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Between anaphora and deixis ... The resolution of the demonstrative noun phrase "that N"

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Three experiments examined the hypothesis that the demonstrative noun phrase (NP) that N, as an anadeictic expression, preferentially refers to the less salient referent in a discourse representation when used anaphorically, whereas the anaphoric pronoun he or she preferentially refers to the highly-focused referent. The findings, from a sentence completion task and two reading time experiments that used gender to create ambiguous and unambiguous coreference, reveal that the demonstrative NP specifically orients processing toward a less salient referent when there is no gender cue discriminating between different possible referents. These findings show the importance of taking into account the discourse function of the anaphor itself and its influence on the process of searching for the referent.

Keywords: Demonstrative noun phrase; Anaphora; Deixis; Gender agreement.

INTRODUCTION

According to a cognitive conception of reference, anchored in the pioneering work of Lyons (1979), anaphora and deixis are considered to be discourse procedures, operating on the mental model of the discourse and allowing the coordination of interlocutors' attention (Cornish, 1999; Diessel, 2006; Reichler-Béguelin, 1988). Following Cornish (1999), anaphora and deixis can be viewed as complementary discourse-referring management procedures that "the user exploits in constructing, modifying, and accessing the contents of mental models of an unfolding discourse within the minds of speaker and addressee—or writer and reader" (Cornish, 2008, p. 999). Anaphora prototypically serves to maintain attention where it is already established (or is supposed to be), whereas deixis permits the interlocutor's attention to shift to a new referent. According to the traditional view (Ehlich, 1982), anaphora is uniquely established by means of anaphoric expressions: anaphoric pronouns and definite descriptions; whereas deixis is realised by means of deictic expressions, principally demonstratives.

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However, several authors have suggested that most anaphoric and deictic expressions are not actually used exclusively with one function or the other[1] (See Charolles, 1991; Corblin, 1995; Cornish, 1995; De Mulder, 2007; Jansen, 1996). For example, the demonstrative *that* (as a determiner or pronoun) can serve an anaphoric function (e.g., "Peter dreaded Suzie's furies. *That woman* was unpredictable"), a deictic function (e.g., "Look at *that girl*!"), or a discourse-deictic function (e.g., "Peter pushed Suzie. *That behaviour* shocked her"). Contrary to the anaphoric use of demonstratives where an identifiable entity, typically introduced previously via a noun phrase (NP), already exists within the discourse representation, in the discourse-deictic use, there is no independent discourse entity. Thus, this discourse-deitic use causes the interlocutor to create a referent from within the surrounding context (Cornish, 2007; Gundel, Hedberg, & Zacharsky, 2004).

In an attempt to order the various types of indexical expressions in terms of their relative degrees of deicticity and anaphoricity, Cornish (2007) proposed a scale, reported below (see Figure 1), in which deixis and anaphora are not viewed as mutually exclusive indexical categories. Rather, the majority of the expression types that are likely to realise deixis or anaphora share properties of both, albeit to different degrees.

Importantly, in this scale there is overlap between the two polar types of indexical expressions (1st and 2nd personal pronouns at the "Deixis" pole, and 3rd person reflexive pronouns at the "Anaphora" pole). These expressions in the middle, between the two poles of pure deixis and pure anaphora, are called "anadeixis" (see the segment between the square-brackets in Figure 1) because their use implies partly anaphoric and partly deictic reference. According to Cornish (2009), the anaphoric use of demonstratives (pronouns or NPs) constitutes the best example of "anadeixis", since they permit the retrieval of an already existing referent available within a psychologically prominent discourse representation. However, contrary to what is expected with nondemonstrative expressions, the mental representation of the intended referent is not necessarily very salient or highly accessible at the point of use (Ariel, 1990; Cornish, 1999; Gundel, Hedberg, & Zacharski, 1993; Kleiber, 1994). These expressions are also sometimes called "anaphoric demonstratives" (e.g., Diessel, 1999; Kleiber, 1990). Crucially, all demonstrative-based expressions are placed above the definite NP; with the latter carrying an inherent degree of deicticity that is lower than those of demonstratives, but still higher than that of third-person anaphoric pronoun whose use is restricted to the anaphoric function (see Cornish, 2007, 2009 for further detail). It is exactly the forms in this middle area of Cornish's scale that we are most interested in here.

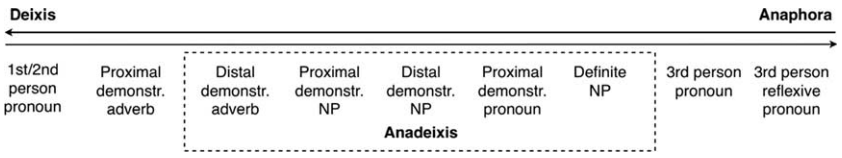

Figure 1. Cornish's scale of anaphoricity and deicticity coded by certain categories of indexical expressions (Cornish, 2007: Fig. 1, p. 149).

[1] Some expressions are restricted by their form to one function: First and second personal pronouns (I and you), whose use is uniquely deictic, and unstressed third person pronouns, including reflexives (himself/herself/itself and he/she/it), which are restricted to an anaphoric function.

The claim that the various indexical expressions likely to realise anaphora and/or deixis are not equivalent in terms of the "procedural instructions" associated with them (i.e., instructions concerning the localisation of their referents in memory) is common to several salience-based approaches to reference. These approaches suggest that the different types of expression, via their specific procedural meaning as markers of the saliency level (also referred to as "cognitive status" or "accessibility degree") of the intended referent in the mental discourse model, signal different ways in which a sentence may be resolved (Ariel, 1990, 2004; Chafe, 1994; Gundel et al., 1993; Strauss, 2002). Theoretical models, such as Ariel's *accessibility marking hierarchy* (1990, 1996), Strauss's *gradient focus model* (1993, 2002), or Gundel et al.'s *givenness hierarchy* (1993), claim that the use of any particular expression is closely connected to the level of accessibility or activation that the mental representation of the referent is assumed to have in the addressee's mental model. When the referent is assumed to be highly accessible/focused in the discourse representation, a reduced form such as a zero or unstressed third-person pronoun should be used—this is a prototypically anaphoric form whose use signals the "*in focus*" status of the referent (in Gundel et al.'s terminology). In contrast, demonstrative expressions whose procedural meaning signals a less salient referent may be used when the referent is not in focus, but is "*activated*" or "*familiar*" (in Gundel et al.'s terminology) or enjoys "*medium accessibility*" (in Ariel's terminology).

In connection with Cornish's scale (2007), these models suggest that demonstrative expressions could play a singular role in discourse construction when used anaphorically. Indeed, through their anaphoric dimension, they presuppose a reference frame within which the intended referent is not "new" (as it is in a purely deictic use), but already "known". And through their deictic value, they are capable of orienting attention toward a referent with a somewhat lower degree of accessibility, for which an attempt at retrieval via an anaphoric pronoun (or even a definite NP) would not have been necessarily appropriate. The capacity to "compensate" for a lower saliency level would be, indeed, a specific characteristic of the profoundly deictic character of the demonstratives (Fossard, 2001; Fossard & Rigalleau, 2005).

Within anaphoric expressions, previous research has shown that the form of the expression interacts with the status of the antecedent referent. For instance, Gordon, Grosz, and Gilliom (1993) reported a repeated-name penalty when a repeated-name is used (instead of a pronoun) to refer to the most salient referent. However, they did not report a significant preference of the repeated-name for less salient rather than more salient referents. Work on Spanish (Carreiras, Garnham, & Oakhill, 1993) has found that pronouns that could be considered demonstrative (*este*/*esta*) have different antecedent preferences than definite pronouns (*el*/*ella*), suggesting that the type of anaphor influences antecedent identification. Recently, new frameworks aimed at more precisely identifying the "reference-specific" factors that guide the use and interpretation of each referential form have been proposed. Expanding salience-based approaches of reference resolution, Kaiser and Trueswell (2008) proposed a "form-specific multiple-constraints approach", which assumes that different expressions can be sensitive to different factors to different degrees. From Finnish data investigating the interpretation of the anaphoric gender-neutral pronouns *hän* (she/he) and *tämä* (this) where the antecedents are full NPs, they showed that the anaphoric pronoun *hän* tended to refer to syntactic subjects, whereas the demonstrative pronoun *tämä* preferred postverbal, low-salience referents, exhibiting a sensitivity to several constraints, both word order/information structure and syntactic role.

In a related study, Brown-Schmidt, Byron and Tanenhaus (2005) reported results that suggest that the English anaphoric pronoun *it* is primarily sensitive to salience factors and is preferentially used to refer to highly-focused entities while the demonstrative pronoun *that* is preferentially interpreted as referring to conceptually complex or composite entities when they are available. While illustrating the discourse-deictic function of the demonstrative (i.e., creation of a referent from the immediate discourse context), these results also provide support for the "form-specific multiple-constraints" approach, showing that beyond salience, it is important to take into account how each form weighs the factors likely to influence referential resolution.

In this paper, we investigate two factors that influence the processing of demonstrative NPs in contrast to the processing of anaphoric pronouns: salience and (conceptual) gender agreement. Gender agreement, which allows a reader or listener to determine which discourse entity can serve as a possible antecedent, is a strong morphosyntactic/semantic cue, acknowledged to guide the referential process and in particular anaphoric pronoun resolution (Arnold, Eisenband, Brown-Schmidt, & Trueswell, 2000; Garnham, Oakhill, Ehrlich, & Carreiras, 1995; Rigalleau & Caplan, 2000; Rigalleau, Caplan, & Baudiffier, 2004; Sanford & Garrod, 1989).

For example, Sanford and Garrod (Garrod, 1994; Garrod, Freudenthal, & Boyle, 1994; Sanford & Garrod, 1989) reported evidence that neither gender nor salience is ignored during the initial stages of anaphoric pronoun resolution. They proposed a model in which they distinguish two processes in anaphoric processing: *antecedent bonding*—that corresponds to an immediate matching process between the pronoun and a potential antecedent, and *reference resolution*—that corresponds to a selection and integration process of the referent into the semantic interpretation of the rest of the sentence (Sanford, 1985; Sanford & Garrod, 1989). According to these authors, *bonding* is an automatic process, depending on both the degree to which the pronoun's gender (and number) selects a unique antecedent in discourse and the degree to which this antecedent is highly focused. *Resolution*, on the other hand, involves a commitment to a referent that can then be integrated into the interpretation of what follows. Garrod et al. (1994) reported results from eye fixation durations and total reading times (RTs) that suggest that pronominal gender is immediately processed, and that the bonding process—based on gender matching of a pronoun and a name—allows the immediate selection of that name as the referent of the pronoun if it corresponds to what is currently in focus. However, in cases where pronominal gender matches with a less salient referent, resolution is delayed, suggesting that gender and salience needs to converge for early referential selection.

Recently, Rigalleau and his colleagues (Rigalleau & Caplan, 2000; Rigalleau et al., 2004) reported results that reinforce Sanford and Garrod's model. They showed the existence of a selection process of the noun in focus—based on gender marking—that occurs immediately when the pronoun is encountered. They also showed that, in a context where two potential antecedents of different gender are present, the selection process involves the "delinking" (or disengaging) of the pronoun from the focused noun when it does not agree in gender. This disengagement process, resulting in an increase in naming latencies of isolated pronouns observed in the "different-gender" condition, would be a part of Sanford and Garrod's resolution process (Rigalleau & Caplan, 2000).

To summarise, these studies have shown that, for the anaphoric pronoun, an early resolution arises through the interaction of salience and gender: when the gender of the pronoun matches the gender of the most salient entity, early resolution can occur.

In contrast to the extensive literature on the processing of anaphoric pronouns (See Garnham, 2001), demonstrative-based expressions—particularly demonstrative NPs, have received little attention in the psycholinguistic literature. In particular, very little is known about the influence of gender on the processing of these expressions.

In the following experiments, we examine the hypothesis that, because of its deictic value, the demonstrative NP is a good indexical tool for accessing, preferentially, less salient referents. In order to do this, we contrast the demonstrative NP with a prototypically anaphoric expression: the third-person anaphoric pronoun. Unlike this anaphoric pronoun, whose use serves to signal referential continuity of the highly-focused referent, we hypothesise that the demonstrative NP may orient processing toward a less salient referent which—even though already introduced in the discourse—is not the one expected to ensure referential continuity. This hypothesis, derived from the salience and reference-specific frameworks, attaches great value to the form of the expression used, allowing it to play a direct role in determining how it is interpreted. This hypothesis challenges approaches in which all NP anaphors are initially taken to refer to the most highly focused referent, regardless of their own form (e.g., a strong interpretation of the Informational Load Hypothesis—ILH, Almor, 1999).

To evaluate this hypothesis, we created short experimental texts manipulating the form of the anaphor (anaphoric third-person pronoun *he*/*she* vs. demonstrative description *that man*/*that woman*) and the saliency of the referent-character (highly focused main character vs. less salient subordinate character). We first looked at the sensitivity of the two anaphors to the saliency (or accessibility) level of the two referent-characters by means of a sentence-completion task. Second, we investigated the time course of resolution of the two anaphors in two self-paced reading experiments. For these on-line experiments, we also took into account gender as another factor. In some versions of our materials, the gender of the anaphoric expression allowed unambiguous identification of the antecedent while in other versions it did not. This manipulation allows us to compare the anaphoric/deictic properties of our demonstrative expressions with a morphosyntactic/semantic cue to resolution.

MATERIALS CONSTRUCTION

Twenty-eight experimental texts consisting of short three-sentence discursive segments were created in two versions: a "gender cue" version (for use in Experiment 1) and a "no gender cue" version (for use in Experiment 2). Table 1 shows an example of a text in the two versions. In the gender cue version, the two characters were of different sex (one female and one male character), while in the no gender cue version, the name of the first character was changed so that the two characters had the same sex (either female or male). The first sentence of each text introduced a character (the Main, highly-focused character) in a specific setting (e.g., a restaurant). This character, introduced as the sentence topic, later became the discourse topic. Indeed, it corresponds to the main protagonist of the situation described as it is introduced as the most topical argument in the discourse segment (occurring in subject position and referred to by a proper name) (cf. Cowles, Walenski, & Kluender, 2007; Garrod & Sanford, 1994; Gernsbacher, 1989), and is re-evoked twice in the second sentence via third-person subject pronouns. The second sentence, while maintaining the Main Character as the discourse topic, also introduced a second character (the Subordinate,

TABLE 1
Example of experimental materials in the gender cue version (Experiment 1) and no gender cue version (Experiment 2)

Experiment 1 (gender cue version)	*Experiment 2 (no gender cue version)*
Sentences 1 & 2 At restaurants, // *Peter* $_{\text{M.char.}}$ loves taking his time to read the menu. // The last time, // he had hesitated so much between two dishes that he // finally had to ask *the waitress* $_{\text{S.char.}}$ to help him // choose something from the menu. //	*Sentences 1 & 2* At restaurants, // *Alice* $_{\text{M.char}}$. loves taking her time to read the menu. // The last time, // she had hesitated so much between two dishes that she // finally had to ask *the waitress* $_{\text{S.char}}$. to help her // choose something from the menu. //
Target sentence: **Main character*pronoun:** In fact, he // simply ordered the dish of the day // **Main character*demonstrative:** In fact, that man // simply ordered the dish of the day // **Subordinate character*pronoun:** In fact, she // simply recommended the dish of the day // **Subordinate character*demonstrative:** In fact, that woman // simply recommended the dish of the day //	*Target sentence:* **Main character*pronoun:** In fact, she // simply ordered the dish of the day // **Main character*demonstrative:** In fact, that woman // simply ordered the dish of the day // **Subordinate character*pronoun:** In fact, she // simply recommended the dish of the day // **Subordinate character*demonstrative:** In fact, that woman // simply recommended the dish of the day //
Question: **For "Main character" conditions:** Did Peter go for a very expensive dish? **For "Subordinate character" conditions:** Did the waitress advise a very expensive dish?	*Question:* **For "Main character" conditions:** Did Alice go for a very expensive dish? **For "Subordinate character" conditions:** Did the waitress advise a very expensive dish?

Note: The double slash (//) indicates the text presentation on the computer screen, as used in Experiments 1 and 2.

less salient character). This second character appeared in direct object position in a subordinate clause via a description of its role in the setting (e.g., "the waitress" in a restaurant scenario) (cf. Sanford, Moar, & Garrod, 1988). It was more deeply embedded in the sentence structure, and therefore played a less prominent role in the situation described. In order to avoid an effect of the linear order of entities in the discourse segment (i.e., the Main Character is the first character appearing in the discourse and the Subordinate Character is the last one), the Main Character was re-mentioned at the end of the second sentence, after the introduction of the Subordinate Character, either via a possessive pronoun or via a nonsubject third-person pronoun. Finally, the third sentence—the target sentence—referred to one the two characters (Main or Subordinate), either via an anaphoric third-person pronoun (*he*/*she*), or via a demonstrative description (*that man*/*that woman*). The first part of the target sentence, which we called "anaphoric segment", always began with the adverbial *in fact*, followed by the anaphor (*he*/*she or that man*/*that woman*). The content of the second part of the target sentence, the "predicative segment", was either compatible with a reference to the Main Character or with a reference to the Subordinate Character. The two types of predicative segment differed only by the verb used in the predication (see Table 1). Four alternative versions of the target sentence were thus constructed by varying two factors. The first factor, character-type, was determined semantically by the predication in the second part of the target sentence (predicative segment), which oriented the processing either towards the Main Character or the Subordinate

Character. The second factor, anaphor-type, was determined by the form of the anaphor: anaphoric third-person pronoun *he*/*she* or demonstrative description *that man*/*that woman*, used as the grammatical subject of the first part of the target sentence (anaphoric segment). In the gender cue version (Experiment 1), the anaphoric segment was unambiguous, the anaphor agreed in gender with only one of the two characters. In the no gender cue version (Experiment 2), the anaphoric segment was ambiguous, the anaphor agreed in gender with both characters. Finally, each text was followed by a "yes/no" question which probed the understanding of the target sentence. These questions were used in the self-paced RT experiments (Experiments 1 and 2) to ensure that participants read texts carefully. Two types of question were constructed: one for target sentences referring back to the Main Character and another one for the target sentences referring back to the Subordinate Character (see Table 1). Forty filler texts were also created which had the same number of sentences as the experimental materials and included an anaphoric relationship, but used different syntactic structures and anaphoric devices in order to prevent participants from developing strategies for processing the experimental materials. In these texts, the "yes/no" questions did not test understanding of the third-sentence, but were designed to encourage the understanding of either the first or the second sentence.

A norming study was conducted with experimental materials in the no gender cue version to ensure that antecedent identification was equally accurate for all conditions of the texts (at least 90%), and also to estimate the acceptability of the texts in the different conditions. Twenty-four participants were asked to identify the antecedent-character that they felt the anaphor referred to, and were also asked to indicate how easy or difficult the text was to follow and understand on a 7-point scale with end-points labelled "Good acceptability" (1) or "Bad acceptability" (7). The purpose of these tasks was first to ensure that the predicative information in the target sentences was not ambiguous and clearly oriented the processing either towards the Main Character or the Subordinate Character (antecedent identification task) and then to verify that demonstrative descriptions were judged as adequate anaphoric devices in certain referential configurations, referring to less salient entities—the Subordinate Character—(judgement acceptability task). Following the antecedent identification task, four texts that did not reach the threshold of 90% correct identification were considered as ambiguous and thus removed. For the 24 remaining texts, antecedent identification was excellent ($M = 96\%$, $SD = 3.16$). Importantly, the judgement acceptability task indicated that referring to the Subordinate Character via a demonstrative description was not judged by the participants as being an unusual or less acceptable referential choice. Not only was acceptability of texts referring to the Subordinate Character better with a demonstrative description ($M = 2.07$, $SD = 0.74$) than with a pronoun ($M = 2.45$, $SD = 0.82$), $t_1 = 2.4$, $p < .021$, $t_2 = 2.6$, $p < .015$; but also texts with a demonstrative description were judged more acceptable when it referred to the Subordinate Character ($M = 2.07$, $SD = 0.74$) than to the Main Character ($M = 2.66$, $SD = 1.11$), $t_1 = 3.2$, $p < .004$, $t_2 = 4.7$, $p < .001$. Interestingly too, texts with a pronoun were judged more acceptable when it referred to the Main Character ($M = 1.9$, $SD = 0.65$) than to the Subordinate Character ($M = 2.45$, $SD = 0.82$), $t_1 = 3.4$, $p < .003$, $t_2 = 2.9$, $p < .008$. Following this norming study, the 24 selected texts were thus considered as unambiguous. These texts were used in the sentence-completion task and the two on-line studies.

SENTENCE COMPLETION TASK

A sentence completion task using materials with no gender cue was conducted to verify that participants' choices about the referents of both types of anaphor would be guided by the differential accessibility level of discourse entities. The aim of this task was thus to validate the sensitivity of both types of anaphor (third-person anaphoric pronoun vs. demonstrative description) to focusing or accessibility constraints, by establishing which character (Main vs. Subordinate) participants would choose as the antecedent-referent in each case.

Method

Participants

Twenty students at the University of Sussex participated in exchange for £4. The average age was 19 years, with a range of 18–23. All participants were native speakers of English with normal or corrected-to-normal vision, and had no brain injuries or learning disabilities.

Design and procedure

The 24 experimental texts were divided into two sets. Two lists of experimental texts were then printed such that each text appeared exactly once in each list and both lists had the same numbers of texts in each version. For each item, one list had the version of the item in which the anaphoric segment contained a third-person anaphoric pronoun (e.g., *In fact, he...*) and the other list had a version with the demonstrative description (e.g., *In fact, that man...*). Thus, no participant saw any text more than once, and each text appeared in each list in a different version (i.e., third-person anaphoric pronoun or demonstrative description). The 40 filler texts were also included in each list. Participants were warned that they had to read short texts, whose last sentence was incomplete (e.g., *In fact, he...*). They were instructed to imagine and write a suitable continuation for each passage.

For each participant, we calculated the number of references to the Main Character and the Subordinate Character for each of the two versions of the anaphoric segment. For the most part, the references were entirely clear, as shown by these two examples (See text presented in Table 1): "In fact, she enjoyed asking waitresses for advice" (Pronoun*Main Character); "In fact, that woman chose something Alice didn't like, so Alice became more decisive" (Demonstrative*Subordinate Character). Rare ambiguous references, for which it was not clear from the continuation which person the participant had taken to be the antecedent, were dropped from the analysis, accounting only for 2.7% of the data (13/480).

We predicted that a third-person anaphoric pronoun in the anaphoric segment would be more likely than a demonstrative description to retrieve the highly-focused character (the Main Character) while the demonstrative description would be more likely than the third-person anaphoric pronoun to retrieve the less salient character (the Subordinate Character). A related prediction was that the third-person anaphoric pronoun in the anaphoric segment would favour references to the Main Character more often than to the Subordinate Character; and conversely, a demonstrative description in the anaphoric segment would favour references to the Subordinate Character more often than to the Main Character.

Results

Because there were very few ambiguous responses, the number of responses referring to the Main Character in either condition (pronoun or demonstrative description) could very nearly be predicted from the number of responses to the subordinate character, and vice versa. For this reason we analysed: (1) the number of main character references in the pronoun versus the demonstrative condition; (2) whether the number of main character references in each of these two conditions was significantly above (in the first case) or below (in the second case) chance. In addition, because the raw data were effectively proportions, many of which were quite close to the ends of the scale (0 and 1), we performed the analyses on arcsine transformed versions of the data. In each case we performed *t*-tests (related groups or one-sample) both by participants and by items.

As can be seen in Table 2, references to the Main Character were more numerous when the anaphoric segment began with a third-person anaphoric pronoun (83%) than with a demonstrative description (17%), $t_1(19) = 51.68$, $p < .001$; $t_2(23) = 38.58$, $p < .001$. The number of main character references was significantly above chance for pronoun condition, $t_1(19) = 29.31$, $p < .001$; $t_2(23) = 50.36$, $p < .001$, but below chance for demonstrative condition, $t_1(19) = 7.27$, $p < .001$; $t_2(23) = 11.43$, $p < .001$.

Discussion

Our predictions are borne out by the results of the sentence-completion task. As expected, participants almost always chose the Main Character as the referent of the third-person anaphoric pronoun in the continuations, while they very clearly preferred the Subordinate Character as the referent of the demonstrative description. Interestingly, these findings suggest a strong complementarity of use of these markers. If anaphoric pronouns and demonstrative descriptions are both sensitive to the focusing constraint, they work in opposite ways: one is mainly used for maintaining reference to the Main Character (i.e., the anaphoric pronoun) while the other is used for indicating reference to the Subordinate Character (i.e., the demonstrative description).

The sentence completion task reveals that the final interpretation of the demonstrative NP is largely made in favour of the Subordinate Character (the less salient character), at least when gender cue is not relevant for reference resolution. In order to gain insights into the time course of demonstrative (and pronoun) resolution, we conducted two self-paced reading tasks, taking into account another factor: gender cue

EXPERIMENT 1

Experiment 1 used a self-paced reading task in which participants read texts in the "gender cue" version. Texts appeared in a segmented presentation (as indicated by double slashes (//) in the example shown in Table 1). At the end of each text,

TABLE 2
Results from sentence completion task

	Main character	*Subordinate character*	*Ambiguous/unclear*
Pronoun (he/she) $n = 240$	215	20	5
Demonstrative (that N) $n = 240$	44	188	8

participants were asked to answer a yes/no question about the text. An example of the stimuli is given in Table 1.

As discussed above, Sanford and Garrod (Garrod, 1994; Sanford & Garrod, 1989) proposed two processes in anaphoric processing: *antecedent bonding*—an immediate matching process between the anaphor and a potential antecedent, and *reference resolution*—a selection and integration process of the referent into the semantic interpretation of the rest of the sentence. Even though it seems unlikely that we will observe saliency effects in the pronoun region—in part because pronouns are very short—such effects might still arise for the demonstrative description. The segmentation of the target sentence, isolating the anaphoric expression (pronoun or demonstrative description) from the subsequent predicative segment, might reveal later effects. In order to avoid focusing participants' attention on the segmentation point in the target sentence, all sentences of the texts were segmented.

Method

Participants

Twenty four students at the University of Sussex participated in exchange for £4. The average age was 20 years, with a range of 18–28. All participants were native speakers of English with normal or corrected-to-normal vision, and had no brain injuries or learning disabilities.

Design and procedure

Two factors were crossed by manipulating the target sentences: Character-type (Main vs. Subordinate Character) and Anaphor-type (anaphoric pronoun vs. demonstrative description), giving a 2×2 design with both factors within participants and within items (see Table 1 for an example of experimental text). Four material lists each containing 24 experimental texts and 40 filler texts were created. Within a list, there were six experimental texts in each of the four experimental conditions. Across lists, each experimental text occurred in all four of its experimental conditions. Six participants were randomly assigned to each list. The texts in a list were presented in random order for each participant.

A self-paced reading task was used in which participants were shown texts on a computer screen using PsyScope (Cohen, MacWhinney, Flatt, & Provost, 1993) and instructed to read each text at a normal rate and to answer the following yes/no questions according to their best judgement. Before each trial the display "$$ READY $$" appeared on the screen. Using the button corresponding to their dominant hand, participants pressed a button to indicate they were ready to begin the trial and progressed through the text by pressing the same button after they had read each segment of the text. The texts were presented in the following way: after the ready screen, the first sentence appeared in two successive segments and was replaced by the second sentence that appeared in four successive segments; the latter was then replaced by the third sentence—the target sentence—that appeared in two successive segments: the anaphoric segment containing the anaphor as the grammatical subject, followed by the predicative segment. The two parts of the target sentence cumulated on the screen. Finally, a yes/no question replaced the target sentence, and participants responded "yes" with their dominant hand or "no" with their nondominant hand. Two RT measures were recorded for the target sentence: the time to read the anaphoric segment and the time to read the predicative segment.

Results

Participants' accuracy for the comprehension questions was calculated and any participant scoring below 80% was excluded from further analysis. No subjects were excluded on the basis of this criterion. The average percentage of correctly answered comprehension question was 93.75%. The mean RTs for the two parts of the target sentence were calculated for each participant and each item in each condition. For the first part of the target sentence, the anaphoric segment, RTs greater than 5000 ms were excluded (1 data point, 0.17% of data). Then, for each participant, any time that was greater or less than 3 standard deviations (*SD*) from that participant's mean RT were replaced with a cut-off value equal to 3 *SD* above or below that subject's mean, as appropriate (1.4% of data). For the second part of the target sentence, the predicative segment, RTs more than 10,000 ms were excluded (1 data point). Then, for each participant, any time that was greater or less than 3 standard deviations (*SD*) from that participant's mean RT were replaced with a cut-off value equal to 3 *SD* above or below that subject's mean, as appropriate (1.2% of data).

Anaphoric segment

The mean RTs for the anaphoric segment (in milliseconds) are given in Table 3 below These mean RTs were submitted to a 2×2 repeated-measures analysis of variance (ANOVA) of character-type (main vs. subordinate character) and anaphor-type (anaphoric pronoun vs. demonstrative description) with participants and items as random factors. There was no main effect of character-type all Fs < 1, but there was a main effect of anaphor-type, $F_1(1, 23) = 6.57$, $MSE = 21{,}398$, $p < .02$; $F_2(1, 23) = 5.9$, $MSE = 23{,}115$, $p < .03$, showing longer RTs for demonstrative conditions. This effect is very probably due to differences in length between the pronoun ($M = 9.5$ characters) and demonstrative ($M = 15.5$ characters) conditions, since it disappears in a comparison of the residuals from a linear regression analysis of RTs of the anaphoric segment based on character length (Trueswell, Tanenhaus, & Garnsey, 1994).[2] No interaction between these factors was found, $F_1(1, 23) = 1.62$, $MSE = 11{,}711$; $F_2(1, 23) = 1.4$, $MSE = 14{,}002$.

TABLE 3
Results from Experiment 1

	Anaphoric segment	*Predicative segment*
	Mean RTs (ms)	*Mean RTs (ms)*
Main character*pronoun	796	1672
Main character*demonstrative	844	1904
Subordinate character*pronoun	762	1851
Subordinate character*demonstrative	867	1812

[2] We also conducted a 2×2 repeated-measures ANOVA of character-type and anaphor-type from the residual RTs for the anaphoric segment, calculated on a subject by subject basis, with participants and items as random factors. This analysis showed the same effects that those obtained on raw times (no main effect of character-type, all Fs < 1, and no interaction between character-type and anaphor-type, $F_1(1, 23) = 1.73$, $MSE = 11{,}758$; $F_2(1, 23) = 1.5$, $MSE = 13{,}813$), except for the main effect of anaphor-type, which was non significant (all Fs < 1).

Predicative segment

The mean RTs for the predicative segment are given in Table 3. The key finding in this segment is that the fastest times were seen when an anaphoric pronoun was used and the predicative segment was oriented toward the main character.

The mean RTs were submitted to a 2×2 repeated-measures ANOVA of character-type (main vs. subordinate character) and anaphor-type (anaphoric pronoun vs. demonstrative description) with participants and items as random factors. The results of this analysis reveal that there was no main effect of either character-type, $F_1(1, 23) = 1.32$, $MSE = 34{,}271$; $F_2 < 1$, or anaphor-type, $F_1(1, 23) = 1.79$, $MSE = 124{,}692$; $F_2(1, 23) = 2.65$, $MSE = 84{,}599$. However, there was an interaction of these factors ($F_1(1, 23) = 10.9$, $MSE = 40{,}520$, $p < .004$; $F_2(1, 23) = 5.8$, $MSE = 76{,}051$, $p < .03$). Planned comparisons within anaphor-type support the observation above and reveal that when the predicative information referred to the main character, the predicative segment was read faster when an anaphoric pronoun was used in the anaphoric segment than when a demonstrative description was used ($t_1 = 3.01$, $p < .01$; $t_2 = 2.35$, $p < .03$). However, while the predicative segment also appeared to be read faster when a demonstrative description was used in the anaphoric segment than when an anaphoric pronoun was used, this was also not confirmed statistically ($t_1 = 0.45$, n.s., $t_2 = 0.65$, n.s.)

Discussion

In this first experiment, the anaphoric segment was unambiguous because the anaphor agreed in gender with only one of the two antecedent-characters. In spite of the possible use of the gender cue to immediately speed the anaphoric processing in favour of the main character for the pronoun or the subordinate character for the demonstrative, no significant RT differences appeared at the anaphoric segment (the first part of the target sentence), except the length effect between pronoun and demonstrative. RT differences only appeared in the predicative segment (the second part of the target sentence), which is consistent with the reference resolution step in Sanford and Garrod's theory. However, it is possible that the effects seen at the predicate may also reflect spillover processing from the anaphor. Interestingly, the results indicated a faster integration of the predicative information for the main character (the highly-focused character) when a pronoun was used and also a specific referential functioning of the anaphoric pronoun in referring back to this character. In light of Sanford and Garrod's proposal and in accordance with previous experimental data (cf. Fossard & Rigalleau, 2005; Garrod et al., 1994; Rigalleau & Caplan, 2000) these results indicate that a pronoun that agrees in gender with the highly-focused character induces a strong selection of its referent, sufficiently strong to lead to a fast integration of this referent into the predicative segment. On the other hand, when the pronoun matches with the gender of the less salient character (the subordinate character), the integration of predicative information is slower. We propose that the conflict generated by the gender matching process (towards the less salient character) on the one hand, and the processing instructions carried by the pronoun (in favour of the highly-focused character) on the other hand, would prevent immediately recovery of information about the subordinate character, leading to an increase in RT.

Concerning reference resolution of the demonstrative description, the pattern is less clear. In spite of a small numerical advantage in RTs for the demonstrative description, the integration of the predicative information for the subordinate character (the less salient character) was not significantly faster with a demonstrative

description than with a pronoun. These results are strikingly different from those obtained with the pronoun, for which the convergence of focus and gender cues are sufficient to ensure an early commitment to resolution in favour of the highly-focused character, the preferred referent of the pronoun (Arnold et al., 2000; Sanford & Garrod, 1989). In the case of demonstrative descriptions, the convergence of these cues (saliency and gender) may not be sufficient for rapid integration of the less salient character into the predicative segment because of the "preliminary activation" of the highly-focused character that would delay reference resolution of the demonstrative description. We propose, indeed, that the main character, as the major target of inferential processes of the reader (Garrod, 1995), enjoys a relatively important preliminary activation which affects the interpretation of the demonstrative description. As noted by Gernsbacher (1989), main characters occupy a privileged place in the comprehender's mental representation: they are more strongly activated and they are more resistant to being inhibited. The fact that the highly-focused character is easier to access may thus work against demonstratives' preference for referring to the subordinate character, making it difficult to detect an effect. In other words, we suggest that a demonstrative description whose gender matches with the less salient character has to also counter the activation of the main character, either by inhibiting it or by enhancing the activation of the less salient character. In either case, this processing is time consuming and would delay referential integration of the less salient entity. Finally, when the demonstrative description matches with the gender of the main character (the "dispreferred" referent of the demonstrative), the integration of predicative information is also delayed because this matching (based on gender agreement) conflicts with the marking of lower-accessibility ("intermediate accessibility", Ariel, 1990 or "medium focus" Strauss, 2002) that the demonstrative description is assumed to signal.

These results indicate that the system is only inclined to make an early commitment to reference resolution when a pronoun bonds to a highly-focused referent (Garrod et al., 1994; Garrod & Sanford, 1995). They also support the claim that an anaphoric pronoun acts as a "pointer" to discourse focus (Garrod et al., 1994; Gordon & Hendrick, 1998). On the other hand, the capacity of the demonstrative description to rapidly integrate the less salient referent into a unique semantic interpretation is not clearly demonstrated. These last results contrast with those obtained in the off-line sentence completion task, which highlighted a strong preference of the demonstrative description to refer back to the subordinate character. However, the sentence completion task used materials with no gender cues, which was not the case in Experiment 1. Also, it could be that the gender cue version, allowing the immediate selection of a unique character (based on gender cue), facilitated the integration of the "dispreferred" character. In the case of the demonstrative, the immediate selection of the dispreferred character (the main character) may have speeded the integration of this character, making it difficult to detect any speeding of the integration of the preferred referent of the demonstrative (the subordinate character). However, with no gender cue, the bonding process between the anaphor and the antecedent may be entirely directed towards the preferred referent of the anaphor, namely the subordinate character for the demonstrative description. In this case, strong disruptive effects of garden-pathing should be apparent at the time of the predicative integration of the main character compared to the subordinate character. We explore this possibility in Experiment 2 (no gender cue version), in which the anaphoric segment is ambiguous.

EXPERIMENT 2

Methods

Participants

Twenty four students at the University of Sussex participated in exchange for £4. The average age was 19 years, with a range of 17–25. All participants were native speakers of English with normal or corrected-to-normal vision, and had no brain injuries or learning disabilities.

Design and procedure

The design of Experiment 2 is identical to that of Experiment 1. The only difference was the use of texts in the "no gender cue" version where the name of the first character was changed so that the two characters had the same sex (either feminine or masculine). Filler texts of Experiment 1 were also changed in consequence. An example of text from the experiment is given in Table 1.

The procedure in Experiment 2 was identical to that of Experiment 1.

Results

Participants' accuracy for the comprehension questions was calculated and any participant scoring below 80% accuracy was excluded from further analysis. No subjects were excluded on the basis of this criterion. The average percentage of correctly answered comprehension questions was 94.25%.

Anaphoric segment

The mean RTs for the anaphoric segment (in milliseconds) are given in Table 4 below. They; were submitted to a 2×2 repeated-measures ANOVA of character-type (main vs. subordinate character) and anaphor-type (anaphoric pronoun vs. demonstrative description) with participants and items as random factors. As in Experiment 1, there was no main effect of character-type, all Fs < 1, but there was a main effect of anaphor-type, $F_1(1, 23) = 26.3$, $MSE = 12{,}522$, $p < .001$; $F_2(1, 23) = 24$, $MSE = 13{,}415$, $p < .001$, showing longer RTs for demonstrative conditions. This effect is also quite likely due to differences in length between the pronoun and demonstrative conditions.[3] No interaction between these factors was found, all Fs < 1.

TABLE 4
Results from Experiment 2

	Anaphoric segment	*Predicative segment*
	Mean RTs (ms)	*Mean RTs (ms)*
Main character*pronoun	678	1669
Main character*demonstrative	793	2117
Subordinate character*pronoun	698	2135
Subordinate character*demonstrative	818	1896

[3] As in Experiment 1, the anaphor-type effect disappears when we examine the residuals from a linear regression analysis of RTs of the anaphoric segment based on character length (all Fs < 1). The other effects are identical with those obtained on raw times (no main effect of character-type, all Fs < 1, and no interaction, all Fs < 1).

Predicative segment

The mean RTs for the predicative segment are given in Table 4. As in Experiment 1, the participants spent less time reading the predicative information that was consistent with the main character when an anaphoric pronoun was used in the anaphoric segment than when a demonstrative description was used. This pattern, however, reverses when the predicative information orients the processing towards the subordinate character: the predicative segment was read faster when a demonstrative description was used in the anaphoric segment than when an anaphoric pronoun was used. Statistical analyses support these observations. The mean RTs for the predicative segment were submitted to a 2×2 repeated-measures ANOVA of character-type (main vs. subordinate character) and anaphor-type (anaphoric pronoun vs. demonstrative description) with participants and items as random factors. There was no main effect of either character-type, $F_1(1, 23) = 2$, $MSE = 180{,}395$; $F_2\ (1, 23) = 1.54$, $MSE = 235{,}098$, or anaphor-type, $F_1(1, 23) = 1.4$, $MSE = 190{,}458$; $F_2(1, 23) = 2.3$, $MSE = 114{,}517$. However, there was an interaction of these factors by participants, $F_1(1, 23) = 34{,}29$, $MSE = 82{,}650$, $p < .001$; and by items, $F_2(1, 23) = 31.6$, $MSE = 89{,}568$, $p < .001$. As in Experiment 1, planned comparisons within anaphor-type reveal that when the predicative information referred to the main character, the predicative segment was read faster when an anaphoric pronoun was used in the anaphoric segment than when a demonstrative description was used, $t_1 = 4.15$, $p < .001$, $t_2 = 4.85$, $p < .001$. In contrast to Experiment 1, these comparisons also reveal that when the predicative information referred to the subordinate character, the predicative segment was read faster when a demonstrative description was used in the anaphoric segment than when an anaphoric pronoun was used, $t_1 = 2.26$, $p < .04$, $t_2 = 2.6$, $p < .02$.

Discussion

Crucially, the results of Experiment 2 show the specificity of the demonstrative description for indicating reference to the subordinate character, the less salient one. The lack of any gender cue for anaphor resolution in Experiment 2, while confirming the capacity of the anaphoric pronoun to integrate immediately the highly-focused character into the predicative segment, also highlighted differences in predicative segment processing with demonstrative descriptions. The integration of the predicative information for the subordinate character was faster with a demonstrative than with a pronoun. This result, corroborating the results of the sentence completion task, confirms that the demonstrative description can orient processing toward the less salient character. It is also compatible with our suggestion that with no gender cue, the bonding process between the anaphor and the antecedent is entirely directed toward the preferred referent of the anaphor: the main character for the pronoun and the subordinate one for the demonstrative description. More specifically concerning the processing of the demonstrative description, the fact that the bonding process is entirely directed towards the subordinate character would account for the difficulty in integrating the main character into the predicative segment when the verb orients processing towards this character (the main character). In this case, a strong garden-path effect occurs, delaying the resolution of the demonstrative description. However, when the demonstrative description is resolved in favour of its preferred referent (the subordinate character), such effects are not present because matching processes (based on gender agreement) and processing instructions carried by the demonstrative converge towards the same referent: the less salient character.

In short, Experiment 2 clearly revealed the capacity of the demonstrative description to preferentially access the subordinate, less salient character.

GENERAL DISCUSSION

The main purpose of these experiments was to highlight the capacity of the demonstrative description to preferentially access subordinate, less salient referents by contrasting its behaviour with that of a "prototypically" anaphoric expression: the anaphoric third-person pronoun. Results of both the sentence completion task and RT experiments showed that the demonstrative description accessed the less salient referent more easily (sentence completion task) and more quickly (Experiment 2 in particular) than the highly-focused referent. Unlike the anaphoric pronoun, whose discourse function is to signal referential and attentional continuity, the demonstrative, marking "intermediate accessibility" (Ariel, 1990) or a "medium focus" (Strauss, 2002), makes it possible to draw the reader's attention to a referent which—though already introduced in the discourse—was not the one expected to ensure referential continuity (Cornish, 1999, Kleiber, 1994). The results that we have obtained for pronouns and demonstrative descriptions are compatible with models or explanations that assume that different information is used as it becomes available (e.g., Gordon & Hendrick, 1998; Sanford & Garrod, 1989; Vonk, 1984) and that early information (such as gender and focus) is used tentatively because it may be overturned by later information.[4] To synthesise our results, we propose an adaptation of Sanford and Garrod's model of anaphor processing (See also Gordon & Hendrick's model, 1998). Sanford and Garrod distinguished two processes in anaphora processing: the *bonding process* (or *antecedent bonding*), that corresponds to an immediate matching between the anaphor and a potential antecedent; and the *resolution process* (or *reference resolution*) that corresponds to a selection and integration process of the referent into the semantic interpretation of the rest of the sentence. We propose that the first step—*the bonding process*—is guided by two types of information: gender agreement (between the anaphor and a potential antecedent), and the form of the anaphor that directs the process either towards the main, highly-focused character (anaphoric pronoun), or the subordinate, less salient character (demonstrative description). The result of this first step would be provisional because it does not take account of semantic information of the predicate following the anaphor (cf. Garnham, Traxler, Oakhill, & Gernsbacher, 1996, integration hypothesis). The second step—*the*

[4] Combined ANOVAs of the data from Experiments 1 and 2 were also conducted with an additional factor on Experiment, which was between subjects but within items. The purpose of these analyses was to investigate the effects of gender cue on the two segments of the target sentence, The results indicated a differing gender cue effect: When the gender cue was relevant for resolution, RTs were slower on the anaphoric segment (this effect, significant by items only, appeared in both the overall analysis, $F_1(1, 46) = 1.9$, $MSE = 1317$, $F_2(1, 23) = 25.29$, $MSE = 111$, $p < .001$, and in separate analyses for pronouns, $F_1(46) = 2.66$, $MSE = 1020$; $F_2(1, 23) = 19.1$, $MSE = 141.7$, $p < .001$, and for demonstratives, $F_1(46) = .719$, $MSE = 478$; $F_2(1, 23) = 10.6$, $MSE = 49$, $p < .004$) and conversely, faster on the predicative segment (this effect, significant by items only, appeared in both the overall analysis, $F_1(1, 46) = 1.43$, $MSE = 701{,}359$, $F_2(1, 23) = 10.6$, $MSE = 94{,}474$, $p < .01$, and in separate analyses for pronouns, $F_1(46) = 1.36$, $MSE = 347{,}107$; $F_2(1, 23) = 7.3$, $MSE = 64{,}841$, $p < .02$, and for demonstratives, $F_1(46) = 1.04$, $MSE = 511{,}826$; $F_2(1, 23) = 4.8$, $MSE = 110{,}380$, $p < .04$). This differential pattern of results suggests a 'rational selection of information': paying more attention to the anaphoric segment when available information is relevant (i.e., using gender agreement) allowed participants to undertake a faster process of reference resolution.

resolution process—aims to uniquely identify and integrate the referent of the anaphor into the semantic interpretation of the rest of the sentence. In the simplest case, this step will serve to confirm the initial assignment. We propose that in cases where more than one referent is activated at the end of the first step (for example, because gender agreement and form diverge), the resolution process, essentially guided by the verb in the predicative segment, will have to reach a final state where the referent of the anaphor is (much) more activated than the nonreferent (a state whose attainment can be speeded through the "disengagement process" from the referent with which the anaphor does not agree in gender as proposed by Rigalleau & Caplan, 2000; Rigalleau et al. 2004). For anaphoric pronouns, we saw that when gender—sufficient (Experiment 1) or not (Experiment 2) for resolution—and form converge on the same referent (the main character), the integration of the referent is fast; the resolution process has only to confirm this assignment. However, if the semantic information of the predicate disconfirms this assignment, what corresponds to the "subordinate character + pronoun" condition in Experiment 2, a strong garden-path effect occurs. When gender and form diverge, gender agreement only occurs with the subordinate character though form selects the main character ("subordinate character + pronoun" condition in Experiment 1), which causes a disengagement process from the referent in focus that does not agree in gender with the pronoun. Resolution is, therefore, delayed because of the difficulty of immediately recovering sufficient information about the subordinate character. However, unlike the "subordinate character + pronoun" condition with no gender cue (Experiment 2), the reader is not "trapped"; the gender cue in Experiment 1 softens the disruptive effect of garden-pathing.

It should be noted that this interpretation in favour of an immediate bonding process is rather indirect since effects were only found on the predicative segment. For demonstratives, reference resolution is not as fast as for pronouns, even when gender and form converge on the same referent (that is, the subordinate character). We proposed that this effect could result from the prior activation of the highly-focused character which affects the interpretation of the demonstrative description. Whether gender and form converge or diverge, a disengagement process always seems to be initiated, consisting in either disengaging activation from the highly-focused character or deselecting the referent favoured by the demonstrative. Therefore, the resolution process always has to be postponed. However, as for pronouns, if the semantic information in the predicate disconfirms the preferred assignment, which corresponds to the "main character + demonstrative" condition in Experiment 2, a strong garden-path effect occurs. Consequently, a certain amount of cognitive effort may always be needed in order to retrieve the referent of a demonstrative. (Cornish, 2001; Strauss, 2002). This is not very surprising. Indeed, According to Cornish (1995) or Nunberg (1993), if anaphoric pronouns occupy, from a "functional-discourse" point of view, the "unmarked" pole of indexicality, favouring an interpretation that continues the immediate previous context; demonstratives, as indexically stronger forms allowing the avoidance of unintended anaphoric continuities, occupy the "marked" pole (See also Figure 1). This marking, typical of the demonstratives, is due to their deictic dimension that enables them to indicate a "new" discourse orientation, capable of drawing the reader's attention towards a referent which was not the one expected to ensure referential continuity. This new referential orientation that the demonstrative can initiate makes it stronger and more demanding because the referent that it activates is not the one which is most accessible in working memory (cf. Ariel, 1990; Gundel et al., 1993).

Our proposal adapted from Sanford and Garrod's theory gives therefore a very important role to the form of the anaphor in directing the search for its referent (cf. processing instructions carried by the different forms). In that sense, our proposal is similar to that of several linguists (Ariel, 1990; Cornish, 1999, 2007; De Mulder, 1997, 2000; Gundel et al., 1993), and also recent propositions made in psycholinguistics. For example, our proposal is in accordance with the form-specific multiple-constraints approach recently proposed by Kaiser and Trueswell (2008) from Finnish data (see also Brown-Schmidt et al., 2005). This approach assumes that the referential properties of anaphoric forms (including demonstratives) cannot be described in terms of a single notion of antecedent accessibility or salience because the different anaphoric forms differ in how sensitive they are to different factors. Interestingly, the fact that our results indicate that gender agreement weighs differently on the resolution of pronouns and demonstratives is consistent with the claim that gender may be one of the form-specific factors in addition to "saliency" factors

In the same way, our proposal is also compatible with the JANUS model of NP anaphor processing (Garnham & Cowles, 2008) which takes account of both how the anaphor relates back to previous text and what function the anaphor performs in its clause. In particular, the Janus model highlights the role of possible alternative antecedents for an anaphor (cf. the disengagement process in our proposal) and also highlights the discourse function of the anaphor itself. Our results are very much in agreement with this proposition. We demonstrated that if the discourse function of anaphoric pronouns is to signal referential continuity, the discourse function of demonstrative description would be to signal a new referential orientation, marking a "break" or a discontinuity with the previous discourse context (Kleiber, 1994, 2001). As suggested by the JANUS model, the discourse function of the anaphor may be particularly important to consider in the sense that the form of the anaphor may influence the way that the process of searching for the referent takes place. Our results, on the other hand, are not consistent with an approach in which processing of NP anaphors (including demonstrative NPs) is facilitated uniformly by the "in focus" status of the antecedent (e.g., Almor, 1999).

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