

Report

Project A3: Formal semantics of functional concepts

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1 State of knowledge and goals

Functional nouns (like *temperature*, *father*) express functional concepts and differ from sortal nouns (like *house*, *concept*) as well as relational ones (*uncle*, *consequence*).

In formal semantics this provokes the question as to whether and in what degree the difference is visible in semantic composition. Under the perspective of type driven interpretation it is particularly interesting if it corresponds to a difference in logical types. Systematic investigation, let alone a received opinion, is still lacking in the formal semantic literature, particularly in respect to the difference between functional and relational nouns.

Much of the work on the difference between relational and sortal nouns has been carried out in the literature on possessive constructions, which represent a puzzle by expressing a relation that can either originate from the relational head noun (e.g. *brother* in 1a) or be determined by the context (cf. 1b) including relations like POSSESSION, AFFILIATION, CONTROL, etc.

- (1) a. *John's brother*
- b. *John's university*

The fact that the relation has to come from the context in cases like (1b) has given rise to the speculation that nouns may be of type *et* uniformly or behave that way after existential closure (e.g. Hartmann & Zimmermann 2002 for prenominal genitives). The relation has to ensue from the genitive even in cases like (1a) involving nouns that lexically encode a relation.

In contrast, several convincing arguments can be found in the literature supporting the assumption that the relational argument is active in compositional semantics, which results in a type theoretic distinction between sortal *et* nouns and relational *e(et)*, *e(e(et))* etc. nouns.

Barker (1995) points out that the English construction *N of NP* is constrained to properly relational nouns. In contrast (possibly due to blocking by NP), an inherent relation of this nature cannot be expressed by the construction *N of NP's* (cf. 2d) which is otherwise unconstrained.

- (2) a. **car of John*
 b. *car of John's*
 c. *picture of John* (John is the person portrayed)
 d. *picture of John's* (John is the owner)

Correspondingly, German change-of-state nominalizations require postnominal genitives to denote the UNDERGOER, whereas the interpretation of prenominal genitives is unrestricted (cf. Ehrich & Rapp 2000, Hartmann & Zimmermann 2002).

- (3) a. *die Explosion Alexanders*
 the explosion Alexander.GEN
 'the explosion of Alexander'
 b. *Alexanders Explosion*
 Alexander.GEN Explosion
 'the explosion of Alexander/administered by Alexander'

Second, predicative genitives are acceptable only with non-relational subjects (cf. Partee 1983/1997):

- (4) a. *That team is John's.*
 b. *#That brother is John's.*
 c. *#That favorite movie is John's.*

Third, Partee & Borschev (2003) have shown that genitives (of NP's) are ambiguous between arguments (type *e*) and modifiers involving a particular free relation, namely POSSESSION (predicates type *et*). Strong evidence for this position comes from a comparison between genitives in argument positions (cf. 5a) genitives in predicative position (cf. 5b); in the former case, the genitive cannot appear by itself as a predicate, but requires a (deleted) NP to form an argument.

- (5) a. *Sanderson's portraits are mostly better than his wife's.*
 b. *If Kandinsky's portraits had all been Gabriele Münter's, then I suppose they would all be in Munich now.*

In (5a) any relation between Sanderson and his portraits is acceptable (PORTRAYED, OWNER, PAINTER, ...); however, the same relation has to hold within the possessive phrase in the second conjunct. Partee & Borschev consider this to be an argument for the fact that the relation coming from the head noun is deleted after the second genitive. In the predicative position (cf. 5b), the same restriction applies to all inherent relations (PORTRAYED, PAINTER, ...). But *Gabriele Müntner's portraits* can receive a possession/control reading independently of how *Kandinsky's portraits* might be interpreted. This points to the assumption that POSSESSION/CONTROL readings can be contributed by the genitive itself (*of Gabriele Münter's* as $\lambda x[\text{POSS}(\text{gm},x)]$), whereas inherent relations (or other contextually salient relations) have to be obtained from the (possibly type-shifted) lexical entry of the head noun.

Fourth, no theory has been proposed that would explain why pragmatic salience is triggered by the lexical head of the construction primarily: *birthday* and *day* should be extensionally equivalent (every day is someone's birthday). If the possessive construction were to be interpreted by a free relation, the two answers should be equally acceptable, given that the

first sentence makes the birthday relation R salient. The fact that (6b) is significantly better than (6a) strongly suggests that possessive constructions do make use of lexically expressed relations (cf. Zimmermann 1995).

- (6) I'll tell you the birthday dates of all people in the department:
- a. *Ede's day is September 26, Magda's day is February 2, ...*
 - b. *Ede's birthday is September 26, Magda's birthday is February 2, ...*

It is generally assumed that relational arguments are visible to compositional semantic interpretation. They do not need to be mediated by contextual variables for relations to be filled by relations rendered salient by the semantics of the head noun.

As to the interpretation of possessive constructions in particular, Partee's & Borschev's arguments show convincingly that postnominal genitives in English are ambiguous between a modifier reading (a particular relation CONTROL/POSSESSION being contributed by the modifier) and argument readings (the relation being contributed by a relational head noun or a head noun that has been type-shifted to a relation along the lines of Jensen & Vikner 1994). Zimmermann & Hartmann (2002) argue for something similar for German postnominal genitives.

While the type-logical distinction between sortal and relational nouns has thus become more or less standard in formal semantic literature, it is much less clear whether functional and properly relational nouns should be assigned different logical types (e.g. *ee*, (*e, ee*), etc.) that correspond intuitively to the functional concepts expressed (which in the case of concepts like *father* relate one individual to another individual instead of relating him or her to a set of individuals).

In the literature we can find only few observations that might support a type theoretic reflex of functional vs. properly relational nouns. First, van Rooy (2003) shows that E-type pronouns in "bathroom sentences" depend on uniqueness of the antecedent:

- (7) a. *Either there is no bathroom or it is in a funny place.*
 b. *It is not true that there was no guest at the wedding. #He was standing right behind you.*
 c. *It is not true that there was no bride at the wedding. She was standing right behind you.*

Second, Partee & Borschev (2007) point out two constructions that might be specific to functional nouns. Only a very restricted class of nouns can appear as bare attribute NPs:

- (8) a. *a dress that size/length/color/price/*material/*design/*origin*
 b. *That shirt is blue. Blue is a nice color. ⇒ That shirt is a nice color.*

Moreover, Russian "genitives with obligatory third terms" seem to require functional nouns that specify a certain dimension, for which a value is attributed to the head noun by the obligatory third term.

- (9) *čelovek srednego rosta*
 Person medium-GEN height-GEN
 'a person of medium height'

A particularly interesting case is constituted by functional nouns that correspond to assignments that may change over time (*temperature, mayor*). They occur in intensional argument

positions of verbs like *rise* or *change*. Attempts to capture the semantics of the resulting construction evolve around Partee's "temperature paradox". To allow for access to different values in different worlds and at different times, such nouns are usually treated as denoting sets of individual concepts, type *(set)* (e.g. Montague 1974, Löbner 1979, Janssen 1984). This raises the issue that their intensions are index dependent in two ways: at different indices they may denote different sets (ordinary index dependence of intensions), but the sets denoted are sets of index dependent objects (individual concepts). As discussed in Dowty, Wall & Peters (1986), this causes intuitively valid inferences to fail. Hence, for the nominal domain, Laser-son (2005) has proposed to relinquish the assignment of type of *(set)* in the lexicon. Instead, he seeks to derive individual concepts by using the intension of Fregean definite descriptions. The strategy is claimed to encounter fatal limits with respect to quantification by Romero (2006). In her analysis individual concepts, both from the lexicon and from intensions of definite descriptions, play a crucial role both for phenomena related to the temperature paradox, as well as for "concealed questions" (cf. section 2).

The central goal of project A3 is to discover whether sortal, (properly) relational, and in particular functional nouns (temporally variable and temporally invariable) should be assigned different logical types. To this aim the project investigates (i) the interpretation of relational arguments (functional application, existential closure, anaphoric interpretation, quantification), (ii) definiteness effects to be observed with functional nouns, and (iii) index dependent functional concepts in intensional argument positions.

2 Results and their significance

On closer inspection and in contrast to what has been said for sortal vs. relational nouns, the arguments in favor of the distinction between properly relational and functional nouns operative at the level of semantic composition (and in the type driven framework corresponding to different types) are not compelling. Absence of a type-theoretic distinction between functional and properly relational nouns is also assumed by Nathan (2006) and Partee & Borschev (2007).

Van Rooy explains his observation in terms of uniqueness with respect to the Common Ground (to be understood according to Stalnaker 1970). Moreover, even if we were to adopt a logical type *ee* for functional nouns, it would not correspond to the class acceptable as bare NP-attributes in English. For example, *material* or *origin* seem to be functional concepts but give rise to ungrammaticality (compare also **a guy that father*). An alternative would be to adopt a more restrained functional logical type, which maps entities onto degrees of an additional basic type *d*. However, this is puzzling considering the acceptability of nouns like *color*; neither is it clear from the perspective of the natural language user what kind of degree should be expressed, nor is *color* confined to unique values, cf. (10) from Nathan (2006).

(10) *Blue is a color of the rainbow.*

Also, the Russian construction with an obligatory third term is not strictly confined to functional nouns. This is evidenced by the use of mass nouns denoting the material, which can be further specified to a particular subtype by the third term and do not constitute functional nouns.

- (11) *stol krasnogo dereva*
 table red-GEN wood-GEN
 ‘table made of mahogany wood’

Another kind of evidence might come from languages that distinguish two paradigms of definite determiners (e.g. German dialects, Frisian, Mauritian Creole; cf. Ebert 1971, Löbner 1985, Wespel 2006). In these languages the two main usages of definite determiners like *the* in English seem to be split, such that one expresses uniqueness (“weak paradigm”) and the other familiarity (“strong paradigm”). One could conjecture that weak determiners that can be combined with functional nouns, proper names, superlatives, etc., merge with expressions of type *e* (instead of *et*) requiring all functional nouns to map their relational arguments onto entities of type *e*, while strong determiners take *et* arguments. Schwager (2006d, 2007e,f) investigates the matter for Bavarian (as spoken in Lower Austria) and Alemannic (spoken in the vicinity of Feldkriech, Vorarlberg) and argues that uniqueness is neither sufficient nor necessary for the use of the weak definite article in both varieties. On the one hand, absence of uniqueness in the situation can be remedied by additional information known to speaker and hearer, which restores uniqueness (the restriction particular to the situation renders them slightly different from Löbner (1985)’s “configurational uses”), cf. (12). On the other hand, even inherently unique superlatives can be preceded by the strong definite article, in order to mark discourse coherence (cf. 13).

- (12) (Parents of more than one child, remembering in view of someone else’s child)
Wir haben vergessen, dass ma’s Kind abholn!
 We have forgotten that we the_{weak} child pick-up.
 ‘We’ve forgotten to pick up the child!’ BAVARIAN
- (13) *Dr Hans heat jetz s’eindeutig längschte Buach vo sienara Karriäre gschriba, und*
 the_{weak} Hans has now the_{weak} clearly longest book of his career written, and
d’Maria heat des längschte Buach bei anam Vrlag untrbrocht.
 the_{weak} Maria has the_{strong} longest book with a publisher place
 ‘Hans has now written the surely longest book in his career, and Maria has found
 a publisher for that longest book.’ ALEMANNIC

Schwager (2007e) proposes a solution in terms of uniform *et* arguments for definite determiners, in which the weak article presupposes the existence of a functional concept, while the strong article presupposes the existence of an appropriate discourse referent (in the sense of van der Sandt 1992).

Having concluded that neither predicative nor argument positions in extensional contexts provide support for assigning logical types like *e*, *ee* or *e(ee)*, we have to investigate intensional argument positions.

Schwager (2006a,b,2007a,b,g,t.a.-b) argues that Lasersohn’s solution in terms of intensions of definite descriptions should be extended beyond what Romero (2006) claims to be possible. With respect to functional nouns, one could resort to quantification over the implicit argument without running into a proportion problem.

- (14) a. Most temperatures are rising.
 b. *Most contextually given objects are such that their unique temperature is rising.*

$\text{MOST}(\lambda x[C(x)], \lambda x.[\text{rise}_w(\lambda w.\text{ty}[\text{temperature}_w(x)])])$

Nevertheless, apart from functional nouns like *mayor*, nouns denoting bundles of functions for a given object (e.g. *critical value*, ...) or relations (e.g. *bodyguard*, ...) can appear in the subject position of an intensional verb:

- (15) a. *Three mayors have changed.*
 b. *Three critical values (of Smith) are rising.*
 c. *Three bodyguards (of Arnold) have changed.*

In these cases it is not possible to count implicit arguments as there is only one, nor could we find a unique critical value/bodyguard for the intended implicit argument. Schwager (2006a,b, 2007b,g,t.a.-b) explores two different ways to deal with these (i) type shifts, (ii) conceptual covers.

The implementation in terms of type-shifts is similar to what is proposed in Nathan (2005). It allows for an asymmetric treatment of world and time. Nevertheless, it has to resort to highly flexible type shifting and it does not account for the amount of context dependence observed in the interpretation of examples similar to (15c). For (15a) to be true, the overall set of mayors need not change, granted that at least three of the cities under observation have a new mayor afterwards (“pointwise change”), while (15c) normally requires that three members within the set of bodyguards have been exchanged with new individuals (“set change”) (Nathan’s puzzle). Nevertheless, this effect is highly context dependent: in a scenario where each bodyguards is understood as having a distinct role (e.g. guarding front door/back door/car/roof), an interpretation in terms of pointwise change is easily obtained. Another contextual effect consists in the interpretation of (16), by way of the direct opposite of the temperature paradox:

- (16) *The temperature in Ede’s office is already 32 degrees and I think that 32 degrees is going up by mid-afternoon.*

Both effects are captured naturally in the second approach in terms of conceptual covers.

Verbs like *rise* and *change* are analyzed as denoting sets of individual concepts, but nouns like *temperature* or *mayor* denote sets of individuals at an index, once their implicit argument has been filled. According to Aloni (2000), it can be assumed that quantification, interrogation and belief attribution have to proceed with respect to a certain perspective taken on the individuals in the utterance context. Such a perspective is called a conceptual cover and consists in a set of individual concepts that may not overlap at any index (uniqueness) and jointly pick out all individuals at each index (exhaustiveness).

- (17) Given a set of indices (pairs of worlds W and temporal instants T) and a universe of individuals D , a conceptual cover CC based on $(W \times T, D)$ is a set of functions $(W \times T) \rightarrow D$ such that: $(\forall(w,t) \in W \times T)(\forall d \in D)(\exists!c \in CC)[c(w,t) = d]$.

Now, quantification proceeds with respect to a salient conceptual cover: the restrictor singles that part of the salient conceptual cover that describes the extension of the restrictor before

and after the change (i.e. picks out all *bodyguards*, *mayors*, ... at the relevant interval). Depending on how many of these individual concepts verify the property expressed by the nuclear scope, the quantification is validated as true or false. For change, it depends on the type of conceptual cover if the entire set has to change or if pointwise change is sufficient. Pointwise change is sufficient whenever the restrictor makes a set of temporally variable functional concepts salient, as for example {the mayor of Frankfurt, the mayor of Düsseldorf, ...}. Of course, this is a typical effect of functional nouns. Relational nouns, in contrast, tend to make a conceptual cover salient involving names (e.g. {Petra Roth, Joachim Erwin, ...}), the elements of which do not change over time. Consequently, in order for *change* to be at all felicitous, speakers resort to a strategy of supervaluation that gives rise to the interpretation of set change. The fact that contextual information can override the tendencies observed for functional and relational nouns is perfectly in line with the pragmatic solution.

Schwager (2007, t.a.-a) extends the analysis of NPs in intensional argument positions to the phenomenon of concealed questions. Concealed questions consist in noun phrases being interpreted like embedded questions (cf. Heim 1979):

(18) *Cecile knows Ede's telephone number.*

Cecile knows what Ede's telephone number is.

Schwager (2007, t.a.-a) points out that all approaches to individual concepts involve belief of singular propositions, which is known to be problematic for independent reasons and can easily be shown to lead to contradictory results. Heim (1979) and Frana (2006) have indicated that concealed questions involve *de re*-belief (cf. also Zimmermann & von Stechow 2005, cf. below), but belief about individuals simpliciter is replaced by belief regarding individuals in a certain guise. Again, these come from a contextually salient conceptual cover. What a sentence like (18) asserts is that there is an individual concept, which forms part of the salient conceptual cover and picks out the actual phone number of Ede and it also picks out Ede's phone number in each world compatible with Cecile's beliefs. In the given context, the identifier choosing Ede's telephone number is most likely a certain number. The need for two sets of identifiers (e.g. {the phone number of Ede, the phone number of Cécile, ...} vs. e.g. $\{n \in \mathbb{N} \mid 99 < n < 1\,000\,000\}$) explains why functional nouns make well concealed questions with definite noun phrases: they give rise to a first set of individual concepts as needed for the task of cross-identification. Likewise, it follows that noun phrases denoting objects without "independent names" normally cannot appear as concealed question DPs.

(19) *#John knows the shoes.*

The approach also allows for an elegant solution of a problematic ambiguity in sentences involving relative clauses (cf. Heim 1979. Romero 2006):

(20) *John knows the price Fred knows.*

Depending on whether John is like Fred in being able to identify the actual price of a particular object (e.g. the milk) by a certain number, or whether John can identify the price of milk as the price Fred knows (whatever its value), we obtain the two readings without resorting to higher types.

In Castroviejo Miro & Schwager (2008) the approach is extended to the arguably related phenomenon of concealed exclamatives.

So far, with respect to a possible unification of subject intensional verbs like *rise* and *change* and object intensional verbs like *seek*, *paint*, ... Zimmermann's studies of opaque verbs in general (Zimmermann 2005c,2006a,g) and depiction verbs in particular (Zimmermann 2006c,d,2007a,b) reconfirm a difference between the two classes. Objects of opaque verbs denote properties and are different from subject positions of *rise* and *change*, treated as encompassed by individual concepts. Nevertheless, the uniform treatment for concealed questions containing definites, indefinites or quantifiers, as proposed in Schwager (t.a.-a, 2007c), employs a type shift of individual concept traces to properties. It remains to be seen if this reflects a deeper connection between the two phenomena or just a superficial type logical reflex.

Investigations of the subject positions of verbs like *rise* and *change* as well as concealed questions reveal that functional concepts play a crucial role at the interface between semantics and pragmatics operative in compositional semantics; nevertheless, a type logical distinction between functional and properly relational nouns does not seem necessary.

3 Relation of work schedule to outcome

As described in 2, the results obtained so far touch upon all the issues mentioned in the schedule. As intended for the first year, possessive constructions have been investigated as providing evidence for type assignments to functional and (properly) relational nouns. Given that a type theoretic distinction between functional and properly relational nouns proved not to be supported by data from extensional contexts, it seemed essential to promote the investigation of intensional constructions (originally scheduled for the third year), in order to approach the main topic of project A3. A fragment (for English) emerges from the presentation in Schwager (t.a.-a, t.a.-b). The investigation of the intensional constructions has provided insights with regard to the interpretation of relational arguments (scheduled for the second year). The theoretical background of anaphoric vs. existential interpretations, as well as the issue of (in)definiteness inheritance in possessive constructions is currently under investigation against the background of what has been achieved. Further insights into these issues will be attained during the last period of the project.

4 Cooperation

4.1 within the research unit

- regular participation in the weekly meeting in Düsseldorf (Schwager, Zimmermann)
- participation in the conference CTF07 (Ritter, Schwager, Zimmermann), presentation (Schwager)
- collaboration with A1: presentation at seminar “Semantik der Possessivierung” in Frankfurt:
Albert Ortman (Universität Düsseldorf) “(In)Alienabilitätssplits und die Typologie der adnominalen Possession”, 16 November 2006.
- presentation at the FFF-colloquium in Düsseldorf (Schwager 2006b)

4.2 with external partners

Meetings and discussion with the following colleagues:

- Vladimir Borshev and Barbara Partee (University of Moskow/UMass): CTF07; Berlin, 23-25 August 2007. (Zimmermann, Schwager)
- Irene Heim (MIT): Semantiknetzwerk (Schwager, Zimmermann), SALT XVI (Schwager)
- Theo Janssen (ILLC Amsterdam): AC Amsterdam, DIP-colloquium Amsterdam (Schwager)
- Friederike Moltmann (IHPST Paris): AC Amsterdam (Schwager), Talk at FFF-colloquium in Düsseldorf, 07 June 2006: “Comparatives without Degrees”. (Schwager, Zimmermann)
- Kjell Johan Sæbø: (University of Oslo): Frankfurt (cf. below), Talk at FFF-colloquium in Düsseldorf, 06 December 2006: “Relational Nouns: Syntactic and Semantic Saturation”. (Schwager, Zimmermann)
- Philippe Schlenker (Institut Jean-Nicod/NYU): Frankfurt (cf. below), Semantiknetzwerk (Schwager, Zimmermann), Workshop *Specificity*, Stuttgart, 31 August 2006 (Schwager)
- Agnes Bende-Farkas (IMS Stuttgart): Workshop *Specificity*, Stuttgart, 31 August 2006 (Schwager)
- Manfred Krifka (HU Berlin/ZAS): ZAS Semantikkreis (Zimmermann), Semantiknetzwerk (Schwager, Zimmermann), Workshop *How to refer to one’s own words*, Potsdam, 11-15 July 2006 (Schwager), Workshop *Imperatives*, ZAS Berlin, 25 November 2006 (Schwager)
- Klaus von Heusinger (University of Stuttgart): Workshop *Specificity*, Stuttgart, 31 August 2006 (Schwager), presentations Stuttgart (Schwager 2007h,i)

Invited talks relevant to the topic

- Julia Staffel (USC) “Considerations on the Semantics of Predicates of Personal Taste”, 10 January 2008
- Wolfgang Sternefeld (Universität Tübingen) “Anmerkungen zur Interpretation sogenannter interpretierbarer Merkmale”, 19 July 19 2007
- Doris Penka (Universität Tübingen) “A cross-linguistically unified analysis of negative indefinites”, 28 June 28 2007
- Philippe Schlenker (Institut Jean Nicod/UCLA) “Beyond Dynamic Semantics: The Case of Presupposition”, 21 June 21 2007
- Kai von Stechow (MIT) “Some Notes on Strawson Downward Entailment”. 19 April 2007
- Kjell Johan Sæbø (University of Oslo) “Explaining Clausal Exclamatives”, 07 December 2006
- Dorit Abusch (Cornell University) “Triggering from Alternative Sets and Projection of Pragmatic Presuppositions”, 29 June 2006
- Manfred Kupffer (Universität Konstanz) “The Context Principle”, 01 June 2006
- Ron Artstein (University of Essex) “Detecting anaphoric ambiguity through corpus annotation”, 05 January 2006

Fernando, Tim (Trinity College Dublin) “Compositionality from above, below and sideways”, 15 December 2005

5 Publications and activities

Publications

Magdalena Schwager

- (t.a.-a) Keeping prices low. In Grønn, A. (Ed.), *Proceedings of SuB 12*, Oslo: ILOS.
- (t.a.-b) Bodyguards under cover: the status of individual concepts. In *Proceedings of SALT XVII*. Cornell, Ithaca: CLC Publications.
- (t.a.-c) Conditionalized Imperatives. In Tancredi, C., Kanzawa, M., Imani, I. & Kusumoto, K. (Eds.) *Proceedings of SALT XVI*. Cornell, Ithaca: CLC Publications.
- (2005) Exhaustive Imperatives. In Dekker, P. & Franke, M. (Eds.) *Proceedings of the 15th Amsterdam Colloquium, 19-21 December 2005*.

Thomas Ede Zimmermann

- a) Articles in journals
 - (2006a) Monotonicity in Opaque Verbs. *Linguistics and Philosophy*, 29, 715-761.
 - (2005a) What's in Two Names? *Journal of Semantics*, 22, 53 - 96.
- b) Papers in collections
 - (2006b) The Values of Semantics. In Brandt, P & Fuß, E (Eds.), *Form, Structure, and Grammar* (pp. 383-397). Berlin.
 - (2005b) [mit Arnim von Stechow] A problem for a compositional treatment of de re attitudes. In Carlson, G. & Pelletier, F. J. (Eds.), *Reference and Quantification: The Partee Effect* (pp. 207-228). Stanford.
 - (2005c) Coercion vs. Indeterminacy in Opaque Verbs. In Kahle, R. (Ed.), *Intensionality* (pp. 217-265). Natick, Mass.
- c) Working papers
 - (2006c) Quaint Paint. In Gärtner, H.-M. & Beck, S. (Eds.), *Between 40 and 60 Puzzles for Krifka*. Online publication, <http://www.zas.gwz-berlin.de/publications/40-60-puzzles-for-krifka/>

Talks

Magdalena Schwager

- (2008) [with Elena Castroviejo Miro] Amazing DPs. To be presented as a poster talk at SALT XVIII, University of Amherst, Massachusetts, March 21-23.
- (2007c) Keeping Prices Low, *Sinn und Bedeutung* 12, Oslo, September 20-22.
- (2007d) Bodyguards under cover: the status of individual concepts. SALT XVII, University of Connecticut, May 10-13.
- (2007e) Possession und Definitheit. Guest lecture (*Linguistischer Arbeitskreis*), University of Cologne (July).
- (2007f) How definite are pronominal genitives. Workshop, University of Vienna, June 30-July 1.
- (2007g) (Non-)Functional Concepts: Definite Articles in Bavarian. 8th Szklarska Poreba Workshop, 23-25 February.
- (2007h) Definitheitsmarkierer im Bayrischen. Workshop *Definiteness*, University of Stuttgart, 26 January.
- (2007i) Change under cover: The status of individual concepts. Guest lecture, University of Stuttgart, 25 January.
- (2006a) What mayors, strikers and bodyguards might tell us about individual concepts. Guest lecture (DIP-colloquium), ILLC Amsterdam, 15 December.
- (2006b) Das Thema hat sich nicht geändert: Funktionalbegriffe aus satzsemantischer Sicht. FFF-Treffen, Düsseldorf, 25 October.
- (2006d) Relativ Definit. Guest lecture, University of Vienna, 14 November 2006.

- (2006e) The Topic Has Changed: On Functional Concepts. *Semantiknetzwerk VI*, Barcelona, 19-20 September.
- (2006f) Living on the Addressee. Workshop *How to refer to one's own words* in honour of Anita Mittwoch, Berlin, 11-15 July.
- (2005a) Exhaustive Imperatives. 15th Amsterdam Colloquium, 19-21 December.
- (2005c) Between Necessity and Possibility: Imperatives as Graded Modals. Workshop *Imperatives*, ZAS Berlin, 25 November.

Thomas Ede Zimmermann

- (2007a) Painting and Opacity. Evening Lecture, ESSLLI 2007, Trinity College Dublin, August 15.
- (2007b) Painting and Opacity. Invited talk at SALT XVII, University of Connecticut, May 11.
- (2006d) Remarks on Depiction Verbs. Festshop anlässlich des 60. Geburtstags von Rob van der Sandt, Galerie Marzee, Nijmegen, 23 May.
- (2006e) On the Significance of Semantic Values. Kolloquium des Fachbereichs Philosophie, Università degli Studi di Milano, 07 April.
- (2006f) Von den Werten in der Semantik. Gastvortrag, Graduiertenkolleg *Universalität und Diversität: Sprachliche Strukturen und Prozesse*, Universität Leipzig, 01 February.
- (2006g) Opaque Objects: Two Theories. Workshop *Intensional Verbs and Nonreferential Terms*, Institut d'Histoire et de Philosophie des Sciences et des Techniques & Institut Jean-Nicod, CNRS, Paris, 14 January.
- (2005h) Die inneren Werte der Semantik. Gastvortrag am Institut für Maschinelle Sprachverarbeitung, Universität Stuttgart, 15 November.

Alexandra Ritter

MA thesis: "Das Verständnis von Quantoren bei 5-Jährigen DAM-Kindern – Die Entwicklung einer Studie"

Supervised by Prof. Petra Schulz and Prof. T. E. Zimmermann

Participation at conferences and summer schools

- Workshop Specificity, University of Stuttgart, August 31, 2006. (Schwager)
- summer school ESSLLI 2007, Trinity College Dublin, 07 August 2007 – 20 August 2007. (Schwager, Zimmermann)
- regular participation at the meetings of Semantiknetzwerk (coordinator: Uli Sauerland); (Schwager, Zimmermann)
- regular participation at Semantikkreis ZAS Berlin (coordinator Kerstin Schwabe), (Zimmermann)

Participation at weekly meetings at the University of Frankfurt

- colloquium at the graduate school "Satzarten" (Zimmermann, Schwager, Ritter)
- Logisch-Semantisches Kolloquium (Oberseminar Zimmermann; participants: Schwager, Ritter)
- courses taught on the topic: "Semantik der Possessivierung" (Zimmermann, seminar, winter term 2006/07; participants: Schwager, Ritter), "Semantische Nominalklassen" (Schwager, proseminar, winter term 2006/07)

References (apart from work within the project, cf. 5)

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