

# SiN III

The third Semantics in the Netherlands day

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October 2004

Thursday, November 25th, 2004 @ Radboud University (*tufka* University of Nijmegen)

## Adverbial Objects in Latin and Ancient Greek

While transitive predicates are commonly characterized as taking two direct arguments, that is both a subject and a direct object, intransitive predicates are defined as taking only a subject argument. In this paper we discuss data from Latin and Ancient Greek that at first sight seem to advocate against this distinction in transitivity formulated above.

In both Latin and Greek neuter forms of pronouns and degree adjectives constitute a separate class of elements which seem to escape all constraints on direct objects. First of all they can function as an accusative direct object with intransitive verbs that normally take an oblique (prepositional and/or ablative case) marked complement. Compare (1a) with (1b).

- (1) a. laetor            (de)    bonis    rebus  
      be.pleased.1SG (about) good.ABL things.ABL  
      ‘I am pleased about good things.’  
      b. laetor            utrumque  
      be.pleased.1SG both.NEUT.ACC  
      ‘I am pleased about both things.’

Secondly, transitive verbs normally can only take one accusative marked direct object as is shown by the ungrammaticality of (2a). In order to express the two direct arguments in (2a) we have to use a periphrastic subjunctive construction as in (2b). This, however, does not hold for the class of neuter forms of pronouns and degree adjectives which can indeed be used as a second accusative marked object with transitive verbs, cf. (2c).

- (2) a. \*rogo    te            pecuniam  
      ask.1SG you.ACC money.ACC  
      ‘I ask you (for) money.’  
      b. rogo    te            ut            pecuniam    des  
      ask.1SG you.ACC in.order.that money.ACC give.SBJUNC.2SG  
      ‘I ask you to give money.’  
      c. rogo    te            multa  
      ask.1SG you.ACC many.NEUT.PL.ACC  
      ‘I ask you much.’

Finally, this set of elements constitute the only possible set of accusative objects with so-called gerund forms, inflected nominalized infinitives. In this paper we argue that this different behaviour exposed by neuter forms of pronouns and degree adjectives can be explained on the basis of a different semantic type that these elements have with respect to normal direct objects. We claim that these neuter elements are so-called predicate modifiers of type  $\langle\langle e, t \rangle, \langle e, t \rangle\rangle$  instead of direct semantic arguments of the predicate of type  $e$  or  $\langle\langle e, t \rangle, t\rangle$ . Evidence for this claim comes from the fact that in both Latin and Greek these neuter forms of pronouns and degree adjectives stand at the beginning of a grammaticalization path which leads them to become real adverbs. An example is the accusative neuter singular of the adjective *tantus* ‘so large, of such a size’ which became the adverb *tantum* meaning ‘only’.

# What's Left? Word Order and German Pronoun Resolution

Gerlof Bouma and Holger Hopp

Center for Language and Cognition (CLCG), Rijksuniversiteit Groningen

{gerlof,hopp}@let.rug.nl

Pronoun interpretation preferences have been used extensively as a diagnostic tool in Centering Theory (CT, Grosz et al. 1995), and vice versa, CT has been used as a basis for (computational) models of pronoun resolution. This talk reports empirical results on one of the central claims of CT: subject realization causes high salience.

By relating salience, topics and pronouns, CT predicts that the preferred interpretation of a single pronoun in an utterance is the element at the top of the salient list of the previous utterance. Classically, grammatical function determines salience: Subject  $\prec$  Objects  $\prec$  Others. However, this claim has been challenged on the basis of free(-er) word order languages. For German, Rambow (1993) argues that constituent ordering in the 'Mittelfeld' overrules obliqueness and Strube and Hahn (1999) replace grammatical function by NP-form and word order (for Finnish, see Kaiser (2003)). Arguments for canonical CT are put forth by Hofman (1998), Turan (1998) (Turkish) and Miltsakaki (2002) (Greek).

In (1), adapted from Rambow (1993), both constituent orderings are grammatical, although (1b) is marked. Rambow claims that the preferred reading for *sie* in (2) shifts depending on the NP ordering in (1), with the leftmost NP as the preferred antecedent. NP form not distinguishing between the two, Strube and Hahn also predict this alternation. By contrast, for canonical CT, the pronoun will always be linked to the subject in (1).

- (1) a. ... dass die Maßnahme der schottischen Wirtschaft helfen würde.  
that the.fem.nom measure the.fem.dat scottish economy help would  
b. ... dass der schottischen Wirtschaft die Maßnahme helfen würde.
- (2) Aber sie war zu primitiv.  
but it.fem was too primitive

To test between the models, we designed an interpretation preference task to elicit preferences for three sentence types: Subject-Object, Subject-Indirect Object – as in (1) – and (Subject) Indirect Object-Direct Object. Eighteen test sentences were presented in scrambled or non-scrambled orders. Items were embedded in mini-discourses and controlled for animacy, agreement marking, plausibility and givenness. Test items were presented among 18 fillers in two counterbalanced lists. Following each discourse, subjects read a sentence with an ambiguous pronoun as in (2). Then, subjects answered a question resolving the pronoun. Possible answers were either of the discourse antecedents or 'someone else'.

Twenty native speakers of German participated in this untimed web-based experiment. Statistical analyses of the results show a sharp difference in interpretation preferences for the Subject-Object and the Subject-Indirect Object conditions: irrespective of NP order, subjects prefer linking the pronoun to the grammatical subject compared to the object ( $p < 0.001$ ). There is no difference between answers linking the pronoun to the leftmost NP vs the other NP in either order ( $p > 0.4$ ). In addition, resolving the pronoun to grammatical subject is strongly preferred over leftmost NP ( $p < 0.001$ ) in either order and condition. In the Direct Object-Indirect Object condition, subjects show no pronoun resolution preference by grammatical role ( $p = 0.715$ ). Yet, neither do they show a preference by word order ( $p = 0.584$ ), nor a difference between grammatical role and leftmost NP ( $p = 0.895$ ).

We conclude that there is a strong subject effect in German pronoun interpretation. By contrast, word order does not affect pronoun interpretation. Yet, the effects of grammatical role are limited to subjecthood and do not extend to objects. We argue that these results refute word-order based proposals and support classical CT. However, they are incompatible with CT models that make a finer distinction between objects (e.g. Brennan et al. 1987).

## Is it possible and interesting to analyze indefinite NPs as being of type (e,t) ? A case-study of French *des*.

One of the most interesting problems of the semantic description of indefinite NPs is the difference between an existential and a partitive reading. This difference is demonstrated in (1) and (2):

- (1) Trois voitures se sont tamponnées hier sur l'autoroute. (Kleiber) FR  
Three cars bumped into each other yesterday on the highway.
- (2) Des élèves sont absents. (Galmiche) FR  
Øpl Pupils are absent.

While (1) simply states that three cars bumped into each other, (2) is prototypically analyzed as stating that in a class (or any other contextually defined group of pupils) some pupils were absent while most of them were present. It's this contrast that has led most non-TQG researchers to propose at least two semantic descriptions of indefinites; one for their existential reading and another for their partitive reading. It's against this scission that we would like to plead by analyzing a concrete example: NPs introduced by *des* (henceforth *des N*) in French. Our suggestion will be to analyze all uses of *des N* as being of type (e,t). Our main concern will be to explain how in our suggestion a partitive reading can still arise. First however we will show that it's the existence of a partitive reading that is responsible for an ambiguous analysis of indefinites and that it moreover leads to incompatibility problems between certain analyses of indefinites on the one hand and McNally's analysis of the existential construction on the other hand. Our own analysis of the existential construction and indefinites will solve these problems.

In the first part we will briefly present McNally's (1998) analysis of the existential construction. Afterwards, in the a second part, we will present Bosveld-de Smet's (1998) analysis of indefinites and we will see that it's incompatible with McNally (1998). In the third part we will present Dobrovie-Sorin&Laca's (2003) (and Dobrovie-Sorin&Beysade's (manuscript)) analysis and we will see that it is also incompatible with McNally (1998). In the fourth part we will adopt a unified (e,t) analysis of indefinites and we will try to explain how the partitive reading can still arise. In a final part we will draw our conclusions and raise questions for further research.

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## **Keeping semantics in mind: the role of meaning in cognitive processing**

Marian Coughlan

Logic and Cognition group

ILLC, University of Amsterdam

In this presentation I will argue for the necessity of developing semantic theory in tandem with cognitive theory. The impetus for this argument comes from research into human reasoning, which has been based on linguistic tasks but has largely neglected semantic features of the task (Stenning & van Lambalgen, 2004). Paying attention to these features in experiments yields data which are challenging both for cognitive scientists and for semanticists.

Here, I will present data from an interview study I conducted on the selection task (Wason, 1968) and other related reasoning tasks. The data show that different subjects extract different logical forms from the same text, readily re-interpret the same text in different ways, and are surprisingly sensitive to 'extra-logical' aspects of meaning (cf. Fillenbaum, 1978).

To account for this data, semantic and cognitive theories need to join forces. Theories of high-level cognitive processing must take seriously the process of meaning extraction and its role in reasoning. Semantic theory can help us understand this process, but in turn needs to pay attention to the interaction of context with cognitive state in determining attributed logical form, if it is to account for the full range of experimental findings.

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# Analyzing Anankastic Conditionals

Janneke Huitink  
Radboud University Nijmegen  
j.huitink@phil.ru.nl

In my talk I evaluate two recent proposals concerning the semantics of anankastic conditionals: the designated goal analysis of (von Fintel & Iatridou 2004) and the modal base restriction account of (von Stechow *et al.* 2004). Anankastic conditionals are a species of modalized conditionals in which the complement of the modal in the consequent expresses a necessary condition for achieving a goal set in the antecedent. The conditional in (1) expresses that the *only* way to get to Harlem is the A train.

(1) If you want to go to Harlem, you must take the A train. (Sæbø 2001)

Both von Fintel & Iatridou and von Stechow *et al.* take Kratzer's doubly relative semantics as their point of departure. In Kratzer's doubly relative semantics for modals and conditionals, the interpretation of modals is dependent on two conversational backgrounds: the modal base and the ordering source (Kratzer 1981). The modal base and ordering source parameters are constructed as functions from worlds to sets of propositions. The modal base  $f$  assigns to the world of evaluation  $w$  a set of propositions  $f(w)$  that describes the domain of possible worlds that the modal quantifies over. The ordering source  $g$  provides a further restriction to the domain. It assigns a set of propositions to  $w$  that serves to order the modal base worlds with respect to how close they are to the ideals expressed by  $g(w)$ . Thus, in the end, the modal quantifies over those modal base worlds that are best by the ordering source.

Von Fintel & Iatridou (2004) take over the Kratzer/Lewis insight that *if*-clauses are devices for restricting the domain of the modal operator in the consequent. According to Kratzer, *if*-clauses always restrict the *modal base*. But this analysis fails for anankastic conditionals. Instead, von Fintel & Iatridou propose that in (1) the *if*-clause adds a proposition to the *ordering source*:

(2) (1) is true in  $w$  relative to  $f$  and  $g$ , iff  
in all  $w' \in \bigcap f(w)$  that are closest by  $g^+(w)$ , you take the A train in  $w'$ , and  $g^+(w) = g(w) \cup \{\text{you go to Harlem}\}$

Additionally, von Fintel & Iatridou postulate that the hypothetical goal overrides any conflicting goals you actually have. Von Stechow *et al.* propose a similar analysis.

I argue that both analyses fail to account for the following scenario. I want to kiss Ruud van Nistelrooy in  $w$ . Both analyses claim that we have to take my wish of being intimate with Ruud into account in order to evaluate (1):  $g(w)$  contains my goal of going to Harlem and my goal of kissing Ruud van Nistelrooy. Note that these two goals aren't inconsistent. The problem is that my goal of kissing Ruud van Nistelrooy will interfere with my goal of going to Harlem. According to von Fintel & Iatridou's analysis, (1) is true iff in all circumstantially accessible worlds, where I get what I want as much as possible, I take the A train. But it may very well be the case that the A train isn't the only way to go to Harlem, but it is the best train because Ruud van Nistelrooy is on it. Thus we do not get that taking the A train is the *only* way to get to Harlem.

I propose that in the correct analysis, we let the *if*-clause just provide the ordering source, instead of adding the ordering source containing everything I want. The moral of this story about anankastic conditionals is that the pragmatic behavior of modal bases is very different from the pragmatic behavior

of ordering sources. Modal bases tend to get larger as the context grows, but ordering sources do not. Rather, they are just contextually provided.

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## Towards a dynamic model of mutual beliefs in information seeking dialogues

Roser Morante

In this paper I present a first attempt to define a dynamic model of mutual beliefs in information seeking dialogues. The model of mutual beliefs is a part of a model of context defined with the purpose of implementing it in a dialogue system. In my research I start from the hypothesis that incorporating a rich model of context in the dialogue manager improves the performance of a dialogue system. Part of my investigation focuses on defining such a model of context.

The theoretical framework of this research is DIT (Bunt 2000). In DIT a dialogue is viewed semantically as a structure of dialogue acts, defined as operators that update context in several ways. *Context* is defined as *the totality of conditions that may influence the understanding and generation of communicative behavior*. In DIT two types of context are defined, global and local, and five dimensions (linguistic, semantic, cognitive, physical, and social). *Context* includes the agent's beliefs (weak and strong) about various types of information and about the partner's current beliefs, relating to the underlying task and to each other's information state.

In this paper I concentrate on analyzing the processes involved in the creation and maintenance of the agent's beliefs about the partner's current beliefs, relating to the underlying task and to each other's information state. The data I analyze is a collection of information seeking dialogues, in which a user interacts with a simulated interactive help assistant of a fax machine, producing the type of dialogue shown in the following fragment:

U: Hoe stel je contrast in?  
S: Door op de contrast te drukken.  
U: Waar staat die?  
U: Oh daar, ik zie m'al.  
U: En ... afdrukkwaliteit?  
S: Dat weet ik niet.

For every utterance I make explicit:

(i) The effects of the utterance on the beliefs of both the listener and the speaker. I define a very limited set of beliefs (weak belief, strong belief) that act as functions, either on other beliefs, or on predicates that express the semantic content of the utterance. For example the first utterance of the previous fragment causes the effects that:

- The system has the belief that the user wants to know how to set up the contrast.
- The user has the belief that the system has the belief that the user wants to know how to set up the contrast.

(ii) The changes in the beliefs caused by operations on previous beliefs that get updated. As the dialogue evolves new beliefs are created and existing beliefs either change, or get cancelled. These processes reflect the flow of information in a dialogue. To model these changes I define a set of operations in order to update the beliefs (creation, strengthening, adoption, cancellation).

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# Reciprocity: An analysis (Working title)

R.A. Otte  
University Of Tilburg  
r.a.otte@uvt.nl

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## Abstract

In this paper, I will give an analysis of reciprocal expressions and of reciprocity in general. I will base my analysis on Dutch reciprocal expressions, partly because my native language is Dutch, and partly because in the existing literature very little can be found on Dutch reciprocal expressions. Most of the analysis, however, will be applicable to English as well.

After explaining the basic forms and uses of Dutch reciprocals, I will discuss some of the different kinds of meanings reciprocals receive in different contexts (sentences). A reciprocal in a sentence like *They are greeting each other*, for example, has an interpretation different from the one in *They are staring at each other*. I shall try to explain how these contexts are similar, in what way they differ, and how the reciprocals are responsible for these differences.

One issue related to the differences in reciprocal meaning, is whether this range of meanings results in ambiguity or vagueness. By using three tests — Conjunction Reduction, Lakoff's *And-so-AUX-NP* and the Negativity test — I shall try to prove that reciprocal sentences are vague, and not ambiguous.

Subsequently I shall focus on the question which kinds of reciprocity exist in natural language. I will argue that several forms of reciprocity suggested in the literature, for example Weak Reciprocity and Exclusive Alternative Ordering, in reality are deceptive forms of reciprocity. As a result, I propose a two-way split into Strong Reciprocity and Weaker Reciprocity. This proposal is the basis of the last, and perhaps most important, part of my analysis on reciprocals. Here, I will derive these two forms of reciprocity compositionally. After inspecting a number of reciprocal sentences, I will first give a formalization of Strong and Weaker reciprocity. Then I will propose a method for combining different kinds of subject NPs with these generalizations and discuss the implications for compositional semantics.

## On the weak-strong distinction and the Dutch quantifier *allemaal*

To interpret expressions of natural language, one can translate them into a logical representation and evaluate them against the “real” world to determine their truth-validity. In this light, the ambiguity of the Dutch quantifier *allemaal* (cf. Hollebrandse (2002), Hoeksema (1996)) as a weak and strong quantifier (in the sense of Milsark (1979)) can also be treated. In this talk, I will 1. analyze the ambiguity of *allemaal* in terms of the weak-strong distinction, 2. present an experiment testing child and adult interpretations of this quantifier and 3. analyze these results in a model of mapping between natural language, logic and the “world”.

The Dutch quantifier is ambiguous between a weak and a strong reading, depending on its syntactic position:

- (1) De papegaaien vliegen allemaal  
The parrots fly all  
“The parrots are all flying”
- (2) Er vliegen allemaal papegaaien  
There fly all parrots  
“There are many parrots flying”

In (1), *allemaal* is a floated quantifier and thereby used a strong quantifier. Pronominal use as in (2) renders a weak reading. Keenan (2002) underlines in line with Barwise and Cooper (1981) that quantifiers can be analyzed as denoting relations between sets and weak and strong determiners can be characterized as respectively intersective and co-intersective. A characterization in terms of intersectivity and co-intersectivity underlines the relation between the sets a quantifier denotes.

Subjects (20 5-6 year-old children, 10 adults) were tested in a truth-value judgment task, evaluating sentences, as in (1) and (2), as describing presented pictures (the “world”). The pictures used displayed exhaustive (all parrots flying) and non-exhaustive situations (some parrots not flying).

Adults matched the strong used quantifier with the exhaustive picture and the weak with the non-exhaustive picture. The strong used quantifier is in this case taken as co-intersective and the weak one as intersective, following Keenan (2002). The tested children do not see the ambiguity of *allemaal*. The children obey conservativity, but do not distinguish between co-intersective and intersective. One group takes *allemaal* to be intersective, and another co-intersective. This means the “intersective”/weak group doesn’t need to exhaust the relevant set. They allow (1) with the picture in which not all parrots fly. The “co-intersective”/strong group cannot have a reading for (2) and the picture in which not all parrots fly.

Summarizing, we can conclude that a characterization of the strong-weak distinction in terms of intersectivity and co-intersectivity is able to describe and explain the results of above described experiment discussing the acquisition of the quantifier *allemaal*. Further research should take the conditions of intersectivity and co-intersectivity into account if the acquisition of the quantifier system is subject of the matter.

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The generic article  
Henriëtte de Swart

There is a long-standing puzzle in the literature on genericity, involving the expression of generic generalizations by means of plurals. Languages like English, as well as other Germanic languages, use bare plurals to state generalizations such as ‘Dogs are intelligent’ or ‘Dinosaurs are extinct’. Romance languages and Hungarian on the other hand use definites, so one would rather say something like ‘The dogs are intelligent’ and ‘The dinosaurs are extinct’. In collaborative work with Donka Farkas, we argue that this difference is due to the existence of a competition between the definite and the indefinite article in generic environments. We claim that the crucial parameters governing article choice are weighed differently in different languages. A typological theory concerning article choice can then be formulated in terms of Optimality Theory. Given that the interpretation amounts to the same generic generalization, the choice of generic article does not have semantic consequences, and all languages are equally good at expressing genericity.

Michel Verhagen  
Radboud University Nijmegen  
M.Verhagen@let.ru.nl

## **Frames in Finance**

Extracting term candidates from chunked corpora semi-automatically, using frame semantics

In the tradition of frame semantics, we built a term candidate extractor for Dutch texts from the financial domain. Frames are normally used for a semantic description or classification for terminology of a specific domain, but we tried to use it as a basis for a term candidate extractor.

Frames consist of semantic slots which represent the semantic valence of the described predicates and their possible (syntactic) fillers. Our extractor is able to find these slots semi-automatically. We built frames for frequent verbs from the domain; similarly to predicate-argument-structures, the frames encode the (semantic) valency of the verbal predicate. In the spirit of frame semantics, roles can be assigned to the arguments. Our extraction tool can identify syntactic patterns in corpus sentences, because of the limited number of ways to syntactically express the arguments of a given predicate, especially in the language of a specific domain. Thus, a syntactico-semantic mapping from syntax patterns to roles of slots in the frame corresponding to the verb can be formulated and form the core of the term candidate extractor.

There are different mappings for active, passive and embedded participle constructions. Thereby, the slots can be filled along with the syntactic pattern acquisition. The availability of sentences classified according to frames allows to extract not only term candidates, but also semantic relations between those (via the roles). The concluding evaluation of the pattern extractor shows precision rates between 83% and 86% and recall rates between 80% and 82% for embedded participle and passive constructions. Results from active constructions are slightly lower, because of the lack of a case marker system in Dutch. Cooccurrence statistics and semantic annotation of the text corpus should help improving these results. Future work consists of improving both query macros and extraction rules in order to achieve better extraction results.

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## Travel

SiN III will take place at Erasmuslaan 9, room 01.26. It's situated opposite the University Library (UB) and the [Erasmusbuilding](#) (the highest one in town). To get there from Nijmegen central:

- Take bus 25 ("Heilig Landstichting") to the university library, or 11 ("Brakkenstein") to the Erasmusbuilding/Heyendaalseweg. (Bus 1 ("Molenhoek") takes a long detour but eventually stops at the Erasmusbuilding as well.)
- For completeness' sake, two more alternatives: take a bus to Tandheelkunde (near Radboud Ziekenhuis) and walk to the Erasmuslaan, or take the train to Station Nijmegen Heyendaal and walk along the Heyendaalseweg in the direction of the Erasmusbuilding.
- Here's a [map of the campus](#), and of the campus situated in [Nijmegen](#)

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*October 2004*

Thursday, November 25th, 2004 @ Radboud University (*tufka* University of Nijmegen)