Assessing the discourse referential properties of weak definite NPs*

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1. Introduction

Weak definite NPs (wdefs), like *(take) the elevator, (go to) the hospital, and (open) the window*, do not seem to presuppose the existence of a uniquely identifiable entity. In addition, they display some other peculiar properties, one of them being their questionable ability to set up discourse referents.

This paper reports two experiments that aimed to clarify the latter fact. They examined speakers’ preferences for two different kinds of anaphoric expressions to refer back to wdefs and to other kinds of referential and weakly referential NPs. The results, although tentative, suggest that wdefs should be analyzed as phrases that do not establish discourse referents.

The structure of the paper is as follows. In the next section, we characterize wdefs. In Section 3, we introduce the problem these constructions represent regarding discourse reference. In Section 4 we report the experiments. Finally, in Section 5, we provide a general discussion.

2. Wdefs

Typically, the use of definites expresses the existence of uniquely identifiable entities (cf. Russell 1905; Strawson 1950). However, wdefs do not seem to obey this condition and therefore are felicitous in contexts in which more than one object can satisfy their content (cf. Carlson and Sussman 2005; Birner & Ward 1994; Löbner 1985), as illustrated in (1).

(1) Context: Lola is sitting on the sofa of a waiting room reading a newspaper. There are some more newspapers lying next to her. Sentence: Lola is reading the newspaper.
As a consequence, wdefs allow ‘sloppy’ readings in VP-ellipsis constructions, as the contrast in (2) illustrates. Hereafter we use ‘−wd’ to indicate that a definite does not have a weak reading, which does not imply that the sentence that contains it is odd but simply that the definite is interpreted as a regular, uniquely referential definite.

(2) Lola went to the hospital / −wd the house and Alice did too.
(Different hospitals are possible / Different houses are not possible)

Additionally, wdefs display some other properties that distinguish them from regular definites (see Carlson and Sussman 2005 and Aguilar-Guevara 2008 for more detailed description): they take ‘narrow scope’ (3), occur only with a restricted class of nouns (4) and a restricted class of verbs and prepositions (5), and only allow modification that yields a subclass (6). Moreover, the sentences where they occur typically display semantic enrichment, that is, they carry more information than what is conveyed by the compositionally derived interpretation (7). Finally, wdefs don’t occur in subject position, except with a generic reading (8).

(3) Every boxer was sent to the hospital.
   ≈ ‘for every boxer there is a hospital that this boxer was sent to.’
(4) You should see the doctor vs. −wd the surgeon.
(5) Sally checked the calendar vs. read −wd the calendar.
(6) Lola is in −wd the big hospital vs. the psychiatric hospital.
(7) Eva called the doctor = Eva called a doctor + asked for medical assistance.
(8) a. −wd The newspaper was stolen.
       b. The newspaper brings many people their daily news.

In most of these aspects (i.e. narrowest scope, lexical restrictions, no modification, enriched meaning and no subject position), wdefs resemble another class of weakly referential NPs, namely, bare singulars like (be in) jail, prison, church and town (Carlson and Sussman 2005).

Until now, there has been little work on the meaning of wdefs (although see Carlson and Sussman 2005; Aguilar-Guevara and Zwarts 2010). The aim of this paper is to contribute to these efforts with experimental evidence about the discourse referential nature of these constructions, which is one of the properties that any appropriate semantics for them must account for.
3. Wdefs and discourse reference

There is another aspect of the peculiar behavior of wdefs, namely, that it is unclear whether they are able to set up discourse referents. A basic observation that indicates that this is not the case is that the article of a wdef, unlike that of other definites, cannot be replaced by a demonstrative (9).

(9) a. I checked this calendar and Marie did too.
   b. Annie called this doctor immediately and Louise did too.
   (Different calendars/doctors are not possible)

Another environment in which the discourse-referential properties of NPs are visible is non-restrictive relative clauses. Following Potts (2005), we assume that in order for this kind of clause to be felicitous, its head NP/DP has to set up a discourse referent. Therefore, they should not be compatible with weak readings of NPs, as the VP-ellipsis test in (10) indicates (the use of ‘by the way’ enforces the non-restrictiveness of the relative clause).

(10) a. I went to the hospital, which, by the way, was closed, and Alice did too.
    b. I looked in the mirror, which, by the way, has a crack, and Alice did too.
    (Different hospitals/mirrors are not possible)

However, if wdefs do not set up discourse referents, they should not be able to serve as the antecedents of anaphoric expressions either, and therefore strongly differ from other definites that pick up familiar referents (11), and from indefinites that introduce new referents (12) (cf. Heim 1982; Kamp 1981).

(11) a. Yesterday I saw a unicorn and a donkey in my garden. I beat the unicorn because it was eating my roses.
    b. Next to my house there is a hospital and a church. This morning I walked to the hospital, but it was closed.

(12) a. Yesterday I saw a donkey in my garden. It was sleeping next to my roses.
    b. This morning I went to a hospital, but it was closed.

In contrast, wdefs should behave like bare singulars (13), which are claimed to neither introduce nor pick up any referent (cf. Farkas & de Swart 2003; Espinal & McNally 2009).

(13) a. "Lola is still at school because today her class had to help to clean it."
b. ?? After having watched TV for twelve hours in a row, I finally threw it out of the window.

As the comparison between the sentences (11)–(13) and analogous sentences with wdefs in (14) shows, such a prediction is not completely borne out: although pronouns referring back to wdefs do not sound as ‘natural’ as pronouns referring back to definites and indefinites, they are certainly more acceptable than those with bare singulars as antecedents.

(14)  
   a. ?I checked the calendar when I was planning my appointments and put it back in my desk.
   b. ?Sheila took the shuttle-bus to the airport. It was a huge gaudy Hummer.

In sum, it is unclear whether or not wdefs can set up entities in the common ground. On the one hand, they disallow replacement of the definite article by a demonstrative and they are not compatible with non-restrictive relative clauses; these facts, together with the properties discussed in Section 2, strongly suggest that wdefs actually do not set up discourse referents.

On the other hand, these constructions seem to be able to serve as antecedents of anaphoric expressions, which is a behavior proper of referential NPs. However, informal investigation has indicated that the judgments about sentences (14) are very tentative. Moreover, even the unacceptability of sentences like (13) is questionable. In order to clarify these uncertainties, the experiments we report here study systematically to what extent speakers prefer to use pronouns when referring back to referential and weakly referential NPs.

4. The experiments

The present two studies assess the capacity of wdefs, bare singulars, regular definites and indefinites to elicit two different kinds of anaphoric expressions, namely, pronouns and full, definite NPs.

Our point of departure is the traditionally assumed correlation between different kinds of anaphoric expressions and the level of accessibility of their antecedents, which we present in (15) (Ariel 1990; Gundel, Hedberg & Zachariski 1993; Kaiser & Vihman 2006.).

(15) accessible referents $\text{Null} > \text{Pronouns} > \text{Demonstratives} > \text{full NPs}$, non-accessible referents
On the basis of this correlation, we assume that, in a minimal discourse in which an NP has to be referred back to by an anaphoric expression, a pronoun will be preferred if the NP is able to set up a discourse referent properly and therefore this kind of anaphoric expression is more suitable to pick up the referent. Conversely, if the NP to be referred back to does not establish a discourse referent, we assume that full anaphoric NPs will be favored because they carry more information and, presumably, they are more adequate to accommodate a discourse referent on the basis of the previous linguistic context (which contains the non-referential NP to be referred back to).^2

Based on these assumptions and the contrasts between sentences with pronouns referring back to different kinds of NPs discussed in Section 3, we predict the tendencies in (16) and (17).

(16) Indefinites and regular definites will elicit more pronouns than bare singulars and wdefs.

(17) Bare singulars and wdefs will elicit more full NPs than regular definites and indefinites.

Additionally, given the difference between the acceptability of the sentences in (14) and in (13), we anticipate the tendency in (18).^3

(18) Wdefs will elicit more pronouns than bare singulars.

The experiments were carried out in Dutch with wdefs, bare singulars, regular definites and indefinites that clearly differentiate from each other according to the tests presented in Section 2.

**Experiment 1**

This study tested the capacity of wdefs, bare singulars and indefinites to elicit pronouns and full NPs. Participants were presented with sentences containing an NP of one of these three kinds, and a continuation with a blank to be filled with an anaphoric NP, which was intended to refer back to the target NP. To do so, participants had to choose between pronouns and definites.

**Subjects.** 65 native Dutch-speaking undergraduates at Utrecht University voluntarily participated in this experiment.

**Materials.** The items consisted of 18 mini-discourses (6 per condition) that include two sentences. In the first one, the target NP is introduced in second argument position either as a direct object or as a PP object (as in *luisteren naar: ‘listen to’*).^4 We have this broad concept of “second argument position”
because most wdefs and bare singulars occur as PP objects. The second sentence contains a blank in direct object position.

The discourses are followed by two options to fill the blank with, namely, a pronoun and a definite containing the same noun as the target NP. (19)–(21) are examples of each condition.5

(19) Weak definite
Guido luisterde vanochtend naar de radio. Hij zette ____________ zo hard dat de buren er wakker van werden.
‘Guido listened to the radio this morning. He turned ____________ up so loud (lit: ‘he put ____________ so hard…’) that it woke up the neighbors.’
  a. ’m    b. de radio
     ‘it’    ‘the radio’

(20) Bare singular
Coby lag gisteravond vroeg in bed. Ze heeft zo liggen woelen dat ze ____________ vanmorgen opnieuw heeft opgemaakt.
‘Coby went to bed early yesterday evening. She grubbed a lot, so that she has cleaned ____________ up again this morning.’
  a. ’m    b. het bed
     ‘it’    ‘the bed’

(21) Indefinite
Nienke zocht gisteren een map. Ze heeft ____________ zo juist gevonden.
‘Nienke searched for a folder yesterday. She has just found ____________.’
  a. ’m    b. de map
     ‘it’    ‘the folder’

We only had 6 items per condition, because the choice of items was very restricted. First of all, the use of wdefs and bare singulars is not completely productive, so we had to choose items from a reduced set. Secondly, from that set we had to exclude morphologically neuter NPs, since reference to neuter NPs in Dutch is not uniform, that is, both neuter and masculine pronouns can be used to refer to them (e.g. Jeroen gebruikte een mes (neuter) voor het snijden van zijn brood. Daarna heeft hij het/hem teruggelegd: ‘Jeroen used a knife to cut his bread. After that he put it/him back).

The items were integrated into a set of 36 fillers with a similar format to the target sentences. Unlike the targets, they contained blanks in subject or in oblique argument position. Furthermore, the target NPs refer back to proper
names or bare plurals, which occupy subject or object position in the first sentence.

*Design and procedure.* This study had a within-subject design and involved three conditions (wdefs, bare singulars and indefinites). All the target sentences and fillers were randomized, as was the order of the options that participants could choose from.

The materials were presented in a pen-and-pencil questionnaire distributed in class. The questionnaire included written instructions, which explicitly asked participants for their intuitions in spoken language.

*Results and discussion.* Figure 1 shows per condition the relative frequency of observations corresponding to each kind of anaphoric expression in Experiment 1.

![Figure 1. Percentages of anaphoric expressions per type of target NP in Experiment 1.](image)

As can be seen, the pronominal expressions were the most preferred option for every condition, but indefinites elicited considerably more pronouns than wdefs and bare singulars. A Friedman’s test revealed that this contrast is significant ($\chi^2(2) = 72.83, p \leq .0001$).6

Consequently, wdefs and bare singulars elicited considerably more full NPs than indefinites. In fact, the proportions of pronouns and full NPs are almost equal.
Experiment 2

To complete the paradigm of types of NPs to be studied this experiment tested regular definites in comparison to wdefs and indefinites.

Participants. 41 native Dutch-speaking undergraduates at Utrecht University participated voluntarily.

Materials. The items were similar to those of the previous experiment. This time, regular definites were included instead of bare singulars. An example is shown in (22).

(22) Regular definite
Aniek maakte de mat uit de hal schoon. Daarna heeft ze ____________ terug gelegd.
‘Aniek cleaned the mat in the hall. After that she put ____________ back.’
a. ‘m  b. de mat
‘it’ ‘the mat’

Introducing an entity out of the blue with a regular definite construction results in an infelicitous sentence (e.g. #Today I met the girl). For that reason the regular definites used in the experiment were either globally unique entities (like de maan ‘the moon’) or phrases with a possessive marker (like haar kledingkast ‘her wardrobe’) or with postnominal modification (like de mat in de hal ‘the mat in the hall”).

During the execution of the previous experiment we realized that there was a difference between the sentences with bare singulars and wdefs on the one hand and those with indefinites on the other hand, which we could have controlled better. Whereas all the indefinites occur as direct objects of the verb in the target sentences, bare singulars and wdefs mainly occur as prepositional objects. This could be a highly disturbing factor if it is the case that objects of verbs are perceived as more accessible in general (and therefore more suitable for pronouns) than objects of prepositions. In order to get around this potential problem, we modified some of the indefinite target NPs with respect to the previous experiment by putting three of the six indefinites in a prepositional clause. Three of the six regular definites were placed in a PP as well. This resulted in a balanced set of direct objects and PP objects for every condition.

Design and procedure. The design and the procedure of this experiment were the same as in the previous experiment.
**Results and discussion.** Figure 2 shows the relative frequency of observations corresponding to each kind of anaphoric expression per condition in Experiment 2.

![Bar chart showing percentages of anaphoric expressions per type of target NP in Experiment 2.](image)

*Figure 2.* Percentages of anaphoric expressions per type of target NP in Experiment 2.

Again, the pronominal expressions were the most preferred option for every condition. As expected, the proportion elicited by wdefs was lower than those corresponding to indefinites and to regular definites. A Friedman’s test confirmed the significance of this contrast ($\chi^2(2) = 41.369 \ p \leq .0001$). Consequently, wdefs elicited considerably more full NPs than indefinites and regulars definites. In fact, the proportions of pronouns and full NPs are almost equal.

5. **General discussion**

We have reported two experiments that assess the discourse referential properties of wdefs in comparison with bare singulars, regular definites and indefinites. In these studies, participants had to choose between pronouns and full NPs to refer back to NPs of the four types just mentioned. The results suggest that wdefs, just like bare singulars, behave differently from indefinites and regular definites: whereas indefinites and regular definites favored pronouns over full NPs, wdefs and bare singulars triggered pronouns in only (almost) half of the cases, which is significantly less than the proportion of pronouns that indefinites and definites elicited.
These results are revealing in two ways. On the one hand, they are consistent with the possibility that wdefs, just like bare singulars, do not set up discourse referents, if we assume that, when forced to refer back to NPs, speakers prefer to use pronouns with NPs that set up discourse referents, and full NPs with NPs that do not. Although we should not neglect the fact that wdefs and bare singulars still elicited substantial amounts of pronouns (which could simply be due to the fact that speakers are good at accommodating pronominal antecedents) we should also take into consideration the significant difference observed between wdefs/bare singulars and indefinites/regular definites. The fact that wdefs and bare singulars triggered significantly lower proportions of pronouns is an indication that wdefs and bare singulars are perceived as referentially weak. Nevertheless, we would like to remark that the results of our experiments can be taken as evidence in support of the weakly referential status of wdefs only if joined by consistent findings coming from further research.

On the other hand, these results are intriguing because the non-difference between wdefs and bare singulars we have attested, although consistent with the weakly referential nature of both kinds of NPs, conflicts with the contrast between the acceptability of pronouns referring back to wdefs in (14) and the oddness of pronouns referring back to bare singulars in (13). We are inclined to think that the reason why we did not see differences is because of the experimental setting we employed in these studies, which was probably not sensitive enough. What is more, we would like to conjecture that the contrast between the degrees of acceptability of the sentences in (13)–(14) is not due to different discourse referential properties holding of bare singulars and of wdefs. Instead, we would like to attribute it to the fact that wdefs can always be reinterpreted as specific if something in the context blocks the weak reading, and that in this case it is the pronoun forcing retrieval of the specific reading which prevents the sentences from being odd. This explanation also requires confirmation from further experiments.

Interesting as the results of the experiments are, we should point out that there is reason to accept them with caution. In our experiments we compared the anaphoric potential of different kinds of noun phrases, but we did not control sufficiently for the grammatical role of such noun phrases. As explained in Section 4, wdefs and bare singulars most frequently occur as PP objects. This is a methodological problem that is impeding the study of the anaphoric potential of wdefs and bare singulars and that disturbs the picture. Since most wdefs and bare singulars occur in PPs, we cannot establish conclusively that the fact that wdefs and bare singulars allow pronouns and full NPs to refer to them
almost equally, is attributed to their weakly referential nature. It could also be the case that they elicit such an amount of full NPs because of their grammatical role, i.e. their occurrence in PPs.

The present studies tested the production side of the discourse properties of our target NPs. The need to confirm the differences between bare singulars/wdefs and indefinites/regular definites, as well as the differences between bare singulars and wdefs, motivates us to carry out further interpretation studies, such as acceptability judgment questionnaires and self paced or eye-tracking reading experiments. In such studies we would like to test versions of sentences (19)–(21) completed with pronouns and with full NPs. Here we would expect to confirm speakers’ preference for pronouns when the antecedents are regular definites or indefinites and for full NPs when they are wdefs and bare singulars. Moreover, in the online experiments, we would expect to see a distinction between wdefs and bare singulars consistent with the conjecture that wdefs are reanalyzed as specific if a pronoun is encountered later on, which is something that cannot happen with bare singulars.

Notes

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1. We are aware that in addition to the general assumption that more reduced anaphoric expressions (e.g. pronouns) are more suitable for highly accessible antecedents, and that fuller expressions are more suitable for less accessible referents, other diverse factors such as the grammatical role of the antecedents, their information structure status, and word order, all intervene in the choice of anaphoric expressions (Ariel 1990; Gundel, Hedberg & Zacharski 1993; Strube & Hahn 1996; Hoffman 1998; Kaiser & Vihman 2006). See Section 5 for discussion, where we explain that such considerations pose a rather tricky methodological issue.

2. We realize that a linguistic scenario in which a weakly-referential NP has to be referred back to, which is what we are recreating in the present experiments, seems to be unnatural at least in languages like English where the use of a seemingly truth-conditional equivalent referential NP such as an indefinite is available and more adequate. This is not a trivial fact at all and indeed points to unresolved questions, which go beyond the scope of this paper, like whether or not
wdefs (and bare singulars) and indefinites are interchangeable as far as truth-conditions are concerned (as Carlson and Sussman 2005 have suggested), and what function, pragmatically speaking, a weakly referential NP plays.

3. This prediction does not have any theoretical support as predictions (16) and (17) have. However, we think that the observations previously discussed make it valid. Recall that the main purpose of these experiments is to get a better understanding of the discourse properties of wdefs (and bare singulars).

4. Although we used prepositional objects, we avoided locative objects like (going to) the hospital as much as possible, because in Dutch it is possible to refer to them with (the locative use of) er 'there'. This is a problem, since we are not sure whether er is an anaphoric expression. Further, er has other distributional properties than pronouns, so we wanted to exclude this option and focus on identical pronouns.

There are some exceptions in which we used a locative, namely naar de WC gaan 'go to the toilet', naar de film gaan 'go to the movie', op tafel zetten 'put on the table', in bed liggen 'lie in bed' and naar zolder gaan 'go to the loft'. Since the choice of wdefs and bare singulars was very restricted, we could not do without those. In these cases we construed the context such that it was impossible to use er 'there'. For example:

(i) Jan ging gisteren naar zolder. Het was er zo rommelig dat hij er/hem vandaag heeft opgeruimd.
(ii) Jan ging gisteren naar zolder. Het was er zo rommelig dat hij *er/hem vandaag helemaal heeft opgeruimd.

'John went to the loft yesterday. It was such a mess, that he arranged there/him (entirely) today'

In (ii) helemaal 'entirely' blocks the use of er 'there'.

5. An anonymous reviewer points out that the materials would be more fairly comparable if the different conditions contained the same nouns. However, this is impossible due to the restricted distribution of wdefs and bare singulars. Typically, the relevant nouns are either in wdefs or in bare singulars but not in both.

6. Since the data of our experiments are categorical and therefore not normally distributed, we are reporting the results of a non-parametric test (Friedman’s test) in the body of this paper. We also carried out a one-way repeated measures ANOVA, which confirmed that the proportion of pronouns elicited by the three kinds of NPs is significantly different (F(2,62) = 88.28 \( p < 0.001 \)). Pairwise comparisons (with Bonferroni correction) showed that indefinites did elicit significantly higher proportions of pronouns than bare singulars (\( p < 0.001 \)) and wdefs (\( p < 0.001 \)). On the other hand, the proportions corresponding to wdefs and bare singulars were not statistically different.

7. An anonymous reviewer points out that the regular definites that we used in the experiment are rather ‘special’ definites, which are introduced without a preceding context. The reviewer argues that these definites do not necessarily pattern like ‘regular’ definites. Following Schwarz (2009), we consider every definite description that refers to a uniquely identifiable object to be a regular definite no matter how it establishes its unique reference (i.e. whether by context, by world knowledge or by a bridging inference). Moreover, we assume, as well following Schwarz
(2009), that anaphoric definites, such as those that the reviewer suggests we could use in further experiments, are familiar definites (because their references are part of the linguistic context) rather than uniquely referring definites.

8. A one-way repeated measures ANOVA corroborated that the proportion of pronouns elicited by the three kinds of NPs is significantly different (F(2,38) = 30.08, p < 0.001). Pairwise comparisons (with Bonferroni correction) revealed that the proportion elicited by wdefs was significantly lower than those corresponding to indefinites (p < 0.001) and to regular definites (p < 0.001). Surprisingly, these analyses also revealed that regular definites elicited significantly lower proportions than indefinites (p < 0.001). As we did not expect this (both indefinites and regular definites are supposed to be referential), we looked at the scores collected by each item to clarify the cause of this result. What we discovered is that two of them, de zon ‘the sun’ and de maan ‘the moon’, actually triggered significantly more full NPs than pronouns. This fact is probably not due to the items themselves, but to the fact that in these two cases we provided feminine (rather than masculine) pronouns in the set of possible anaphoric expressions to be chosen. Even though zon and maan are feminine nouns, several speakers have suggested that feminine pronouns do not sound like natural options to refer back to the target NPs. This feeling seems to have interfered with speakers’ preferences.

References


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