she** wears it short...*

(6b) [context: Gilles and Ange are in the kitchen, and Ange notices Gilles looking outside intently. She tries to look too, knowing that outside are a garden, a river, the whole world.]
 ...maar hoe Ange zich ook inspant om van dat alles een glimp te ontwaren, **zij** ziet in de donkere ruit slechts de weerspiegeling van haar eigen keuken... (15)
 ...*but no matter how Ange exerts herself trying to catch a glimpse of all that, **she** sees in the dark pane nothing but her own kitchen.*

However, even though such contrast uses are very common, not all uses of *zij* can be interpreted as involving a salient contrastive relation. In some cases, *zij* is simply used to refer to a non-subject referent (7a), or to refer to a referent that was realized as the subject some time ago, as in (7b).

(7a) [Irthe is having a busy night at the restaurant she runs with her sister.]
 Om momenten als deze komt hun bedrijf haar voor also een circus, en is **zij** de leeuw die door brandende hoepels springt. (46)
*At times like this her business seems to her like a circus, and **she** is the lion that jumps through the burning hoops.*

(7b)
 Haast bezwijkt Irthe onder haar bezorgde blik. Ange? Hoor eens? Ik moet je wat vertellen! Maar dat is immers onmogelijk. Om Anges geluk niet te verstoren heft **zij** altijd het stilzwijgen bewaard. (69)
*Hastily Irthe gives way under her [Ange’s] worried look. Ange? Listen for once? I have to tell you something. But that is impossible, after all. In order to not interfere with Ange’s happiness **she** [Irthe] has always kept quiet.*

On the whole, these findings reveal that *zij* is most often used in cases of contrast, but not all uses of *zij* can be construed contrastively. In fact, the corpus examples suggest that use of *zij* may be driven by a number of different factors. Clearly, more work is needed in order to better understand the referential properties of *zij*, but it does seem that contrast plays an important role.

4.2 Implications for experimental results

Let us now consider how the results of the corpus studies and the two experiments fit together. In the sentence completion experiment, we saw that the masculine pronoun *hij* and the demonstrative *die* have clear referential biases: *hij* prefers subjects and *die* prefers objects. The two feminine forms, the reduced form *ze* and the full form *zij*, have less clear preferences. Both prefer subjects over objects, but *ze* has a much stronger preference than *zij*. As mentioned earlier, these results are compatible with a view that *zij* is ranked lower on the

salience hierarchy than *ze*, i.e. that *zij* refers to entities that are slightly less salient than those that *ze* refers to. However, this view is not supported by the eyetracking results, which show that *ze* and *zij* both have equally strong subject biases. How can we reconcile these two sets of results?

We would like to hypothesize that if, as the corpus data and Haeseryn *et al*'s grammar suggest, contrast is relevant for the use of *zij*, then the seemingly divergent experimental results can be reconciled. In the sentence completion experiment, participants could presumably construe *zij* contrastively if they wanted to, since they could continue the fragment any way they wished. This, combined with the idea that an entity in any grammatical position can be contrastive, might explain why, in the sentence completion task, *zij* does not have as strong a subject preference as *ze* does: in some cases, perhaps *zij* is used to refer back to a contrastively-interpreted object. In the eyetracking experiment, on the other hand, no contrast is present as the pronouns are not used contrastively in the stories. Maybe, then, in the absence of contrast people simply defaulted back to the preceding subject as the referent for *zij*. Clearly, further work is needed in this area, and the ideas presented here are still very speculative. However, this direction seems to us to be a promising avenue for future work.

5. Conclusions and crosslinguistic patterns

In sum, in this paper we have presented the results of two experiments and a small corpus study. Our results suggest that the full vs. reduced pronoun choice (*zij* vs. *ze*) is not triggered by referent salience, but the choice of a demonstrative over a pronoun (*die* vs. *hij*) is. Corpus examples indicate that use of full form of pronouns may in fact be prompted by contrast. Overall, these results suggest the referential properties of different anaphoric forms within one language cannot be captured by a unified notion of salience.

Crosslinguistic evidence that further corroborates the claim that salience is not enough to capture the referential properties of different forms comes from Finnish and Estonian (e.g. Kaiser 2000, 2003, to appear). Finnish has a gender-neutral third person pronoun *hän* 'she/he' as well as a demonstrative *tämä* 'this' that can be used to refer back to humans, similar to Dutch *die* 'that.' As shown by Kaiser (2003), these two forms differ strikingly in their sensitivity to the antecedent's grammatical role and word order, and cannot be mapped onto a unified salience scale. Interestingly, Estonian has form that is historically related to the Finnish demonstrative *tämä*, namely *tema*. In Estonian, *tema* is the full form of the third person pronoun, and *ta* is the reduced form. Pajusalu (1995, 1996, 1997) and Kaiser (2003) claim that the choice of *tema* over *ta* is triggered by contrast. Examples from Kaiser's corpus are provided below. In (7a), there is a clear salient opposition between Sir Hartman and Vendela: she can read whereas he cannot. Similarly, in (7b), *tema* triggers a contrastive interpretation: It indicates that there is a salient opposition between Vendela and Father Henrik because she is the one who will actually take care of the knight.

(7a) [context: Vendela has just told Sir Hartman that she can read and that she even owns a book, which was quite a rare possession in Finland in the year 1371]
Rüütel Hartman mõtiskles selle üle, lebades mõnusalt laas voodis. **Tema** ei osanud lugeda, selleks polnud mingit vajadust – lugemine oli pastorite osa. (K. Utrio, 1989/1996, *Vendela*, 107)

'Sir Hartman thought about this, resting comfortably in the wide bed. He couldn't read, there was no need for it – reading was for pastors.'

(7b) [context: Father Henrik wants to come along to take care of Sir Hartman, who is seriously ill. The head of Sir Hartman's men explains to him:]
See [...] sõltub täielikult sellest, kas Domina Vendela lubab sul kaasa tulla või mitte. Domina Vendela on ravitseja. **Tema** ravib rüütli... (K. Utrio, 1989/1996, *Vendela* 94)

'It [...] depends entirely on whether Domina Vendela allows you to come along or not. Domina Vendela is a healer. **She** will take care of the knight...'

In conclusion, the Dutch data as well as additional evidence from Finnish and Estonian indicate that the notion of salience/accessibility is not enough to capture the referential properties of different referential forms. We need to investigate the role of factors such as contrast in order to better understand the discourse properties of different anaphoric forms.

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