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DEGREES OF INDIRECTNESS: TWO TYPES OF IMPLICIT REFERENTS AND THEIR RETRIEVAL VIA UNACCENTED PRONOUNS¹

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ABSTRACT

In this chapter, I aim to show that so-called «indirect» anaphora, when realized via unaccented pronouns, is less of a marked discourse phenomenon than previously claimed. After a definition of indirect anaphora, which is distinguished from ‘exophora’, in particular, the chapter tries to delimit the threshold of discourse-cognitive activation or saliency beyond which the retrieval of an intended ‘indirect’ referent by a token of this indexical form type is not possible without incurring a processing cost.

One condition for such a retrieval is claimed to be the degree of centrality of the referent (central argument of the predicate concerned, or peripheral instrument) within the semantic-pragmatic structure in terms of which the antecedent-trigger is represented in the discourse already established at the point of retrieval. Another is the nature of the referent itself (specific though indefinite, on the one hand, or non-specific frame-bound entity, on the other).

Finally, I will present the format for an experimental verification of the hypothesis outlined above which has recently been carried out, in both a French and an English version, and will summarize its main results.

¹ This chapter is a revised and extended version of a paper entitled «Indirect anaphora: the discourse-referential scope of unaccented pronouns and zero anaphors», which was presented at the 4th international colloquium on *Discourse Anaphora and Anaphor Resolution* (DAARC2002), held in Estoril, Portugal (18-20 September 2002). I would like to thank the audience of this paper for the useful discussion which followed its presentation, Marion Fossard, Monika Schwarz, Knud Lambrecht, Daniel García Velasco, Lachlan Mackenzie and three anonymous reviewers from the book’s Scientific Committee for commenting on various revised versions, and Jean-Pierre Koenig both for his comments on an earlier draft and for discussion of issues relating to implicit arguments and their potential status as discourse referents.

1. *Introduction*

In this chapter, I aim to show that so-called ‘indirect’ anaphora, when realized via unaccented pronouns, is less of a marked discourse phenomenon than has previously been claimed². Pronouns (as well as zero forms) are particularly sensitive to the ‘in-focus’ – that is, topical – status of the discourse representation of the referent which they are intended to retrieve. Taking indirect anaphora into account requires a redefinition of this psychological status. This is what I shall try to do in this chapter.

As will be evident from what follows, I take what might be termed a ‘cognitive-discourse’ view of anaphoric reference, rather than a syntactic-textual one. The use and interpretation of (non-bound) anaphors requires not only a relevant co-text as well as context, but also, crucially, a psychologically salient representation of the discourse evoked via what I call the ‘antecedent-trigger’ (an utterance token, gesture or percept). Anaphora is a means of managing the memory representation of the discourse being constructed by the speech participants on the basis of a co-text as well as a relevant context (see Cornish, 1999, 2002a, 2003 for further details of this view). The central thrust of this chapter is that, given that certain referents retrieved via given anaphors in a text will not have been introduced into the corresponding discourse via an explicit textual antecedent, but evoked “obliquely” via an association or a (stereotypical) inference of some kind, then there is more than one type of ‘indirect’ or oblique, non-explicit referent which is potentially accessible via unaccented pronouns as anaphors: namely what I call ‘nuclear’ and ‘peripheral’ indirect referents. It is important, for a proper understanding of pronominal anaphoric reference, to separate these two types of indirect referent. By not doing so, certain accounts of the phenomenon, it will be argued, have posited erroneous constraints and principles regarding indirect anaphora.

I will start, then, by defining a view of the three-way distinction between ‘anaphora’, ‘deixis’ and ‘textual/discourse deixis’, and go on to give a definition of indirect anaphora, distinguishing it from exophora (with which it may be confused) (§2). Section 3 presents a selection of existing hypotheses claiming that unaccented pronouns cannot retrieve «indirect» referents, and puts forward the chapter’s central argument, namely that this is possible and natural

² e.g. in Dik (1978), Sanford & Garrod (1981), Sanford et al. (1983), Erkkü & Gundel (1987), Gundel et al. (2000).

when such referents are ‘nuclear’, though it is only so with difficulty when they are ‘peripheral’. §3.2 attempts to motivate the ‘nuclear’ vs. ‘peripheral’ distinction in terms of the argument structure and lexical-semantics of given verbal and adjectival antecedent-trigger predicates. §3.3 further distinguishes between specific indirect referents, which are subject to the nuclear/peripheral distinction, and non-specific, frame-bound referents, which are not. To end the chapter (§4), I briefly present the format for an empirical verification of the hypothesis put forward here (in both an English and a French version), together with a summary of the results of its implementation.

2. Some useful concepts and distinctions in the study of indexical reference

2.1 ‘Anaphora’, ‘ deixis’ and ‘textual/discourse deixis’

To my mind, ‘anaphora’ constitutes a procedure (realized via the text) for the recall of some item of information previously placed in discourse memory and already bearing a minimal level of attention activation. It is essentially a procedure for the orientation of the interlocutor’s attention, which has as essential function the *maintenance* of the high level of activation which characterizes a discourse representation already assumed to be the subject of an attention focus by the interlocutor at the point of utterance. It is not only the anaphoric expression which is used (typically, a third person pronoun) which realizes anaphora, but also the clause in which it occurs as a whole. This predicational context acts as a kind of «pointer», orienting the addressee towards the part of the discourse representation already cognitively activated, and which will make it possible to extend in terms of an appropriate coherence relation (cf. Kleiber, 1994, ch. 3). Here are some examples involving different possible continuations of the antecedent predication in terms of distinct anaphoric predications:

- (1) a Sean Penn attacked a photographer. *The man* was badly hurt.
 b Sean Penn attacked a photographer. *The man* must be deranged.
 (Examples from D. Wilson (1992) «Relevance and reference»,
 UCL Working Papers in Linguistics 4: 167-192)
- (2) Joanne_i saw a foreign movie_j yesterday_k at the local cinema_l.
 She_i had a really good time/*It_j* was sub-titled/*#It_k* was bright and
 sunny/*?#It_l*/*The place_l* had just been refurbished.

In (2), the first two argument referents introduced (‘Joanne’ and ‘the foreign

movie Joanne saw the day before the utterance of (2)') may be naturally continued via unaccented pronouns – but not the scenic referent 'the day before utterance time', nor (or at least, not as easily as with the first two entity referents evoked) 'the local cinema', which is expressed by an adjunct, and which serves as a locative frame of reference for the situation evoked as a whole. The slashes here are intended to indicate alternative continuations of the initial sentence. The crosshatch preceding an example is intended to signal that, as a potential utterance, it is infelicitous in the context at hand. Example (2) is intended to be discourse-initial, and not part of an earlier, ongoing discourse.

'Deixis', on the other hand, is a procedure which relies on the utterance context to re-direct the interlocutor's attention towards something associated with this context (hence which is potentially familiar to him or her), but to which s/he is assumed not already to be attending³. As Kleiber and other pragma-semanticists have observed, deixis causes a *break* in the continuity of the discourse at the point where the deictic procedure is used, so that the interlocutor is invited to «step out» of this discourse context to grasp a new referent in terms of the current situation of utterance - or alternatively an aspect of a same referent, which has already been focussed upon. Example (3) illustrates:

- (3) [*Context: it is getting dark, and John and Mary are returning from a shopping trip. As John is parking the car, Mary exclaims:*]
 Good God! Look at *that* incredibly bright light. [*Mary gestures towards a point in the evening sky*] What on earth do you think it could be?

Now, 'textual' as well as 'discourse deixis' provide a transition between the notions of anaphora and deixis, since they consist in using the deictic procedure to point to part of a pre-existing memory representation, but which is not necessarily highly activated. The interlocutor will therefore need to exert a certain cognitive effort in order to retrieve it⁴. (4) is an illustration of textual

³ I am confining my remarks here to what Kleiber (1994) calls «opaque indexical symbols» (essentially, demonstrative pronouns and NPs), setting aside what he terms «transparent or complete indexical symbols», for example, first and second person pronouns. These latter 'primary deictics' carry with them, by virtue of their use by a speaker, an automatic means for the identification of their referent, whereas of course the 'opaque indexical symbols' I am dealing with here do not.

⁴ At the same time, this interpretative effort will involve *constructing* an 'entity', on the basis of the discourse representation in question, in order for it to be the subject of a predication, an

deixis (see also example (20) further on, illustrating discourse deixis):

- (4) [*DP, introducing R. Langacker's paper at the conference on Linguistics and the English Language, Université de Toulouse-Le Mirail, 8 July 2000*]

«I'd like to introduce Professor Ronald Langacker (... everyone says *that!*)...»

2.2 'Direct' vs. 'indirect' anaphora

As far as I am aware, the first use in print of the term 'indirect anaphora' was made by Erkü & Gundel (1987) in the very title of their article («The pragmatics of indirect anaphors»). Indirect anaphora is any use of the anaphoric procedure which does not consist in straightforwardly retrieving the referent of a prior linguistic mention from within the co-text (as is the case with example (5a)) - or of a subsequent one, in the case of cataphora; nor of a referent which is visible and salient within the situation of utterance (as is the case with example (5b)). (5a,b), then, are examples of 'direct', not 'indirect' anaphora.

- (5) a A young goat suddenly entered the open front door; but no-one could guess exactly what *it* was looking for.
 b [*Context: a young goat suddenly enters the open front door. A to B, observing the scene in fascination:*]
 What do you think *it's* looking for, exactly?

These two types of reference retrieval characterize, in the first case (textual retrieval) 'anaphora', under the traditional view, and in the second (situational retrieval), 'exophora'. However, a memory conception such as the one I am adopting here does not retain this «geographical» criterion as the defining condition of each sub-type: that is, referent located in the co-text or in the situational context. For what unites these two types of use is the speaker's assumption that his or her interlocutor already has access to a discourse representation of the intended referent within his/her memory model of the discourse at issue (or that s/he can easily instantiate one via the context without undue processing cost), and that that representation is highly activated at the point of utterance. In any case, the expressions used to realize one or the other

anchor for the introduction of new information. In (4) below it is arguably a 'stereotypical introduction of a public speaker' which is constructed from the antecedent-trigger predication via the use of the distal demonstrative.

of these two types of use are the same in each instance⁵. The deictic procedure would not be appropriate in the case of exophora, just because the referent exists «outside the text», in the situational context – unless it is a question of specifically directing the addressee’s attention towards a referent which is not yet in his or her attention focus.

Defined in this way, anaphora in the strict sense of the term (so-called ‘endophora’) and exophora (which I group together under the heading of ‘anaphora’ *per se* – see Cornish, 1999: ch.4) would correspond to ‘direct anaphora’: the intended referent is - in principle - immediately retrievable via its co-textual mention or via its physical presence in the utterance situation. We have to do with an instance of ‘indirect’ anaphora in the following types of circumstance: when the anaphor does not retrieve the «basic» referent directly evoked via a co-textual mention or via the interlocutors’ prior focussing their attention on an object or a scene in the situation surrounding them, but a different one which may be associated with it in virtue of a relation of the type part-whole, token-type, instance-class, or in terms of a metonymic relation of some kind⁶. However, I shall mainly be studying here the indirect pronominal anaphora linked with implicit internal arguments of predicates as ‘antecedent-triggers’. These arguments are what are responsible for introducing into the discourse the referents retrieved via the relevant pronoun (see Cornish (forthcoming) for a study of implicit internal arguments in English and French). Here are some attested examples from French (6a-c), English (6d), German (6e) and Argentine Spanish (6f), all involving unaccented third person pronouns.

- (6) a «*Ah dis donc maman tu t’souviens Cinéma Paradiso,*
 Ah say then mother you REFL remember «Cinéma Paradiso»,
 ben il a fait un nouveau film»
 well he has made a new film
 “Hey, mum, you remember “Cinéma Paradiso”, well he’s made a
 new film” (Spoken utterance, 26.10.90, ex. (65) cited in Reichler-
 Béguelin, 1993)
- b [Article about the disappearance on 17 March 1992 of Christiane,
 a woman of 62 suffering from Alzheimer’s disease:]

⁵ Unaccented third person pronouns, definite or demonstrative nominal expressions, and so on.

⁶ See Reichler-Béguelin (1993) and Béguelin (1998) for a large number of attested (spoken and written) examples of indirect pronominal anaphora in French, Gundel, Hedberg & Zacharski (2000) for English, Consten (2003) for English and German, and Ziv (1996) for a certain number in both English and Hebrew. I take it that ‘associative’ anaphora (see the title of Reichler-Béguelin’s article) is a sub-class of ‘indirect’ anaphora.

- «...*Christiane aurait été vue dans les Alpes de*
 ... C. would have been seen in the Alpes de
Haute Provence. Même si vous n'êtes pas sûr de vous,
 Haute Provence. Even if you NEG are NEG sure of you(rself)
signalez-le...»
 report it
 "C. is reported to have been sighted in the Alpes de Haute
 Provence department. Even if you're not sure, report it
 (nonetheless)" (*Carnets de Provence*, 1st August 1992, p.17)
- c [Sticker on glass door of an Optician's shop, Vence, France:]
«Si vous trouvez moins cher, je les casse !»
 If you find less expensive, I them break/undercut
 "If you find (any) less expensive, I will break/undercut them!"
- d [Fragment of dialogue in film:]
Woman: "Why didn't you write to me?"
Man: "I did..., started to, but I always tore 'em up." (Extract from
 the film *Summer Holiday*).
- e *«Ich wäre wunschlos glücklich, wenn Sie nicht immer auf*
 I would-be completely happy if you not always on
dem Lehrerparkplatz parken würden. Das nächste mal lasse
 the teachers' parking lot park would. The next time have
ich ihn abschleppen.
 I it[M.SG. ACC.] tow away
 "I would be very pleased if you wouldn't always park on the
 teachers' parking lot. The next time it happens, I will have it
 towed away" (Example taken from the TV soap *Beverly Hills*
90210, German RTL 31.8.95, cited in M. Consten, 2001)
- f [Vampire film on Argentine TV: a young boy is telling his friend
 what to do when face to face with the vampire woman. BsAS,
 September, 2002:]
 -*Tenes el rosario ?*
 You have.2SG the.M.SG rosary?
 'Do you have the rosary?'
 -*Si.*
 'Yes'
 -*Bueno, cuando la veas, se la pones*
 Well, when her see. 2SG REFL.3SG it.F.SG place.2SG
de una.
 of one.F.SG

“Well, when you see her, you put it in front of her”
(Thanks to Erica Walz for this example)

In (6a), the referent of *il* «he» is intended to be accessible via a metonymic relation («film» «director of film»); that of *le* «it» in (6b) via the illocutionary point of the discourse as well as via the ellipsis in the antecedent-trigger predication, and similarly for the deliberately ambiguous pronoun *les* in (6c) («spectacles»/«prices of spectacles»: the latter implicit referent is made available in this instance via the idiomatic phrase *casser les prix* «break (i.e. «slash») prices (of commodities)»). In (6d) it is again the illocutionary point of the woman’s initial question, which bears on the non-existence of (a) letter(s) which she had expected the man to write to her, together with the lexical-semantic structure of the verbal predicate *write* (in the sense «engage in correspondence»), which provide an interpretation for the clitic pronoun *'em* in the third conjunct of the man’s reply. The illocutionary point of the injunction in (6e) together with the lexical-semantic structure of the verbal predicate *parken* «to park», make available the referent of the pronoun *ihn* «it». As for example (6f), the pronoun *la* refers to the cross (*la cruz*) which the two boys (as well as the viewers) may be expected to be familiar with as an infallible weapon against the vampire. Its role in the situation evoked here is thus absolutely central. Erica Walz confirms that no cross was visible in the scene at issue, nor had one been explicitly mentioned in the co-text preceding this reference. It is thus an instance of indirect, and not direct anaphora (exophora).

3. The functioning of unaccented pronouns as indirect anaphors

3.1 The conception according to which ‘indirect’ pronominal anaphora is ipso facto «marked» in relation to canonical anaphora

A number of linguists (e.g. Dik 1978; Sanford & Garrod 1981; Sanford et al. 1983; Gundel, Hedberg & Zacharski 2000) claim that indirect anaphora, especially that realized by unaccented pronouns (or *a fortiori* zero forms), forms which are specialized in retrieving extremely activated referents in psychological terms, is marked, marginal even, in usage in relation to direct or unmarked anaphora (cf. Gundel, Hedberg & Zacharski 2000: 88). Dik (1978: 20), for example, states that: «Anaphoric reference to implicit antecedents is the exception rather than the rule», and claims that it is always more difficult to retrieve sub-lexical antecedents than explicit ones. This then leads us directly to

the theoretical issue of ‘anaphoric islands’⁷ (an «island», of course, is a place which is inaccessible by land).

(7) #Peter recently became an orphan, and he misses *them* terribly.

Note in this connection that this is not an absolute prohibition (i.e. the possibility in (7) of a retrieval via an unaccented pronoun (here *them*) of the implicit referent «Peter’s deceased parents»), since the pragma-semantic context may render this referent more accessible, more highly topic-worthy. A small adjustment to (7) would involve converting the anaphoric predication *and he misses them terribly*, which is a conjunct, hence tightly connected grammatically to the antecedent clause, into a new conversational turn, uttered by a different speaker, as in (8)⁸:

(8) A: Did you know that little Peter recently became an orphan?
B: Oh really? He must miss *them* terribly.

This change of turn, by making the two utterance acts partially independent of one another, enables a re-structuring of the information conveyed by the first utterance. In making this alteration, we have moved from the realm of ‘micro-syntax’ (the syntacticized relation of coordination holding between the two clauses) in (7) to that of ‘macro-syntax’ (two independent utterances, each corresponding to a distinct conversational turn) in (8) – to borrow the terms put forward by Berrendonner (1990); see also Béguelin (1998). These changes thus make available the conceptual space for an inference of the existence of Peter’s deceased parents. In the discourse context in which the pronoun *them* occurs in (8), there does not seem to be any particular unnaturalness, as there is in (7). I am not claiming here that (8B) is perfect, simply that it is a good deal more natural than (7) – the level of accessibility of the intended pronoun’s referent «Peter’s deceased parents» being that much higher.

As for Erkü & Gundel (1987), these authors claim explicitly that indirect anaphora (at least, of the types they discuss in their article) cannot be

⁷ See Postal (1969) for the origin of this term.

⁸ Cf. also Sproat & Ward (1987) and Ward et al. (1991) for development of the same point here. Ward et al. (1991: ex.(34), p. 467) cite an extract from a novel, where the concept of being an orphan is explicitly evoked, though the child in question’s (now dead) parents are not (apart from his mother). Here, the latter are referred to via a subject pronoun, without a trace of unnaturalness: «...*They* died when I was three.» (Elswyth Thane, *Ever After*, New York: Hawthorn Books, 1945: 155).

realized via pronouns. Witness their property III, p. 539:

- (9) «Neither type of indirect anaphora may be pronominal».

In their study, the authors distinguish three sub-types of indirect anaphora: (a) ‘inclusive anaphora’; (b) ‘exclusive anaphora’; and (c) ‘created anaphora’⁹. Inclusive anaphora seems to correspond to what is commonly known as ‘associative anaphora’¹⁰, since the introducing element (the antecedent trigger) always evokes a frame within which the anaphor will find its interpretation and reference. In (10), the anaphor clearly presupposes a whole-part relation between its antecedent’s referent and its own.

- (10) I couldn’t use the box you gave me. *The bottom/#it* fell out. (Erkū & Gundel 1987: ex. (1))

‘Exclusive’ anaphora, on the other hand, introduces a partition within a more comprehensive set of entities¹¹ of which the referent of the trigger is a part, and another sub-set which includes the anaphor’s referent:

- (11) The ant daubs part of her burden onto a cocoon and passes *the rest/#it* to a thirsty lava. (Erkū & Gundel 1987: ex. (6))

Now, it’s clear that no third person pronoun could possibly realize these two examples of indirect anaphora: for given that the use of this type of indexical expression is reserved for the anaphoric retrieval of highly activated referents, the ‘indirect’ referents involved in (10) and (11) could never have this status. For by definition, those entities which «form part of a set», or «are associated with that set» in some way, will *ipso facto* not be in attention focus at the point when the set in question is evoked (the case of «the box» in (10)). Similarly, the entities which form the residue of a set or a mass of which only a part has been evoked previously (the case of «part of the burden borne by the ant» in

⁹ Not examined here. Briefly, this subtype involves reference back to the event evoked by an antecedent-trigger clause (as in *Mary went from Paris to Istanbul by train and coach. It/The trip took a whole week*. Here, the subject pronoun *it* seems acceptable in the anaphoric clause, though Erkū & Gundel reject the pronoun in a similar example, claiming that only a full definite NP such as *the trip* is capable of assuming the required reference in their example).

¹⁰ See Hannay’s (1985) notion of ‘sub-topics’ within Functional Grammar in the case of English, as well as Kleiber (2001) for a recent account of associative anaphora in French.

¹¹ In Erkū & Gundel’s example presented as (11), this is a mass, in fact.

(11)) will thereby not be in attention focus in the same way as the latter at the point of use. An unaccented pronoun or a zero form could not therefore retrieve them.

In the same vein, Sanford & Garrod (1981: 154, 161) state that what they call ‘explicit focus’ within working memory¹² contains only representations of extremely active referents which have been explicitly introduced (via a linguistic mention, then) in terms of the co-text; whereas ‘implicit focus’ houses only the representations of less salient entities which have been evoked implicitly inasmuch as they form part of the scenario retrieved from long-term memory (‘semantic memory’) in order to facilitate the understanding of a given text¹³. Initially, Sanford & Garrod (1981: 104) distinguished pairs of examples such as (12a,b) and (13a,b):

- | | | | |
|--------|---|---|---|
| (12) a | « <u>Stated antecedent</u> »
Mary put the baby’s clothes on.
<i>The clothes</i> were made of pink wool. | b | « <u>Implied antecedent</u> »
Mary dressed the baby.
<i>The clothes</i> were made of pink wool. |
| (13) a | Mary put the baby’s clothes on.
<i>They</i> were made of pink wool. | b | Mary dressed the baby.
<i>They</i> were made of pink wool. |

An analogous pair of texts which these authors present is (14a) in contrast to (14b):

- | | | | |
|--------|---|---|---|
| (14) a | Harry drove to London.
<i>The car</i> broke down half-way. | b | Harry drove to London.
#? <i>It</i> broke down half-way. |
|--------|---|---|---|

The conclusion reached by Sanford & Garrod is predictable: the referents «the clothes which Mary put on the baby» in (13b) in the ‘implied antecedent’ condition, and «the car which Harry drove to London» in (14b) reside only in what they call ‘implicit focus’, not having been explicitly introduced into the discourse via a textual antecedent. And it is for this reason, according to the authors, that only a semantically more explicit anaphor, such as the definite NP *the clothes* in the ‘implied antecedent’ condition in (12b) and *the car* in (14a),

¹² The highly activated part of the workspace where incoming utterances are temporarily held and processed, in other words, short-term memory.

¹³ This excessively powerful constraint is weakened somewhat in Sanford et al. (1983: 314), who extend the definition of explicit focus in characterizing it simply as «the current focus of attention», without mentioning the mode of entry into this space.

would be capable of retrieving these ‘implicit’ referents.

3.2 *Distinction between two different cognitive-semantic statuses of candidate indirect referents for retrieval via an unaccented pronoun*

However, just like the constraint on the realization of indirect anaphora postulated by Erkü & Gundel (1987), this restriction is too simplistic and thus insufficiently fine-grained to be able to capture the true behaviour of indirect anaphors. For if we examine more closely the pragmatically deviant examples where the retrieval of an implicit referent is realized via a pronoun, it is clear that the reason for such exclusions lies elsewhere: as in Erkü & Gundel’s examples (10) and (11), the ‘associative’ referents «the clothes» in (13b) and «the car» in (14b) are not highly activated at the point where the verbs *dressed* and *drove* are processed by the reader. Indeed, the meaning definitions of the verbs *to dress* and *to drive* are, respectively, «to cover someone/oneself with clothes» (CAUSE x,p:(BE-COVERED x/y (BY-MEANS-OF z): (CLOTHES z))), and «to travel somewhere by motor-powered vehicle – by default, a car» (CAUSE x, p:(GO x (TO y) (BY-MEANS-OF z): (MOTOR-VEHICLE z))).

Now, it’s clear that the elements «with clothes» and «by motor-powered vehicle» are non-nuclear arguments (‘y-satellites’, in Mackenzie’s 1986 terminology – see below) in relation to the predicate in Dik’s (1997) Functional Grammar terminology, and not ‘nuclear’ arguments of the general verbs acting as functors within the lexical-semantic structure of these verbal predicates. According to Mackenzie (1986: 16-21), there is a «scale of intimacy» in terms of connectedness to the predicate: 1st argument > 2nd argument > 3rd argument > y-satellites > z-satellites (1986:18). ‘Satellites’ in FG are optional adverbial adjuncts; however, depending on the nature of the predication at issue, they may fall into different sub-categories. Thus, ‘y-satellites’ (e.g. those of Manner) are claimed by Mackenzie to be implied with Action, Position (the expression of a controlled state) and Process predications; and Time and Location satellites are also said to be implied with Action predications, as are Duration satellites in durative states of affairs, and Frequency ones in momentaneous situations. However, satellites bearing the semantic functions Beneficiary, Instrument, Comitative, Cause, Circumstance, Result and Concession etc. «are non-implied with Action predications» (Mackenzie, 1986: 18). This latter group would thus fall into the ‘z-satellite’ subcategory.

Now, Mackenzie clearly takes the ‘y-satellite’ subcategory to be a semantically-determined, syntactically-realizable aspect of predications as a whole, and not a potential part of the meaning definition of a given predicate. In

standard FG, predicate-frame structures (specifying *inter alia* the number and type of arguments selected by a given predicate, as well as potential y-satellites) are subject to expansions eventually leading to a clause realization. As such, they are indicated as needing to be kept strictly separate from the meaning definition associated with each predicate frame in the Lexicon – in particular, no underlying-clause-structure expanding rule may operate upon units of the meaning definitions, even though predicate frames and meaning definitions are formulated using the same types of unit. Recently, however, a number of criticisms have been made of this strict stipulation, in the interests of economy of representation and derivation, of predictive power and of the transparent mapping between lexical semantics and syntax (see e.g. García Velasco & Hengeveld 2002; Mairal Usón & Faber 2002, and Cornish 2002b). Mairal Usón & Faber (2002) propose a semantically-transparent substitute for the orthodox FG predicate-frame in the shape of what they call ‘lexical templates’, where a partial semantic decomposition of a given predicate is formalized, along the lines of Van Valin & LaPolla’s (1997) approach.

Lexical templates include alongside the representations of the argument variables, what the authors call ‘internal variables’: these are the «semantic parameters which characterize an entire [lexical] class» of predicates, and can be seen to correspond lexically-semantically to Mackenzie’s (1986) ‘y-satellites’. They are encoded in lexical templates as Greek letters (in (15) below, a representation of the hyperonymic verb *cut*, these are symbolising the cutting instrument, and representing the particular manner of cutting). Lexical templates are intended to capture the specific lexical-semantic structure of given predicates, but insofar as they form part of a particular lexical class. Thus, basing their format for lexical templates on the lexical-semantic formalism used by Van Valin & LaPolla (1997), their representation of the hyperonymic verb *cut* is as follows (Mairal Usón & Faber, 2002: (14), p. 55):

- (15) [[**do'**(w,[**use.sharp-edged.tool**(α)**in**(β)**manner'**(w,x))]]&
[**BECOME be-at'** (y,x)]] **CAUSE** [[**do'**(x, [**make.cut.on'** (x, y)]]]
CAUSE [**BECOME pred'** (y, (z))]], $\alpha = x$.

This representation is of an effector *w*, first argument of a generalized activity verb (**do'**) who «uses a sharp-edged tool *x* in such a way that the tool becomes in contact with a patient *y*, causing an event such that *x* makes a cut on *y*, and this, in turn, causes *y* to become *cut*» (Mairal Usón & Faber, 2002: 55). The variable *z* is present in order to cater for situations where the final result is «further specified» (e.g. *into pieces* (as in (16a) below), *in strips*, or *open*).

Clearly, then, the two «means» referents in (13b) and (14b) above, which are evidently part of the lexical-semantic representations of the verbal predicates *dress* and *drive*, respectively, would be represented in lexical template format as internal variables. They are thus presuppositional, background and not foreground components of the lexical meaning of these verbs.

Verbs of *cutting*, then, imply the presence of a «knife» (or other cutting instrument), and those of *painting* entail the presence of a «paintbrush». As these instrumental objects act only as the means by which the activity described by the verb is manifested, they are not highly activated psychologically when the verb in question occurs in a text¹⁴. We thus find the following distribution of pronouns and definite, lexically-headed NPs in anaphoric clauses:

- (16) a Susan tried to cut the broiling chickens into pieces, but *#it/the knife* wasn't sharp enough.
- b George had difficulty in painting the vases: *#it/the brush* was too worn.

One possible test of internal argumenthood, versus 'y-satellite' status, is the *do it* test. This shows that «the broiling chickens» in (16a) and «the vases» in (16b) are central participants in the acts of cutting and painting, respectively, but that «the knife» and «the paintbrush» are more peripheral ones: *Susan cut the broiling chickens into pieces: she also did it *the turkeys/she did it ?with a knife/with a kitchen knife; George painted the vases: he also did it *the chairs/he did it ?with a paintbrush/with a decorator's paintbrush*. The question marks prefixing the continuations with the unmodified instrument phrases indicate that these referents are implied by the verb in each case.

If however we choose a verb or adjective whose lexical-semantic structure includes an implicit entity which is *nuclear*, a direct argument of the general functor defining its lexical-semantic structure, then we see that its retrieval via an unaccented pronoun is possible:

- (17) a Joan is six months' pregnant with a new baby,
- b ... and she has already knitted a bonnet and gloves for *it*.
- (18) a Joan is six months' pregnant,
- b ... and she has already knitted a bonnet and gloves for *it*.

What differentiates the discourse fragments in (17) and (18) is that, in the first

¹⁴ See the experimental results in this direction obtained by Lucas et al. (1990).

case, the baby with which Joan is pregnant is specified as being a «new» (i.e. subsequent) one, whereas in the second, the reference is non-determinate (non-definite, non-identifiable) though specific («the baby which Joan is expecting»). What enables the unaccented pronoun *it* in (18b) to retrieve the argument «Joan's baby» evoked via the antecedent-trigger utterance (18a) is the fact that the adjective *pregnant* means «to have conceived a baby», where «a baby» is a nuclear argument in relation to the predicate «conceived» (CONCEIVED *x*, *y*: (BABY *y*))¹⁵. This does not constitute presupposed information within this lexeme, but foreground, essential information. As such, the entity «the baby with which Joan is pregnant» would reside in the central attention focus space at the point where the second conjunct is processed (Sanford & Garrod's 'explicit focus', and not their 'implicit focus'). This status, as predicted, therefore enables its retrieval via an unaccented pronoun. What distinguishes cases like *pregnant* in (18) on the one hand, and cases like *cut* in (16a) and *paint*¹⁶ in (16b) on the other, is that, unlike the former, the latter two predicates cannot occur with a null complement designating a specific, though unidentified referent (even though these referents may be contextually highly salient). After all, one can cut or paint all manner of physical objects, though when one (inevitably a woman) is «pregnant», it is necessarily with a human baby, a much more specific kind of entity¹⁷.

Here are one or two other examples of a similar type to (18a-b):

- (19) a John got married last week... *She's* Swedish, if you want to know.
- b Professor Parker has been marking all morning. He's got *them*
 all piled up on his desk.
- c Paul has started smoking again. He seems to prefer *them* without
 filters.

One condition regulating this kind of retrieval is thus the degree of centrality of the referent at issue (nuclear argument of the general functor representing the lexical-semantic structure of the predicate concerned, and not a more peripheral 'y-satellite'), within the pragma-semantic structure in terms of which the antecedent-trigger is represented in the discourse already constructed at the point of retrieval. Where there is too great a conceptual or referential «distance», or where there is a difference in topic-worthiness between the

¹⁵ See Cote (1998) for a similar 'lexical-conceptual' approach to implicit reference, exploiting Jackendoff's (1990) lexical-conceptual structure representations.

¹⁶ Where these two verbal predicates also have available a nuclear internal argument.

¹⁷ See Cornish (forthcoming) for further discussion of this point.

representation introduced by a trigger and the intended referent, the discourse-deictic procedure must be used, as in (20), an attested utterance (see also example (4)):

- (20) [End of the words of welcome uttered by the director of the Language Centre, at the start of a conference, University of Edinburgh, 19 September 1991]
 «... We intend to record the guest speakers, so *these* will be available to participants at the end of the Conference...»

In order to access the referent targeted via the proximal demonstrative pronoun *these* (namely, «the recordings of the guest speakers' papers»), the hearer will have to draw an inference of the type «If the guest speakers' papers are recorded at time t_0 , then at time t_n ($t_n > t_0$), there will be recordings of these papers». The existence of a morpho-lexical relation between the verb *to record* and the noun *recording* is not sufficient to enable an indirect retrieval via a pronoun - though such a regular relationship does act to speed up the inference leading to the existence of «recordings of the guest speakers' papers». Unlike the indirect referents in (6a-f), (18b) and (19a-c), here the implicit referent has not attained the status of a potential topic by the time the initial clause is processed, «the guest speakers» enjoying this status at this point. It is thus predictable that the elaborative *so*-clause which immediately follows will continue to be about these entities. Like *that* in example (4), *these* in (20) orients the hearer's attention towards a referent which s/he must create on the basis of the representation introduced via the initial conjunct, as well as in terms of his or her knowledge of the world. It is thus an instance of discourse deixis rather than of anaphora. The personal pronoun *they* in its place would have maintained the situation evoked via the initial conjunct, resulting in the retrieval of the only salient topic-worthy entity within it, «the guest speakers» - an interpretation leading to quite severe incoherence.

The zero internal-argument of *pregnant* in (18a) and of *married* in (19a) would not appear to correspond to Koenig & Mauner's (2000) notion 'a-definite' (since a potential discourse referent IS in fact evoked when the relevant predicate is encountered). An 'a-definite' is an implicit argument which does not evoke a discourse referent, since it is neither definite, nor indefinite, but partakes of both values simultaneously; all that such implicit arguments do is satisfy the argument position of the predicate which they

«fill»¹⁸. All non-definite implicit arguments are taken to correspond to ‘a-definites’, under this view (Jean-Pierre Koenig, p.c.). In principle, then, according to the authors, those anaphors which are meant to «retrieve» this argument would only do so via ‘accommodation’¹⁹. Since definite NPs, which by that token carry a substantial descriptive component, may effect such an accommodation in this way, the «retrieval» is acceptable (see the ‘implied antecedent’ condition of (12b) and (14a)); whereas with definite pronouns, this is more problematic, since their very meagre descriptive content is not sufficient to allow this: see (13b), (14b) and the «pronoun» condition of (16a,b). However, this hypothesis could not predict the acceptability of the pronominal retrievals in (6a-f), (18b) and (19a-c)²⁰.

3.3 The distinction, in terms of the possibilities of retrieval established in §3.2, between specific, and non-specific frame-bound or stereotypical «indirect» referents

One other relevant factor here is the nature of the ‘indirect’ referent intended by the speaker itself: that is, whether it is specific, or non-specific frame-bound or a stereotypical accompaniment to a given state of affairs (see also Gundel et al., 2000: 94-6). Given the non-specific character of indirect frame-bound indefinite or stereotypical referents, these may easily be targeted via an unaccented pronoun, even when these referents do not correspond to a nuclear argument of the antecedent-trigger verb. In the case of (6a, d, e and f), (8), (18b) and (19a), the indirect referents retrieved via the definite pronouns *il*, *’em*, *ihn*, *la*, *them*, *it* and *she*, respectively, were specific, though not necessarily determinate (definite, identifiable).

On the other hand, those non-specific referents which form part of a stereotypical frame do not need to enjoy nuclear argument status, and thus to be in the foreground of the situation evoked via the trigger utterance. The ‘nuclear’ vs. ‘peripheral’ distinction is thus irrelevant in the case of referents of

¹⁸ The authors’ key example is the short passive, where the implicit internal argument is interpreted as the unspecified agent of the result of the action denoted: (1a) *A ship was sunk* \emptyset . See Koenig & Mauner (2000) for further details of their notion of ‘a-definite’.

¹⁹ In other words, via the introduction of the presupposition of the existence of such a referent.

²⁰ Notwithstanding, however, J-P. Koenig (p.c.) claims that it can, and that the hypothesis put forward in Koenig & Mauner (2000) would predict that the ‘accommodation’ of the existence of a relevant discourse referent in such cases will have a processing cost, relative to the situation where the antecedent-trigger is lexically explicit. This is exactly what the experiment described in section 4 of this chapter was designed to test.

this type. Such a referent type is close to what Koenig & Mauner (2000) call ‘a-definites’, where the implicit ‘a-definite’ agent evoked via their key examples of short passives may be referred to via the «indefinite» pronoun *they*, as also in examples (21a,b and d) below; but it is not an *anaphoric* «retrieval», unlike the instances of specific or non-specific implicit arguments illustrated in the previous sections. It was precisely this type of referent which Sanford & Garrod (1981) had in mind when they postulated the existence of an implicit focus space, which according to them would contain the stereotypical referents associated with the scenario evoked via an utterance - e.g. the waiters in a restaurant, the clerks in a bank, etc. Several examples follow:

- (21) a The house on the corner of Edward Street was broken into last night, but *they* didn’t take anything precious.
- b Mary was operated for cancer of the thyroid this morning. *They* conducted the operation masterfully.
- c #We went to a new restaurant in our area last night, but *she* was most uncooperative.
- d We went to a new restaurant in our area last night, but *they* were most uncooperative.

4. The form of an experiment designed to test this hypothesis, and its results

A self-paced reading experiment designed to test the psychological reality of the existence of two types of ‘indirect’ or implicit referents, as argued for in this chapter, has recently been carried out²¹. The rationale behind this experiment is as follows: as we have seen, the two types of indirect referent at issue are (1) those which correspond to a central, nuclear ingredient of the discourse representation targeted by the (pronominal) anaphor, and (2) those which form part of it only in a more peripheral sense – corresponding to the *means* by which the situation is set up via the predicate itself, or to an *expected accompaniment* to it. I have mainly illustrated this distinction in terms of the lexical-semantic structure of given predicators (verbs and adjectives), in similar fashion to Cote (1998) – so clearly, as Cote also points out, implicit arguments of the predicates corresponding to given, potentially transitive verbs and

²¹ The two versions of the experiment were designed, prepared and conducted in collaboration with François Rigalleau (Université de Poitiers) and Marion Fossard (Université de Toulouse-Le Mirail) for the French one, and with Alan Garnham, Wind Cowles (both at the University of Sussex) and Marion Fossard for the English one. See Cornish et al. (in preparation) for further details of this two-fold experiment.

adjectives must be taken into account in establishing potential discourse referents²².

To test the psychological reality of this distinction, then, we proposed to measure the reading times of anaphoric predications oriented towards referents which have not been explicitly introduced into the discourse, but which are nevertheless not inferable on the basis of a morphological connection between the antecedent-trigger and the expression in terms of which the anaphor will receive an interpretation (cf. the pair *a guitarist...the guitar/it*). Only unaccented (clitic, in French) non-subject pronouns used anaphorically were tested here. The central implicit referents were introduced in virtue of the lexical meaning (predicate-argument structure) of the trigger involved - for example, *be pregnant*, *write* (in the «correspond» sense), or *get married* -, or as a function of relevant world knowledge (e.g. «a burglary», «St. Valentine's Day», etc.).

24 experimental texts consisting of two conversational turns, in a familiar genre characteristic of spontaneous conversation (dialogues) were constructed and divided into four Conditions. The subjects tested were made aware in advance that the texts they were about to read fell within the genre of spontaneous spoken discourse, so that they would expect to encounter a type of unplanned language which does not correspond to normative written prose. The texts were constructed by crossing the two variables chosen for the experiment: *type of referent* (nuclear vs. peripheral) and *type of antecedent-trigger* (implicit vs. explicit 'trigger'). The crossing of these variables produced the four experimental conditions used here.

The first Condition, then, consisted of an initial utterance in which a referent is evoked implicitly as a central participant in the situation denoted. This initial utterance was followed immediately by a target utterance belonging to a different conversational turn, and including a non-subject pronoun which retrieved the implicit nuclear entity evoked via the initial utterance.

The second Condition consisted of a set of nearly parallel dialogues in relation to those of Condition 1 (same initial utterance, same target utterance with an identical pronoun); however, the first turn contained two utterances, the first of which was identical to the initial utterance of Condition 1, and the second consisted of an explicit lexical evocation of the referent which was to be

²² Cote argued that these should be counted as part of the forward-looking centre (or Cf) list within a given utterance for the Centering Theory algorithm (see Walker et al. 1998 for an introduction to Centering Theory). Similarly, Mauner et al. (2002) showed experimentally that subjects access participant information as soon as a given verbal predicate is encountered in an incoming utterance, whether the participants in question are syntactically realized or not.

retrieved. Moreover, the antecedent-trigger was always introduced in these utterances in subject position. The distance in terms of number of words was held constant between the mention of the trigger in the second utterance of the first turn, and the pronoun in the second turn. These four factors (two utterances for the first turn, the referent to be retrieved being introduced explicitly via the subject function as well as in the second of the two initial utterances, and the distance between occurrence of trigger and resumptive pronoun being held constant) were identical in the two ‘explicit’ conditions (2 and 4).

Condition 3 consisted once again of a near parallel set of dialogues in relation to those of Condition 1, but this time the pronoun in the second turn was oriented towards a non-central, peripheral participant which might be evoked implicitly via the antecedent-trigger used. This entity was either a non-nuclear argument, or an instrument, or a stereotypically expected accompaniment to the situation denoted.

Finally, as with Condition 2, Condition 4 acted as a Control, where the referent of the indirect pronoun of Condition 3 was introduced explicitly in the antecedent-trigger utterance. As in the case of the target utterance of Condition 2 in relation to that of Condition 1, the target utterance of Condition 4 was identical to that of Condition 3.

See the Appendix below for a sample of these materials taken from the English version of the experiment, in the four Conditions selected, as well as Cornish et al. (in preparation) for further details of the experiment.

The predictions then were that, although the Reading times of the target utterances (those containing the pronoun at issue) would be different in each of the four conditions – lower in the case of the explicit textual evocations of Conditions 2 and 4 than in those of the implicit evocations of 1 and 3 –, the differences between Conditions 1 and 2 would not be significant. By contrast, this difference was predicted to be more noticeable, and significant, in the case of Conditions 3 and 4. Moreover, we predicted that the Reading times would be higher (significantly so) in Condition 3 than in Condition 1 – the two «implicit» conditions.

As will be evident, the main results of this experiment (the mean Reading times of the target (pronominal) utterances) fully bore out these predictions. They are given in Table 1 below.

Condition	French	English
Nuclear-Implicit	2953	2375
Nuclear-Explicit	2743	2218
Peripheral-Implicit	3548	3057
Peripheral-Explicit	2831	2250

Table 1: Reading Times in msec of the pronominal (target) utterances in French and English

The French materials were submitted to 20 native-speaker subjects from the University community at the University of Poitiers, in self-paced, auto-segmented reading mode on a micro-computer. Similarly, the English materials were administered to 20 native-speakers from the University community at the University of Sussex under identical conditions. The results as between the French and English data are remarkably similar. In both sets of results, there was a statistically significant interaction between the two factors of referent-type and antecedent-trigger, with faster reading times for utterances containing references to implicit triggers when the referent was nuclear than when it was peripheral. Conversely, there was no difference in reading times for nuclear and peripheral referents in the case of explicit antecedent-triggers. This shows a clear effect of the “nuclear” vs. «peripheral» status of indirect referents, as predicted. Further, reading times for utterances containing peripheral referents were faster when the antecedent-trigger was explicit than when it was implicit, while no such difference was found for the utterances with nuclear referents.

5. Conclusion

In conclusion, then, it is clear that ‘explicit focus’ within working memory is not limited to representations of entities which have been explicitly introduced by lexical means into the discourse. This criticism can be levelled not only at Sanford & Garrod’s initial hypothesis, but also at the standard Centering Theory approach to establishing the forward-looking centre rank-list for a given utterance within a discourse segment, which is in effect based solely upon the explicit mention of given referents within a co-text. We can retain the partition proposed by Sanford & Garrod between ‘explicit focus’ and ‘implicit

focus'²³, but place the dividing line elsewhere: central focus, equivalent to the cognitive status 'in-focus' of Gundel, Hedberg & Zacharski (1993, 2000), will include referents and denotata - and the situations in which they are involved - which are introduced linguistically via *nuclear* NPs and PPs (subject, direct and indirect object functions), or via predicative phrases. Nuclear arguments within the lexical-semantic structure of adjectives and verbs which are non-realized linguistically, of the kind we have seen in this chapter (see examples (6a-f)), as well as referents introduced perceptually via the interlocutors' focussing their attention on an object or an event within the situation of utterance (see (5b)), will also figure here.

The referents or denotata associated with embedded PPs and NPs will not be in central focus, even if they are introduced linguistically: as an illustration, see the scenic adverb *yesterday* and the PP adjunct *at the local cinema* in example (2) above. Nor will the referents or denotata associated with modifying phrases (e.g. bearing an epithet function). These last referents/denotata will reside in peripheral focus (the cognitive status 'activated' in the Gundel, Hedberg & Zacharski, 1993, 2000 model): they are clearly not easily retrievable or accessible via an unaccented overt pronoun or a zero form. Moreover, those referents peripherally associated with a given referent which has been introduced explicitly or which is the target of perceptual attention-focussing on the part of the interlocutors, will also reside in this less central storage space within working memory. See in this respect examples (4) and (20), which both involve a demonstrative pronoun. Their instantiation will necessarily be the outcome of a (semi-)conscious, and not automatic, inference, as in the case of the central arguments – this inference expressing itself in terms of a processing cost, since the representation targeted will have actually been created as a potential discourse referent *via* this discourse-deictic reference.

²³ Though these somewhat inappropriate terms might now more accurately be replaced by the terms 'central focus' and 'peripheral focus', respectively.

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Appendix

Sample of test materials used in the English version of an experiment designed to study the processing of two types of implicit referents

Condition 1 (Implicit antecedent + Nuclear referent)

A: «Have you noticed that Mark isn't shaving?»

B: *Target sentence*: «Yes, in fact he's really allowing it to grow now.»

Statement: Mark does seem to be growing a beard. (TRUE)

Condition 2 (Explicit antecedent + Nuclear referent)

A: «Have you noticed that Mark isn't shaving? His straggly beard makes him look like a tramp.»

B: *Target sentence*: «Yes, in fact he's really allowing it to grow now.»

Statement: Mark is sharply reducing the length of his beard. (FALSE)

Condition 3 (Implicit antecedent + Peripheral referent)

A: «Have you noticed that Mark isn't shaving?»

B: *Target sentence*: «Yes, he tells everyone he's thrown them all away.»

Statement: Mark has clearly decided to get rid of his razors. (TRUE)

Condition 4 (Explicit antecedent + Peripheral referent)

A: «Have you noticed that Mark isn't shaving? His disposable razors have all completely disappeared.»

B: *Target sentence*: «Yes, he tells everyone he's thrown them all away.»

Statement: Mark always uses an electric razor for shaving. (FALSE)