

Reference and clausal perception-verb complements

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Abstract

Clausal perception-verb complements are known to show a contrast in meaning between 'object of perception' and 'knowledge acquired'. This contrast has traditionally been analysed denotationally in terms of a distinction between extra-linguistic entities belonging to two ontologically different types. However, Cognitive Grammar offers an analysis which is based on a distinction between two ways of construing the same conceptual content and does not presuppose the relevant notion of extra-linguistic entities. The present paper argues that both analyses are inadequate. On the basis of a number of relevant cross-linguistic data, it argues that the contrast under scrutiny must be understood in terms of a distinction which turns on a certain link between conceptual contents and extra-linguistic entities: reference. More precisely, it must be understood in terms of a distinction between non-referring and referring status in the sense of Lyons 1977. A conception of this distinction is outlined, and an analysis is proposed which can bridge the gap between a purely cognitive and a purely denotational approach to clause meaning. Eventually, the paper sketches how the analysis can be adopted within Cognitive Grammar.

Keywords: perception verb; complement; clause; reference; grounding

1. Introduction: the contrast between 'object of perception' and 'knowledge acquired'¹

Compare the constructions in (1a) and (1b).

- (1) a. *Paul saw Santa Claus kiss mummy.*
b. *Paul saw (that) Santa Claus kissed mummy.*

Both (1a) and (1b) can be truthfully asserted if Paul actually witnessed the event described by *Santa Claus kiss mummy* (albeit perhaps only in a video recording, a hallucination, or a crystal globe). But only (1b) can be truthfully asserted if Paul witnessed his dog raising its ear (which it always and only does when Santa Claus kisses mummy), if Paul read a note from his father saying that Santa Claus kissed mummy, and even if Paul just realized that Santa Claus kissed mummy (after speculating all morning why she had a trace of white beard between her teeth). As discussed in the literature, this is because (1a) is a description of an instance of "immediate perception" of an event² whereas (1b) is a description of an instance of "acquisition of knowledge" through perception or – by metaphorical extension of the perception verb *saw* – through some other cognitive operation (e.g. Dik and Hengeveld 1991: 237-238; Kirsner and Thompson 1976: 205; Noonan 2007: 129-130 and 142-144; cf. also Sweetser 1990 and Schüle 2000 on the typical metaphorical extensions of perception verbs in constructions like [1b]). While there is an overlap of the circumstances under which (1a) and (1b) can be truthfully asserted, there is thus no semantic overlap between the two constructions. If Paul witnessed Santa Claus kiss mummy, he probably also acquired the knowledge that Santa Claus kissed mummy. However, (1a) exclusively describes the fact that Paul witnessed Santa Claus kiss mummy, and (1b) exclusively describes the fact that he acquired the knowledge

that Santa Claus kissed mummy (e.g. Barwise and Perry 1983: 179, 184 and 194; Dik and Hengeveld 1991: 239-240).³ Accordingly, complements like that in (1a) cannot describe something which is not accessible to perception or, at least, to the relevant kind of perception. But complements like that in (1b) can (e.g. Kirsner & Thompson 1976: 205-207).

- (2) a. **Paul saw Santa Claus not kiss mummy.*
b. *Paul saw (that) Santa Claus did not kiss mummy.*
- (3) a. **Paul later heard mummy close her eyes when Santa kissed her.*
b. *Paul later heard (that) mummy closed her eyes when Santa kissed her.*

Since the subject and the finite verb remain the same in (1a) and (1b), it is fair to assume that the contrast between the 'immediate perception' and 'acquisition of knowledge' readings is bound up with a semantic contrast between the complements. Henceforth, the type of meaning expressed by complements like that in (1a) will be referred to as 'object of perception', and the type of meaning expressed by complements like that in (1b) as 'knowledge acquired'.

The contrast between 'object of perception' and 'knowledge acquired' has traditionally been analysed denotationally in terms of a distinction between extra-linguistic entities belonging to two ontologically different types. Complements like *Santa Claus kiss mummy* in (1a) which express 'object of perception' have been taken to denote (in the sense of Lyons 1977) entities of a type which is ontologically distinct from the type denoted by complements like *(that) Santa Claus kissed mummy* in (1b) which express 'knowledge acquired'.

Cognitive Grammar offers an analysis which is based on a distinction between two ways of construing the same conceptual content and does not presuppose the relevant notion of extra-linguistic entities. According to this analysis, all clausal perception-verb complements designate processes (in the sense of Langacker 1987, 1991), but whereas complements like *Santa Claus kiss mummy* in (1a) designate processes construed as ungrounded, complements like *(that) Santa Claus kissed mummy* in (1b) designate processes construed as grounded.

The present paper argues that both analyses are inadequate. Both fail to capture a set of relevant cross-linguistic data. The contrast between 'object of perception' and 'knowledge acquired' can be understood neither in terms of a purely ontological distinction between different types of extra-linguistic entities nor in terms of a purely cognitive distinction that does not presuppose extra-linguistic, including non-cognitive, reality. Rather, the paper argues, the contrast must be understood in terms of a distinction which turns on a certain link between conceptual contents and extra-linguistic entities: reference as conceived of by Lyons (1977: 177-197; cf. Sainsbury 2005). The paper sketches a conception of the distinction and proposes an analysis which can bridge the gap between a purely cognitive and a purely denotational approach to clause meaning.

Section 2 introduces the ontological distinction that constitutes the backbone of the traditional analysis, and Section 3 points out one cross-linguistic tendency which it fails to capture. Section 4 introduces Cognitive Grammar's distinction between ungrounded and grounded processes and argues that this distinction is relevant to some cases of the contrast under scrutiny. However, Sections 5 and 6 demonstrate that the cognitive distinction cannot account for all cases. Cross-linguistically, the distinction between ungrounded and grounded processes cuts across the contrast between 'object of perception' and 'knowledge acquired'. Section 7 proposes and presents arguments in support of an alternative analysis of the contrast. The crux of the analysis is a distinction between non-referring and referring status. The analysis proposed entails no commitment to either cognitive

or denotational approaches to linguistic meaning. It is in fact incompatible with radical versions of both approaches. However, Section 8 eventually sketches how the analysis can be adopted within a less radical cognitive approach which recognizes that even as a cognitive phenomenon language cannot be understood in isolation from its non-cognitive environment. More precisely, the section develops a cognitive conception of the distinction between non-referring and referring status as a distinction between processes (in the sense of Langacker 1987, 1991) that are not, and processes that are, construed as having a referent. Finally, Section 9 compares the cognitive conception of the notion of reference with Cognitive Grammar's notion of grounding and argues that the two notions are distinct but also related, and that both are needed in order to give a full cognitive account of clausal perception-verb complements.

The paper draws on a survey of clausal perception-verb complements in a genetically balanced sample of 20 languages.⁴ The data presented in the paper represent only a subset of these languages. On the other hand, they include data also from languages that are not part of the sample. Most of the data presented stem either from reference grammars or from the relevant literature. However, such data have been supplemented with elicited data, separately attested data and invented examples.

2. The traditional analysis of the contrast

The contrast between 'object of perception' and 'knowledge acquired' has been subject to analysis on several occasions.⁵ The analyses found outside cognitive linguistics are highly similar. Dik and Hengeveld (1991) analyse the contrast in terms of a distinction between "state of affairs" and "propositional content", Schüle (2000) analyses it in terms of a distinction between "event" and "proposition", and Dixon (2006) in terms of a distinction between "activity" and "fact". However, they might as well have analysed the contrast in terms of Lees' (1960: 59-69) distinction between "action" and "fact", Vendler's (1967) between "event" and "fact", Lyons' (1977: 443-445) between "second-order entity" and "third-order entity", or Svenonius' (1994) distinction between "state of affairs" and "proposition".

These distinctions seem to have different sources. Lees (1960: 59-69) introduces the distinction between action and fact in a study of English nominalizations, but the distinctions play an important role in contemporary philosophy (cf. Loux 1998: 131-164 for a recent introduction), and in later works reference is often made to philosophical or philosophically oriented literature (Strawson 1959; Davidson 1980; Vendler 1967) as a source of inspiration. Moreover, the distinctions have been employed in quite different approaches to language. They have found application within detailed analyses of a single language (e.g. Perkins 1983) as well as within cross-linguistic surveys (e.g. Schüle 2000), within formal approaches to language (e.g. Fraser 1970) as well as within functional approaches (e.g. Dik 1997a, 1997b). Dikian Functional Grammar, in fact, makes the semantic distinction between state of affairs and propositional content (and a concomitant syntactic distinction between "predication" and "proposition") a centrepiece of its theory of layered clause structure, and recently Functional Grammar's distinction has been adopted within the so-called functional-typological approach (Cristofaro 2003: 109-111).

Nevertheless, the distinctions are used of a coherent range of linguistic contrasts, and they are all virtually identical. First, they are ontological distinctions (Hengeveld 1989: 128; Svenonius 1994: Ch. 2, Section 3.1; Harder 1996: 236). That is, they are distinctions between denoted extra-linguistic entities (extensions or intensions; cf. Cann 1993: 267) as opposed, for instance, to purely cognitive distinctions between construals. Second, they are defined in roughly the same way. According to Loux, in his introduction to philosophical metaphysics, states of affairs are "situations that have essentially the property of obtaining or failing to obtain" while propositions are "abstract

entities [...] the primary bearers of truth values" (Loux 1998: 132). And according to Vendler, "[e]vents and their kin are primarily temporal entities" while "facts [...] are not in space and time at all. They are not located, cannot move, split, or spread, and they do not occur, take place, or last in any sense. Nor can they be vast or fast" (Vendler 1967: 144). These definitions made by philosophers are closely mirrored in the linguistic literature. For instance, Lyons takes second-order entities to be "located in time and [...] said to occur or take place, rather than to exist" (Lyons 1977: 443). They are "observable and, unless they are instantaneous events, have a temporal duration" (Lyons 1977: 445). By contrast, he takes third-order entities to be "abstract entities [...] outside space and time" (Lyons 1977: 443). They are "unobservable and cannot be said to occur or to be located either in space or in time. Third-order entities are such that 'true', rather than 'real', is more naturally predicated of them" (Lyons 1977: 445). In a similar vein, Dik and Hengeveld define the state of affairs as something which "can be located in space and time and can be evaluated in terms of its reality", as opposed to the propositional content (or "potential fact") which "cannot be located in space or time and can be evaluated in terms of its truth" (Dik and Hengeveld 1991: 233; cf. also e.g. Dik 1997a: 52, Leech 1981: 311-316, Svenonius 1994: Ch. 2, Section 3.1, Schüle 2000: 54-55, Cristofaro 2003: 109-111, and the references therein).

Thus, the distinctions between action, activity, event, second-order entity or state of affairs on the one hand, and fact, third-order entity, propositional content or proposition on the other, virtually all amount to the same ontological distinction between, respectively, entities which can be located in time, said to occur, etc., and entities which have a truth value.⁶ It is this distinction which Dik and Hengeveld (1991), Schüle (2000), Dixon (2006) and others employ in the analysis of the contrast between 'object of perception' and 'knowledge acquired'. According to this "traditional" analysis, complements like *Santa Claus kiss mummy* in (1a) denote entities which can be located in time, said to occur, etc., while complements like (*that*) *Santa Claus kissed mummy* in (1b) denote entities which have a truth value.

The traditional analysis makes possible a straightforward account of the contrast between 'immediate perception' and 'acquisition of knowledge' readings of perception-verb constructions. On the one hand, 'immediate perception' readings can be seen as arising because 'object of perception' complements denote entities which "occur" (i.e. actions, activities, events, states of affairs, or second-order entities) and which accordingly are accessible to the senses. On the other hand, 'acquisition of knowledge' readings can be seen as arising because 'knowledge acquired' complements denote entities which "have a truth value". Obviously, truth values are not accessible to the senses, and so, neither is something which has a truth value. What constructions like (1b) describe, according to this account, is the recognition, possibly based on the perception of something without a truth value, of something with a truth value.

3. The inadequacy of the traditional analysis

At first glance, then, the ontological distinction discussed above seems well-suited for analysing the contrast under scrutiny. But it stops short of a full analysis. The problem is that nothing in the conception of facts, propositions, propositional contents or third-order entities entails that they differ in complexity from actions, activities, events, states of affairs or second-order entities.⁷ Third-order entities have been taken to be more "abstract" than second-order entities (Lyons 1977: 443), and propositions have been taken, for instance, to "describe" states of affairs (Hurford et al. 2007: 20), but to my knowledge a relationship in terms of complexity has never been suggested. To be sure, Dikian Functional Grammar associates states of affairs with a lower, and less complex, level of layered clause structure than propositional contents. However, nothing in Functional Grammar's

definitions of states of affairs and propositional contents entails that the former are actually conceived of as less complex than the latter (cf. Section 2).

The problem arises because there is in fact reason to believe that the contrast between 'object of perception' and 'knowledge acquired' is most adequately conceived of as a contrast between meanings that differ in terms of complexity. The reason is that with this conception the contrast allows us to account for a cross-linguistic morphosyntactic pattern pertaining to constructions that code the contrast.

Cross-linguistically, whenever the contrast between 'object of perception' and 'knowledge acquired' is marked by a single morphological opposition only, it seems that overt marking of the former implies overt marking of the latter, but not vice versa. That is, to judge from cases where the two types of constructions can be directly and unproblematically compared in terms of morphosyntactic complexity⁸, constructions that code 'knowledge acquired' tend to be morphosyntactically more complex than constructions that code 'object of perception'. Consider, for instance, marking by means of complementizers. In a cross-linguistic study of perception verb complements, Schüle (2000: 39, 45, 226, 245) has attested 1) languages in which both 'object of perception' and 'knowledge acquired' are marked by a complementizer (Russian), 2) languages in which neither is marked by a complementizer (Cayuga [Iroquoian]), and 3) languages in which the contrast between 'object of perception' and 'knowledge acquired' is marked exclusively by the absence and presence, respectively, of a complementizer (Cambodian [Khmer]).⁹ But crucially, Schüle has attested no language in which the contrast is marked exclusively by the presence and absence, respectively, of a complementizer (e.g. Schüle 2000: 39). The tendency is confirmed by the languages I have investigated. On the one hand, there are languages in which the contrast between 'object of perception' and 'knowledge acquired' is marked by an opposition between two distinct overt morphemes. A case in point is Japanese where the contrast is marked by an opposition between the nominalizers *no* and *koto* respectively. Thus, Kuno (1973) notes that while (4a) is a report of an instance of immediate perception, (4b) "would no longer be a statement of perception by any of the five senses: it would mean: 'I heard that John plays the piano'. Similarly, *kanziru* 'to feel' can take a *koto* clause, but then it would mean no longer 'to feel by five senses', but 'to think'" (Kuno 1973: 220; cf. Dik and Hengeveld 1991: 244; Horie 1997: 15).¹⁰

(4) JAPANESE (JAPANESE; Kuno 1973: 220)

a. *Watakusi wa John ga piano o hiku no o kiita.*
 I TOP John SBJ piano OBJ play COMP OBJ heard
 'I heard John play(ing) the piano'.

b. *Watakusi wa John ga piano o hiku koto o kiita.*
 I TOP John SBJ piano OBJ play COMP OBJ heard
 'I heard that John plays the piano'.

Another case in point is Turkish, where the contrast is marked by a morphological opposition between what Kornfilt (1997: 50-51) calls an "Action Nominal" marker and a "Factive Nominal" marker, as illustrated in (5).

(5) TURKISH (ALTAIC; (5a) from Yıldız Bayar, p.c., (5b) from Kornfilt 1997: 50)

a. *(Ben)Ahmed-in öl-me-sin-i duy-du-m.*
 I [Ahmet-GEN die-ANMLZ-3SG]-ACC hear-PST-1SG
 'I heard Ahmet die'.

- b. (Ben)Ahmed-in öl-**düğ**-ün-ü duy-du-m.
 I [Ahmet-GEN die-FNMLZ-3SG]-ACC hear-PST-1SG
 'I heard that Ahmet died'.

On the other hand, there are languages in which the contrast between 'object of perception' and 'knowledge acquired' is marked by an opposition between absence and presence, respectively, of an overt morpheme. A case in point is Danish, where in *nominativus-cum-infinitivo* complements the contrast is marked by the absence and presence, respectively, of the infinitival marker *at* 'to' (Boye 2002). Thus, (6a) reports an instance of 'immediate perception' while (6b) reports an instance of 'acquisition of knowledge'.

(6) DANISH

- a. *Bjarne Riis ses stå og snakke med Sarevok*
 Bjarne Riis see.PASS stand and talk with Sarevok
som giver Riis en stak penge.
 who gives Riis a bundle money
 'Bjarne Riis is seen talking with Sarevok who is handing over a bundle of money to Riis'.
- b. *Nationalbanken ses at stå for*
 National.Bank.DEF see.PASS to stand for
en ganske betydelig del af omsætningen.
 a quite substantial part of trade.DEF
 'The National Bank is seen to be responsible for a quite substantial part of the trade'.

In English *accusativus-cum-infinitivo* complements, similarly, absence and presence of the infinitival marker *to* mark 'object of perception' and 'knowledge acquired' respectively.¹¹

- (7) a. *I saw him stand before an altar with a gentle bride.*
 ("The Dream", Lord George Gordon Byron)
- b. *And if he saw him to be a stranger, he made friends with him and carried him to his house, where he conversed and caroused with him all night till morning.*
 ("The Sleeper and the Walker", from "Arabian Nights",
 in the translation of Sir Richard Francis Burton)

In *Tukang Besi* (Austronesian), to give a final example, the contrast is marked by the absence and presence, respectively, of the complementizer *kua* (cf. also Kouwenberg 1994: 341 on Berbice Dutch Creole [Creole] complements of the verb *kiki* 'see').

(8) TUKANG BESI (AUSTRONESIAN; Donohue 1999: 403-404)

- a. *No-'ita-'e no-kanalako te osimpu.*
 3.REAL-see-3.OBJ [3.REAL-steal CORE young.coconut]
 'She saw him stealing the coconut'.
- b. *No-'ita-'e kua no-kanalako te osimpu.*
 3.REAL-see-3.OBJ [COMP 3.REAL-steal CORE young.coconut]
 'She saw that he had stolen the coconut'.

Thus, in (8a), "the assertion is of the fact that the seer saw the actual act of stealing" while in (8b),

there is no such commitment, but merely the statement that the seer 'she' is aware of the fact that the coconuts had been stolen, perhaps through direct perception of the act of stealing, but also perhaps merely because of circumstantial evidence, such as the sight of distinctive footprints and the absence of coconuts, and perhaps some corroboration of the story by other people. (Donohue 1999: 404)

An essentially similar characterization would apply to the contrasts between (6a) and (6b), and between (7a) and (7b).

Crucially, however, I have found no language in which the contrast between 'object of perception' and 'knowledge acquired' is marked by an opposition between the presence and absence, respectively, of an overt morpheme. That is to say, the contrast seems to be reflected cross-linguistically in an asymmetrical morphological pattern.

On the face of it, this pattern might be suspected to reflect a difference in token frequency between constructions that express 'object of perception' and constructions that express 'knowledge acquired'. The pattern resembles the so-called "structural coding" pattern that serves as a criterion for distinguishing between typologically marked and typologically unmarked values (cf. Croft 2003: 91-95), and it is often assumed that there is a causal connection between frequency and structural coding (e.g. Croft 2003: 110-117 and the references therein). In particular, one might suspect that the reason for the pattern illustrated in (6)-(8), where constructions that code 'object of perception' and constructions that code 'knowledge acquired' are distinguished only by the absence and presence respectively of an overt morpheme, is that the former constructions have a high token frequency and accordingly tend to be worn down for economical reasons. However, this can be excluded on both empirical and theoretical grounds. Empirically, constructions that express 'object of perception' are not necessarily more frequent than constructions that express 'knowledge acquired'. In a Danish 56 million word corpus, *KorpusDK*, the construction of the verb *ses* 'see.PASS' with an *at*-less *nominativus-cum-infinitivo* complement exemplified in (6a) has the same very low frequency as the construction of the verb *ses* with an *at*-marked *nominativus-cum-infinitivo* complement – the former (29 instances) actually being a little less frequent than the latter (34 instances). What is more, the *at*-marked *nominativus-cum-infinitivo* complement exemplified in (6b) has a far wider distribution than its *at*-less counterpart. While the latter is found mainly with perception verbs, the former is found also with attitude, utterance and appearance verbs (Boye 2002). And with these verbs, the token frequency of the *at*-marked *nominativus-cum-infinitivo* complement in *KorpusDK* by far exceeds that of the *at*-less complement (with the utterance verb *siges* 'say.PASS', for instance, more than 1000 instances are found). Theoretically, this is in fact what we should expect. As defined by Croft (2003: 92; cf. Croft 2003: 101), structural coding applies only to values that belong to the same grammatically coded conceptual category (e.g. the values 1st, 2nd and 3rd belonging to the category of Person). The values 'object of perception' and 'knowledge acquired' can hardly be claimed to belong to the same grammatically coded conceptual category; they can hardly be described as different positive instantiations of the same general concept.

This leaves us with only one way of accounting for the cross-linguistic pattern. The cross-linguistic pattern pertaining to the coding of the contrast between 'object of perception' and 'knowledge acquired' can only be accounted for in terms of diagrammatic iconicity (cf. Croft 2003: 201-204 and the references therein) as reflecting some salient fact about the contrast itself. The cross-linguistic tendency for 'knowledge acquired', as opposed to 'object of perception', to be coded

by additional morphological material, as in the case of (6)-(8), suggests that the former meaning is more complex than the latter (cf. Croft 2003: 203-204 on the iconic relationship between morphosyntactic and conceptual complexity). More precisely, the tendency suggests that constructions like *(that) Santa Claus kissed mummy* in (1b) should be conceived of as coding the same type of meaning as constructions like *Santa Claus kiss mummy* in (1a), but also something extra which is not coded by the latter constructions.¹²

As mentioned, this conception is not entailed by any variant of the ontological distinction discussed in Section 2. Accordingly, the distinction between facts, propositions, propositional contents or third-order entities on the one hand and actions, activities, events, states of affairs or second-order entities on the other as ontologically distinct types of entities is incapable of capturing the cross-linguistic pattern discussed above, and this is what makes the distinction inadequate. It might be proposed that this problem could be solved simply by defining facts, propositions, propositional contents and third-order entities as being ontologically more complex entities than actions, activities, events, states of affairs and second-order entities. Arguably, however, this would still not do the job. For a denotational approach to linguistic meaning there is nothing natural to iconic relations: in particular, it does not follow in any natural way from the description of linguistic meaning in terms of extra-linguistic entities that what is morphologically more should denote something which is ontologically more. As Croft (2003: 102) puts it, "[t]he intuition behind iconicity is that the structure of language reflects in some way the structure of experience", as opposed to any cognitively undigested ontological structure. It would appear, then, that a purely ontological distinction between extra-linguistic entities of different types is theoretically ill suited for capturing the cross-linguistically recurrent patterns pertaining to the coding of the contrast between 'object of perception' and 'knowledge acquired'.

4. A cognitive analysis of the contrast

For a cognitive approach to linguistic meaning iconic relations between meaning and morphosyntax are natural. Morphological material has meaning in the sense that it potentially invokes cognitive effects, and everything else being equal, more morphological material naturally evokes more cognitive effects. With an adequate cognitive distinction the cross-linguistic pattern discussed in Section 3 may in principle be captured in a straightforward way.

In Cognitive Grammar, non-finite clauses like *Santa Claus kiss mummy* in (1a) and finite clauses like *(that) Santa Claus kissed mummy* in (1b) are analysed as evoking different construals of the same conceptual content. Both are analysed as designating a "process", the type of conceptual content designated by verbs and clauses (e.g. Langacker 1987: 244, 2004: 77). But while the former are analysed as designating 'an ungrounded instance of a process', the latter are analysed as designating 'a grounded instance of a process' (Langacker 1991: 439-440; Langacker To appear; Achard 1998: 192-194 and 225-233).¹³ The central notion of "grounding" (or "epistemic grounding") can be defined in terms of three features. 1) It is a deictic notion (e.g. Langacker 1987: 126-128, Brisard 2002: xi). Thus, it crucially relates to the notion of "ground", i.e. "the speech event, its participants, and their immediate circumstances" (Langacker 2004: 77; cf. e.g. Langacker 2002a: 7). 2) It is a purely cognitive notion. Grounding is taken to establish a "grounding relationship" (Langacker 2002b: 29) between two cognitive structures: a designated conceptual content and *the speaker's conception* of the ground rather than the ground itself (e.g. Langacker 1991: 440; Achard 1998: 224-225). 3) It is a potentially semantic (i.e. coded, conventionalized) notion. Grounding can be coded, but it can be coded only by highly grammaticalized "grounding

predications" including notably – in the case of "clausal grounding" of processes, which is relevant here – tense, mood and finiteness markers (Langacker 1987: 126-127; Achard 1998: 222-226).

According to Cognitive Grammar, then, complements like *Santa Claus kiss mummy* and complements like (*that*) *Santa Claus kissed mummy* differ in that only the latter include a tensed, finite verb and thereby deictically "locate the designated process relative to the [speaker's conception of the] ground" (Langacker 1987: 126-127) and thus "in relation to the speaker's conception of reality" (Langacker 1991: 440).

In one respect, the cognitive distinction between ungrounded and grounded processes seems adequate for capturing not only the contrast between non-finite and finite complement clauses exemplified in (1), but also the general contrast between 'object of perception' and 'knowledge acquired'. In contrast to the ontological distinction discussed in Sections 2 and 3, the cognitive distinction is inherently a distinction between linguistic meanings of differing complexity. Ungrounded and grounded processes differ only in that the latter comprise an element which is absent from the former: grounding. Thus, the cognitive distinction would capture the cross-linguistic asymmetrical pattern discussed in Section 3 straightforwardly as an iconic reflection of differing conceptual complexities: the cross-linguistic tendency for 'knowledge acquired', as opposed to 'object of perception', to be coded by additional morphological material might be accounted for as reflecting the additional conceptual complexity of grounded as compared to ungrounded processes.

Moreover, one might suggest with Langacker (1991: 440) that the cognitive distinction makes possible an account of the contrast between 'immediate perception' and 'acquisition of knowledge' readings of perception-verb constructions. As argued by Langacker, (what is represented conceptually by) a process may be accessible to perception whereas grounding is not. Thus, it would seem to follow that 'immediate perception' readings are due to complements which designate ungrounded processes, and that complements which designate grounded processes give rise to 'acquisition of knowledge' readings.

But like the ontological distinction discussed in Sections 2 and 3, the distinction between ungrounded and grounded processes stops short of a full analysis of the contrast under scrutiny. It cannot account for the contrast between 'object of perception' and 'knowledge acquired' in general. Cross-linguistically, it cuts across that contrast, as will be demonstrated in Section 5.

5. The inadequacy of the cognitive analysis

As discussed in Section 4, grounding can be defined as the deictic establishment of a relationship between a designated cognitive structure and the speaker's conception of the ground. The grounding relationship is taken to be established through overt, covert or implicit grounding predications (e.g. Langacker 2004: 94-96) including, in the case of clausal grounding, notably tense, mood and finiteness markers (cf. Langacker To appear).

Cross-linguistically, the contrast between 'object of perception' and 'knowledge acquired' seems frequently to be expressed by a contrast between tense- and mood-less non-finite clauses on the one hand, and tensed or mood-marked finite clauses on the other. This is the case in English, as we have seen, as well as in other Indo-European languages (cf. e.g. Boye 2002: 38 on Danish, Burridge 2006: 58-59 on Pennsylvania German, and Cristofaro 2003: 106 on Ancient Greek), but also for instance in Fijian (Austronesian; Dixon 1988: 38, 268; cf. Dik and Hengeveld 1991: 242), Basque (Basque; Artiagoitia 2003: 646-647 and 682), Israeli (i.e. Modern Hebrew; Afroasiatic; Zuckermann 2006: 79 and 85-86), Akkadian (Afro-Asiatic; Deutscher 2006: 161-163 and 173-174), Hdi (Afro-Asiatic; Frajzyngier 2002: 470-471 and 473-475), and in Mayan languages such as

Acatec and Jacaltec (Schüle 2000). (9) illustrates the contrast between 'object of perception' and 'knowledge acquired' as expressed in Jacaltec by a contrast between, respectively, a complement comparable to an English gerund (9a) and a complement comparable to an English *that*-clause (9b).

(9) JACALTEC (MAYAN; Craig 1977: 241 and 235; cf. Schüle 2000).

a. *Xwabe yok ix.*

I.heard cries CLF/they

'I heard her cry'.

b. *Xwabe chubil xto heb ya' kanwal yin ix juana.*

I.heard that went PL CLF/they ask for CLF Jane

'I heard that they (parents) went to ask for the hand of Jane'.

However, languages may have more than one means of expressing the contrast between 'object of perception' and 'knowledge acquired'. And the contrast between tense- and mood-less non-finite clauses on the one hand, and deictic, tensed or mood-marked finite clauses on the other, is certainly not the only means.

First, 'object of perception' may be expressed by means of what appears to be finite clauses. We have already seen one example of this. As illustrated in (8), *Tukang Besi* expresses both 'object of perception' and 'knowledge acquired' by means of non-nominalized, person-inflected and realis-marked clauses that may be considered finite. The contrast between the two meanings is marked only by a contrast between, respectively, the absence and the presence of the complementizer *kua*. Another possible example is found in Russian. According to Noonan (2007: 143; cf. Dik and Hengeveld 1991: 244-245), Russian may express both 'object of perception' and 'knowledge acquired' by means of finite, indicative clauses. The contrast between the two meanings may be marked only by a contrast between complementizers – *kak* and *čto* respectively – as illustrated in (10).

(10) RUSSIAN (Noonan 2007: 143)

a. *Ja videl, kak Boris čitaet knigu.*

1SG saw COMP Boris read.IND book

'I saw Boris reading a book'.

b. *Ja videl, čto Boris čitaet knigu.*

1SG saw COMP Boris read.IND book

'I saw that Boris read a book'.

In Hdi, as illustrated in (11), 'object of perception' may be expressed by means of a nominalized clause, and 'knowledge acquired' by means of a non-nominalized clause preceded by the sequence *kà zlày* and followed by the complementizer *ká-'á* (Frajzyngier 2002: 469-475).

(11) HDI (AFRO-ASIATIC; Frajzyngier 2002: 470 and 473)

a. *Snà-n-snà tá dzà'á-dá.*

hear-3-hear OBJ go-1SG

'He heard me go/'He heard my departure'.

b. *Sná-ghá -sná kà zlày tà dzà'-í ká -'á.*

hear- DPVG-hear SEQ COMP IPFV go-1SG COMP

'He heard that I should go'.

However, Frajzyngier (2002: 469) notes that alternatively, 'object of perception' may be expressed by means of a tensed, non-nominalized clause introduced by the structure *kàwák*-SUBJECT-PRONOUN(S), as in (12).

- (12) HDI (AFRO-ASIATIC; Frajzyngier 2002: 469)
`nghá kàwák-á sí tà vâlá vlí.
look how-3 SG PST PREP jump place.
'Look how he jumped'.

Now, it should be noted that both Russian *kak* in (10a) and Hdi *kàwák* in (12) translate into English *how* (Edina Lents, p.c., Frajzyngier 2002: 469). Accordingly, it might be claimed that (10a) and (12) are irrelevant here because, at least diachronically, they do not describe the immediate perception of an event, but the immediate perception of the manner in which an event takes place – just like (13).

- (13) *I saw how Santa Claus kissed mummy.*

However, for the *Tukang Besi* complement clause in (8a) no such analysis seems possible. So, at least (8a), which is meant to illustrate the same phenomenon as (10a) and (12), cannot be excluded as irrelevant. Thus, there is incontrovertible evidence that 'object of perception' may be expressed by means of finite clauses (cf. also Noonan 2007: 143 on Eastern Armenian (Indo-European) and Malay [Austronesian]).

Second, 'knowledge acquired' may be expressed by a clause which is neither finite nor tensed. We have already seen a couple of cases in which it is marked otherwise. In Japanese, 'knowledge acquired' is marked by the nominalizer *koto*, as opposed to the nominalizer *no*, as illustrated in (4). In Turkish, it is marked by the "Factive Nominal" marker, as opposed to the "Action Nominal" marker, as illustrated in (5). And in Danish *nominativus-cum-infinitivo* constructions and English *accusativus-cum-infinitivo* constructions, presence, as opposed to absence, of the infinitival marker marks 'knowledge acquired', as illustrated in (6) and (7) respectively. Yet other examples are found in Yukaghir languages. In both *Kolyma* and *Tundra Yukaghir*, 'knowledge acquired' can be expressed by a so-called "Action Nominal" (cf. Maslova 2003a: 149-151 and 401-405 on *Kolyma*, and Maslova 2003b: 76-77 on *Tundra Yukaghir*). This seems to be the case in (14), to judge from Maslova's English translation (and note that Maslova (2003a) consistently translates "facts", as opposed to "situations", with English *that*-clauses; cf. Maslova 2003a: 150). And it is definitely the case in (15) where what is described by the complement *t'ald'ed'uo sahā-l-hane* 'that the ring had disappeared' can hardly be accessible to auditory perception.

- (14) KOLYMA YUKAGHIR (YUKAGHIR; Maslova 2003a: 405)
Tabun medī-t tintaj n'an'ulben pøn pod'erqo-t-ki
[that hear-SS.IPFV] [that devil [nature day-PRPR.INCH-POSS]
juø-t šejre-s'
see- SS. IPFV] run.away-PFV.INTR.3 SG
'That devil heard this, saw that it was getting light and ran away'.

- (15) TUNDRA YUKAGHIR (YUKAGHIR; Maslova 2003b: 76)
T'ald'ed'uo sahā-l-hane me-mori-ŋa qad'ir.

[ring disappear-ANMLZ- ACC] AFF-hear- PL.TR(3) DP
 'Now they heard that the ring had disappeared'.

Thus, in both (14) and (15), the complements are "Action Nominals" (in Kolyma Yukaghir the "Action Nominal" marker *-l* is omitted before inflectional suffixes; Maslova 2003a: 147). An "Action Nominal" is non-finite and "completely noun-like with respect to its external morphology" (Maslova 2003a: 149; cf. Maslova 2003a: 329-336), but nevertheless it may express "facts" and thus 'knowledge acquired'.

Third, the contrast between 'object of perception' and 'knowledge acquired' need not be marked at all. Consider again the "Action Nominals" found in Yukaghir languages. In (14) and (15), as noted, they seem to express "facts", and thus 'knowledge acquired'. But this meaning is not coded. Maslova (2003a: 150) points out that "Action Nominals" may as well express "situations", and thus 'objects of perception'. This is the case in (16) (Maslova 2003a: 150) and, to judge from Maslova's English translation, in (17).

- (16) KOLYMA YUKAGHIR (YUKAGHIR; Maslova 2003a: 150)
Mit emd'e čohoče budie-t mit-kele juφ-m
 our younger.sibling hill SUPERL-ABL we-ACC see-TR.3SG
mit anil ik-čī-l-gele.
 [we fish catch-ITER-ANMLZ-ACC]
 'Our younger brother saw us fishing from the shore'.

- (17) TUNDRA YUKAGHIR (YUKAGHIR; Maslova 2003b: 76)
Taŋ kude-re-l-da-hane me-juo-m.
 DISTR like-CAUS-ANMLZ-3-ACC AFF-see-TR(3)
 'He saw her put it there'.

In Chinese, likewise, both 'immediate perception' and 'acquisition of knowledge' can be reported by the same complex clause, for instance by the construction in (18).

- (18) CHINESE (SINO-TIBETAN; Chao 1986: 126, Bisang 1992: 192; cf. Schüle 2000: 42)
Wǒ kànjiàn tā zài nàr xiě-xìn.
 I see [he CVB there write-letter]
 a. 'I saw him write a letter' (Immediate perception).
 b. 'I saw that he was writing a letter' (Acquisition of knowledge).

This entails that the complement (*tā zài nàr xiě-xìn*) must be capable of conveying both 'object of perception' (reading a) and 'knowledge acquired' (reading b). There is no linguistic cue as to which meaning is conveyed. Rather, the contrast is conveyed entirely pragmatically.

These ways of expressing 'object of perception', 'knowledge acquired' and the contrast between these two meanings strongly suggest that the distinction between ungrounded and grounded processes cuts across the contrast. As for the claim that 'object of perception' may be expressed by means of finite clauses, it might of course be argued that clauses like the *Tukang Besi* complement in (8a) may not be finite in the same sense that English *that*-clauses are. But until it is possible to make such an argument, (8a) suggests that 'object of perception' is not necessarily bound up with non-finite or non-deictic clauses, but may be expressed by means of finite, deictic clauses designating grounded processes. As for the claim that 'knowledge acquired' need not be expressed by means of finite, deictic, tense or mood-marked clauses, it might be proposed that the markers

illustrated in (4a), (5a), (6a) and (7a) are in fact deictic mood or finiteness markers. However, such a proposal would hinge on a very vague conception of deixis, mood or finiteness. Neither of the markers can be postulated to be deictic, mood, finiteness or, for that matter, tense markers in any strict sense of the terms "deixis", "mood", "finiteness" and "tense". Accordingly, they can hardly be claimed to be grounding predications as defined in Cognitive Grammar. As for the ambiguity illustrated in (14)-(18), finally, it might be suggested that it is most adequately analysed as an ambiguity between ungrounded and grounded processes. Under the headline "Implicit grounding", Langacker (2004: 95-96) argues that nominal grounding is not always marked by overt or covert grounding predications, but may be conveyed through pragmatic disambiguation: "Implicit grounding of a third kind is exhibited by the many languages, generally lacking articles, where it is usual for a lexical noun to stand alone as grammatical subject or object. In the discourse context it may then be interpretable in a manner comparable to either a definite or an indefinite in a language like English" (Langacker 2004: 95). However, the disambiguation of the complement in (18) as expressing 'knowledge acquired' does not seem to be the clause parallel of such nominal disambiguation. Reading the complement with this meaning does not seem to involve interpreting it as if it were deictic, tensed or mood-marked.¹⁴ Thus, the disambiguation can hardly be claimed to involve relating a process to the ground. While the complement in (18) is indeed ambiguous, then, it is not ambiguous with respect to the distinction between ungrounded and grounded processes.

6. Contrasts related to that between 'object of perception' and 'knowledge acquired'

The distinction between ungrounded and grounded processes can be seen to cut across the contrast under scrutiny also in another way.

Compare *her singing of the aria* and *her singing the aria*. Both constructions are non-finite nominalizations, and Langacker (1991: 33-34) accordingly analyses both of them as designating ungrounded processes: the former construction designates a process construed as an ungrounded type whereas the latter designates a process construed as an ungrounded instance. Traditionally, however, the semantic contrast between the two constructions has been analysed in terms of the ontological distinction discussed in Sections 2 and 3 between entities which "occur" and entities which "have a truth value" (e.g. Lees 1960: 59-73; Fraser 1970; Vendler 1967: 122-146; Schüle 2000: 49-89). This analysis captures the fact that only the former construction can be qualified with respect to mode of occurrence (e.g. by means of the predicate *sloppy*) whereas only the latter can be unproblematically subjected to epistemic qualification (qualification in terms of degree of certainty or source of information, e.g. by means of the predicate *unlikely*) (Vendler 1967:126-127).¹⁵

(19) a. *Her singing of the aria was sloppy.*

b. **Her singing the aria was sloppy.*

(20) a. *?Her singing of the aria was unlikely.*

b. *Her singing the aria was unlikely.*

The identical analyses of the semantic contrast between *her singing of the aria* and *her singing the aria* and the contrast between 'object of perception' and 'knowledge acquired' presuppose a conception of the two contrasts as closely related. There is one strong argument in support of such a relationship. Just like the meaning of *her singing of the aria*, 'object of perception' cannot be

subjected to epistemic qualification. And just like the meaning of *her singing of the aria*, 'knowledge acquired' can (cf. Schüle 2000 on the relation between evidentials and propositions). In English, for instance, complements like that in (1a) exclude epistemic adverbs, but complements like that in (1b) do not.

- (21) a. **Paul saw Santa Claus probably kiss mummy.*
 b. *Paul saw (that) Santa Claus probably kissed mummy.*

Consider also the Chinese construction in (22).

- (22) CHINESE (SINO-TIBETAN; Saihong Li, p.c.)
Wǒ jüédé tā zài nàr xiě-xìn.
 I feel [he CVB there write-letter]
 a. 'I felt him write a letter' (Immediate perception).
 b. 'I felt that he was writing a letter' (Acquisition of knowledge).

Like (18), (22) is ambiguous with respect to the contrast between 'immediate perception' and 'acquisition of knowledge', and the complement accordingly with respect to the contrast between 'object of perception' and 'knowledge acquired'. However, if the epistemic adverb *keneng* 'maybe' is introduced in the complement, as in (23), the 'immediate perception' reading is excluded.¹⁶

- (23) CHINESE (SINO-TIBETAN; Saihong Li, p.c.)
Wǒ jüédé tā keneng zài nàr xiě-xìn.
 I feel [he maybe CVB there write-letter]
 *a. 'I felt him maybe write a letter'.
 b. 'I felt that maybe he was writing a letter'.

Thus, the presence of an epistemic adverb is compatible only with a reading of the ambiguous complement as expressing 'knowledge acquired'.

To be sure, (21) and (23) do not illustrate the link between 'knowledge acquired' and epistemic qualification unequivocally. The unacceptability of (21a) and the exclusion of the reading in (23a) might be due not to the impossibility of qualifying 'object perception' epistemically, but rather to the restriction, noted in Section 1, that complements expressing 'object of perception' cannot describe something which is not accessible to perception. Arguably, epistemic qualification is not accessible to perception. However, the link is salient in the sense that perception verbs may evolve epistemic extensions, and that they may do so only in 'acquisition of knowledge' constructions such as (1b). The meaning of 'acquisition of knowledge' may obviously be considered epistemic itself. But two sets of subsequent epistemic extensions may be discerned. First, perception verbs may evolve the meaning of 'understand', 'realize' or the like, so that constructions like that in (1b) report that some piece of knowledge is acquired through a cognitive act of reasoning rather than through perception (cf. e.g. Sweetser 1990 and Schüle 2000). Second, perception verbs, together with the rest of the matrix clause in which they occur, may evolve into grammatical markers of source of information, evidentials (e.g. Aikhenvald 2004: 273-274; Boye and Harder 2007). In Maricopa (Hokan), for instance, the perception verb *yuu-k* 'see' in construction with the first person prefix ' - has grammaticalized into the visual evidential suffix 'yuu' (Gordon 1986: 83).

It appears, then, that the contrast between 'object of perception' and 'knowledge acquired' is closely related to the semantic contrast between *her singing of the aria* and *her singing the aria*.

The distinction between ungrounded and grounded processes cuts across this relationship: both *her singing of the aria* and *her singing the aria*, as we have seen, are analysed by Langacker as designating ungrounded processes, but whereas 'object of perception' may be expressed by means of an ungrounding clause, 'knowledge acquired' may be expressed by means of a grounding clause, as in (1a) and (1b) respectively.

The ontological distinction has been applied to many other contrasts. Consider, for instance, the contrasts illustrated in (24)-(28).

(24) *He may stay in that house.*

- a. 'He is allowed to stay in that house'.
- b. 'It is possibly true that he is staying in that house'.

(25) JACALTEC (MAYAN; Craig 1977: 241 and 235)

- a. *Wohtaj hin watx'en kap camixe.*
I.know I.make ? CLF/the shirt
'I know how to make shirts'.
- b. *Wohtaj tato aytzet ch'alaxoj jet bay chon tojtu'.*
I.know that is what is.given to.us where we.go ? that
'I know that they will give us something where we are going'.

(26) TURKISH (ALTAIC; Kornfilt 1997: 51)

- a. *(Ben)Ahmed-in öl-me-sin-den kork-uyor-du-m.*
(I) [Ahmet-GEN die-ANMLZ-3SG]-ABL fear-PROG-PST-1SG
'I was afraid that Ahmet would die' (or: 'I was afraid of Ahmet dying').
- b. *(Ben)Ahmed-in öl-düğ-ün-den kork-uyor-du-m.*
(I) [Ahmet-GEN die-FNMLZ-3SG]-ABL fear-PROG-PST-1SG
'I was afraid that Ahmet had died'.

(27) TURKISH (ALTAIC; Kornfilt 1997: 51)

- a. *Lütfen pencere-yi aç-mağ-ı unut-ma!*
please [window-ACC open-INF]-ACC forget-NEG
'Please don't forget to open the window!'
- b. *Lütfen pencere-yi aç-tığ-ın-ı unut-ma!*
please [window-ACC open-FNMLZ-2SG]-ACC forget-NEG
'Please don't forget that you opened the window!'

(28) TURKISH (ALTAIC; Kornfilt 1997: 53 and 52)

- a. *Ahmed-e ben-i bekle-me-sin-i söyle-di-m.*
Ahmet-DAT [I-ACC wait-ANMLZ-3SG]-ACC tell-PST-1SG
'I told Ahmet to wait for me (that he should wait for me)'.
- b. *(Sen) ban-a Ahmed-in öl-düğ-ün-ü anlat-ma-dı-n.*
(you) I-DAT [Ahmet-GEN die-FNMLZ-3SG]-ACC tell-NEG-PST-2SG
'You didn't tell me that Ahmet had died'.

Most often, the ontological distinction has been applied to modal-verb constructions like that in (24). The non-epistemic readings (a) and epistemic readings (b) of modal verbs, it has been argued, are bound up with readings of the accompanying infinitival clause as denoting, respectively, second- and third-order entities (Lyons 1977: 842-843), or events and propositions (Palmer 1979: 35, Perkins 1983: 7-8). However, different readings of predicates like 'know', 'afraid', 'forget' and 'tell' are bound up with a semantic contrast pertaining to clausal complements that can be described in a similar vein (cf. e.g. Dixon 2006: 23-31).¹⁷ What is known in (25a), what the speaker is afraid of in (26a), what the hearer is asked not to forget in (27a), and what is told in (28a), can be described as something which occurs, but does not have a truth value. In (25b), (26b), (27b), and (28b), on the other hand, it can be described as something with a truth value.

Accordingly, also these contrasts seem to be closely related to the contrast between 'object of perception' and 'knowledge acquired'. First, the link between the epistemic reading of the modal verb and the a-reading of the infinitival clause in (24) mirrors the link between epistemic qualification and 'knowledge acquired' discussed above. Second, semantic contrasts such as those exemplified in (24)-(28) seem frequently to be expressed by means of a morphosyntactic contrast between complements which is employed also to express the contrast between 'object of perception' and 'knowledge acquired'. In Jacaltec, for instance, the contrast between a gerund-like complement and a *that*-clause-like complement is employed for expressing both the contrast illustrated in (25) and the contrast between 'object of perception' and 'knowledge acquired' illustrated in (9). In Turkish, likewise, the contrast between "Action Nominal" or infinitive on the one hand and "Factive Nominal" on the other is employed for expressing both the contrasts illustrated in (26)-(28) and the contrast between 'object of perception' and 'knowledge acquired' illustrated in (5).

Again, the distinction between ungrounded and grounded processes seems to cut across the contrast. On the one hand, for instance, (24) is a finite clause and must thus be analysed as designating a grounded process irrespectively of whether the a-reading or the b-reading is chosen. On the other hand, (24) includes an infinitival clause which must be analysed as designating an ungrounded process irrespectively of which reading is chosen (Langacker To appear; cf. e.g. Langacker 1991: 240-281 on the analysis of English modals as grounding predications).

7. An alternative analysis of the contrast: non-referring vs. referring status

What is responsible for the contrast between 'object of perception' and 'knowledge acquired'? What is it that this contrast shares with contrasts such as those discussed in Section 6?

Both the traditional analysis outlined in Section 2 and the cognitive analysis outlined in Section 4 must be rejected. Both analyses are incompatible with a number of relevant cross-linguistic facts, as demonstrated in Sections 3, 5 and 6. As for the traditional analysis, the immediate reason for this is that it is incapable of capturing that the meanings of 'object of perception' and 'knowledge acquired' differ in terms of degree of complexity. As for the cognitive analysis, the immediate reason is that it invokes a distinction between non-deictic and deictic (i.e. a distinction between ungrounded and grounded) which cuts across the contrast between those meanings. In my opinion, however, a basic reason for the inadequacies is that the analyses take respectively a purely denotational and a purely cognitive¹⁸ approach to a contrast which turns on the link between conceptual contents and extra-linguistic, including non-cognitive, entities.

I propose to analyse the contrast in terms of a distinction which turns on the notion of reference as it is conceived of by Lyons (1977: 177-197; cf. Sainsbury 2005). Lyons deals with reference only in relation to nominals.¹⁹ However, his ideas can be unproblematically transferred to the analysis of clauses and clausal complements. More precisely, then, I propose to analyse the contrast between

'object of perception' and 'knowledge acquired' in terms of a distinction between non-referring and referring status respectively.

Lyons conceives of reference as a way of hooking language onto extra-linguistic entities. He sees reference as distinct from denotation (the relation between a linguistic expression and the set of potential extra-linguistic entities it describes and may be used to refer to) as well as from sense (the descriptive meaning or conceptual content of a linguistic expression).²⁰ However, the crux of his conception is that he defines reference as independent of the existence of referents. Reference presupposes the notion of referents, in the sense of extra-linguistic entities that are referred to, but the linguistically relevant distinction between referring and non-referring status is independent of the extra-linguistic distinction between having and not having a referent. Lyons' view of the distinction may be put like this: *to refer is to purport to have a referent* or *to stipulate the existence of a referent*, rather than *to have a referent*. Similarly, *not to refer is not to purport to have a referent* or *not to stipulate the existence of a referent*, rather than *not to have a referent*.

Lyons conceives of reference as primarily a communicative act (Lyons 1977: 177-178; cf. Cann 1993: 267): "it is the speaker who refers (by using some appropriate expression): he invests the expression with reference by the act of referring" (Lyons 1977: 177). He stresses that "reference is an utterance-bound relation and does not hold of lexemes as such, but of expressions in context" (Lyons 1977: 208). However, if reference is a communicative act, it must belong within the realm of intentionality (cf. Givón 2001: 439 on "referential intent"). And it must be the case that like any other communicative intention, a (derived) intention to refer can be coded or conveyed pragmatically. It seems to be compatible with Lyons' ideas, then, to follow Sainsbury and distinguish between non-referring and referring *expressions* (e.g. Sainsbury 2005: 45-46; cf. Lyons 1977: 177-178).

Thus, in a first formulation, the proposed analysis of the contrast between 'object of perception' and 'knowledge acquired' may be spelled out like this:

Clausal complements that express 'object of perception' do not refer: they do not stipulate the existence of a referent.

Clausal complements that express 'knowledge acquired' refer: they stipulate the existence of a referent.

Since reference is defined as independent of the existence referents, this analysis is immune to speculations about the nature of the possible referents of clausal perception-verb complements. It is irrelevant whether they are better characterized as, for instance, events, situations or states of affairs²¹, and whether they differ in ontological status. The complement in (1a) is as non-referring as the complement in (29a), and the complement in (29b) is as referring as the complement in (1b).

(29) a. *Paul saw a UFO beam up three unicorns.*

b. *Paul saw that a UFO beamed up three unicorns.*

With the proposed analysis there is no need to make a distinction between, for instance, real and fictional referents, as might be done in denotational approaches to reference (Sainsbury 2005: 75-76), or to deal with referents exclusively in terms of their mental representation, as is done in cognitive approaches (cf. the Langacker quotation below). Referents need not be dealt with at all. They only need to be recognized as possibly being there. As mentioned, the notion of reference central to the analysis does presuppose the *notion* of referents, in the sense of extra-linguistic entities that are referred to.

Because it does so, the notion of reference may be seen as bridging the gap between "conceptual referents" as conceived of in cognitive linguistics, and extra-linguistic referents as conceived of in denotational approaches to linguistic meaning. On the one hand, cognitive linguistics' notion of "conceptual referents" corresponds to a mainstream conception of the notion of sense as descriptive meaning or conceptual content. Just like sense, a "conceptual referent" is an inevitable result of comprehending (at least some kinds of) lexical linguistic expressions. Consider, for instance, the following remarks by Langacker.

In particular, any conceptualization, regardless of its level of complexity or the indirectness of its relation to peripherally connected experience, can function as the context [...] for the characterization of a semantic structure. So far as language is concerned, expressions like *unicorn*, *phlogiston*, *Donald Duck*, and *Do Support* are equivalent in status to nouns like *Ronald Reagan*, *dog*, *blood*, and *bicycle*. It seems apparent, then, that any linguistically appropriate notion of reference must resemble the cognitive-grammar notion of *designation* [...] in being applicable to any of these conceptual worlds. (Langacker 1987: 113-114)

In other words, having a "conceptual referent" – what Langacker calls a "semantic pole" – amounts to having a conceptual content. On the other hand, extra-linguistic referents are essentially something which linguistic communication can be said to be "about" (Lyons 1977: 177; cf. Cann 1993: 10-12), something which belongs to extra-linguistic, including non-conceptual, reality. Accordingly, the distinction made in the proposed analysis between non-referring and referring status can be seen as a distinction between simply having a conceptual content (or "conceptual referent"), and both having a conceptual content and stipulating the existence of an extra-linguistic referent – i.e. the existence of something of which the conceptual content is a conceptual representation. Thus, the analysis suggests that understanding the contrast between 'object of perception' and 'knowledge acquired' presupposes an approach which is neither strictly denotational nor strictly cognitive.

The proposed analysis can now be formulated in a more precise way:

Clausal complements that express 'object of perception' and clausal complements that express 'knowledge acquired' both have a conceptual content, but only the latter stipulate the existence of an extra-linguistic referent.

The analysis entails the following analyses of specific clausal complements: Complements like that in (1a) which code 'object of perception' are analysed as coding the intention not to refer, not to stipulate the existence of an extra-linguistic referent. In particular, the Japanese complementizer *no* in (4a), the Turkish "Action Nominal" marker in (5a), absence of Danish *at* in (6b), absence of English *to* in (7b), and absence of the Tukang Besi complementizer *kua* in (8b), all of which mark 'object of perception', can be analysed as marking non-referring (i.e. non-referent-stipulating) status. On the other hand, complements like that in (1b) which code 'knowledge acquired' are analysed as coding the intention to refer, to stipulate the existence of an extra-linguistic referent. In particular, expressions like the Japanese complementizer *koto* in (4b), the Turkish "Factive Nominal" marker in (5b), Danish *at* in (6b), English *to* in (7b), and the Tukang Besi complementizer *kua* in (8b), all of which mark 'knowledge acquired', can be analysed as markers of referring (i.e. referent-stipulating) status. As for complements like that in (18) which are ambiguous with respect to the contrast between 'object of perception' and 'knowledge acquired', they are analysed as being semantically neutral with respect to referential intentions, and thus qualified for conveying pragmatically either the intention to refer or the intention not to refer. In other words, all clausal

complements have sense, but while some are non-referring, others are referring, and still others may be either non-referring or referring, depending on context.

The proposed analysis is, I think, fully adequate. First, it makes possible a straightforward account of the contrast between 'immediate perception' and 'acquisition of knowledge' readings of perception-verb constructions. According to the analysis, complements like that in (1a) have a conceptual content, but do not refer. Arguably, then, their meaning consists of something similar to what can be obtained immediately through perception. Ultimately, of course, what is obtained immediately through perception is often caused by something non-conceptual which can be referred to. However, the point is that since complements like that in (1a) are not referring – since they do not stipulate that their conceptual content has an extra-linguistic referent – they do not express information about extra-linguistic matters. Rather than being about inputs to perception, their meaning is similar to the conceptual output of perception, a percept. Accordingly, constructions like that in (1a) may be used to report the immediate perception of "events which do not take place" (Kirsner and Thompson 1976: 212).

(30) *The delirious patient saw the room spinning around him, but we know it wasn't spinning.*

(31) *When the neurologist stimulated that particular area of her brain, Susan saw the light turn red even though it did not.*

And contrary to what is claimed by for instance Noonan (2007: 142); Barwise and Perry (1983: 188) and Dik and Hengeveld (1991: 240), they may be used to report the immediate perception of events that take place at a distinct point in time.

(32) *Tomorrow I will once again watch Nixon announce his resignation in my TV.*

(33) *In my crystal globe I saw Luxembourg beat Brazil 12-0 in the final of the Football World Championship in 2106.*

As opposed to that, complements like that in (1b) both have a conceptual content and refer. Accordingly, their meaning does not exclusively consist of something similar to what can be obtained immediately through perception. Just as truth values and grounding predications are arguably inaccessible to perception (cf. Sections 2 and 4), so is reference in the sense of stipulation of the existence of an extra-linguistic referent. Complements like that in (1b) give rise to 'acquisition of knowledge' readings because they refer to and thus convey information about extra-linguistic matters.

Second, the analysis captures the intuitions about the contrasts discussed in Section 6. Just like the complement in (1a), for instance, the complement in (27a) can be adequately analysed as having a conceptual content but being non-referring. Its meaning consists entirely of a conceptual representation of what should not be forgotten. It crucially comprises no stipulation of the existence of a referent of this representation. The whole idea of uttering (27a) is to avoid that a referent comes into existence. As opposed to that, the complement in (27b) can be analysed as both having a conceptual content and being referring. It expresses information about extra-linguistic matters in the form of a conceptual representation combined with a stipulation of the existence of an extra-linguistic referent of this representation. What should not be forgotten in (27b) is such a piece of information: the information that the addressee opened the window.

Third, the analysis captures the fact that in the contrast between 'object of perception' and 'knowledge acquired', as well as in the related contrasts, only one of the contrasting values can be

subjected to epistemic qualification. As discussed in Section 6, perception verbs that take complements like that in (1a) do not evolve epistemic extensions, and epistemic qualification cannot be predicated of nominalizations like *her singing of the aria*. This is captured straightforwardly by the analysis of such complements and nominalizations as having a conceptual content but being non-referring. Obviously, it makes no sense to qualify conceptual contents epistemically. Epistemic qualifications concern the relationship between conceptual contents and extra-linguistic entities that are represented conceptually. They only enter the picture when a conceptual content is stipulated to have a referent, and they specify the reliability with which the conceptual content can be taken to actually have a referent. Essentially, then, expressions of degree of certainty and source of information are concerned with *referential reliability*. This is why perception verbs that take complements like that in (1b) may evolve epistemic extensions, and why epistemic qualification can be predicated of nominalizations like *her singing the aria*. According to the proposed analysis, such complements and nominalizations both have a conceptual content and stipulate the existence of a referent of this representation. Thus, in constructions like (21b) *Paul saw (that) Santa Claus probably kissed mummy*, the epistemic adverb *probably* specifies the reliability (here, the degree of certainty) with which the conceptual content of the complement can be taken to actually have the referent it is stipulated to have.

Finally, the analysis is compatible with the cross-linguistic morphosyntactic pattern discussed in Section 3. According to the analysis, the meanings of 'object of perception' and 'knowledge acquired' differ with respect to degree of complexity. They share the feature of having a conceptual content, but only the latter meaning has the feature of stipulating the existence of a referent. This difference in degree of complexity is, I think, what is reflected iconically in the cross-linguistic tendency discussed in Section 3: the tendency for 'knowledge acquired', as opposed to 'object of perception', to be coded by additional morphological material.

The analysis proposed entails no commitment to either cognitive or denotational approaches to linguistic meaning. It is in fact incompatible with radical versions of both approaches, and in a sense bridges the gap between them. However, it can be adopted within a less radical approach which recognizes that linguistic meaning is at least partly a cognitive phenomenon, but even as a cognitive phenomenon cannot be understood in isolation from its non-cognitive environment. Within the camp of formal semantics, notably, the prerequisites for adopting the analysis are already there. At least theoretically, contemporary formal semantics gives due recognition to both the notion of sense and the notion of reference employed above (cf. e.g. Cann 1993: 10 and 267). In the section to follow I shall sketch how the analysis can be adopted within a cognitive approach.

8. Non-referring vs. referring status in cognitive linguistics

From the point of view of cognitive linguistics, adopting the analysis presents one problem. The distinction between non-referring and referring status presupposes both a notion of conceptual contents and a notion of extra-linguistic, including non-conceptual, entities, but cognitive linguistics prefers to stick with the former notion and deal with non-conceptual reality in terms of its conceptual representation. As already noted, for instance, Cognitive Grammar analyses even deixis as a purely cognitive notion. The deictic notion of grounding is defined in terms of the establishment of a relationship between two purely cognitive structures: a designated conceptual content on the one hand, and *the speaker's conception* of the ground, rather than the non-conceptual ground itself, on the other. Likewise, Mental Space Theory deals with non-cognitive reality in terms of a cognitive "reality space" (e.g. Fauconnier 1985).

There seems to be more than one solution to the problem. For instance, one might propose that the distinction between non-referring and referring status can be recast within Mental Space Theory as a purely cognitive distinction between having one copy of a conceptual content in a mental space which is not a reality space, and having two copies of a conceptual content, one in a reality space and one in another space (cf. Haspelmath's (1997: 106-111) analysis of the contrast between non-specific and specific phrases). That is, one might argue that complements like that in (1a) which express 'object of perception' evoke only one mental space, which is not a reality space, while complements like that in (1b) which express 'knowledge acquired' evoke two spaces, a non-reality space and a reality space.

Such a proposal would circumvent the problem of adopting the notion of referring status within a cognitive approach. However, the proposal is problematic itself. As noted by Harder (2003: 93), the ability to entertain more than one copy of the same conceptual content is a complex one. Thus, to account for referring status in terms of double representation is to invoke a too heavy burden on cognition when one takes into consideration the frequency of referring linguistic expressions.²²

I propose another way of adopting the distinction between non-referring and referring status. The proposal is simpler than that discussed just above in that it recasts the distinction as a distinction between different construals rather than as a distinction between numbers of mental spaces evoked. However, it presupposes a non-radical cognitive approach which allows us to describe linguistic phenomena not only in terms of relationships between purely cognitive structures, but also in terms of relationships between cognitive structures and non-cognitive phenomena.

The proposal exploits the fact that what has to be adopted is not the presupposed notion of extra-linguistic entities itself. Rather, it is a *relationship* – reference – between conceptual contents and extra-linguistic entities. Obviously, this relationship can be described as a cognitive one. Conceived of as an intentional act (cf. Section 7), reference is essentially a cognitive phenomenon and thus independent of whether the referent to which it relates exists or not. Accordingly, the distinction between non-referring and referring status can straightforwardly be conceived of in terms of a cognitive distinction between two ways of construing the same conceptual content: a distinction between construing and not construing a conceptual content as referring – as having an extra-linguistic referent. A simple illustration of the distinction is given in Figure 1.

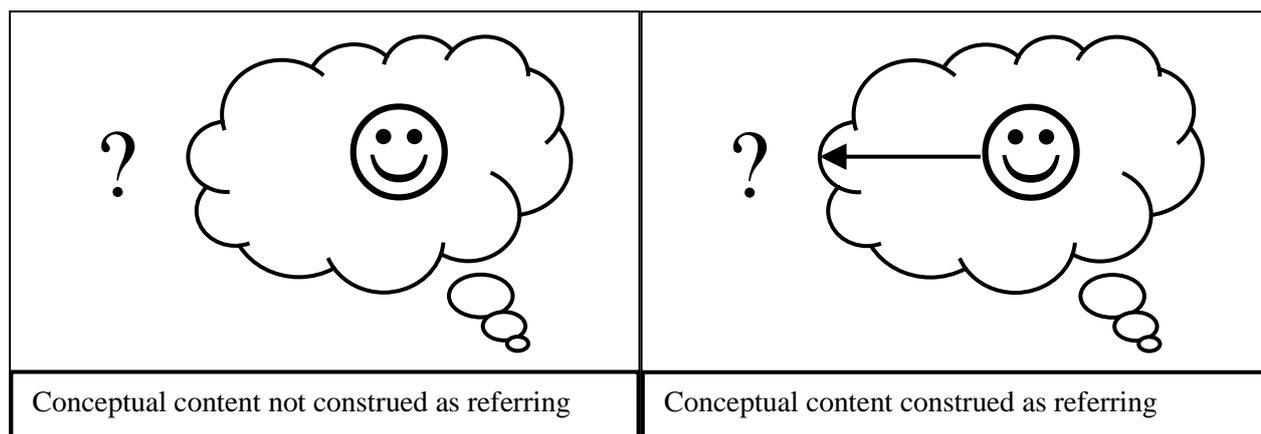


Figure 1. *The cognitive distinction between a conceptual content not construed as referring and a conceptual content construed as referring.*

In Figure 1, the thought bubbles illustrate a mental space. Inside the mental space we find a conceptual content, as illustrated by the happy person. Outside the mental space we find possible extra-linguistic referents. However, the question mark is meant to illustrate that we may entertain

mentally the concept of a happy person without there necessarily being a particular extra-linguistic happy person of whom our concept is a conceptual representation. Crucially, this is the case whether the conceptual content is construed as non-referring, as illustrated in picture to the left, or as referring, as illustrated in the picture to the right.

The arrow in the thought bubble to the right represents a hypothetical cognitive structure that we might call a *reference structure*. This structure is responsible for the construal of the conceptual content with which it is bound up as referring – as having an extra-linguistic referent. The idea of such a cognitive structure goes naturally with the assumption that human beings have a cognitive capacity not only to construct mental conceptual representations, but also to hook them onto something of which they are representations.

The proposed cognitive analysis of the distinction between 'object of perception' and 'knowledge acquired' can now be stated more precisely in terms of a distinction between two ways of construing a Langackerian process (i.e. the type of conceptual content evoked by verbs and clauses; cf. Section 4):

'Object of perception' involves a process not construed as referring, i.e. not construed as having an extra-linguistic referent.

'Knowledge acquired' involves a process construed as referring, i.e. construed as having an extra-linguistic referent.

In other words, we may hypothesize that understanding the meaning of 'object of perception' requires evoking a process not construed as having an extra-linguistic referent while understanding the meaning of 'knowledge acquired' requires both evoking a process and evoking a cognitive reference structure responsible for construing the process as having an extra-linguistic referent. A simple illustration of the distinction is given in Figure 2, which differs from Figure 1 only in that the conceptual content involved is a process (Figure 2's happy person turning sad) rather than a Langackerian thing (Figure 1's happy person).

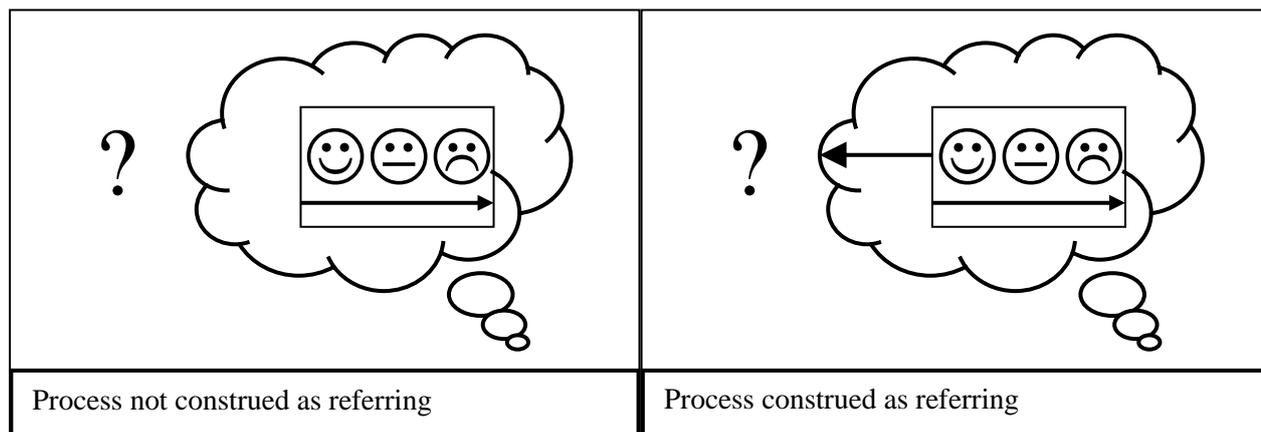


Figure 2. *The cognitive distinction between a process not construed as referring and a process construed as referring.*

9. Reference and grounding

As argued in Sections 5 and 6, Cognitive Grammar's distinction between ungrounded and grounded processes cuts across the contrast between 'object of perception' and 'knowledge acquired'.

Accordingly, it also cuts across the distinction between non-referring and referring status in terms of which the contrast was analysed in Sections 7 and 8. But the descriptive superiority of the notion of reference in the specific case of the contrast studied here does not mean that the notion of grounding can be dispensed with in a cognitive account. The two notions must be seen as distinct, but there is reason to conceive of them as related, and both are needed in order to give a full cognitive account of clausal perception-verb complements.

As for the difference between the two notions, it has already been emphasized that Langacker defines grounding as a purely cognitive relationship between purely cognitive structures: a conceptual content and the speaker's conception of the ground. However, I see no reason why it should not be redefined in terms of a relationship between a cognitive structure and something which is not necessarily cognitive but may belong to non-cognitive reality: the ground in physical, social and cognitive flesh and blood. With such a redefinition both grounding and reference can be seen as cognitive means of hooking conceptual representations onto (real or imagined) parts of the world.

The basic difference between grounding and reference is that grounding is a deictic notion whereas reference is not. Grounding is a deictic notion in the specific sense that it relates to the specific part of the external world known as the ground, the origo or the deictic centre of communication (cf. Section 4). Accordingly, a grounded process is a deictically specified process in the sense that it is related to the ground. For instance, the process designated by the complement in (1b) is a grounded and thus deictically specified process in the sense that the past tense form of the verb requires relating the process designated to the moment of speaking or writing.

As opposed to this, the notion of reference introduced in Section 7 is not a deictic notion. Reference does not necessarily relate to the ground. Reference simply relates to the (real or imagined) part of the world of which a conceptual content construed as referring is intended to be a representation. That is, the construal of a process as referring is independent of the construal of it as ungrounded or grounded. A process construed as referring may be construed as either identifiable or non-identifiable to the speaker or hearer, as proximal or distal with respect to the communicative origo, as (temporally or in a more abstract sense) immediate or non-immediate (Langacker 2002a: 8) to the ground, etc.

There may also be another difference between grounding and reference. According to Langacker, "grounding predications constitute a small set of highly grammaticized elements", and they "profile (designate) the grounded entity rather than the grounding relationship which provides their essential conceptual content" (Langacker 2002b: 29). Many markers of referring status also seem to be grammaticalized expressions. This is the case with Japanese *koto* in (4b), the Turkish "Factive Nominal" marker in (5b), Danish *at* in (6b), English *to* in (7b), and the Tukang Besi complementizer *kua* in (8b), for instance. However, it may be argued that markers of referential status need not be grammaticalized. Lexical expressions like *true* and *false* can be analysed as profiling (in Langacker's sense) what I have called a reference structure. Consider, for instance, the dialogue in (34).

- (34) Paul: *I saw that Santa Claus kissed mummy.*
Dad: *It's true that Santa Claus kissed mummy, but I don't mind.*

As argued, the complement *that Santa Claus kissed mummy* designates a process construed as referring. While the complement does not profile the reference structure, I suggest that *true* in Dad's reply does: *true* presupposes a process construed as referring, and as a lexical item it profiles the reference structure essential to this construal, and predicates tenability of the structure. Thus, whereas evoking a reference structure may be seen as the cognitive counterpart of having a truth

value, profiling and predicating tenability of a reference structure bound up with a process may be seen as the cognitive counterpart of predicating 'truth'.

In spite of these differences, there is, as mentioned, reason to conceive of grounding and reference as related, and both are needed in order to give a full cognitive account of clausal perception-verb complements. A relationship is evidenced by the fact that cross-linguistically the contrast between 'object of perception' and 'knowledge acquired' seems frequently – though by far not always – to be expressed by a contrast between tense- and mood-less non-finite clauses on the one hand, and deictic, tensed or mood-marked finite clauses on the other (cf. Section 6). That is, it seems frequently to be expressed by a contrast that may be suspected to express also the contrast between ungrounded and grounded processes. Basically, as mentioned, the two distinctions are related in that both a grounding relationship and what I have called a reference structure are ways of hooking conceptual representations onto (real or imagined) parts of the world. More precisely, I think, the relationship can be understood as hinging on the fact that grounding enhances the usefulness of the reference structure. Evoking a reference structure and thus construing a conceptual content as referring may be seen as a basic cognitive and social survival skill. In so far as it allows us not only to entertain conceptual contents and share them communicatively, but also to treat and communicate them as representations of some referent, it greatly enhances individuals' and communities' chances for survival. But obviously, the chances are enhanced even more if referring status is accompanied by a specification of the deictic coordinates for the conceptual content construed as having a referent. Such specification of deictic coordinates is exactly what is provided by grounding.

According to these considerations, the relationship between grounding and reference is functional, rather than conceptual. Grounding enhances the usefulness of reference, but reference need not be accompanied by grounding. A process construed as having a referent may be ungrounded. This is probably the case with processes designated by complements like those in (6b) and (7b). As noted, these complements are non-finite clauses and thus presumably non-grounding, but still they express 'knowledge acquired'. Moreover, it may be suspected that a process not construed as having a referent may be grounded. The process designated by the complement in (8a) may be a case in point. As noted, the complement shows signs of being finite, and it may thus be taken to designate a grounded process. But it is nevertheless non-referring. It expresses 'object of perception'.

10. Conclusion

In the preceding sections I have been concerned with clausal perception-verb complements and a contrast in meaning referred to as 'object of perception' vs. 'knowledge acquired'. On the basis of cross-linguistic data, I have argued that both the traditional, purely denotational, analysis of this contrast and an alternative, purely cognitive, analysis must be rejected. The analyses are inadequate in different ways, but the ultimate reason for the inadequacies is that the contrast can only be understood as turning on a link between conceptual contents and extra-linguistic entities which is found in the gap between the two approaches.

Subsequently, I have proposed and presented arguments in support of an alternative analysis which can bridge this gap. The crux of the analysis is Lyons' (1977) notion of reference and a concomitant distinction between non-referring and referring status. According to the analysis, complements that express 'object of perception' and complements that express 'knowledge acquired' both have a conceptual content, but only the latter are referring in the sense that they stipulate the

existence of an extra-linguistic referent – i.e. the existence of something of which the conceptual content is a representation.

I have sketched how this analysis can be adopted within a non-radical cognitive approach to linguistic meaning. In particular, I have argued that a cognitive notion of reference may complement Cognitive Grammar's distinct but related notion of grounding in giving a full account of clausal perception-verb complements. However, I think the analysis can be adopted within any approach to linguistic meaning which recognizes that linguistic meaning is at least partly a cognitive phenomenon, but even as a cognitive phenomenon cannot be understood in isolation from its non-cognitive environment. The notion of reference, as it is conceived of here, finds a central place in a basically functional approach which gives due recognition to both cognitive and non-cognitive facts and to the functionally motivated cognitive capacity of hooking conceptual representations onto the world.

As human beings we must have such a functional-cognitive capacity which allows us to not only entertain conceptual contents, but also to relate them to something of which they are representations and thus treat them as information about the physical, social and cognitive world that surrounds us. Without such a capacity, we would be incapable, for instance, of distinguishing the possibility of there being an actual wolf in the vicinity from the mere concept of a wolf. Construal of a concept as referring manifests this functional-cognitive capacity par excellence. Gathering and sharing information may be seen as tantamount to construing a Langackerian process as having a referent and sharing communicatively this construal with other members of the community.

However, there is no reason why the cognitive capacity of construing a concept as referring should be restricted to processes only. As demonstrated by Lyons and others, the notion of reference is relevant also to Langackerian things, that is, to nominals (e.g. Lyons 1977: 177-197; Sainsbury 2005). For instance, it seems that just like the contrast between 'object of perception' and 'knowledge acquired', the contrast between reading a nominal non-specifically and specifically, as in (35) (from Lyons 1977: 188), can be adequately analysed in terms of the distinction between non-referring and referring status.

- (35) *Every evening at six o'clock a heron flies over the chalet.*
a. 'Every evening at six o'clock a particular heron flies over the chalet'.
b. 'Every evening at six o'clock some heron or other flies over the chalet'.

Accordingly, Lyons (1977: 188) refrains from equating a non-specific reading like that in (35a) with “non-specific *reference*” (emphasis added) since “it is far from clear that it is correctly regarded as a referring expression”.

Notes

1. The research reported in this paper was supported by a grant from The Carlsberg Foundation. I am grateful to Michael Fortescue, Peter Harder, Ronald Langacker, Benedicte Nielsen, Mark Sainsbury and two anonymous reviewers for helpful comments on earlier versions of the paper. I also wish to thank a number of persons who have provided me with data on particular languages: Yıldız Bayar (Turkish), Claire Lefebvre (Fongbe), Saihong Li (Chinese) and Liliana Martinez and Mila Dimitrova-Vulchanova (Bulgarian).
2. As evidenced by the coherence of sentences like *we saw the invisible nerve gas kill all the sheep (but of course we didn't actually see the invisible nerve gas itself)* and *I felt George get on the other end of the water bed (but, of course, I didn't actually feel George)*, constructions

like (1a) describe the *global* perception of an event (Kirsner and Thompson 1976: 209; cf. e.g. Barwise and Perry 1983: 187). The instance of immediate perception they describe need not include perception of the entities (the invisible nerve gas or George) involved in the event. Accordingly, even though *time* and *faith* do not describe visible entities, I may be in a position to truthfully assert *I saw time go by* or *I saw faith accomplish miracles*. All that is required is that I received a visual sense impression of an event of which respectively *time go by* and *faith accomplish miracles* is an adequate (but possibly metaphoric) description (cf. Kirsner and Thompson 1976: 206 and 233-234 n. 5 on the observation that complements like that in [1a] need not be literal descriptions).

3. Barwise and Perry (1983: 194) make a distinction between descriptions of "direct acquisition of knowledge via perception" and descriptions of "acquisition of knowledge based on perception augmented by what one knows must be the case based on what one sees". But like Dik and Hengeveld (1991: 239-240), they are careful to keep both types of descriptions of "acquisition of knowledge" distinct from descriptions of "immediate perception".
4. The language sample comprises the following languages (parentheses give the classification according to Gordon 2005): Basque (Basque), Berbice Dutch Creole (Creole), Chinese (Sino-Tibetan), Danish (Indo-European), Finnish (Uralic), Fongbe (Niger-Congo), Hdi (Afro-Asiatic), Jacaltec (Mayan), Japanese (Japanese), Kannada (Dravidian), Kolyma Yukaghir (Yukaghir), Koyra Chiini (Nilo-Saharan), Lezgian (North Caucasian), Ngiyambaa (Australian), Panamint Shoshone (Uto-Aztecan), Tariana (Arawakan), Tukang Besi (Austronesian), Turkish (Altaic), West Greenlandic (Eskimo-Aleut), Yimas (Sepik-Ramu).
5. Note that not all studies of perception-verb constructions deal with the contrast between 'object of perception' and 'knowledge acquired'. For instance, Kirsner and Thompson (1976) discuss English perception-verb constructions at length, but do not associate the contrast between 'immediate perception' ("direct perception") and 'acquisition of knowledge' ("deductions from something perceived") with a semantic contrast between complements. They take all types of clausal-perception verbs to denote what they call a "situation" or "state of affairs" (e.g. Kirsner and Thompson 1976: 205 and 207). Barwise and Perry (1983: 193) deal with the contrast between 'object of perception' and 'knowledge acquired' in terms of a distinction between "scene" and "situation". But they consider "scene" merely a subtype of "situation" (Barwise and Perry 1983: 185) and seem to consider the complement contrast mainly a byproduct of the general contrast between 'immediate perception' and 'acquisition of knowledge'.
6. To be sure, the term "fact" suggests that the type of entity it refers to might be better defined in terms of being true or occurring rather than in terms of having a truth value. However, the meaning phenomena labelled by "fact" do not necessarily entail an assumption of factivity in the strict Kiparskyan sense of this term, and already Lees uses "fact" in a more relaxed sense of 'potential fact', synonymously with "a piece of information" (Lees 1960: 60; cf. also e.g. Fraser's (1970) and Dixon's (2006) uses of the same term; and cf. Langacker 1991: 32).
7. In linguistics as well as in philosophy, the exact nature of the two kinds of entities distinguished ontologically is controversial (cf. Lyons 1977: 443). In Rijkhoff 2002: 231-232, for instance, Functional Grammar's state of affairs is identified with "the speaker's description of an entity", "the linguistic structure: the clause" while Functional Grammar's propositional content is conceived of as identical with "the referent of the speaker's description", "the event" referred to in the description. But for Svenonius (1994: Ch. 1, Section 3.4.2; cf. Ch. 2, Section 3.1) the proposition is an "entity" identifiable as an "information unit". However, the lack of agreement with respect to the details does not spoil the overall consensus about the basic ontological distinction.

8. For instance, the complements exemplified in (1), *Santa Claus kiss mummy* and *(that) Santa Claus kissed mummy*, cannot be straightforwardly compared in terms of morphosyntactic complexity. Among the problems are that the complementizer *that* is not obligatory, and that *Santa Claus* is assigned a different case in (1a) than in (1b) (cp. *I saw him kiss mummy* and *I saw (that) he kissed mummy*).
9. Schüle's study comprises data from English, Russian, Modern Greek, the Albanian dialect Abëresh, German, French, Italian, Spanish (all Indo-European), Akatec (Mayan), Cayuga (Iroquoian), Mohawk (Iroquoian), Nez Perce (Penutian), Japanese (Japanese), Cambodian (Austro-Asiatic), Fijian (Austronesian), Malagasy (Austronesian).
10. All non-English data are glossed in accordance with the Leipzig Glossing Rules. Among the abbreviations of glosses used in the paper the following are not found in the list of standard abbreviations given in the appendix to the Leipzig Glossing Rules: AFF: affirmative; ANMLZ: action nominalizer; CORE: non-nominative core article; CVB: converb; DP: discourse particle; DPGV: distal extension, point of view of goal; FNMLZ: fact nominalizer; INCH: inchoative; ITER: iterative; PREP: preposition; PRPR: proprietive; REAL: realis; SEQ: sequential marker; SS: same subject marker; SUPERL: superlative.
11. In English, as in other languages, there is more than one way to express the contrast between 'object of perception' and 'knowledge acquired'. Like the infinitival complements in (1a) and (7a), the participial complement in *Paul saw Santa Claus kissing mummy* expresses 'object of perception', the main difference between the two types of complements being aspectual (e.g. Kirsner and Thompson 1976: 205 and 216-222; Barwise and Perry 1983: 180; Dik and Hengeveld 1991: 245). And like the finite complement in (1b), the *to*-marked infinitival complement in (7b) expresses 'knowledge acquired' (e.g. Kirsner and Thompson 1976: 205; Dik and Hengeveld 1991: 241-242).
12. The fact that 'object of perception' complements may be quite complex morphosyntactically is fully compatible with an analysis of them as being semantically simpler than 'knowledge acquired' complements. Obviously, perception-verb complements may have plenty of morphosyntactic trappings that have nothing to do with the contrast in meaning between 'object of perception' and 'knowledge acquired'. Identification of the morphosyntactic material responsible for the contrast is possible only when there is a morphosyntactic contrast, and safe identification is arguably possible only when the contrast is simple. To repeat, whenever the contrast between 'object of perception' and 'knowledge acquired' is marked by a single morphological opposition only, there is a tendency for the latter meaning to be coded by additional morphological material.
13. Langacker (To appear) quite clearly conceives of the distinction between ungrounded and grounded processes as the cognitive counterpart of the ontological distinction discussed in Sections 2 and 3 (in his words, a distinction between "events, which occur and can be caused as well as apprehended" and "propositions, which – while they pertain to events – do not themselves occur and cannot be caused; they can only be apprehended and assessed for validity"). In fact, he defines one of the two types of ontological entities distinguished, the "proposition", as a grounded process – that is, as a cognitive phenomenon. However, he takes the other type of entity, the "event", to be a non-cognitive phenomenon distinct from a grounded process.
14. As suggested to me by an anonymous reviewer, it might seem intuitively more plausible to claim implicit grounding of 'object of perception' meaning than of 'knowledge acquired' meaning. It has often been claimed that "the immediate perception of an event must have the same time reference as the event itself" (Noonan 2007: 142; cf. e.g. Barwise and Perry 1983: 188; Dik and Hengeveld 1991: 240). If this claim were correct, the grounding of clausal

perception-verb complements would follow implicitly from the grounding of the perception verbs under which they are embedded. However, the claim is not correct. As evidenced by sentences like *Tomorrow I will once again watch Nixon announce his resignation in my TV*, and *in my crystal globe I saw Luxembourg beat Brazil 12-0 in the final of the Football World Championship in 2106*, the immediate perception of an event need *not* have the same time reference as the event itself (cf. Section 7).

15. Arguably, only something which occurs can be qualified with respect to mode of occurrence, and only something with a truth value can be qualified epistemically (cf. the characterization of expressions of degree of certainty and source of information in terms of commitment to the truth in e.g. Aijmer 1980: 11; Bybee et al. 1994: 179; Coates 1983: 10).
16. In contrast to (22), (18) does not accept the epistemic adverb *keneng* 'maybe' in the complement. This difference is due to the fact that the perception verb in (18) expresses perception through vision – the most reliable of our senses (cf. e.g. Sweetser 1990: 37-40; Schüle 2000: 33; Aikhenvald 2004: 338) – while the perception verb in (22) expresses perception through the less reliable tactile sense. Only the less reliable perception reported in (22) is compatible with doubting (by means of *keneng*) the 'knowledge acquired' through perception (Saihong Li, p.c.).
17. Dixon 2006 distinguishes three types of entities denoted by clausal complements. However only the two first types, "activity" and "fact", are relevant in the present context. The distinction between these two types corresponds closely to the ontological distinction discussed in Section 2, and only these two types are invoked by Dixon in his account of perception-verb complements (Dixon 2006: 27). As for the third type, "potential", Dixon conceives of it as the referent of an English infinitive (Dixon 2006: 26), and he seems to take it to be more closely related to his "activity" type than to his "fact" type: a complement clause of the "potential" type "[g]enerally, refers to the potentiality of the subject of the complement clause [...] becoming involved in an *activity*" (Dixon 2006: 25; emphasis added).
18. Recall from Section 4 that grounding, although a deictic notion, is dealt with in Cognitive Grammar as a purely cognitive relation between a conceptual content and *the speaker's conception of the ground*.
19. Accordingly, Lyons does not associate the notion of reference with the contrast between 'object of perception' and 'knowledge acquired', or with his distinction between second-order and third-order entities discussed in Sections 2 and 3.
20. Lyons' (1977: 197-206) presents a conception of sense which is in his own words "somewhat narrower" than this. Sense is defined by Lyons "to hold between the words or expressions of a single language independently of the relationship, if any, which holds between those words or expressions and their referents or denotata" (Lyons 1977: 206).
21. Frege's idea that the reference of sentences is their truth value goes with a use of the term "reference" which is distinct from the use of the terms "reference" and "referent" in this paper. Barwise and Perry (1983: 21-26) argue that Frege's idea is bad anyway.
22. Moreover, as also noted by Harder (2003), the ability to entertain double representation is probably absent in children below the age of three. But there is no doubt that children below this age readily produce referring expressions.

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