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## A COGNITIVE VIEW OF EVOLUTIVE REFERENTS

Alfons A. MAES

### Abstract

This article aims at discussing the question of how an evolutive referent can be defined from a cognitive point of view. After an introduction on the relationship between evolutive referents and cognitive discourse reference, and after a short survey of the essential components of the cognitive framework used, the article presents a tentative cognitive definition of evolutive referents. This definition is used in the remainder of the article to investigate what exactly transforms a referent into an evolutive referent and where to draw the distinction between normal incrementation of referents and referent evolution. The basic ingredient of the definition, i.e. reconceptualization of referents, is discussed in relation to two empirical cases which might be considered to be evolutive to a certain extent, i.e. *semantic interpretation* transformations and *role/value* transformations. Finally the usefulness of the notion of reconceptualization is demonstrated in a descriptive analysis of different referential strategies in a corpus of 25 recipes for apple sauce taken from 25 different Dutch cookbooks.

## 1 INTRODUCTION

### 1.1 Topics in recent cognitive theories of discourse reference

A major concern in cognitively oriented work on discourse reference is the attempt to reveal the mechanisms underlying referentially coherent texts. Recent cognitive work in the field of discourse reference aims at describing the ways in which discourse referents are introduced and maintained and explaining the relationship between discourse referents and referential expressions. An important cognitive starting point for investigating referential coherence is the claim that the mental activation level of discourse referents is

the basic determinant or ‘predictor’ of the form of referential expressions in discourse; in other words: the form of referential expressions is indicative of the mental activation or the ‘attentional status’ of the underlying discourse referent. Studying reference from a cognitive point of view requires uncovering the different factors which determine the mental activation of referents.

The idea that discourse entities have a certain degree of mental activation or prominence is the basis of a large number of cognitive notions which can be found in the literature on discourse reference of the past few decades. An incomplete (and exclusively Anglo-Saxon) selection: accessibility (e.g. Ariel, 1988; 1990; 1994), mutual knowledge (Clark & Marshall, 1981), referent activation (Tomlin & Ming Ming Pu, 1991), topic continuity (Givón, 1989; 1983), (explicit vs. implicit) focus (Garrod & Sanford, 1982), attentional state (Grosz & Sidner, 1986), mutual cognitive environment (Sperber & Wilson, 1986:38-46; Hawkins, 1991:413), givenness (e.g. Prince, 1981; Gundel, Hedberg & Zacharski, 1993), mutual belief (Clark & Wilkes-Gibbs, 1986), focus (Sidner, 1983), centering (Grosz, Joshi & Weinstein, 1995).

These notions differ considerably in their theoretical definition, claims and ambition, but they all capture the basic idea that each utterance in natural discourse exhibits an ‘informational asymmetry’ (Prince, 1981), in that it contains information elements with different degrees of givenness or newness. This asymmetry is the empirical basis for discourse referents differing in their degree of prominence. The cognitive plausibility of this idea can be substantiated by the simple intuition that each utterance contains signals which enables language users to determine which of the referents is the most likely candidate for being the most central element in the next utterance; we all of us have a calculated prediction on what is the most likely interpretation of *he* in the second sentence of (1).

(1) John went home with Peter. He...

Most research attention has been given to anaphors, i.e. expressions which have an explicit (and preferably a nominal) antecedent in previous discourse. Within the functional class of anaphors, there is a clear preference to focus attention on two main subtypes: pronominal as opposed to nominal anaphors. Many proposals, experimental as well as analytical, relate pronominal anaphors to prominent entities, for which many different terms can be found: explicit-focus referents (Garrod & Sanford, 1982:27), high-focus-level actors (Reichman, 1978:311), given referents (Clark & Haviland, 1977:27; Chafe, 1976),

maintenance of referents (Marslen-Wilson, Levy & Tyler, 1982:351), current entities (Yule, 1981:49), protagonists (Francik, 1985:59; Anderson et al., 1983:433), thematic subjects (Karmiloff-Smith, 1980:235), topical referents (Linde, 1979), backward looking centers (Grosz, Joshi & Weinstein, 1995), focal elements (Grosz & Sidner, 1986), etc. Conversely, nominal anaphors are often associated with lesser prominent referents and contextual conditions which decrease referent prominence (such as competing candidates or referential distance), although nominal anaphora can do much more than expressing low prominence status, as can be seen in e.g. Maes, 1990, 1996; Maes & Noordman, 1995. Apart from these dichotomic proposals which focus on the functional value of two types of referential expressions, other proposals try to give a more detailed view in that they offer some kind of referential hierarchy, consisting of different types of referential expressions (e.g. Ariel's accessibility scale), or different degrees of mental activation states (e.g. Prince's taxonomy of assumed familiarity) or on the combination of these two (e.g. Gundel et al.'s givenness hierarchy).

So, within a cognitively oriented perspective on discourse reference, the association of referent prominence and expression type is uncontroversial. The interesting question now is how referent prominence is triggered, established or modified. What makes one referent more activated or prominent than another? In the literature on discourse reference, an interesting variation of methods, proposals and claims can be seen which all result in the conclusion that the mental activation of referents is affected by a complicated conglomerate of variables. In these proposals, conclusions about the prominence level of referents are based predominantly on the processing effort associated with anaphors or the adequacy of different types of anaphors. The variables which are said to determine referent prominence range from purely surface based discourse determinants to conceptual factors which are much more knowledge or memory based. An incomplete survey:

- *morphological factors*, such as the number and the gender of the antecedent (Ehrlich, 1980);
- *syntactic factors* such as subject function (Gordon, Grosz & Gilliom, 1993), syntactic prominence of antecedents (Ward, Sproat & Mc Koon, 1991), depth of embedding (Matthews & Chodorow, 1988);
- variables affecting the *linear ordering of referents* in discourse, such as the position of the antecedent as first NP of the sentence (Gordon, Grosz & Gilliom, 1993), the distance between antecedent and anaphor (e.g. Ariel, 1988; Givon, 1983), shifts between surface discourse units, i.e. paragraphs (Clancy, 1980) or shifts between visual units (Tomlin, 1987);

- Tomlin & Ming Ming Pu, 1991);
- factors affecting the *nature of the propositions* involved, such as the implicit causality of verbs (Caramazza, Grober, Garvey & Yates, 1977).
- factors affecting the *conceptual representation of discourse information*, such as episode shifts (Anderson, Garrod & Sanford, 1983), changes in point of view (Clancy, 1980), protagonist or topicality status of referents. (Francik, 1985:29; Karmiloff-Smith, 1980:248; Morrow, 1985).

Recent studies have demonstrated that surface variables can be overruled by more conceptual variables. Gernsbacher (1991) and Carreiras & Gernsbacher (1992) showed that morphologically singular but semantically plural antecedents are processed more easily when they are referred to by a plural anaphor. This means that the morphological surface characteristics of the antecedent are overruled by the semantic conceptualization of the referent. Moreover, there is growing evidence that different variables interact in establishing prominence levels of discourse referents. Hence, Garrod, Freudenthal & Boyle (1994) showed that morphological information and pragmatic inferences interact in processing anaphors: their experiments demonstrate that pragmatic inferences enhance or inhibit the processing of anaphors even if morphological information is decisive on its own in solving anaphors. Likewise, McKoon, Ward, Ratcliff & Sproat (1993) showed that pragmatic and surface factors interact: in their experiments both the topicality of the referents and the syntactic prominence of the antecedents turned out to be equally important in determining the prominence of referents.

Finally, recent studies reveal that the prominence of referents is not only determined by discourse oriented, contextual variables, but also by intrinsic characteristics of referents. Hence, Fraurud (1996) distinguishes different ontological types of referents (i.e. individuals, functionals and instances), which are claimed to determine the choice between different types of referential expressions. Likewise, results of the production experiments presented in Maes (1997) indicate that - all other things being equal - abstract referents require more 'referential force' than concrete referents, which is claimed to be due to their being less accessible by nature.

## 1.2 Cognitive discourse reference and evolutive reference

The research attention described above is located mainly within the Anglo-Saxon linguistic context. Largely apart from that, French linguists developed fine-grained linguistic and philosophical discussions on an intriguing referential phenomenon, i.e. evolutive reference. A large number of articles and books discuss a variety of empirical data which show that the adequacy of anaphoric expressions is somehow dependent on the ontological status or evolution of the underlying discourse referent (e.g. Kleiber, Schnedecker & Tyvaert 1996; De Mulder, 1995, Charolles & Schnedecker, 1993, Kleiber & Riegel, to appear) The empirical topics and questions involved in this discussion do not differ essentially from the topics which can be found in recent Anglo-Saxon research on reference. In terms of the cognitive tradition depicted in section 1.1, evolutive referents can be defined as (predominantly prominent) discourse referents which fit in with the normal rules on focus and attention, but which nevertheless cannot be referred to by an anaphoric pronoun, due to a complex interaction of variables on different levels, such as the ontology of the referents involved, the nature of the predicates and basic characteristics of discourse, such as discourse intention and text type. There is, however, a significant difference in the way in which the referential topic of evolutive reference has been conceptualized, expressed theoretically and embedded within the existing linguistic and philosophical traditions and theories. So, one might conclude that the *ontology* of the topics involved in recent French and Anglo-Saxon work on discourse anaphora is the same, and that the main differences between the two traditions are *phenomenological* in nature in that they are caused by the way we look at these topics.

Mainly because of the intrinsic similarity and the perspectival differences between both referential traditions, it is worth our while to try to position part of the discussion of evolutive referents within the framework of recent cognitive theories of discourse reference. This way, we can examine whether the cognitive framework promotes solutions for stubborn evolutive problems or at least gives rise to interesting new research questions.

### 1.3 Aim and survey

The aim of this article is to discuss the question of how an evolutive referent can be defined from a cognitive point of view. What exactly transforms a referent into an evolutive referent? What are the borderlines of evolutive referents and what borderline discussions become visible when we try to walk along the borderline in between ‘normal’ and evolutive referents?

This article is organized as follows. Section 2 presents a number of basics which constitute the cognitive framework started from. In section 3, a tentative cognitive definition of an evolutive referent will be presented, followed by a discussion of its main tenets. In section 4.1 and 4.2, the basic ingredient of the definition, i.e. reconceptualization of referents, is discussed in relation to two empirical cases which might be considered to be evolutive to a certain extent, i.e. *semantic interpretation* transformations and *role/value* transformations. In section 4.3, the usefulness of the notion of reconceptualization is illustrated in a descriptive analysis of the different referential strategies within a corpus of 25 recipes for apple sauce taken from 25 different Dutch cookbooks.

## 2 A COGNITIVE VIEW OF DISCOURSE ANAPHORA

This section will briefly sum up a number of cognitive principles and claims, which can be said to be the basis of the cognitive view of discourse reference that I am taking for granted in discussing evolutive referents.

### (i) *incrementation*

Discourse participants are claimed to build successive representations of successive discourse utterances. Successive discourse representations are said to *increment* each other. This means that each successive representation replaces, changes and adds to the previous one. As far as the representation of discourse referents is concerned, this means that successive representations increment (i.e. expand, modify etc.) previous representations.

### (ii) *discourse referents as organizing components of discourse representations*

Discourse referents are assumed to be the organizing components of discourse representations: all discourse information is assumed to be stored with the referent it belongs to. This characteristic reflects the intuition of discourse as being about a particular (set of) referent(s), and is substantiated by experimental results supporting the idea that attaching discourse information 'under' discourse referents is a major task in discourse comprehension, see e.g. Garrod & Sanford (1977:88), Cloitre & Bever (1988:295) and Anderson & Hastie (1974:512).

### (iii) *referent prominence as basic determinant of the form of referential expressions on the local level of discourse*

Studying referential coherence in discourse requires uncovering the different factors which determine the prominence or mental activation of referents. The

form of referential expressions is assumed to be indicative of the accessibility or mental activation of the underlying discourse referent.

(iv) *the representational level as the central area of linguistic research*

The cognitive view requires distinguishing between three levels of reference associated with three levels of linguistic description:

- level 1      linguistic level, i.e. the level of referential (anaphoric) expressions
- level 2      representational level, i.e. the level of discourse referents
- level 3      world level, i.e. the level of 'real world' entities.

Cognitively oriented linguistics should primarily account for linguistic (level 1) phenomena as far as they are relevant for level 2, i.e. as far as they are relevant and necessary for arriving at a coherent mental representation of discourse (units). This means that the representational level contains somehow level 1 information (such as the linear succession of words and the semantic content of the successive propositions), but also the necessary knowledge of the world which is needed to interpret discourse. For example: the level 2 representation of (2) does not only contain the linear order and semantic content of these two sentences, but also the cause/consequence relationship between these two, which can only be derived from our background world knowledge.

(2) It rains. It is getting wet.

The same goes for the following examples which have been used in a famous experiment by Bransford, Barclay & Franks (1972). In this experiment, subjects were asked to read a text and to carry out a decision task afterwards: they received separate sentences and had to decide whether or not they had read these sentences during the reading session. The results showed that subjects in the decision task could discriminate easily between sentences (5) and (6), whereas they could not discriminate between (3) and (4), although the surface linguistic and the propositional difference between these two pairs is very much the same. The explanation of this result is that (3) and (4) integrate within the same mental picture, which we are able to compose on the basis of our experience of the world, whereas (5) and (6) result in different situational representations. This clearly shows that the integration of the textual information into a coherent mental picture of the situation should be part of the mental (level 2) representation of discourse.

(3) Three turtles rested on a floating log and a fish swam beneath *it*.



- (4) Three turtles rested on a floating log and a fish swam beneath *them*.
- (5) Three turtles rested *on* a floating log and a fish swam beneath it.
- (6) Three turtles rested *beside* a floating log and a fish swam beneath it.

For cognitive theories of reference, level 3 is relevant for linguistic theory, but only indirectly, i.e. to the extent that it is transformed into fossilized world knowledge and stored within the human mind, and hence to the extent that it is accessible when we process discourse and construct mental representations. So, when Kleiber argues in (7) in favor of the relevance of the real world level of reference (level 3), a cognitive perspective on discourse reference would require reformulating (7) as in (8):

- (7) ‘Si je dis: *Paul est entré. Il portait un chapeau*, il est aberrant de conclure que le pronom *il* n’a pas pour vocation de renvoyer à un être existant dans le monde, mais vise uniquement la représentation mentale élaborée par la première phrase. (Kleiber, 1996:122)
- (8) ‘Si je dis: *Paul est entré. Il portait un chapeau*, il n’est pas aberrant de conclure que le pronom *il* vise uniquement la représentation mentale élaborée par la première phrase, à condition que l’interprétation de ‘être un être existant dans le monde’ (et notamment un être connu par le destinataire) est un élément indispensable de la représentation mentale de *il*.

So, the level of mental representations would not be challenging for linguistic theory, if it only contained the plain linguistic information explicitly provided by the context. The way we use our ‘world knowledge’ in interpreting discourse should necessarily be part of the mental representation. Applied to (7), this means that the nature of the propositions and the choice of the first name *Paul* as introductory expression, should result in a mental representation of an existing, specific and familiar referent, one of the many we are supposed to ‘really’ know.<sup>1</sup>

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<sup>1</sup> When we assume - however - that this example is only constructed for illustrative linguistic purposes and does not really refer to an existing *Paul*, the ‘existing reading’ interpretation in (7) is not the intended one. The use of *Paul* does not intend to refer to a particular real world object, but to whatever stereotypic well-known familiar individual human male referent that can be referred to by using the first name *Paul*. This way, the example shows the freedom we have in using language. Although *Paul* should normally refer to an existing entity, apparently we are free to use these expressions the way we want to, e.g. to construct a revealing example in support of a linguistic argument or to create an experimental poem about a prototype male person, in which cases the mental representation of sentence 2 depends much more on the information of the first sentence, and not on the knowledge of a real existing entity.

### 3 A COGNITIVE DEFINITION OF EVOLUTIVE REFERENTS (ERs)

#### 3.1 A tentative definition

As a point of departure, I will take the following tentative definition of an evolutive referent (ER). Starting from this definition, a number of interesting demarcation problems and borderline conflicts become visible which might help clarifying some of the stubborn problems associated with evolutive referents:

##### *Tentative definition of an evolutive referent (ER)*

“An evolutive referent (ER) is a non-initial stage in the life cycle of a discourse referent (DR), for which the following conditions hold:

- a the attentional state (i.e. the prominence level or mental activation) of the DR at that stage of its life cycle can be characterized as highly prominent, accessible or activated,
- b nevertheless, the DR cannot be referred to by a pronominal anaphor which is congruent with its antecedent in number and gender,
- c because the particular life cycle stage of the DR requires a reconceptualization of the referent, which in most cases is due to a conflict between descriptive features of the pronoun (e.g. male, female, singular, plural) and ‘selection restrictions’ associated with the predicate with which the pronoun has to be combined.”

#### 3.2 Real world entities vs discourse referents

The definition starts from discourse referents (level-2 objects) instead of real world entities. The background of this option is the idea that linguistic theory should only be responsible for phenomena which ‘happen’ in discourse. In other words, ‘evolutive’ real world entities (onions, caterpillars, dr. Jekyll...) and events (turn into, slice, smash...) are irrelevant to linguistic theory *until* real world entities are used as discourse referents and events are transformed into predicates embedded within a particular discourse context. So, in order to talk about an ER, ‘evolutive’ world entities (i) have to be transformed into discourse referents and (ii) have to be embedded within a context which requires them to be reconceptualized. The relevance of the second condition is demonstrated in (9), where an (evolutive) real world entity is introduced in a discourse context which does not reveal any ontological evolution and hence which does not result in an ER.

- (9) Once there was an onion. On its way from the garden to the kitchen, he fell off the wheelbarrow. So, he was never sliced, smashed, cut in pieces etc. He lived a happy life in between the roses in the garden.

### 3.3 Incrementation vs. evolution: the pronominalisation test?

The basis of our tentative definition is the difference between incrementation, i.e. gradual informational expansion of discourse referents on the one hand, and ontological evolution on the other. Incrementation is a basic requirement in discourse since it implements the most important goal of using language, i.e., transferring and acquiring new and relevant knowledge. In (10), this requirement is not met, which makes the text unacceptable.

- (10) \*Yesterday, *Tom Hingsley* walked in the street. *He* walked in the street. *He* walked in the street. *He*...

Linguistic theory should enable us to discriminate between awkward texts such as (10) and informative texts such as (11) - (16), and to explain the nature of this difference.

- (11) Yesterday, *Tom Hingsley* walked in the street. *He* went into a pub. *He* ordered a beer. *He*...
- (12) Yesterday, *Tom Hingsley* walked in the street. *He* was hit by a car. *He* lost his right arm. *He*...
- (13) Yesterday, *Tom Hingsley* walked in the street. *He* was hit by a car. *He* died a few hours later. *He* / *The body* / *It* ...
- (14) Yesterday, *Tom Hingsley* walked in the street. *He* was hit by a car. *His* body was really smashed into applesauce. *He* / *The body* / *?It* was taken to hospital.
- (15) Yesterday, *Tom Hingsley* walked in the street. *He* turned into a woman. *He* really did not understand what happened. *He* / *?She* looked at his new body. ...
- (16) Yesterday, *Tom Hingsley* walked in the street. *He* turned into a woman and started a new life as Linda Hingsley. *Linda* / *She* / *He* moved to Metz.

Apart from that, the question is whether linguistic theory should enable us to make a difference between normal incrementation, as in (11), and 'hard core' cases of evolutive reference, as in (15) or (16), which are analogous to the well-known evolutive examples involving *onions*, *squares*, *chickens*, *eggs*, *little*

*princes, Dr Jekylls* etc.<sup>2</sup> And if so, the question is whether the difference between (15) - (16) on the one hand and (11) - (14) on the other is equally categorical as the difference between (10) and the rest? Do the examples (11)-(16) exhibit absolute or gradual differences? And where do we have to draw the line between incrementation and evolution? And finally: on what level and in which terms do we have to describe these empirical differences?

The tentative definition only enables us to raise questions like these, not to answer them satisfactorily. The b-condition of the definition only suggests to restrict evolutive reference to (16), being the example in which the DR *Tom Hingsley* can no longer be referred to by a pronominal anaphor which is congruent with its antecedent in number and gender.

### 3.4 ERs and the attentional state of referents

The definition includes two conditions which interact with each other: (a) ERs are said to be prominent, highly accessible discourse referents and (b) the adequacy of pronominal reference is taken to be the touchstone or ‘litmus test’ for ‘ER-membership’. The reason for incorporating these conditions into the definition of an ER is instrumental in nature: they provide us with a methodological tool in that they enable us to discriminate between adequacy problems caused by ‘normal’ contextual variables affecting the prominence of referents (as they are given in section 1.1) and typical evolutive variables. The inextricable mix of both types of variables makes it difficult to judge the adequacy of (17), a nice example discussed in Charolles & Schnedecker (1993:118) and Schnedecker & Charolles (1993:201) (see also Kleiber & Riegel (@:))

(17) Marie traça un carré (P1). Elle dessina une étoile au milieu (P2). Elle la découpa (P3) et ensuite elle le coloria en rouge (P4).

According to focal algorithms such as Centering Theory (e.g. Grosz et al, 1995), it is not so natural to pronominalize *carré* in P4. In the clauses P2, P3 and P4, *Marie* is the most prominent entity, as it is continuously realized as pronoun in subject position. *L'étoile* is the second most important element in P2 and P3. *Le carré* is not realized in these clauses and hence its reintroduction in P4 is not naturally realized by an unmarked pronoun, even if it is

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<sup>2</sup> It should be noted that these ‘core’ examples clearly differ as to their ‘ontological’ or ‘phenomenological’ nature and consequently as to the nature and characteristics of the evolutive reference they display.

unambiguous, especially because of the attention shift from *l'étoile* in P3 to *le carré* in P4.

The conditions a and b do not tell us anything about the nature or the ontology of an evolutive referent; they only provide us with a heuristic tool to distinguish between evolutive and attentional mutations of discourse referents. So, these conditions are not intended to prevent lowly-accessible referents nor non-pronominal expressions from exhibiting referent evolution. They only express the fact that evolutive reference phenomena show themselves typically in the inadequacy of pronominal anaphors referring to prominent referents.

But even if we consider these conditions as heuristic tools, they are not unproblematic. First of all, there are many interesting cases of 'pronominal' evolution in discourse where the pronominalization test (condition b) fails, and hence, which fall outside the scope of our definition. A clear example is the ontological evolution involved in the propositional anaphora given in (18), an example from Fraurud (1992:38). As the characterizations between brackets show, in these sentences, the ontology of the referent changes profoundly and fundamentally. But as all these evolutions can perfectly be covered by the simple neutral *it*, our definition does not apply.

- (18) A newspaper wrote that *the president was going to resign*.  
Most people thought *it* [SPEECH ACT] was a lie.  
They just could not believe *it* [PROPOSITION].  
Some took *it* [SPEECH ACT] for an empty threat.  
But *it* [PROPOSITION] actually turned out to be true.  
*It* [EVENT] happened the same day in the afternoon.  
*It* [FACT] caused a political crisis.

Another problem is that using adequacy judgments as a decisive test is not always reliable. Language users can have different adequacy standards. There are many different registers in language for which different adequacy standards hold. Reasons for inadequacy can also be very diverse. A nice illustration of this point is the observation in Gundel, Hedberg & Zacharski (manuscr.). They notice that the use of indirect anaphors, such as *it* in (19) occurs much more frequently in unplanned than in planned discourse, which shows that adequacy standards are different for different registers of language use. Even within the same text type, different adequacy standards can be revealed, as the analysis of the 25 recipes in section 4.3 will show. Observations like these make the methodology expressed in the conditions a and b risky.

- (19) Why is it that whenever the cat throws up, I'm the one that has to clean *it* up. (Gundel, Hedberg & Zacharski, manuscr.)

### 3.5 Conceptualizing and reconceptualizing discourse referents

The basic condition in the definition concerns the reconceptualization of a discourse referent (condition c). This means that the development of the discourse requires the initial conceptualization of the referent to be changed. A plausible definition of the *initial conceptualization* of a DR is to consider it to be the most minimal but adequate answer to question (20):

- (20) 'What discourse referent is this text about?'

The answer to this question can contain two types of information: firstly, NP-information as it is entailed in the NP which initializes the referent in discourse; it provides us with information on the semantic interpretation of the referent, on the presumed initial familiarity status of the referent and on its ontological type. Secondly, there is verbal information, i.e. information which is predicated to the referent and which is needed in order to get a minimally relevant answer to question (20).

The initial conceptualization depends to a large extent on the type of NP-expression that is used to introduce the referent. As Fraurud (1996) points out, proper names, definite descriptions and indefinite NPs represent different types of ontology, i.e. individuals, functionals and instances respectively. The adequacy differences in (21') and (22') show that they also exhibit a different potential with regard to the initial conceptualization of a DR.

- (21) <starting sentence, newspaper article> Yesterday, Jacques Chirac took a plane to Muroroa...
- (22) <starting sentence, newspaper article> Yesterday, a man took a plane to Muroroa...

The minimal answer to (20) - and hence the initial conceptualization of the discourse referent - is different for both sentences as the initial conceptualization in (22') needs more predicative information to produce a minimally relevant answer than in (21'):

- (21') What is this article about? About Jacques Chirac.
- (22') What is the article about?

- a      \*About a man.
- b      About a man who took a plane (to Muroroa).

It is important to note that the initial conceptualization of a DR is determined by the way the DR is presented in discourse. The way it is presented will often be similar to or based on the stereotypic way we look at world entities, i.e. what Kleiber calls *l'état stéréotypique* (Kleiber, 1996:140), but it should be clear that *l'état stéréotypique* always has to pass through the filter of the way in which we want to present the referent in discourse. So, *l'état stéréotypique* does not determine directly the way we conceptualize a discourse referent, but only indirectly, as the conceptualization always depends on the rhetorical freedom of language users to introduce referents according to their own aims and demands. Thus, both (21) and (22) can be used to introduce a newspaper article about Jacques Chirac, but in (22) we might have a rhetorical reason not to use the most stereotypical way of introducing the referent.

According to condition c, a reconceptualization of the referent is triggered by a clash between descriptive features of the pronoun (e.g. male, female, singular, plural) and 'selection restrictions' associated with the predicate with which the pronoun has to be combined. This definition might suggest that it nicely covers and explains all cases of evolutive reference presented in the literature. This however, is much more ambitious than the definition is aiming at. Rather, it should be regarded solely as an initial attempt to grasp at least one essential characteristic of what evolutive reference should be from a cognitive point of view. Instead of discussing in detail the robustness of this definition in relation to the existing body of empirical cases and examples, I want to use the definition and the notion of reconceptualization in a discussion of two empirical cases which might be considered to be evolutive to a certain extent, i.e. *semantic interpretation* transformations (4.1) and *role-value* transformations (4.2). After that, the usefulness of the notion of reconceptualization is discussed in relation to a corpus of 25 recipes for apple sauce, coming from 25 different Dutch cookbooks (4.3).

## 4 APPLYING THE TENTATIVE DEFINITION

### 4.1 Semantic interpretation transformations

One of the major ontological characteristics of a discourse referent is its semantic interpretation: a referent can be *specific* or *non-specific*, *generic* or *non-generic*, *instantiated* or *non-instantiated* etc. If we look at the evolution of

referents as pertaining to the ontological level of referents, changes in the semantic interpretation might well be considered to be instances of ERs, although they do not constitute standard cases. Furthermore, discussing the semantic interpretation of discourse referents in relation to evolutive reference enables us to refine the difference between initial and non-initial stages in the life cycle of referents and hence between conceptualization and reconceptualization.

If we look at (23) and (24), we can conclude that the initial conceptualization of the referent is the same, as can be seen in the identical answer to the test question in (23') and (24'). But this conceptualization is semantically indeterminate or ambiguous, as its interpretation can be specific or not specific. It is the predicative information in the second sentence in (23) and (24) that disambiguates the *specific/non-specific* interpretation of the referent. In evolutive terms, one might argue that between the first and second sentence in (23) and (24) an evolutive process takes place, from an indeterminate '*specific or non-specific*' referent to an unambiguous '*specific*' (23) or '*non-specific*' (24) referent.

- (23) Sorry sir, I am looking for *a man with three legs*. *He* is 10 foot tall and wears a red hat.
- (23') What is this text about? About (me, looking for) a man with three legs.
- (24) Sorry sir, I am looking for *a man with three legs*. It doesn't matter how tall *he* is, or what color of hat *he* wears.
- (24') What is this text about? About (me, looking for) a man with three legs.

But according to our definition, there is no ER involved here. The pronoun *he* in the second sentence is perfectly able to switch from the ambiguous to the unambiguous interpretation, which is quite natural as the referent interpretation in the second sentence falls within the scope of the semantic indeterminate interpretation of the first sentence. So, in these cases we might speak of a delayed initial conceptualization of the referent. This is no longer the case in (25)-(30). They show that once a referent has been conceptualized unambiguously within a particular semantic interpretation and ontological category, it is impossible to use pronouns in order to switch to another semantic interpretation of the referent. This observation makes them more ER-like, although the contexts involved do not contain a transformational predicate.

- (25) John likes *his two dogs* (specific).  
a *They / These animals* (specific: his two dogs) are close to his heart.



- b     \**They* / ?*These animals* / *Dogs* (generic: dogs in general) are close to his heart
- (26) John likes *dogs* (generic).
- a     *They* (generic: dogs in general) are close to his heart.
- b     \**They* (specific: his two dogs) are close to his heart.
- c     ?*Fido and Gerald* are close to his heart.
- (27) There is *a boy* (specific) climbing that tree. *Those boys* / \**They* (generic) are always getting into mischief. (Halliday & Hasan, 1976:283, Bowdle & Ward, 1995).
- (28) *A man with three legs* doesn't exist (non-specific, non-existing).
- a     *He* (non-specific, non-existing) would never be able to maintain himself in whatever society.
- b     \**He* (specific, existing) is 10 foot tall and wears a red hat.
- (29) *A man with three legs* is walking in the street (specific, existing).
- a     *He* (specific, existing) is 10 foot tall and wears a red hat.
- b     \**He* (non-specific, non-existing) would never be able to maintain himself in whatever society.
- (30) We can therefore associate with *each point<sub>i</sub>* (non-instantiated) near the earth a vector **g** which is the acceleration that a body would experience if it were released at *this point<sub>i</sub>* / ?*there* (instantiated) (Sidner, 1983:325)

#### 4.2 Role-value transformations

A second class of phenomena which are related to evolutive reference are so-called *role/value* cases, since they can exhibit ontological conflicts between the grammatical gender of the role/function name and the semantic/biological gender of the value that fills the role. This conflict is the basis of the following brainteaser.

- (31) A young man is driving in a car together with his father. The car crashes. The father dies immediately. The young man is taken to hospital for an emergency operation. The surgeon is called in, enters the operating room, sees the young man and says to the rest of the staff in the room: I cannot do this job: he is my son.

Most role denominators with a masculine gender (such as *surgeon*) automatically evoke a male value. Even if a male interpretation is excluded - in (31) because the father is dead - language users decide spontaneously to judge (31) as being odd rather than automatically switch to a female value interpretation, i.e. the mother in (31). Because of the possible ambiguity

between grammatical and semantic gender, these role denominators (*surgeon, prime minister* etc.) are evolutive in nature. They show an ontological change between type-like and token-like discourse referents. As with the semantic interpretation cases, the behavior of anaphoric pronouns in these contexts sheds light on the difference between initial conceptualization and reconceptualization of discourse referents and on the validity of our tentative ER-definition. Example (32) shows that pronouns are perfectly able to disambiguate a potentially ambiguous or indeterminate initial conceptualization of the referent. Even if the initial conceptualization is very much biased toward one particular biological gender, a pronoun is fairly well able to overrule this bias.

- (32) On the occasion of the national celebration day tomorrow, *the Prime Minister* (masculin role, male value or female value) will pay an official visit to the royal palace.
- a *He* (masculin role or male value) will receive the national medal of honor.
  - b *She* (female value) will receive the national medal of honor.

But, as in the semantic interpretation cases, once the referent has been conceptualized unambiguously, subsequent anaphoric pronouns should be consistent with this conceptualization.

- (33) On the occasion of the national celebration day tomorrow, *the prime minister* (masculine role, male value or female value) will pay an official visit to the royal palace.
- a *She* (female value) will receive the medal of honor, because *she* (female value) / *\*he* (masculine role or male value) successfully combines two very important functions: that of prime minister and that of lovely mother of three daughters.
  - b *She* (female value) will receive the medal of honor, because *she* (female value) / *\*he* (masculine role or male value) managed to balance the national budget.
  - c *He* (masculine role OR male value) will receive the medal of honor, because *\*she* (female value) managed to balance the national budget.
  - d *He* (masculine role OR male value) will receive the medal of honor, because *\*she* (female value) successfully combines two very important functions: that of prime minister and that of lovely mother of three daughters.

The a and b version of (33) show that a pronoun is not able to switch a female value conceptualization (realized by the feminine pronoun in the second sentence) into a male value interpretation or back to the initial masculine role interpretation: the masculine pronoun in the third sentence is unacceptable, not only when the predicative information in this sentence is incompatible with the male value - as in (33a) - but also when it is 'sex neutral' - as in (33b). The c and d versions show that conceptualizing the referent by using a masculine pronoun seems to implicate not only a masculine role but also a male value interpretation of the referent: the fact is that the feminine pronoun in the third sentence results in inadequacy, not only when the predicative information is 'sex neutral' - as in (33c) - but also when the predicative information 'ontologically' requires a female value interpretation, as in (33d).

The different versions in (33) show where initial conceptualization ends and reconceptualization begins. Moreover, they show that the reconceptualization of a referent is not always triggered by the incompatibility between descriptive features of the pronoun and predicate information, but also by the persistence of the initial conceptualization of the referent. This - however - does not alter the fact that the clash between descriptive pronominal features and predicates can be decisive in forcing a reconceptualization of the referent, as (34) shows.

- (34) On the occasion of the national celebration day tomorrow, *the prime minister* will pay an official visit to the royal palace. *The prime minister* will receive the medal of honor, because *she* / *\*he* successfully combines two very important functions: that of prime minister and that of lovely mother of three daughters.

#### 4.3 Conceptualization and reconceptualization of apples and apple sauce

Thus far, I have tried to make clear that an evolutive referent is a prominent referent, that it is a non-initial state of a DR and that the notion of reconceptualization is the core of referent evolution. Furthermore, I have tried to demonstrate that *semantic interpretation* and *role/value* cases not only enable us to clearly discriminate between initial conceptualization and reconceptualization, but also deserve more attention and further discussion within the framework of evolutive reference.

By way of conclusion and in order to illustrate the freedom of choice and the many parameters involved in (not) reconceptualizing referents, I want to report a brief survey of the different strategic choices of conceptualization and

reconceptualization which can be found in a corpus of 25 recipes for apple sauce, coming from 25 different Dutch cookbooks. The Dutch cookbooks were randomly selected from the repertory of Dutch cookbooks for adults. Opting for apple sauce was motivated by the intention to pick out a recipe with one clear protagonist (i.e. the apple) which has to be transformed in order to result in always the same end product (i.e. apple sauce). Taking the same simple recipe enabled us to focus on the comparison of writing strategies rather than on the comparison of recipe contents or cooking quality.

*a basic strategy (n=11)*

The most common strategy in the recipes is that the initial conceptualization of the referent (*de appels* ‘the apples’) is established and maintained (by using the plural pronoun *ze* ‘them’ or a literal repetition) during the first manipulations (peeling, washing, cutting in pieces, cooking). The reconceptualization is triggered by the crucial transformation of apples being cooked to a pulp or pushed through a sieve. This predicate, sometimes supplemented with an explicit re-identification statement (*apples turn into apple sauce*) results in a new conceptualization (*moes* ‘apple sauce’) and ditto feminine singular anaphor (*ze* ‘she/it’). The basic pattern can be represented and illustrated schematically as follows:

(35) Basic life cycle phases of *apples* in apple sauce recipe

<i>phase</i>	<i>referent</i>	<i>predicates</i>	<i>typical example</i>
A	initial conceptualization <i>apples</i>	peel, wash, cut in pieces, put in water, put on fire, cook	<i>Schil of was <b>de appelen</b> en snijd <b>ze</b> in vieren. Zet <b>de appelen</b> op met het water, breng <b>ze</b> aan de kook en laat <b>ze</b> ongeveer 15 min. zachtjes koken.</i> ‘Peel or wash <b>the apples</b> and cut <b>them</b> in four. Put <b>the apples</b> on the fire in water, and bring them to the boil for 15 minutes’
B	transformation	cook to a pulp, push through a sieve	<i>Wrijf <b>de appelen</b> door een zeef.</i> ‘Push <b>the apples</b> through a sieve’.
C	reconceptualization <i>(apple) sauce</i>	cool down, serve	<i>Maak <b>het moes</b> op smaak af met suiker.</i> ‘Finish <b>the (apple) sauce</b> with sugar’.

The corpus, however, shows a variety of alternative ways of expressing the life cycle of the referent, either alternative reconceptualization patterns (b-e), or patterns without reconceptualization (f-h).

*b Reconceptualization without explicit transformation predicate (n=3)*

The transformation of apples into sauce does not necessarily have to be expressed explicitly in a transformation predicate, but can be implied situationally by using less explicit predicates: in (36) phase B is absent, the predicate *cooking apples* results in a forward inference that the apples are transformed into sauce.

- (36) A *Gebruik of iets overrijpe, of speciale moesappels. Was **de appels**, droog **ze** af en snij **ze** met schil en klokhuis in 4 cm grote stukken. Verwijder wel de kroontjes. Kook **de appels** in water en citroensap in een gesloten pan in 20 minuten gaar.*  
‘Take **overripe or special cooking apples**. Wash **the apples**, wipe **them** dry and cut **them** with skin and core in 4 cm pieces. Remove

the calix. Cook **the apples** for 20 minutes in water and lemon juice in a covered pan to a pulp.’

- C *Wrijf de hete moes dan door een zeef. Met de handmixer is dit zo gebeurd. Vermeng het moes met de suiker en lepel het zo heet mogelijk over in de potten.*  
‘Push the hot sauce through a sieve. With a hand mixer it is no problem at all. Mix **the sauce** with the sugar and spoon **it** as hot as possible in the jars.’

c (re)conceptualization as a generic referent (n=2)

In two recipes, the referent is reconceptualized as a generic (*de appel*), as can be seen in (37). This generic reconceptualization cuts across the three phases of the life cycle of the referent: i.e. before and after the explicit transformation predicate.

- (37) A *Schil de appelen, verwijder de klokhuizen en snijd het vruchtvlees in blokjes. Doe de appel met 1 dl water in een ovenvaste schaal van 1½ l inhoud.*  
‘Peel **the apples**, remove the cores and cut the flesh in cubes. Put **the apple** with 1 dl of water in an ovenproof dish with a content of 1 1/2 liter.’
- B *en kook de appelen in 5-6 minuten op 100% tot moes.*  
‘and cook **the apples** in 5-6 minutes to a pulp.’
- C *Roer de appel halverwege de bereiding een keer door. Breng de appelmoes op smaak met suiker.*  
‘Stir in **the apple** well. Flavor **the apple sauce** with sugar.’

d repeated reconceptualization (n=2)

In two recipes, the referent is reconceptualized more than once. In (38) for example, *apples* are reconceptualized in phase A as *pieces of apples* referred at by a demonstrative pronoun and after phase B to *sauce*

- (38) A *Appels schillen en in vieren snijden. De klokhuizen verwijderen en het vruchtvlees in stukjes snijden.*  
*Deze wassen, laten uitlekken en met het nog aanhangende water in de schaal doen. De schaal in de magnetron zetten (4-6 minuten)*  
‘Peel **apples** and cut in four. Remove the cores and cut the flesh in pieces.  
Wash **these**, let drain and put in the dish. Put the dish in the

microwave (4-6 minutes).’

- B *De stukjes appel tegen de wand van de schaal fijndrukken.*  
‘Crush **the pieces of apple** against the side of the dish.’
- C *en het moes ten slotte met suiker op smaak brengen.*  
‘and finally flavor **the sauce** with sugar.’

e ‘flashback’ to the initial conceptualization (n=2)

At the end of two recipes, the reconceptualized referent (*apple sauce*) returns in its initial conceptualization (*apples*)

- (39) A *Was de appelen of borstel ze schoon, snijd ze met schil en klokhuizen in partjes (de appelen kunnen ook geschild en zonder de klokhuizen worden verwerkt) en breng ze met weinig water vlug aan de kook.*  
‘Wash **the apples** or brush **them** clean, cut **them** with peel and cores in pieces (**the apples** can also be used peeled and without cores) and bring **them** to the boil with a little water.’
- B *Laat ze tot moes koken in 10 à 15 minuten,*  
‘Cook **them** to a pulp in 10-15 minutes.’
- C *wrijf dit door een zeef en vermeng het daarna met de suiker. Strooi er, naar keuze, wat kaneel over of laat, tegelijk met de appelen, een stukje citroenschil meekoken.*  
‘push **this** through a sieve and mix **it** with sugar. Sprinkle as desired cinnamon on **it** or cook a piece of lemon peel together with **the apples.**’

f ‘hidden’ maintenance of initial conceptualisation (n=4)

The main referent in the recipes is not always reconceptualized. One way of avoiding reconceptualization is maintaining reference by means of zero-anaphora, as is illustrated in (40):

- (40) A *Van een beetje water, suiker, het sap en de geraspte schil van een citroen kookt u een dunne suikerstroop. Dan gaat u bij de pan uw appels zitten schillen. In kleine stukjes verdeeld gaat de appel dan direct over in en naar de suikerstroop. De eerste appel krijgt dus wat langere zwemtijd dan de laatste. Zo nu en dan doorroeren met een houten lepel. Wanneer de laatste van de appels in de pan is verdwenen, gaan we nog even met koken door; één of twee minuten, langer niet.*  
‘Cook a thin syrup from a little bit of water, sugar, the juice and the

rasped peel of a lemon. Then you are going to peel **your apples**. Cut in little pieces, **the apple** goes in the syrup. **The first apple** has a longer swimming time than **the last one**. Stir now and then with a wooden spoon. When **the last apple** disappears in the pan, we continue cooking for a while, one or two minutes, not longer than that.'

- C *Nog één keer doorroeren, proeven of het goed is, zo nodig nog citroen of suiker toevoegen en zonder deksel laten afkoelen.*  
 'Stir once more, try it, if necessary add lemon or sugar and let cool down without cover.'

*g 'overt' maintenance of the initial conceptualisation (n=2)*

The initial conceptualisation of a discourse referent can be maintained during the recipe by means of overt pronouns, even in combination with explicit transformation predicates, as is illustrated in (41)

- (41) A *Schil **de appelen**, snijd **ze** in vieren, verwijder de klokhuizen. Zet op met het water en de citroenschil en kook **ze** zachtjes gaar en stuk in ± 15 minuten.*  
 'Peel **the apples**, cut **them** in four, remove the cores. Put on the fire with the water and the lemon peel and cook **them** to a pulp in about 15 minutes.'
- B *Wrijf **ze** dan fijn door een paardeharen zeef,*  
 'Push **them** through a horsehair sieve.'
- C *voeg de suiker toe en naar verkiezing het citroensap, doe **ze** in een schaal en laat **ze** koud worden.*  
 'Add the sugar and as desired the lemon juice, put **them** in a dish and let **them** cool down.'

*h explicit re-establishment of the initial conceptualisation (n=3)*

The initial conceptualisation can not only be maintained by means of a pronoun but also re-established by means of a literal repetition (*apples*), even after an explicit transformation predicate:

- (42) A ***De appelen** schillen, in vieren snijden, van klokhuizen ontdoen*  
 'Peel **the apples**, cut in four, remove the cores'
- B *en met water (en citroenschil) vlug tot moes koken, zonder roeren*  
 'and cook to a pulp with water (and lemon peel), without stirring.'
- C *(De citroenschil verwijderen.) **De appelen** fijnroeren en afmaken met*



*suiker. Hebben **de appelen** weinig smaak, dan **het appelmoes** afmaken met citroensap of kaneel.*

‘(Remove the lemon peel). Stir **the apples** to a pulp and finish with sugar. If **the apples** have little taste, flavour **the apple sauce** with lemon juice or cinnamon.’

In sum, the different strategies exhibited in this small corpus of apple sauce recipes show that language users have a large leeway in whether, when and how to reconceptualize a referent. Even in predicative contexts which are perfectly suited to referent evolution, language users can prefer continuation strategies over reconceptualization strategies.

## 5 CONCLUSION

The different aspects of the tentative cognitive definition of evolutive referents enabled us not only to discuss a number of topics in the field of evolutive referents, but also to show that these topics are relevant also within the perspective of recent Anglo-Saxon literature on discourse reference. This is not to say that the article resulted in definitive answers on what evolutive referents are and how anaphoric processes involving evolutive referents have to be explained. But it shows that recent French and Anglo-Saxon work in the field of reference deserves more collaborative effort, as both traditions can reveal complementary facets of the same conglomerate of (evolutive) referential phenomena in discourse.

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