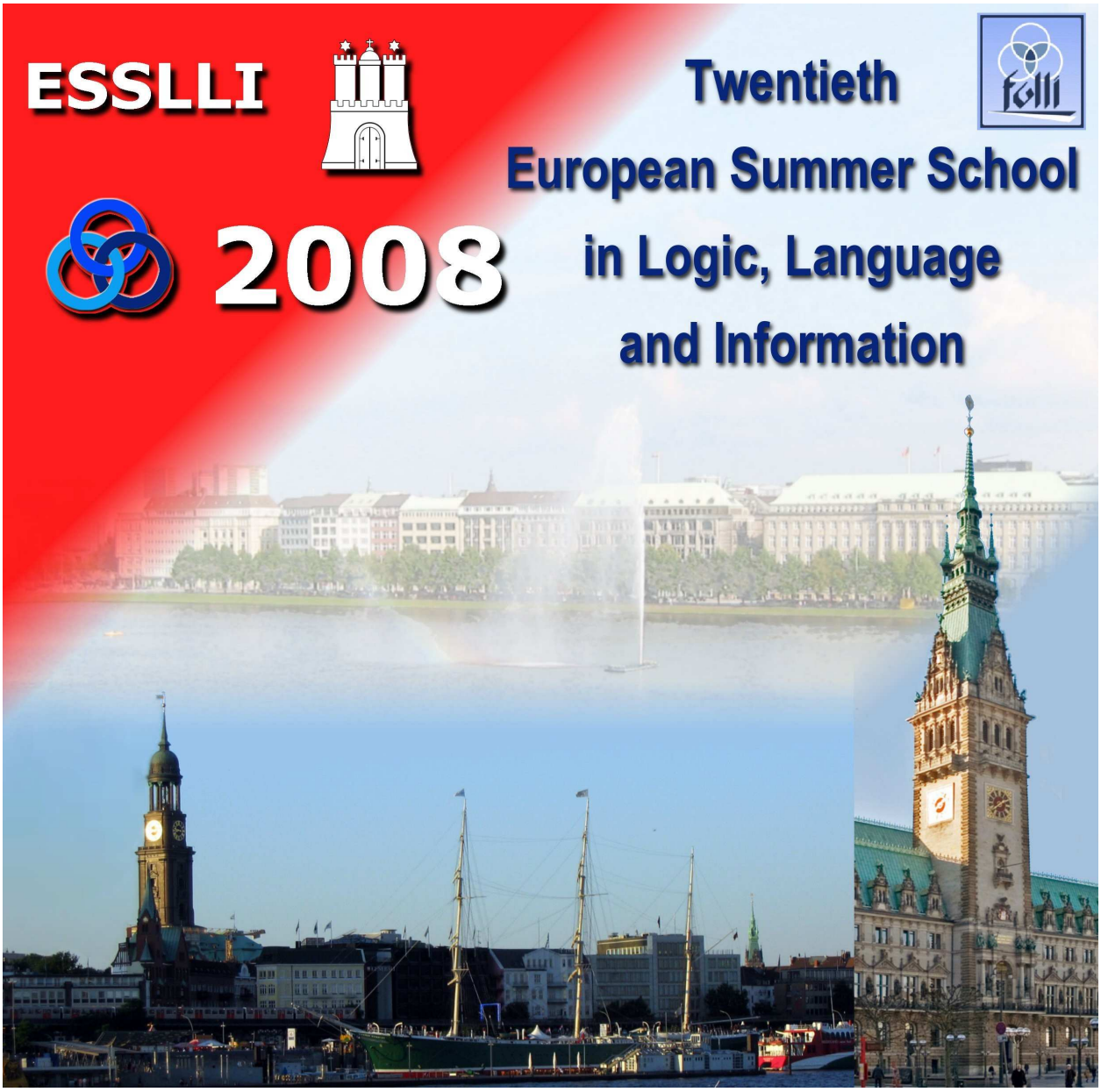

Formal and experimental approaches to discourse particles and modal adverbs

Hans-Christian Schmitz
Henk Zeevat

ESSLLI 2008
20th European Summer School in Logic, Language and Information
4–15 August 2008
Freie und Hansestadt Hamburg, Germany

Programme Committee. Enrico Franconi (Bolzano, Italy), Petra Hendriks (Groningen, The Netherlands), Michael Kaminski (Haifa, Israel), Benedikt Löwe (Amsterdam, The Netherlands & Hamburg, Germany) Massimo Poesio (Colchester, United Kingdom), Philippe Schlenker (Los Angeles CA, United States of America), Khalil Sima'an (Amsterdam, The Netherlands), Rineke Verbrugge (**Chair**, Groningen, The Netherlands).

Organizing Committee. Stefan Bold (Bonn, Germany), Hannah König (Hamburg, Germany), Benedikt Löwe (**chair**, Amsterdam, The Netherlands & Hamburg, Germany), Sanchit Saraf (Kanpur, India), Sara Uckelman (Amsterdam, The Netherlands), Hans van Ditmarsch (**chair**, Otago, New Zealand & Toulouse, France), Peter van Ormondt (Amsterdam, The Netherlands).

`http://www.illc.uva.nl/ESSLLI2008/`
`esslli2008@science.uva.nl`

INSTITUTE FOR LOGIC, LANGUAGE AND COMPUTATION

ESSLLI 2008 is organized by the Universität Hamburg under the auspices of the *Association for Logic, Language and Information* (FoLLI). The *Institute for Logic, Language and Computation* (ILLC) of the *Universiteit van Amsterdam* is providing important infrastructural support. Within the Universität Hamburg, ESSLLI 2008 is sponsored by the Departments *Informatik*, *Mathematik*, *Philosophie*, and *Sprache, Literatur, Medien I*, the *Fakultät für Mathematik, Informatik und Naturwissenschaften*, the *Zentrum für Sprachwissenschaft*, and the *Regionales Rechenzentrum*. ESSLLI 2008 is an event of the *Jahr der Mathematik 2008*. Further sponsors include the *Deutsche Forschungsgemeinschaft* (DFG), the Marie Curie Research Training Site GLoRiClass, the European Chapter of the Association for Computational Linguistics, the *Hamburgische Wissenschaftliche Stiftung*, the Kurt Gödel Society, Sun Microsystems, the Association for Symbolic Logic (ASL), and the European Association for Theoretical Computer Science (EATCS). The official airline of ESSLLI 2008 is Lufthansa; the book prize of the student session is sponsored by *Springer Verlag*.

Hans-Christian Schmitz and Henk Zeevat

Formal and experimental approaches to discourse particles and modal adverbs

Proceedings. 20th European Summer School in Logic, Language and Information (ESSLLI 2008), Freie und Hansestadt Hamburg, Germany, 4–15 August 2008

Workshop on formal and experimental approaches to discourse particles and modal adverbs

ESSLLI 2008, Hamburg

Abstracts

Modal Adverbs as Negotiation Chips

Ariel Cohen and Lavi Wolf

Ben-Gurion University of the Negev

There are certain types of discourse particles that are used especially for the purpose of negotiating a proposition, such as modal adverbs. Piñón (2006) discusses the different effects of these particles, and claims that while modal adjectives are part of the propositional content of an assertion, modal adverbs convey the strength of the speaker's belief in the assertion. As a result:

A. Modal adjectives can be negated, while modal adverbs cannot:

(1) { It's improbable that\ #Improbably / It's impossible that\ #Impossibly / It's not evident that\ #Not evidently }, the socialists won the elections.

B. Modal adjectives, but not modal adverbs, can occur in the protasis of a conditional:

(2) a. If it's possible/probable/evident that that the socialists win the elections, the rich will worry about a luxury tax.

b. *If the socialists possibly/probably/evidently win the elections, the rich will worry about a luxury tax.

C. Modal adverbs, unlike modal adjectives, are not acceptable in questions:

(3) a. *Will the socialists possibly/probably/evidently win the elections?

b. Is it possible/probable/evident that the socialists will win the elections?

Piñón's theory explains these differences thus: "modal adverbs modify or qualify the *sincerity condition* of assertions that the speaker believes the propositional content that he/she asserts" (Piñón, 2006:5)**.** Piñón employs Vanderveken's (1990,1991) illocutionary logic formalism, to show why it is possible to felicitously assert (4), while (5) is marked:

(4) It's possible that the socialists will win, even though they certainly won't.

(5) #The socialists will possibly win, even though they certainly won't.

By Piñón, a modal adjective updates the propositional content with a modal operator, while a modal adverb modifies only the sincerity condition. Thus, the representation of (4) is that the speaker asserts it's *possible* that the socialists win, and believes this proposition with a greater than high degree, and – asserts that the socialists will *not* win, with a greater than very high degree of sincerity. In (5), on the other hand, the speaker asserts the proposition that the socialists *will* win with a greater than low degree of sincerity and – that the socialists will *not* win, with a greater than very high degree. Piñón's representations use a truth functional conjunction to connect between propositional content and sincerity conditions. Thus, in (5) there are two contradictory assertions: Win(Socialists) /\ ¬Win(Socialists), and the utterance crashes.

In this talk, we improve upon Piñón's theory in two ways:

1. Although Piñón's approach provides an elegant explanation for the differences between these two types of particles, it does little to account for their similarities. According to Piñón, there is no actual relation between them: one is a modal operator, and the other modifies the strength of belief. Obviously, we would not want the fact that they are expressed with words sharing the same lexical root to be a mere coincidence. Therefore, there is a high desirability to represent them both with the same theory.

2. We develop a general theory of context update and show how it applies to the case of modal adverbs, explaining not only *what* their meaning is, but also *why* they have this meaning.

For our unified representation of modality and belief, we use Halpern's (1990) logic which includes arithmetic operators and employs probability over possible worlds. We use what Halpern calls a "type 2 probability structure", defined on a language L(Φ), when Φ is a

collection of predicate symbols and function symbols of various arities. This structure is a tuple (D,W,π,f), where: D is a domain, W is a set of possible worlds, π(w) is a valuation function that, for each world w∈W assigns to the predicate and function symbols in the language, predicates and functions of the right arity over D, and *f* is a discrete probability function on W.

The language contains a distinguished propositional function P, s.t. the intended interpretation of P(φ) is "the probability of φ". Formally, for any proposition *φ*, modal base *W*, model *M*, world *w* and assignment function *v*:

(6) $[[P(\varphi)]]^{M,w,v} = f(\{w \in W \mid (M,w,v) \models \varphi\})$

This structure is then expanded to represent modal bases (in the sense of Kratzer, 1981, 1991) in the following way –for each modal base there is a distinct probability function, assigning weights to worlds: $f_{logical}$, $f_{epistemic}$, and so on. We introduce into the language the corresponding propositional functions. Specifically, the degree of belief in *φ* is represented as $P_{epistemic}(\varphi)$, and the degree of logical possibility of *φ* is represented as $P_{logical}(\varphi)$.

We use an assertion operator ∡, with two arguments: the content of the asserted proposition and its degree of strength. For regular uses of assertion:

(7) The socialists will win the elections.

Win(Socialists) $=^{def}$ the-socialists-will-win

∡ [Win(Socialists), $P_{epistemic}$(Win(Socialists)) ≥ high]

The speaker asserts the propositional content 'the socialists will win', and believes it with the default degree of strength for assertions which, by the theory, is equal or greater than *high*[1].

Modal adverbs and modal adjectives modify assertion in different ways. The difference lies in their complementary position within this operator, as shown in (8):

(8) It's possible that the socialists will win, even though they certainly won't.

∡ [$P_{logical}$(Win(Socialists)) ≥ low, $P_{epistemic}$ ($P_{logical}$(Win(Socialists)) ≥ low) ≥high] ∧

∡ [¬Win(Socialists), $P_{epistemic}$(¬Win(Socialists)) ≥ very high]

In the first conjunct the speaker asserts the propositional content 'it is possible that the socialists will win', (represented as the probability that the socialists win over the logical modal base, which is equal or greater than *low*) and believes it (represented as the probability of the propositional content over the epistemic modal base) with a degree of strength which is equal or greater than *high*. In the second conjunct, the speaker asserts the propositional content 'the socialists will not win', and believes it with a degree of strength of equal or greater than *very high*.

The properties of modal adverbs, shown here, put them in a class of 'Negotiation chips'– discourse particles that modify the degree of strength for assertions. A question arises – what is the point of having expressions such as these? The search for an answer to this question leads us to inspect the nature of the context update process, and reveals a need for a theory in which decisions whether to accept or reject propositions depend, among other things, on the extent to which the speaker believes in them. This theory will include, in addition to the common ground, a 'Negotiation zone', in which there are propositions that are under discussion, with varied degrees of strength.

A theory that contains a negotiation zone serves as a more realistic context update model. The classic model for context update is of course Stalnaker's (1979), by which when a speaker utters an assertion, she offers a proposition to update the common ground. This proposition, which is defined as a set of possible worlds, can be accepted or rejected by the hearer. If it is accepted, it eliminates from the common ground all the worlds in which it is not true.

But dealing with assertions (and other forms of utterances) is not so straightforward in natural language speech. The following conversation (Ginzburg, 1996) may serve as an example:

[1] The values for P are given in descriptive labels, but stand for numerical probability values.

(9) A: Bill left. B: Are you sure?
A: I saw his car drive away. B: But I think I heard his voice upstairs...

The conversation in (9) depicts a process in which the proposition offered for update is not accepted, but not rejected either. It is in a 'suspended state', with relation to the common ground, but very active in the negotiation zone, where modal adverbs as negotiation chips play a central role. The greater the strength of assertion described by the modal adverb, the greater its influence and the more likely that it will be accepted, after discussion, into the common ground.

The theory proposed here provides a unified account for modal adverbs and modal adjectives, and explains the role of a modal adverb in discourse, as a 'Negotiation chip' – a discourse particle that modifies the degree of strength for assertion. This account motivates an expansion of the Stalnakerian model of context update, by a theory that will include a Negotiation Zone in addition to the Common Ground.

References

Ginzburg, J. 1996, "Dynamics and the semantics of dialogue". In J. Seligman, editor, *Language, Logic and Computation*, volume 1. CSLI Lecture NOTES, CSLI, Stanford.

Halpern, J.Y. 1990, "An analysis of first-order logics of probability", *Artificial Intelligence* 46(3): 311–350.

Kratzer, A. 1981, "The Notional Category of Modality." In H. J. Eikmeyer & H. Rieser (Editors) *Words, Worlds, and Contexts. New Approaches in Word Semantics*, pages 38–74. de Gruyter.

Kratzer, A. 1991, "Modality". In *Semantics: An International Handbook of Contemporary Research*, edited by Arnim von Stechow & Dieter Wunderlich, pp. 639–650. Berlin: de Gruyter.

Piñón, C. 2006, "Modal adverbs again". Presented at the *Syntax, lexicon and event structure* conference; July 6, 2006, The Hebrew University of Jerusalem.

Stalnaker, R. 1979, "Assertion", in Cole, ed., *Pragmatics*, Syntax and Semantics **9**:315-332.

Vanderveken, D. 1990, *Meaning and speech acts. Volume 1: Principles of language use.* Cambridge University Press.

Vanderveken, D. 1991, *Meaning and speech acts. Volume 2: Formal semantics of success and satisfaction*. Cambridge University Press.

The Japanese Particle *yo* as a Guide to Optimal Action

Christopher Davis
University of Massachusetts Amherst

May 23, 2008

INTRODUCTION The Japanese sentence final discourse particle *yo* marks utterances that are thought by the speaker to be in some sense important to the addressee (McCready in press). For example, the sentence in (1) could be used in a situation in which the addressee is reading a newspaper, oblivious to the arrival of the train he plans to board, and the speaker expects that the addressee will put away the paper and board the train after being told that it has arrived.

(1) densha ki-ta *yo*
train come-PAST *yo*
"The train is here *yo*."

The use of *yo* in (1) indicates that the speaker expects the utterance to influence the addressee's behavior, namely by getting him to board the train. The sentence in (1) without *yo* is infelicitous in this context, because it is interpreted as simply a statement of the fact that the train has arrived, without any indication that this information should have an influence on the addressee's behavior.

FORMAL PROPOSAL My formal semantics of *yo* is motivated by the observation that *yo* is used with utterances the speaker thinks will influence the hearer's *optimal action*. For a given agent in a given context there are a set of relevant possible actions $\mathcal{A} = \{a_1, a_2, \ldots, a_n\}$. The decision of which action to take is determined by what action the agent thinks is *optimal* in a given world. From this van Rooy (2003) defines the set of *action propositions* $\mathcal{A}^* = \{a_1^*, a_n^*, \ldots, a_n^*\}$, such that every proposition $a_i^* \in \mathcal{A}^*$ consists of the worlds w for which there is no a_j that is strictly more optimal than a_i in w. If the agent's belief state entails one of the propositions a_i^* in $\mathcal{A}^*$, then the action a_i is optimal for the agent.

I propose that *yo*(S) contributes an expressive/CI meaning, separate from the main asserted content of the sentence S, that indicates that there is a particular action that is optimal for the addressee after updating the context with S.

(2) $[\![yo(\mathrm{S})]\!]^c =$
a. $[\![\mathrm{S}]\!]^c$
b. (CI) $\exists a \in \mathcal{A}\ \forall w \in W\ [w \in \cap\mathrm{CG}(c') \rightarrow w \in a^*]$
where $c' = [\![\mathrm{S}]\!]^c$

The argument S taken by *yo* is a function from contexts to contexts. In case S is an assertive sentence, it has the affect of adding the propositional content of S to the common ground, so that the post-update context c' is restricted to worlds compatible with S. The meaning of *yo* is represented on a separate CI/expressive dimension, and indicates that all worlds in the post-update context c' are ones in which a particular action a is optimal. That is, after updating the context with the S, the set of worlds consistent with the common ground is a subset of a^*. This is just to say that the action a is optimal for the addressee given the post-update common ground.

IMPERATIVES The proposal for *yo* developed on the basis of assertive sentences extends naturally to imperatives like the one in (3).

(3) tabe-te *yo*
eat-IMP *yo*
'Eat *yo*.'

When used with imperatives, *yo* seems to indicate that the addressee *should*, on the basis of some contextually salient considerations, do the action encoded by the imperative. Often the contextually salient consideration is the speaker's desires, or the addressee's obligations. The use of *yo* in imperatives is dealt with naturally by the semantics in (2). Unlike assertions, imperatives do not encode an update to the common ground. So the post-update common ground is identical to the pre-update common ground when an imperative is used. This means that the use of *yo* with imperatives indicates that the action encoded by the imperative is taken to be optimal given the *pre*-update common ground, where optimality can be understood in terms of the speaker's desires, the addressee's obligations, or whatever other ordering is made salient by the context. This accords well with how *yo* is used in imperatives. For example, the sentence in (3) would be used naturally in a context in which the speaker has gone to a lot of trouble to make dinner for the addressee, and wants to convey to the addressee that he is therefore obliged to eat. In terms of the semantics in (2), the use of *yo* says that the action encoded by the imperative is optimal, according to the ordering provided by the addressee's obligations. This optimality is follows from facts already established in the common ground, in particular the fact that the speaker has gone to a lot trouble to make the addressee dinner.

QUESTIONS In canonical information-seeking questions using the question particle *ka*, *yo* is not allowed (4a), while in rhetorical questions *yo* is allowed (4b).

(4) a. kinou-no paatii-ni dare-ga ki-ta ka (**yo*)
yesterday-GEN party-DAT who-NOM come-PAST Q (**yo*)
"Who came to the party yesterday?"

b. sonna mon ku-u *ka* *yo*
that.kind.of thing eat-NONPAST Q *yo*
"Would I eat that?" (= "I would not eat that")

By asking a question Q, the speaker is introducing the decision problem of which of the elements of Q should be believed. This fact can be used to understand the behavior of *yo* in rhetorical questions as well as its infelicity in non-rhetorical questions. The question Q gives rise to a set of possible actions $\mathcal{A}$ corresponding to belief in each of the propositions making up Q. The corresponding set of action propositions $\mathcal{A}^*$ consists of propositions $b^*_{p_i}$ consisting of all those worlds in which it is optimal to believe the proposition $p_i \in Q$. Optimality in this case can be equated with truth; it is optimal for the agent to believe the proposition p in just those worlds in which p is true. The use of *yo* indicates that all worlds in the post-update context set are ones in which a particular action $a \in \mathcal{A}$ is optimal. This amounts to saying that using *yo* with a question indicates that the post-update context set entails an answer to the question. But a question does not serve to add a proposition to the common ground. Thus the post-update common ground is identical to the pre-update common ground when a question is used. We thus predict that the use of *yo* in a question indicates that the pre-update common ground entails an answer to the question being asked. This is precisely what we find. As we saw, the use of *yo* in a question forces a rhetorical interpretation, indicating that the answer to the question is already known to all discourse participants.

References

McCready, Eric. in press. Particles: Dynamics vs. utility. Japanese/Korean Linguistics 16. CSLI.

van Rooy, Robert. 2003. Questioning to resolve decision problems. *Linguistics and Philosophy* 26:727–763.

Überhaupt und sowieso and *überhaupt en sowieso*

Bernhard Fisseni*

This investigation grew out of a German native speaker'*sowieso* curiosity with regard to Dutch uses of *überhaupt* and *sowieso* ('*überhaupt*' – without umlaut dots 'u' – and '*sowieso*'), and mainly a contrastive look at the uses of *überhaupt* and *sowieso*. It seems that these words are perceived to be rather similar by speakers of Dutch, and the Dutch Language Union condemns them as 'vague'.[1,2]

As sentence adverbs, *überhaupt* and *sowieso* both serve to reject explicit or potential restrictions, German *sowieso* carrying the implicature that the (reason for the) rejection are relatively obvious or easy to grasp. For Dutch, we observe that *überhaupt* and *sowieso* uniformly serve to strengthen the meaning of the sentence, and are sometimes presented as synonyms.[3] In German, *überhaupt*, but also *sowieso*, often modify phrases below sentence level. In Dutch, this is rather unusual. We give examples of negative pronouns in our queries below: while German 'mit *überhaupt* niemand(em)' ('with absolutely nobody') is quite common, Dutch 'met *überhaupt* niemand' is relatively uncommon (but '*überhaupt* met niemand' is not – this can be analysed with überhaupt as a sentence adverb).

Thus while Dutch *überhaupt*/*sowieso* occur relatively about as often with negation as German *überhaupt*/*sowieso*, their co-occurrence with negative pronouns is much rarer. In fact, we find nearly no case in which we cannot also interpret *überhaupt*/*sowieso* as sentence adverbs (even if an interpretation as a local modifier might be possible and preferable for someone with a German background).

(1) Persoonlijk heb ik nooit werkcolleges gevolgd, nee, überhaupt geen colleges.[4]
Personally, I've never followed ⟨*kind of university course*⟩, no, no university courses at all.

While there are cases like (2) in Dutch, we have not succeeded in finding German sentences that can be seen as double application of *sowieso* and *überhaupt*, just because all occurrences we found and looked at were explicable as (a) local dependencies of the (superficially) second *sowieso* and *überhaupt* on a lower constituent (mostly a negative pronoun, or überhaupt is licensed by a question) or (b) co-occurrences over phrase boundaries.

(2) Ontwerpersnamen van de paviljoens zijn sowieso überhaupt in de officiële overzichten of op de website van Expo2000 moeilijk te vinden.[5]
It is sowieso überhaupt difficult to find names of pavilion architects are on the website of Expo2000.

---

* Universität Duisburg-Essen

1 `http://taaladvies.net/taal/advies/vraag/822`

2 We mainly argue with data gathered from the web (and our intuition), which was relatively superficially evaluated. Numbers in the table represent numbers given by Google and Yahoo. Some Google numbers (e.g. *überhaupt* and *sowieso* alone) are obviously cut off; the exact numbers may differ when repeating a query, the orders of magnitude remained quite stable; at the time of the workshop, more serious corpus data (or at least a more exact analysis) should be available. If two Yahoo numbers are given for Dutch data, this refers to *überhaupt* with and without umlaut dots.

3 `http://www.mijnwoordenboek.nl/synoniemen/`{überhaupt,uberhaupt,sowieso} (for *überhaupt* one other synonym besides *sowieso*, *doorgaans*, while *uberhaupt* and *sowieso* only have *sowieso* and *überhaupt* as synonyms, respectively).

4 `http://taaladvies.net/taal/advies/vraag/822`

5 `http://www.classic.archined.nl/news/0005/Expo-02.html`

We suggest that (1) the main differences of German *überhaupt/sowieso* from Dutch *überhaupt/sowieso* are (a) that they cannot easily modify locally and (b) that (compared to German) the implicature associated with *sowieso* is lacking (or quite feeble), and that (2) these differences can account for the distribution differences.[6] This exchangeability may be re-enforced by the fact that both particles are evidently loanwords, and from the same language.

(3) a. Artiesten zijn sowieso (überhaupt ook) allemaal homo. [...] Die hele bouwfraude is kinderspel (het is sowieso/überhaupt allemaal sterk opgeblazen) vergeleken met de zaak JSF.[7]

b. Iemand iets niet gunnen zit sowieso/ überhaupt niet in mijn persoonlijkheid[8]

References

Nöstlinger, Christine (2005): *Sowieso und überhaupt*. Landsberg: Beltz.
Web Pages checked 7 May 2008.

Web Data

Phrase	Google	Yahoo
überhaupt	258,000 NL	1,630,000
überhaupt	1,720,000 D	88,500,000
sowieso	478,000 NL	5,270,000
sowieso	773,000 D	24,100,000
***ü** mit niemand*	6	30
***ü** met niemand*	7, one repetition	15
*mit **ü** niemand(em)*	10/394	22/313
*met **ü** niemand* 0	0	
*mit **ü** keinen/r/m*	343/590/875	613/587/790
*met **ü** geen*	2/5, one repetition	2/2
***ü** geen*	40,700	39,100/23,100
***ü** kein/e[nrs]?*	1,340,000/2,350,000/958,000/33,500/6,250	2,400,000/4,160,000/1,460,000/79,900/17,100
***ü** niemand*	550; 254/174	
***s** niemand*	1,370	
***ü** niemand/e[nms]*	44,500/4,050/13,800/107	106,000/33,200/8,420/75
***s** niemand/e[nms]*	80,300/15,600/2,550/6	166,000/36,800/2,220/3
***s** niet*	339,000	614,000
***s** nicht*	1,760,000	3,540,000
***ü** niet*	95,600	94,400/64,600
***ü** nicht*	646,000	18,900,000

6 By the way: coming back to the title of the talk: Nearly all of the 50 occurrences of '*überhaupt* en *sowieso*' in the Dutch web are references to metalinguistic communication (and about three cases of '*sowieso* en *überhaupt*' might be a reflex of German courses or a play with exchangeability in Dutch), while in German, '*überhaupt* und *sowieso*' or '*sowieso* und *überhaupt*' (both around 30,000 times, including many references to Nöstlinger's novel) commonly refers to an evident (from the speaker'*sowieso* perspective: '*sowieso*') if at the moment unexplained fact, which holds independently of any restrictions (*überhaupt*, *sowieso*) – evidently such a doubling is much more appealing if there is no *überhaupt/sowieso* synonymy.

7 `http://jeronimo.blogspot.com/2002_09_22_archive.html`

8 `http://blog.myspace.com/index.cfm?fuseaction=blog.view&friendID=12096688&blogID=331753588`

Hybrid Semantics for Discourse Particles and Sentence Mood

Daniel Gutzmann
University of Mainz

Although discourse particles (like *ja, denn, halt* etc.) have traditionally been subject of German linguistics since the late sixties, they still pose interesting challenges for both syntactic and semantic theory (cf. e.g. Autenrieth 2002; Zimmermann t. a.). In this talk, I will focus on three of them. (i) How can a precise semantic account for DPs be provided given the well known fact that DPs do not contribute to the truth conditions expressed by the sentence in which they occur? (ii) What is the relation between their syntactic properties and their special meaning? (iii) How can the fact that DPs are restricted to a specific set of sentence moods and that they interact with sentence mood in non-trivial ways be derived (cf. e.g. Kwon 2005)?

To address these questions, I provide a semantic account to the meaning of modal particles that picks up Kratzer's (1999, 2004) suggestion to analyze DPs as contributing use-conditional content in the sense of Kaplan 1999. (Both call it »expressive content«.) Fleshing out her ideas, my analysis is based on a hybrid logic that incorporates both truth-conditional (TC) and use-conditional (UC) content and which I therefore call $\mathcal{L}_{\mathrm{TU}}$. To integrated UC content into a standard model theoretic system, I make use of some of the formal tools that are developed by Potts (2005) and adapt them to deal with UC content as contributed by modal particles.

Regarding its syntax, $\mathcal{L}_{\mathrm{TU}}$ constitutes only a slight deviation from common type-driven semantics. The main innovation is the introduction of a new basic use-conditional (UC) type u for use values. The recursive definition of types is extended accordingly. Furthermore, I distinguish between hybrid and pure U-types. While the former take a truth-conditional (TC) expression as argument to yield an UC expression, the latter take (UC) expression. On the semantic side, a corresponding domain D_u for the interpretation of expression of type u. D_u is given by $\{\checkmark, \lightning\}$, the set of use values (»felicitious« vs. »infelicitous«).

Putting expression together to build more complex expressions for $\mathcal{L}_{\mathrm{TU}}$ works as it is usual in type-driven semantics. Instead, the crucial work to account for the special properties of use-conditional expressions is done by a set of tree-admissibility conditions (TACS) that put constraints on possible semantic parsetrees for $\mathcal{L}_{\mathrm{TU}}$. For the most part, I adopt Potts' (2005: 223) tree-admissibility conditions for conventional implicatures, but customize them for UC expression.

(1) *Truth-conditional application*

$$\begin{array}{c} \alpha(\beta) : \tau^{\mathrm{T}} \\ \alpha : \langle \sigma^{\mathrm{T}}, \tau^{\mathrm{T}} \rangle \quad \beta : \sigma^{\mathrm{T}} \end{array}$$

(2) *Use-conditional application*

$$\begin{array}{c} \alpha(\beta) : \tau^{\mathrm{U}} \\ \alpha : \langle \sigma^{\mathrm{U}}, \tau^{\mathrm{U}} \rangle \quad \beta : \sigma^{\mathrm{U}} \end{array}$$

(3) *Isolated use-conditional content*

$$\begin{array}{c} \beta : \tau^{\mathrm{T}} \\ \alpha : \sigma^{\mathrm{PU}} \quad \beta : \tau^{\mathrm{T}} \end{array}$$

(4) *Hybrid application*

$$\begin{array}{c} \beta : \sigma^{\mathrm{T}} \\ \bullet \\ \alpha(\beta) : \tau^{\mathrm{U}} \\ \alpha : \langle \sigma^{\mathrm{T}}, \tau^{\mathrm{U}} \rangle \quad \beta : \sigma^{\mathrm{T}} \end{array}$$

These TACS ensure that the root note of the semantic parsetree that represents the truth-conditional of a sentence is uncontaminated by use-conditional content.

To make sure that use-conditional content that is hanging around in the semantic parsetree gets nevertheless interpreted, I employ the core idea of Potts' (2005: 224) *parsetree interpretation* to interpret entire parsetrees. However, I implement this idea very differently insofar as my rule – I call it *layered parsetree interpretation* – collects all independent UC expression from a semantic parsetree and builds a new one out of them. It is defined as follows:

(5) Let $\mathcal{T}$ be a semantic parsetree build in accordance with the TACs above that has an TC expression at its root node and independent use-conditional terms $\alpha_1 : \sigma_1^{\text{U}}, \ldots, \alpha_n : \sigma_n^{\text{U}}$ on nodes in it. $\mathcal{R}$ is a function that delivers the root node for a parsetree. The pragmatic parsetree $\mathcal{P}$ for $\mathcal{T}$ is given by the parsetree that is build from the expression $\alpha_1 : \sigma_1^{\text{U}}, \ldots, \alpha_n : \sigma_n^{\text{U}}$ according to the TAC (2). Then the interpretation of $\mathcal{T}$ is:

$$[\![\mathcal{T}]\!] = \left\langle [\![\mathcal{R}(\mathcal{T})]\!], [\![\mathcal{R}(\mathcal{P}(\mathcal{T}))]\!] \right\rangle$$

Layered paretree interpretation does not only take care for the interpretation of UC expressions, but also overcomes the rigidity of the isolation of use-conditional content caused by (3) and (4). Due to the derivation of a pragmatic parsetree, UC content can actually interact with each other regardless of their position inside the semantic parsetree.

Within this hybrid semantics, DPs are analyzed as hybrid UC expressions that take the semantic content of an utterance as their argument to yield a pure UC expression. Since the output of hybrid application is removed out of the (truth-conditional) semantic parsetree, DPs are not available for TC expression anymore as soon as they are fed with their argument. Given this, the majority of the semantic and syntactic properties of DPs follows directly: DPs can neither be negated, expanded or otherwise modified, nor be in the scope of quantifiers or being the focus of a sentence.

To account for the interaction between DPs and sentence mood, I make use of recent approaches that derive the sentence mood of a sentence in a compositional fashion from verb-movement, verbal mood, and the movement of elements into the CP (Lohnstein 2007; Truckenbrodt 2006*a*,*b*). Like Truckenbrodt, I treat sentence mood as a complex expression consisting of different deontic and/or epistemic operators on the propositional content of an utterance, but I deviate from him insofar as I analyze these operators as contributing use-conditional content, thereby following the classical distinction between (use-conditional) mood and (truth-conditional) sentence radical proposed by Wittgenstein (1953) and Stenius (1967). Accordingly, sentence mood operators are hybrid UC expression that take the truth-conditional content of a sentence as their argument yielding a pure UC expression. After that, they are removed to the pragmatic parsetree, where they can interact with DPs.

Given this way to think about DPs and sentence mood, there are two sources from which the selectional restriction of DPs to specific sentence types may stem. First, the type of a DP may not match the type of the semantic content of the sentence. Secondly, a DP may contribute use-conditional content that is in conflict with the deontic/epistemic sentence mood operators and therefore yield a (use-conditional) contradiction that makes the sentence always infelicitous.

Implementing ideas of Kaplan, Kratzer, Potts, and Truckenbrodt, I provide a hybrid approach to the meaning of DPs, sentence mood, and the interaction between them. On the one hand, $\mathcal{L}_{\text{TU}}$ allows for enough interaction, but on the other hand, its 2-dimensional character allows to keep TC and UC content apart when it is needed.

References

Autenrieth, Tanja (2002): *Heterosemie und Grammatikalisierung bei Modalpartikeln. Eine synchrone und diachrone Studie anhand von* eben, halt, echt, einfach, schlicht *und* glatt. (Linguistische Arbeiten 450). Tübingen: Niemeyer.

Kaplan, David (1999): *The meaning of* ouch *and* oops. *Explorations in the theory of meaning as use*. Unpubl. ms. Los Angeles: University of California.

Kratzer, Angelika (1999): »Beyond *ouch* and *oops*. How descriptive and expressive meaning interact«. In: *Cornell Conference on Theories of Context Dependency*. Cornell University. Ithaca, NY. URL: `http://semanticsarchive.net/Archive/WEwNGUyO/`.

Kratzer, Angelika (2004): »Interpreting focus: Presupposed or expressive meanings? A comment on Geurt and van der Sandt«. In: *Theoretical Linguistics* 30. 123–136.

Kwon, Min-Jae (2005): *Modalpartikeln und Satzmodus. Untersuchungen zur Syntax, Semantik und Pragmatik der deutschen Modalpartikeln*. PhD thesis. Munich: Ludwig-Maximilians-University of Munich. URL: `http://edoc.ub.uni-muenchen.de/4877/1/Kwon_Min-Jae.pdf`.

Lohnstein, Horst (2007): »On clause types and sentential force«. In: *Linguistische Berichte* 209. 63–86.

Potts, Christopher (2005): *The logic of conventional implicature*. (Oxford Studies in Theoretical Linguistics 7). Oxford: Oxford University Press.

Stenius, Eric (1967): »Mood and language game«. In: *Synthese* 17. 254–274.

Truckenbrodt, Hubert (2006*a*): »On the semantic motivation of syntactic verb movement to C in German«. In: *Theoretical Linguistics* 32.3. 257–306.

Truckenbrodt, Hubert (2006*b*): »Replies to the comments by Gärtner, Plunze and Zimmermann, Portner, Potts, Reis, and Zaefferer«. In: *Theoretical Linguistics* 32.3. 387–410.

Wittgenstein, Ludwig (1953): *Philosophical investigations*. Trans. from the German by G.E.M. Anscombe. Oxford: Blackwell.

Zimmermann, Malte (t. a.): »Discourse Particles«. In: Portner, Paul & Claudia Maienborn & Klaus von Heusinger, eds. (t. a.): *Handbook of Semantics*. Berlin and New York: de Gruyter.

The role frequency and semantic strength in the acquisition of the Dutch particle *wel*

Lotte Hogeweg (Radboud Universiteit Nijmegen)

Discourse particles are typically polysemous. The Dutch particle *wel* could be called the positive counterpart of *niet* 'not'. In (1) speaker B uses *wel* to contradict the negative statement of A.

(1) A: *Stockholm is niet de hoofdstad van Zweden*.
'Stockholm is not the capital of Sweden.'

B: *Stockholm is wel de hoofdstad van Zweden*
'Stockholm ís the capital of Sweden.'

Hogeweg (to appear) analyzes all uses of *wel* as a negation of a negation in the context. Dependent on the nature of the negation in the context they are a reaction to, the different uses of *wel* can be ordered according to their strength. Four classes are distinguished. The strongest meaning is exemplified by (1). The second strongest use of *wel* is the explicit contrastive use. The third strongest use is *wel* marking implicit contrast. The remaining uses of *wel* can be grouped together by the name *construction specific*, since they all occur together with a particular linguistic item. To make explicit how the meanings range from strong to weak I use the definition of contrast as given by Winter and Rimon (1994). The definition is given in (2)

(2) **The contrast relation:** A proposition r *establishes contrast* between two (ordered) propositions p and q iff $\Diamond(p \rightarrow \neg r) \wedge (q \;\; r)$ is true.

The uses of *wel* differ with respect to how much must be inferred from the context to derive ¬*r.* For the uses of correction, ¬*r* is explicitly present in the context. For contrastive *wel*, ¬*r* is partly present in the context. If we view upon propositions as properties applied to a set of entities, only the set of entities of the proposition ¬*r* has to be inferred from the context. For implicit contrastive *wel* the whole proposition ¬*r* has to be inferred. We have the following hierarchy of meanings of *wel.*

(4) Correction >> Explicit contrast >> Implicit contrast

Zeevat (2007) argues that there is a relation between semantic bleaching and rise of frequency in the recruitment of linguistic items. For *wel* we indeed see an increase in the frequency of the weaker uses of *wel* compared to the strongest use. In over 650 instances of *wel*, taken from the Corpus of Spoken Dutch, only two could be classified as an explicit denial of a denial. However, data taken from the CHILDES corpus show that in the speech of Dutch children the strongest meaning of *wel* is far more frequent than in adult speech. In over 600 instances of *wel*, 168 could be classified as an explicit denial of a denial. An example from the CHILDES corpus is given in (5).

(5)	CHI:	nog auto .	'PRT car'
	CAR:	oh zullen we kijken .	'oh let's see'
	CHI:	ja .	'yes'
	CAR:	hier zit geen auto meer .	'here's no car anymore'
	CAR:	maar wat wel ?	'but what is there?'

CHI:	wel auto .	'WEL car'
CAR:	nee, waar zie je de auto dan ?	'no, where do you see the car then?'

Wel indicating implicit contrast on the other hand is rare in the speech of the children. One example of such a use is given in (6). In this example the child uses *wel* to deny the implicit assumption that Sam is not allowed to watch.

(6)	CHI:	Sam mag kijken .	'Sam may watch'
	CAR:	wat zeg je ?	'What do you say?'
	CHI:	Sam mag wel kijken .	'Sam may WEL watch'
	CAR:	ja, Sam gaat straks mee zwemmen .	'yes, Sam will swim 'with you later on'

We can conclude that children acquire the strongest meaning early and use it often, despite the rarity of their occurrence in the input. Furthermore, they acquire use of *wel* as a marker of implicit contrast later and use it less often, despite the fact that this use is much more frequent in adult speech. In this presentation I will address the question how frequency and strength influence the acquisition of the particle *wel*.

I will argue that the relation between a decrease in frequency and order of acquisition that is found here is not accidental. The acquisition of the lexicon is not only about mapping the right signal to the right concept but also includes the construction of meaning. That entails recognizing the relevant contextual elements and learning the mapping between meanings and signals through the inference of meaning in context (Smith 2005). Stronger meanings of a linguistic item entail its weaker meanings. Stronger meanings therefore require a more specific context which makes them suitable for fewer environments but easier to recognize by children. Furthermore, weaker meanings can be derived from their stronger counterparts but not vice versa. The weaker meaning is part of the stronger meaning. A child can subtract the weaker meaning from the stronger meaning by recognizing that the difference between them is in conflict with the context of a particular occurrence of the word. This is in line with Zeevat (2007) who argues that overmarking an intended meaning is less harmful for the success of communication than undermarking the meaning.

Towards a DRT-based account of adversative connectors

Elena Karagjosova
University of Oslo
elena.karagjosova@ilos.uio.no

The German adversative connector *doch* (Eng. *though*, *but*) may express various relations of contrast, such as semantic opposition, concession and correction, cf. (1)-(5). I will provide a dynamic semantics account of the meaning of *doch* and its contribution to the discourse in which it is used. I treat the semantics of *doch* uniformly by assuming that it can be captured by means of the contrast presupposition that was proposed in [5] as a full menaing specification of the more prototypical German adversative connector *aber*. Sæbø defines the presupposition triggered by *aber* in terms of the requirement that the context (σ) should entail the negation of the result of replacing the topic (T) of the sentence hosting the adversative marker by an alternative, cf. the formal definition in (6).

As Sæbø's notion of topic covers a range of cases where the term refers to material that is given or inferable in the context, I propose an underspecified representation of the meaning of *doch* in terms of UDRT alternations [4] involving a range of different "topics" and corresponding alternatives depending on the context in which the connector is used. For instance, the "topic" in (1) is a contrastive topic (CT), and its alternative (α) is the contrastive topic of the first clause, whereas the "topic" in (4) is the complement of focussed *doch*, namely *nicht*, and the alternative coincides with the "topic". These facts are reflected in (7) which represents two of the alternations in my underspecified representation of *doch*. In (7), π and π' are discourse referents for representing clauses as in SDRT [1], π is the clause hosting *doch* and $\overline{F}$ is the complement of the focus F. The representation is intended to express that *doch* triggers the presupposition that there is a sentence π' in the discourse context such that π' is the negation of the result of replacing the respective "topics" of π by their corresponding alternatives.

I will then show how the representation of discourses with *doch* is constructed, starting from its underspecified representation and employing information about (i) its syntactic and prosodic properties, (ii) the focus-background structure of the sentence that hosts it and (iii) the structure of the discourse in which it is used. Roughly, the DRS construction is informed by the focus annotated syntactic tree of the sentence hosting the connector. The semantic representations are built by means of DRT-construction rules [3]. The construction rules for *doch* select the correct *doch*-alternation that fits in the partcular context. The selected *doch*-alternation is a presupposition that in a further step has to be bound

to an antecedent in the context (where the antecedent entails the presupposition) or the context must be accommodated, i.e. the content of the presupposition is added to the context on the background of which the sentence is interpreted. Since the presupposition is sensitive to the information structure (IS) of the sentence hosting the connector, as well as to the IS of (the) preceding sentence(s), I use a version of DRT based on Kamp [2] that incorporates representations of focus-background divisions.

(1) $[\text{Hans}]_\alpha$ ist reich, doch $[\text{Peter}]_{CT}$ ist arm. (**semantic opposition**)
'Hans is rich but Peter is poor.'

(2) Das Pferd war klein, seine Beine waren kurz, und DOCH war es der schnellste Renner weit und breit. (**concession**)
'The horse was small, his legs were short, and yet he was the fastest runner far and wide.'

(3) A: Es stimmt $[\text{nicht}]_\alpha$, dass Peter verreist ist.
'It is not true that Peter has left.'
B': $[\text{Doch}]_F$, es stimmt. 'It IS true.' (**correction**)

(4) A: Peter kommt nicht mit ins Kino.
'Peter is not coming to the cinema.'
B: Er ist also DOCH verreist. 'So he has left, after all.' (**correction**)

(5) A: Peter kommt mit ins Kino.
'Peter is coming with us to the cinema.'
B: Er ist doch verreist. 'He has left, as you should know.' (**correction**)

(6) $\sigma\ [\![\phi \text{ aber}]\!]\tau$ iff $\sigma \models \neg\phi[T(\phi)/\alpha]$ for some alternative α and $\sigma\ [\![\phi]\!]\tau$.

(7)
$$\begin{array}{|l|}\hline \underline{\pi'} \\ \hline \pi' : \neg\pi[CT(\pi)/CT(\pi')] \\ \hline \end{array} \quad \vee! \quad \begin{array}{|l|}\hline \underline{\pi'} \\ \hline \pi' : \neg\pi[\overline{F}(\pi)/\overline{F}(\pi)] \\ \hline \end{array}$$

References

[1] Nicholas Asher and Alex Lascarides. *Logics of Conversation.* Cambridge Univ. Press, 2003.

[2] Hans Kamp. Information structure in a dynamic theory of meaning. In *Proceedings of the Linguistic Society of Korea*, 2004.

[3] Hans Kamp and Uwe Reyle. *From Discourse to Logic: Introduction to Modeltheoretic Semantics of Natural Language, Formal Logic and Discourse Representation Theory.* Kluwer Academic Publishers, Dordrecht/Boston/London, 1993.

[4] Antje Rossdeutscher Reyle, Uwe and Hans Kamp. Ups and downs in the theory of temporal reference. *Linguistics and Philosophy*, 2005.

[5] Kjell Johan Sæbø. Presupposition and contrast: German aber as a topic particle. In Weisgerber, editor, *Proceedings of Sinn und Bedeutung 7*, 2003.

Conventional implicatures induced by Russian connective 'a'.

Anna Lobanova (a.lobanova@ai.rug.nl)
University of Groningen

1. Introduction

English connective '*and*' has two equivalents in Russian '*i*' and '*a*'. I will argue that contrary to previous claims the difference between these two connectives is in the kind of implicatures they induce. To begin with, consider the following example:

(1) a. Katja sdala examen, a on byl neprostym.
Katja passed the exam, **a** it [the exam] was not simple.

b. Katja sdala examen, i on byl neprostym.
Katja passed the exam, **i** it [the exam] was not simple.

'Katja passed the exam and this exam was difficult.'

What is the difference between (1.a) and (1.b)? According to Uryson (2002, 2003) these sentences differ in the objectivity of the information given in the second conjunct and consequently in the so-called aboutness of the sentence. In (1.a) the first conjunct gives objective information about Katja and the second conjunct – about the exam. Although the subjects in (1.b) do not corefer, both conjuncts are about Katja because the second conjunct introduced by '*i*' presents *Katja's subjective evaluation* of the exam. That is why it is possible to reformulate (1.b) and not (1.a) in the following way:

(2) Katja sdala examen, *a/i on kazalsja ej očen' trudnym.
Katja passed the exam, ***a/i** it [the exam] seemed very difficult to her.

'*Katja passed the exam and this exam seemed very difficult to her.*'

Moreover, since '*i*' here indicates a subjective evaluation, it can not be used in the same manner with adjectives that express objectivity (3).

(3) Katja slomala pianino, a/*i ono bylo starinnym.

'Katja broke the piano and it was antique.'

It has been suggested that '*i*' in (1.b) is a discourse marker which indicates a "normal development of narration" (Uryson 2003; Wierzbicka 1978; Kručinina 1984). Conjunction '*a*' on the other hand signals a "turning point". Contrary to this, I want to show that '*a*' in these examples conveys a *conventional implicature* indicating *speaker*'s personal attitude or involvement.

2. Implicatures

In Grice (1975) implicatures are divided into conventional and conversational. While conversational implicatures have been widely acknowledged (Levinson 2002), conventional implicatures (CIs) comprise a problem and have even been claimed as non-existent (Bach 1999). Recently, Potts (2003) convincingly showed that supplemental expressions (e.g. *amazingly*) and expressives (a *damn* dog) are true examples of CIs. He offers a definition of CIs. Namely, CIs contain the following properties (Potts 2003: 9):

a. CIs are part of conventional (lexical) meaning of words;
b. CIs are commitments, and thus give rise to entailments;
c. These commitments are made by *the speaker of the utterance* "by virtue of the meaning of" the words he chooses;
d. CIs are logically and compositionally independent of what is "*said* (in the favored sense)", i.e., independent of the at-issue entailments.

In other words, CIs are entailments derived from the meaning of a particular expression and they do not contribute to what is said but rather provide a speaker-oriented comment on the interpretation of the main proposition. Two tests can be used to distinguish conventional implicatures from conversational – the detachability test and the cancellability test. Namely, conversational implicatures are non-detachable and cancellable while conventional implicatures are detachable and non-cancellable.

Detachability test: In example (1.b) the implicature that Katja found the exam difficult without conjunction *i* disappears. Thus, we can conclude that it is attached to this particular word.

Cancellability test: To see that implicature induced by '*i*' is not cancellable, consider the example below:

(4) Katja sdala examen, a/*i on byl neprostym. Xotj i kazalsja ej legkim.
Katja passed the exam, **a**/***i** it was not simple. Although it seemed easy to her.

Although implicature induced by '*i*' in example (1) passed both tests, it is not speaker-oriented and therefore following the definition above cannot be conventional. A further analysis is needed to fully explain what it is. However, example (5) illustrates that connective '*a*' *is speaker-oriented*:

(5) K moemu udivljeniu, Katja sdala examen, a/*i on byl neprostym.
To my surprise, Katja passed the exam, **a**/***i** the exam was not simple.
'To my surprise, Katja passed the exam and it was not simple.'

Ja dumala, ona ego ne sdast./*Ja dumala ona ego sdast.
*'I thought she wouldn't pass it.'/ *'I thought she would pass it.'*

The function of '*a*' in example (5) can be compared to the function of English '*and*' in (6):

(6) Her husband is in the hospital **and** she is seeing other men.
(Kitis 1995:6, cited in Blakemore 2000:473)

According to Kitis (1995), by uttering (6) the speaker communicates his emotional attitude (of anger or surprise) indicating it with '*and*'. Unlike English, Russian has a special connective '*a*' to indicate speaker's attitude.

(7) Ee muž v bol'nitse, a ona s lubovnikom!
'Her husband is in the hospital and she is with a lover!'

*Xotja ja ne vižu v etoj situatsii ničego plohogo ili uditivel'nogo.
*Although I don't see anything bad or strange in this situation.

Since speaker's involvement is directly related to the use of '*a*' and therefore is detachable, and because this interpretation cannot be cancelled (7), we can conclude that '*a*' induces a conventional implicature.

References:

1. Bach, K. (1999). The myth of conventional implicature. *Linguistics and Philosophy* **22**, pp327-366.
2. Blakemore, D. (2000). Indicators and procedures: 'nevertheless' and 'but'. *Journal of Linguistics* **36**, pp463–486.
3. Grice, H. P. (1975/1989). Logic and conversation. In Grice, H. P., *Studies in the way of words*. Cambridge, MA: Harvard University Press, pp22-40.
4. Kitis, E. (1995). Connectives and ideology. Paper delivered at the 4th International Symposium on Critical Discourse Analysis: Language, Social Life and Critical Thought. University of Athens.
5. Kručinina, N.I. (1984). Tekstoobrazuuščie funktsii sočinitjel'noj svjazi. *Russkij jazyk: Funktsionirovanije grammatičeskix kategorij: Tekst, kontekst*. Moskva.
6. Levinson, S.C. (2000). *Presumptive meanings: The theory of generalized conversational implicature*. Cambridge MA: MIT Press.
7. Potts, C. (2003). *The logic of conventional implicatures*. PhD thesis, University of California, Santa Cruz.
8. Uryson, E.V. (2002). Sojuz 'a' kak signal "povorota povestvovanija". In N.D. Arutjunova (Ed.), *Logičeskij analiz jazyka: Semantika načala i kontsa*. RAN, Moskva.
9. Uryson, E.V. (2003). *Sistema značenij sojuza 'a'*. Doklady meždunarodnoj konferentsii Dialog 2003.
10. Wierzbicka, A. (1978). Metatekst v tekste. *Novoje v zarubježnoj lingvistike*. Lingvistika teksta, Moskva.

Presupposition Accommodation of Discourse-Initial *Too*

Sumiyo Nishiguchi

Osaka University

u301192b@ecs.cmc.osaka-u.ac.jp

Abstract

Sentences with a Japanese focus marker *mo* "also/too" can be uttered out of the blue without sounding erratic. Instead of contrastive narrow focus, *mo*-sentences have presentational neutral focus. I will analyze discourse-initial *mo* as a speaker-oriented emphatic marker, similar to *indeed* or *unfortunately*. By association with a whole proposition, *mo* triggers unspecified presuppositions that provide evidence to convince the speaker and hearer that *p* is true. Even though the presuppositions accommodated by the hearer might differ from those of the speaker, they are similar propositions to *p*.

1 Discourse Initial *Mo* "also"

Mo "also/even," a focus marker or quantifier-like element (Kuroda 1969), typically places contrastive focus on a noun phrase. Similar to the English *too* (Karttunen and Peters 1979), a *mo-p* assertion is felicitous only when it follows another sentence, such as "someone other than Ken came," or at least when the presuppositions are satisfied by the extralinguistic context. This paper, however, concerns *mo-p* that is uttered discourse-initially.

(1) Yo-**mo** hukete-ta.
night-also grow late-PAST
"It has become late, indeed."

Such a *mo*-sentence can be uttered out of the blue without sounding remotely peculiar. Unlike the regular *mo*, the discourse-initial *mo* does not contrast its syntactic constituent *yo* "night" with any antecedent. The focus in (1) is neutral and presentational. Instead of a narrow focus on the noun phrase, there is wide focus on the whole sentence. *Mo* does not trigger the presupposition that "someone/something other than x is so." For example, (1) does not presuppose that "the morning grew late and the night grew late, too," and it is perfectly felicitous out of the blue without antecedents.

(2) Haru-**mo** takenawa-ni nari-mashi-ta. (Numata 2000)
spring-also peak-DAT become-HON-PAST
"Spring has reached its peak."

In terms of (2), Numata (2000) suggests that *mo* associates with a whole proposition and contrasts other things reminiscent of the season and transition of time. The speaker presupposes prior situations such as cherry blossoms blooming, the trees being green, and the weather being warm. I claim that the emphatic *mo* triggers presuppositions that form evidences for the uttered proposition. *Mo* also creates polarity focus.

2 Unspecified Presuppositions: Sentence Focus and Presupposition Accommodation

According to Lambrecht (1994), the utterance "my car broke down" would not have any presupposition that is lexicogrammatically evoked; since the assertion extends over the entire proposition, it can be considered new information. While this assertion might situationally imply the pragmatic presupposition that "something happened," out-of-the-blue assertions, by definition, lack presuppositions (Zubizarreta 1998).

However, *mo* uttered suddenly does indeed trigger presuppositions, which are accommodated by the speaker (presupposition accommodation; Lewis (1973)). The presuppositions of *mo-p* are what Stalnaker (1978) refers to as informative presuppositions. Normally, presuppositions are non-informative; for example, if A tells B, "John's cat is sick," the existence of John's cat is part of the common ground between A and B. However, as the neutral focus suggests, the entire *mo-p* is new information and the entire *p* is in the scope of *mo*. *Mo* evokes the preceding events that support the proposition as a presupposition. Following the framework in Rooth (1996), propositions are given two-dimensional meanings: the focus semantic value (f) and the ordinary semantic value (o). The presuppositions triggered by *mo* are given in the former and the content of the assertion is in the latter.

(3) a. $[\![(1)]\!]^f$ = {It is dark, it is past midnight, the neighbors turned off their lights}

b. $[\![(1)]\!]^o$ = It is late

(4) a. $[\![(2)]\!]^f$ = {Cherry blossoms are blooming, it became warmer, the daylight has begun to last longer,...}

b. $[\![(2)]\!]^0$ = Spring has reached its peak

Crucially, the content of the presuppositions might differ for the speaker and the hearer. What constitutes evidence of the change of season depends on the individual's background. While cherry blossoms would convince Japanese people that spring has reached its peak, the length of day or the temperature would mark a change of season for those from other cultures. The presuppositions are not specified; thus, they can vary between speaker and hearer.

3 Abduction and Similarity

The presuppositions of *mo-p* form reasons for and evidence of *mo-p*. While no explicit presuppositions (P) are given in the discourse, the hearer derives presuppositions as reasons and evidence for the *mo*-utterances.

(5) P_1: Cherry blossoms are blooming

P_2: It became warmer

P_3: The daylight has begun to last

mo-p: Spring has reached its peak

$P_1 \wedge P_2 \wedge P_3 \models$ *mo-p*

Furthermore, similarity holds between the worlds in which the presuppositions are true and those in which *mo-p* is true, even though there is no complete overlap between *mo-p* and P worlds. For example, cherry blossoms blooming mark the spring season in many countries in the northern hemisphere; however, the warm weather does not entail that the season is spring, because there are warm days in fall as well. (6) formalizes the similarity relations between *mo-p* and P worlds.[1]

(6) a. SIM_w is a function from propositions to propositions that maps each p to the set of p-worlds that are similar to w.

$SIM_w(p) = \{w' \in p|$ w' is no less similar to w than any other world in $p\}$

b. $\forall w[P(w) \rightarrow w \in SIM_w(mo\text{-}p)]$

All the worlds in which presuppositions P hold are similar to the *mo-p* worlds.

Shudo (2002), even though she does not discuss the discourse-initial *mo*, analyzes a *mo-p* whose antecedent predicate is not identical to *mo-p*.

(7) Midori-wa sarada-o tsukutte-kita-shi, Namie-mo keeki-o yaite kita.
Midori-TOP salad-ACC make-came-and Namie-also cake-ACC bake came
"Midori made a salad and brought it and Namie baked a cake and brought it"

While the predicate of the canonical *mo-p* is identical to the antecedent, e.g., "Midori baked a cake and Namie-mo baked a cake," the two predicates in (7), "make a salad" and "bake a cake" are not quite identical but only similar to each other in that they are both relevant to cooking. In other words, "x made a salad and brought it" and "x baked a cake and brought it" entail that "x cooked a dish and brought it," which Shudo calls *bridge entailment*. Even though the out-of-the-blue *mo-p* and the implicit antecedents are also in similar relation, *mo-p* and the presuppositions do not entail the same proposition. Rather, *mo-p* is entailed by the set of presuppositions which individuals infer by abductive reasoning.

4 Emphatic Meaning of *Mo* and Conversational Background

Mo is an expressive emphatic marker that conveys the speaker's evaluations and sentiments. While (2) demonstrates the speaker's uplifted sentiments, most of the discourse-initial *mo* sentences express the speaker's negative emotion. Many of the above example

[1]The notion of comparative similarity between possible worlds originates in Lewis (1973).

sentences can be embedded under negative factive predicates such as "I regret" but not by positive predicates like "be glad" (Nishiguchi 2005). In Kratzer-style semantics (Kratzer 1991), conversational background g evaluates p-worlds according to the speaker's preference.

(8) *Conversational background*:

Ordering source g: in view of what I want (bouletic conversational background)

(9) Ordering source g (in view of what I want):

For all $u, w, w' \in W$, for any $g(u) \subseteq P(W)$: $w \leq_{g(u)} w'$ iff $\{p|\ p \in g(u) \wedge w \in p\} \subseteq \{p|\ p \in g(u) \wedge w \in p\}$

A set of propositions *g(u)*, i.e., the desired ideals, induces a partial ordering on the possible worlds accessible from world u. If $w \leq_{g(u)} w'$, world w is closer than w' to the ideal represented by *g(u)*. Simply put, the speaker prefers w world to w' world.

(10) $[\![mo - p]\!]^g(u) = 1$ iff

for all $w \in \bigcap g(u)$ there is a $w' \in \bigcap g(u)$ such that $w \leq_{g(u)} w'$ and for all $z \in \bigcap g(u)$: if $z \leq_{g(u)} w$, then $z \in [\![p]\!]^{f,g}$

Mo-p is true in world u if and only if all the p-worlds are ordered according to the preferences of the speaker.

The speaker-oriented meaning of *mo* is only available when the presuppositions are satisfied. Following Berman (1991) and von Fintel (1994), which regard presuppositions as restrictors of operators, I propose that *mo* is a universal determiner-like element that finds implicit presuppositions in the restrictor and overt unaccusative predicates in the nuclear scope. *Mo*, which is the head of the MODAL P, raises and adjoins TP at LF due to its quantificational force. *Mo* has a presupposition in the complement and an overt proposition in the nuclear scope.

(11) [$_{TP}$[$_{MODALP}$[$_{MODAL}$ mo][presupposition]][1 [$_{TP}$[$_{MODALP}$[DP [$_{MODAL1}$ <mo>]]] [$_{T'}$[$_{VP}$<DP> V] T]]]]

5 Context Change Potential

Finally, let us consider how *mo-p* changes a context in the framework of Heim (1992), which regards the meaning of a sentence as its context change potential (CCP). A *mo*-sentence adds additional information, while *ga*(nominative marker)-sentences do not necessarily do so.

(12) c + *mo-p* = $\{(w,\ g)$ in $c \mid p$ is true at $(w,\ g)\}$ if there is q that is similar, but not equal to p, which is true in c; otherwise, undefined.

The meaning of *mo-p* is added to the context only if there is a similar proposition to p, that is, the presupposition that is already satisfied in the context.

References

Berman, S. (1991). *On the Semantics and Logical Form of Wh-Clauses.* Ph. D. thesis, University of Massachusetts, Amherst.

Heim, I. (1992). Presupposition projection and the semantics of attitude verbs. *Journal of Semantics 9*, 183–221.

Karttunen, L. and S. Peters (1979). Conventional implicature. In *Syntax and Semantics*, Volume 11, pp. 1–56. New York: Academic Press.

Kratzer, A. (1991). *Modality*, pp. 639–650. Berlin, New York: Walter de Gruyter.

Kuroda, S.-Y. (1969). Remarks on the notion of subject with reference to words like *Also*, *Even*, and *Only*, part ii. In *Annual Bulletin*, Volume 4, pp. 127–152. Tokyo: Research Institute of Logopedics and Phoniatrics, University of Tokyo.

Lambrecht, K. (1994). *Information Structure and Sentence Form.* Cambridge: Cambridge University Press.

Lewis, D. (1973). *Counterfactuals.* Oxford: Blackwell.

Nishiguchi, S. (2005). Negative *Also*: Bipolar items in japanese. Electronic poster at Workshop "Polarity from Different Perspectives," March 11-13, 2005, NYU.

Numata, Y. (2000). Toritate (focus). In S. K. et al. (Ed.), *Toki, Hitei to Toritate*, pp. 151–216. Tokyo: Iwanami.

Rooth, M. (1996). Focus. In *The Handbook of contemporary semantic Theory*, pp. 271–297. Oxford: Blackwell.

Shudo, S. (2002). *Presupposition and Discourse: Functions of the Japanese Particle* Mo. New York, London: Routledge.

Stalnaker, R. (1978). Assertion. In *Syntax and Semantics*, Volume 9. New York: Academic Press.

von Fintel, K. (1994). *Restrictions on Quantifier Domains.* Ph. D. thesis, University of Massachusetts at Amherst.

Zubizarreta, M. L. (1998). *Prosody, Focus and Word Order.* Cambridge: MIT Press.

Pragmatic enrichment via expressive content

Christopher Potts
UMass Amherst

Pragmatics is central to the theory of linguistic meaning because, to paraphrase Levinson 2000, the encoded content of the sentences we utter is only the barest sketch of what we actually intend with those utterances. If I say to you, "Sam's car is in the driveway", the propositional content is straightforward to recover. But what do I ***mean***? Without guidance – from me, from the context, from your general knowledge of the world – you might be left mired in pragmatic indeterminacy.

Suppose I say instead "Sam's goddam car is in the friggin driveway". In peppering my utterance with expressives, I provide clues as to what I am saying and why it is important. This talk is about the nature of this extra information and the role that it plays in pragmatic enrichment.

In the first part of the talk, I attempt to come to terms with the diversity of expressive meanings, both across languages and within the range of readings for specific items. I argue that this seemingly disparate linguistic domain is united by the properties described in Potts 2007, and I present a wide range of new evidence for those properties, drawing on recent work on memory (Jay et al. 2007), on linguistic matching constructions (Potts et al. 2007), and on sentiment analysis (Pang and Lee 2004, 2005).

Expressives are emotionally charged, inextricably linked with their conditions on use, and highly variable in their discourse contributions. There is no tougher combination for the semanticist. Thus, ever the pragmatist (and pragmaticist), I attempt to make an end-run around meanings, focussing entirely on use (Kaplan 1999). Inspired by van Rooy 2003, I study expressives in the context of conversational signaling games. The approach reveals that certain pragmatic enrichments are naturally stable discourse strategies.

If the theory I develop is on the right track, then uttering an expressive is an irrevocable act that can reverberate through the discourse and, viscerally, through its participants. I close the talk by addressing some of the ways in which this theoretical understanding can inform issues and debates outside of linguistics.

References

Jay, Timothy, Catherine Caldwell-Harris and Krista King. 2008. Recalling taboo and nontaboo words. American Journal of Psychology 121(1): 83-103.

Kaplan, David. 1999. What is meaning? Explorations in the theory of Meaning as Use. Brief version --- draft 1, Ms, UCLA. (For a video recording of Kaplan delivering a newer version: http://www.uctv.tv/search-details.asp?showID=8593.)

Levinson, Stephen C. 2000. Presumptive Meanings: The Theory of Generalized Conversational Implicature. Cambridge, MA: MIT Press.

Pang, Bo and Lillian Lee. 2004. A sentimental education: sentiment analysis using subjectivity summarization based on minimum cuts. In Proceedings of the ACL.

Pang, Bo and Lillian Lee. 2005. Seeing stars: exploiting class relationships for sentiment categorization with respect to rating scales. In Proceedings of the ACL.

Potts, Christopher. 2007. The expressive dimension. Theoretical Linguistics 33(2): 165-197.

Potts, Christopher, Luis Alonso-Ovalle, Ash Asudeh, Rajesh Bhatt, Seth Cable, Christopher Davis, Yurie Hara, Angelika Kratzer, Eric McCready, Tom Roeper and Martin Walkow. 2007. Expressives and identity conditions. URL http://semanticsarchive.net/Archive/Tc5NjlkN/. Ms., UMass Amherst, UMass Boston, Carleton University, Kyoto University, and Aoyama Gakuin University.

van Rooy, Robert. 2003. Being polite is a handicap: towards a game theoretical analysis of polite linguistic behavior. In Moshe Tennenholtz (ed.) Proceedings of TARK 9, 45-58. URL http://www.tark.org/proceedings/tark_jun20_03/proceedings.html.

Sharpening the adequacy of a characterisation—The semantics of German *Gerade*

Gerhard Schaden & Lucia M. Tovena (Université Paris 7, CNRS LLF)

As noted in the literature (e.g. König, 1991), German *gerade* bears quite some resemblances in meaning effects with exclusive focus particles like English *only*, without however excluding alternative values. While the class of *red cars* is, according to the terms of König, "exhaustively identified" with the class of cars getting often stolen, it does not exclude other types of cars from being stolen.

(1) Gerade rote Autos werden oft gestohlen.
GERADE red cars become often stolen.
'Precisely red cars are often stolen.'

We propose to capture the meaning effects of *gerade*, in terms of an adverb that sharpens the perception of adequacy of a property for characterising a particular set. We analyse this effect as the result of a comparison with alternative properties, by means of a measure function. The function maps members of a set of properties—of entities or of events depending on the context—to real numbers. The structure of the set domain also depends on the context, as well as on the lexical semantics of the linguistic material, and is preserved by the measure. More precisely, *gerade* establishes a comparison between the measure associated to the property P expressed by the associate (cf. Krifka, 1998), and the measure of any other property P' in the relevant context C. No property P' can provide a characteristic function suitable for cutting out the intended set if its measure is superior to the measure of P. This is stated in (2), which generalises over the different possible syntactic functions of the associate. Be a sentence ψ, consisting of *gerade* being applied to a property P inside the sentence ϕ (where $\phi = \psi$ without *gerade*). ϕ is false for all substitutions of P with P', where P' gets by μ a higher value than P.

(2) $\lambda P[\lambda x.[\phi](P) \wedge \exists \mu[C(\mu) \wedge \forall P'(\mu(P') > \mu(P) \rightarrow \phi[^{P'}/_{P}] = 0)]]$[1]

In order to see the formula at work, let us consider the following example:

(3) Wir haben gerade genug Geld, um uns ein Eis zu kaufen.
We have GERADE enough money, for us an ice-cream to buy.
'We have just enough money to buy us an ice-cream.'

(3) asserts that the amount of money the speaker has qualifies as enough money for buying an ice-cream, i.e. P, but for instance does not qualify as enough money for buying a pizza, e.g. P', if we know that the price of a pizza is superior to the price of an ice-cream. This means that, supposing that an ice-cream costs 2 € and a pizza 8 €, the speaker must have at least 2 € and at most 7.99 € for the sentence to be felicitous. The common ground contains the assumption that we do not know of any other item whose price is within this span. If we do, then the relevant span is by definition reduced to the interval between 2 € and the price of this other item. In practice, the span is viewed as small insofar as no P' is identified as holding of the amount possessed by the speaker and having a measure superior to the measure associated to P. This span can be viewed as a zone of approximation. The measure function of prices of goods preserves the relation 'costs more than' among the images of the sets of icecreams, pizzas, etc., thanks to the fact that numbers are ordered by the '>' relation. But it is not always the case that the members of the domain of the measure function are intrinsically ordered. Next, the context and the nature of the associate determine which measure function is picked out. The relation between function and content of the background can be indirect, as the function must come with it but need not be mentioned explicitly.

The comparison of measures $\mu(P') > \mu(P)$ enhances the relevance of the edge area of P. This suits us well for temporal and spatial uses. *Gerade* basically displays the same behaviour when it modifies phrases like *noch* PP: the entity in question is perceived as being situated now very closely to the (temporal or spatial) edge.[2]

(4) a. Passau liegt gerade noch in Bayern.
P. lies GERADE still in Bavaria.
'Passau is still situated in Bavaria (but very close to not being in Bavaria).'

b. *Passau liegt gerade schon in Bayern.
P. lies GERADE already in Bavaria.
Intended: 'Passau is already in Bavaria (but very close to the border).'

(4a) can be conceptualized as situating Passau on the edge-region of the domain denoted by 'still in Bavaria'. Supposing that *schon* is the dual of *noch*, the unacceptability of (4b) is puzzling. However, as Mittwoch (1993: 75)

[1] (2) bears obvious similarities with some accounts of *only* (e.g. van Rooij and Schulz, 2005). Note, however, that the so-called 'negative' contribution of the particle is asserted with *only*, but presupposed with *gerade*, and that the 'positive' contribution is presupposed with *only*, but asserted with *gerade*. The fact that, contrary to *only*, *gerade* cannot trigger an NPI in the sentence background seems to give support to this idea: **Gerade Reinhold Messner hat je einen Yeti gesehen*, 'Precisely Reinhold Messner has ever seen a Yeti'.

[2] *Gerade* often marks temporal proximity, but the analysis of its so-called progressive uses requires a careful tweaking of our proposal, work we plan for the full paper.

has argued, one can see *schon* as involving a (temporal or spatial) comparison. Therefore, the comparisons operated by *schon* PP and *gerade* might clash, causing uninterpretability. There is a clear opposition between cases like (3) and (4), where *gerade* has as associate a member of an intrinsically ordered domain, and cases like (1), where the associate (which is prosodically prominent in this position) is not intrinsically coupled with an ordering relation, but the relation seems to stem from the sentence-background.

Using measure functions has the advantage of providing us a range (the set of real numbers) which is intrinsically ordered, while the domain is not necessarily ordered. Hence, we can cover scalar uses of *gerade* as well as non-scalar ones. Scalar readings result from applying the adverb to a predicate P standing in a contextually determined ordering relation w.r.t a contextually provided set of alternative P's—ordering that is preserved by μ—and not directly from the semantics of the adverb. In this respect, it is interesting to note a difference between the behaviour of *gerade* and the behaviour of well-known, scalar particles like *even* w.r.t. accommodating the order. *Gerade* cannot, by itself, force us to accommodate an ordering between associate and alternatives, whereas a scalar particle like *even* can (see (5)).

(5) a. Even Otto got promoted.
b. ??Gerade Otto hat eine Beförderung gekriegt.
GERADE O. has a promotion got.
'Precisely Otto got promoted.'

Even without salient contextual antecedents, (5a) will be interpreted as ordering Otto with respect to alternative candidates to promotion, and place him as an unlikely promotee. But (5b) is odd out of the blue, and no μ and potential P's are easily available. A predicate allowing gradation, like *verdienen* in (6), improves the sentence and reduces the burden on special discourse embeddings. (6) orders Otto as one of the people most deserving to obtain a promotion. Otto is at the edge of the ordered group of people satisfying the (background-)predicate.

(6) Gerade Otto hätte eine Beförderung verdient.
GERADE O. had$_{\text{Konj}}$ a promotion earned.
'Particularly Otto would have earned a promotion.'

Finally, let us consider König's claim that *gerade* comes with an implicature (gradually becoming conventionalised, according to him) that the two identified properties are (at least, potentially) conflicting. (7) shows that *gerade* is able to *mark* such conflicts, rather than to provoke them, and may even downtone them at times.

(7) Es war ja gerade der Triumph der Araber, der ihnen ihre heutige Lage so unerträglich macht.
It was yes *gerade* the triumph of the Arabs, which them their current situation so unbearable makes.
(*Die Zeit* 13, 2006)
'It was precisely the triumph of the Arabs that makes their present situation so unbearable to them.'

Without *gerade*, (7) seems incoherent, because of the presence of *ja*.[3] This particle is analyzed generally as marking an information as either pertaining to the common ground, or as easily inferrable from elements present in the common ground.

Intuitively, (7) states that the most relevant reason for the Arabs current unhappiness is their past glory (while suggesting that there may be other, valid reasons for them to be unhappy). This can be accounted for in our analysis, as all (stronger) alternatives P' to past glory P render the sentence false. Thus, the effect of sharpening of the adequacy of P, still without excluding other reasons for unhappiness—provided that each of them individually measures less than P. Then, the reason why *gerade* cannot be left out in (7) is that without it, the adequacy of P is not enhanced, and one would exhaustify the focus w.r.t the background. This would lead to the conclusion that there are no other (substantial) reasons for the Arabs to be unhappy, and as a result, one is baffled by the causal link established between past glory and present unhappiness, presented as obvious by *ja*. In sum, there is no need to suppose an (external) meaning component—conflicting roles—which would come from *gerade*. 'Conflicting roles', if any, are external to the semantics of the particle.

* * *

König, Ekkehard. 1991. *The Meaning of Focus Particles. A Comparative Perspective*. London: Routledge.
Krifka, Manfred. 1998. Additive particles under stress. In D. Strolovitch and A. Lawson (eds.), *Proceedings from Semantics and Linguistic Theory VIII*. CLC Publications. Cornell University, Ithaca, NY. pp. 111-128.
Mittwoch, Anita. 1993. The relationship between *Schon*/*Already* and *Noch*/*Still*: A reply to Löbner. *Natural Language Semantics* 2(1):71–82.
van Rooij, Robert and Katrin Schulz. 2005. *Only*: Meaning and implicatures. Ms., University of Amsterdam.

[3](7) would be fine in all other combinations, i.e. i) with *gerade* and no *ja*, or ii) with neither.

To p or to ¬p, that is the question- the pragmatics of Bavarian '*fei*'

Sonja Thoma
University of British Columbia
sonja.thoma@gmail.com

Introduction: In this paper I provide a description of the semantic and pragmatic conditions for the so far undescribed Bavarian particle *fei*, and motivate the notion of a VERUM FOCUS DISCOURSE PARTICLE. Like Standard German, the Bavarian dialects abounds with discourse particles, which link a speaker's utterance to the larger discourse. Particles can comment on propositions implicated but not expressed in discourse, speakers' attitudes, listeners' beliefs, or on the common ground.

The Problem: The ineffable nature of discourse particles in general, and the problem of capturing the meaning of *fei* in particular is illustrated below. As an answer to the question 'What does *fei* mean?', speakers can answer with (1a) or (1b).

(1) a. *Des* *is schwer* *zum* *sog'n*
that is difficult INF.DET[1] say
'That's hard to say'

b. *Des* *is* ***fei*** *schwer* *zum* *sog'n*
that is ***fei*** difficult INF.DET say
'That's hard to say'

Proposal: Bavarian *fei* is part VERUM FOCUS, part DISCOURSE PARTICLE; it evokes a meaning along the lines of VERUM FOCUS (Höhle 1992) and acts like a DISCOURSE PARTICLE by anchoring the host sentence *p* to a pragmatic context of utterance (Zimmermann 2007a, Fischer 2006), and by accessing the interlocutors' epistemic attitudes toward *p*. Like discourse particles, and unlike some focus particles, the addition of *fei* does not affect the truth-functional meaning of a sentence (Abraham 1991), but the felicity conditions. In a nutshell *fei* expresses (3).

(3) $\underbrace{\text{[I believe that you believe]}_{\text{DISCOURSE PARTICLE}} \text{ that [it is not the case]}_{\text{VERUM FOCUS}}}_{\textbf{fei}}$ that [p]$_{\text{HOST UTTERANCE}}$

I propose that *fei* is an overt marker of the speaker's intent to correct the common ground (CG) (cf. Zimmermann 2007b). The speaker reacts with *fei* to a proposition *p* that she believes to be in the CG, and corrects the CG with a *fei* focused assertion: *"I am asserting p, since judging from your behavior/question/comment you seem to think ¬p, OR just in case that you think ¬p"*. This can be illustrated more formally as in (4).

(4) *fei*(p): →remove ¬p/p from CG (if present)
→add p/¬p

Evidence: I develop my argument by showing verum focus effects with *fei*. A host proposition *p* is contrasted with the alternative ¬*p* when the particle is added. This also accounts for the emphatic force of the sentences containing *fei*. As a discourse particle, *fei* accesses a presupposition in the CG. (5-6) help to illustrate:

(5) Context: A puts out an elaborate spread for dinner for 2 without uttering an invitation to B

[1] I keep my glosses as simple as possible. The abbreviations used are INF=infinitive, DET=determiner, PRON=pronoun, COMP=complementizer.

B: *I hob* ***fei*** *koa* *Zeit mehr*
I have fei NEG.DET time more
‘ I don’t have time any more’

Proposition implicated by *A*’s setting the table for 2*: You have time for dinner*
Judging from your behavior I believe that you believe that I have time for dinner: but I don’t have time for dinner. corrects the common ground with: I DON’T HAVE TIME

(6) A : Can I open the window?’
B: *Mi friats* ***fei***
Me be.cold fei
‘I am cold’

Proposition implicated by A’s question: *You are not cold*
Judging from your question I believe that you believe that I am not cold, but I am cold
corrects the common ground with : I AM COLD

Predictions: This proposal makes some predictions. (i) If *fei* accesses a presupposition in the CG and focuses on the opposite polarity of that presupposition, it should not be felicitous in answers to Y/N questions, e.g. *‘Is it snowing outside?’* (7) nor in questions themselves (8), assuming that questions do not update the CG or carry a presupposition. This is borne out by the data below.

(7) *# Ja es schneibt fei.*
it snows fei
To mean: ‘ Yes, it’s snowing’

(8) *#Schneibts fei draussn?*
Snows.it fei outside
To mean‘ Is it snowing outside?

Secondly, if VERUM is encoded in C as proposed by Höhle (1992), and some discourse particles are modifiers on the propositional level (Zimmermann 2007a), (ii) *fei* should only be grammatical in inflected imperatives with CP structure (9a). Infinitival imperative forms with the particle should be ungrammatical (9c).

(9) *a. Bass fei auf!*
Watch fei out
‘Be careful!’→imperative

b. Aufbass’n!
Out.watch
‘Be careful!’→infinitive

*c. *fei aufbass’n*
fei out.watch

References:

Abraham, W. (ed.).1991. Discourse Particles: Descriptive and Theoretical Investigations on the Logical, Syntactic and Pragmatic Properties of Discourse Particles in German. Amsterdam: Benjamins.

Fischer, K. (ed.) 2006. Approaches to Discourse Particles. Elsevier.

Höhle, T. 1992. 'Über Verum-Fokus im Deutschen'. In J. Jacobs (ed.), *Informationsstruktur und Grammatik*, Opladen: Westdeutscher Verlag, 112-141.

Zimmermann, M. 2007a. Discourse Particles. To appear in P. Portner, C. Maienborn und K. von Heusinger (eds.), Handbook of Semantics. Berlin: Mouton de Gruyter.

Zimmermann M. 2007b. Contrastive Focus. In Féry, C., G. Fanselow, and M. Krifka (eds). Interdisciplinary Studies on Information structure 6. 147-159.

German demonstrative *so* – intensifying and hedging effects

Carla Umbach, Cornelia Endriss

Institute of Cognitive Science, University of Osnabrück

1. German *so* is a demonstrative expression combing with, e.g., indefinite noun phrases, verb phrases and adjectives. It can be used deictically and anaphorically referring to modifiers of various kinds. When combined with gradable expressions *so* refers to a degree, cf (1). When combined with non-gradable expressions *so* picks up a property, cf. (2). Like any other demonstrative expression *so* can be used deictically and anaphorically. Thus the degree or property referred to by *so* can either be provided by a demonstrating gesture or by the preceding context. In the (a) examples of (1) and (2) *so* is used deictically and the hearer has to infer the relevant degree or property (Marie's height / the make of Marie's car) from the speaker's gesture. In the (b) examples of (1) and (2) *so* is used anaphorically relating to an antecedent that represents a degree or property (1,80m / equipped with a hatch). In the (c) examples of (1) and (2) *so* is part of an equative comparison. Following Umbach (2007) it constitutes a cataphor relating to the subsequent *wie*-phrase which provides the comparison base. The relevant degree or property has to be inferred from the exemplar given in the comparison base. These examples show that in all of the three uses *so* functions as a demonstrative expression picking up either a degree or a property.

(1) a. (speaker demonstrating a certain size:) So groß ist Marie.. 'Marie is that tall.'
b. Anna ist 1,80$_1$. Marie ist auch so$_1$ groß. 'Anna is 1,80. Marie is that tall, too.'
c. Marie ist so groß wie Anna. 'Marie is as tall as Anna.'

(2) a. (pointing to Anna's car:) So ein Auto hat Marie (auch). 'Marie (also) has a car like this.'
b. Anna hat ein Auto [mit Heckklappe]$_1$. Marie hat auch so$_1$ ein Auto. 'Anna has a car with a hatch. Marie has such a car, too.'
c. Marie hat so ein Auto wie Anna. 'Marie has the same a car as Anna.'

2. There are usages of *so* which, although combined with gradable as well as non-gradable expressions as before, are neither deictic nor anaphoric and instead occur 'out of the blue'.[1] When combined with gradable expressions this usage of *so* is called "intensifying" because it appears to boost the standard degree (and can frequently be substituted by *sehr/very*), cf. (3). When combined with non-gradable expressions the out-of-the-blue usage of *so* appears like hedging, the speaker being uncertain whether the word she chose is adequate, cf. (4).

(3) a. (A: Do you want to have my dining table?) B: Er ist so groß. 'It is so big.'
b. (A: Let us sit on the lawn.) B: Der Rasen ist so nass. 'The lawn is so wet.'
c. (A: Why don't you put it in the fridge?) B: Der Kühlschrank ist so voll. 'The fridge is so full.'
d. (A: Why don't you ask John?) B: Er ist so'n Pedant. 'He is such a prig.'

[1] In contrast to the deictic usages, the out-of-the-blue usages are not accompanied by a demonstration gesture. They also differ from the deictic ones in that *so* must not be stressed, while in the deictic usages there is usually stress on *so*.

(4) a. (A: What kind of art does he like ?) B: Na ja, so kubistische. 'Like cubistic'
b. (A: What do you want?) B: Ich brauche so'ne Klammer. 'I need kind of a clip'.

In this paper we will focus on the out-of-the-blue usage of *so* demonstrated in (3) and (4) and address two questions: (i) What is the semantic contribution of *so* in these cases? (ii) How do these cases relate to the demonstrative (deictic/anaphoric/cataphoric) uses shown in (1) and (2)?

3. When combined with gradable expressions, as in (3), out-of-the-blue *so* functions as a degree modifier indicating a context-dependent significant degree on the associated scale. Following Kennedy and McNally (2005) we will distinguish between relative and absolute gradable adjectives. Relative adjectives like *groß/tall* come with a context-dependent standard of comparison ('norm'), that is, *Marie is tall* is true if Marie's height exceeds the standard height in Marie's comparison class. For relative adjectives, the effect of out-of-the-blue *so* is marginal, cf. (3a), since the standard of comparison is already context-dependent.

In the case of absolute adjectives the standard of comparison coincides with either the minimum or the maximum of the associated (closed) scale. For absolute adjectives like *nass/wet* the standard of comparison is given by the minimum and hence shifting it to any other degree will be an increase. This is why *so* has a boosting effect in (3b). For absolute adjectives like *voll/full* the standard of comparison is given by the maximum. Shifting it to some other degree inevitably results in a decrease. This explains why *so* has a downscaling effect on *voll/full*, cf. (3c). (If something is *so voll* it is not full!). Finally, in (3d) out-of-the-blue *so* is combined with *Pedant/prig* which is a noun instead of an adjective but is still gradable and comes with a minimum standard. Similar to the adjectival example in (3b) adding out-of-the-blue *so* results in boosting.

Comparing the out-of-the-blue cases in (3) to the examples in (1) it turns out that they differ only with respect to the origin of the degree indicated by *so*. While in (1a) the degree is provided by a demonstration gesture, in (3) it depends on what the speaker takes to be significant in the utterance situation. Although this usage is not demonstrative in the narrow sense (there is no accompanying gesture), we might assume a silent demonstration indicating a degree – *THIS-EXTEND* – thereby allowing to spell out the meaning of *so* in, e.g, (3a) as shown in (5b). (Note that while Kaplan's DTHAT refers to real entities in the utterance situation, *THIS-EXTEND* is meant to operate on Bühler's imaginary space, like his "Deixis am Phantasma".)

(5) a. (speaker demonstrating a certain size:)
Der Tisch ist so groß [wie ich es zeige]. 'The table is this size [like I show you]'
b. (silent demonstration:)
Der Tisch ist so groß [wie THIS-EXTEND]. 'The table is as big [as THIS-EXTEND]'

4. When combined with non-gradable expressions, as in (4), out-of-the-blue *so* functions like a hedging expression indicating that the intended denotation deviates from the regular one. In (4b), for example, the speaker wants something similar to a clip but she doesn't know the name of these items. This can be accounted for in (at least) two ways. Either we assume that the intended denotation is an element of the halo of the regular denotation, "coming close enough to truth" (cf. Lasersohn 1999). On the halo interpretation *so* results in context-widening (as opposed to the context tightening effect of *perfectly* demonstrated by Lasersohn).

Alternatively, we can make use of Pinkal's (1985) precisification semantics, where the sense of an expression is made more precise by contextual information. One way to indicate the intended precisification on the linguistic surface is provided by appositions, including appositive *wie*-phrases (cf. Umbach 1996). For example, the intended sense of a polysemous noun like *Schule* ('*school*') can be made explicit by adding the phrase *wie die Reinhardsche* ('*like the one directed by Reinhard*') thereby expressing that *Schule* in this context means *style of acting*. Thus adding a *wie*-phrase makes a noun more precise by providing an exemplar of the intended denotation. Similarly, the speaker may precisify the intended denotation of *Klammer/clip* by uttering (6a) while showing an exemplar of the intended denotation to the addressee. Analogous to the gradable case in (5b) we can assume that out-of-the-blue *so* combined with non-gradables comes with a silent *wie*-phrase including an imaginary demonstration of an object the speaker has in mind – *THIS-OBJECT*. The meaning of *so* in, e.g. (4b) will thus be spelled out as shown in (6b).

(6) a. (speaker showing a foldback clip:)
Ich brauche so'ne Klammer, wie diese. 'I need kind of a clip, like this one'.

b. (silent demonstration:)
Ich brauche so'ne Klammer [wie THIS-OBJECT] 'I need kind of a clip [like THIS-OBJECT]'.

To conclude, the analysis of the out-of-the-blue usages of *so* as involving a silent demonstration facilitates a uniform analysis of *so* as a demonstrative expression. The analysis includes gradable and non-gradable cases and covers deictic and anaphoric/cataphoric usages as well as the out-of-the-blue usage. In all of these uses *so* points to an object/extend which is (in some respect) similar to the entity modified by *so*. Thus, in all of these uses *so* triggers some kind of a comparison. The differences lie in the type of the modified entity (gradable or non-gradable) and in the nature of the comparison base (demonstration gesture, silent demonstration, antecedent, *wie*-phrase).

p.s. We are well aware that there is a discourse particle *so* in German which serves as a "Scharnier" ('hinge') between otherwise unconnected discourse segments (cf. Ehlich 1986). Unfortunately we do not yet understand how the discourse particle relates to the demonstrative *so*.

Bühler, Karl (1934) Sprachtheorie. reprint 1999. Stuttgart, UTB.
Ehlich, Konrad (1986) *so* – Überlegungen zum Verhältnis sprachlicher Formen und sprachlichen Handelns, allgemein und an einem widerspenstigen Beispiel. In I. Rosengren (Hg.) *Sprache und Pragmatik*, Lunder germanistische Forschungen 55, 279-298.
Kaplan, D. (1989). Demonstratives. In Almog, Perry & Wittstein (eds.), *Themes from Kaplan*, Oxford University Press, 481–563.
Kennedy, Christopher & Louise McNally (2005) Scale structure and the semantic typology of gradable adjectives. *Language* 81.2.
Lasersohn, Peter (1999) Pragmatic Halos. *Language* 75.
Pinkal, Manfred (1985) Logik und Lexikon - die Semantik des Unbestimmten. de Gruyter, Berlin.
Umbach, C. (2007) The role of so in German equative comparison. Talk at CSSP, Oct. 2007, Paris.
Umbach, C. (1996) Interpretationssteuerung - Apposition und Typisierung. In Umbach, Grabski, Hörnig (eds) *Perspektive in Sprache und Raum*.. DUV Wiesbaden, 211-242.
Zifonun, G., L. Hoffmann & B. Strecker (1997) Grammatik der deutschen Sprache, de Gruyter, Berlin.

Sentence-initial Discourse Connectives, Discourse Structure and Semantics

Bonnie Webber
University of Edinburgh
bonnie@inf.ed.ac.uk

Rashmi Prasad
University of Pennsylvania
rjprasad@seas.upenn.edu

This paper focusses on differences in the properties of *sentence-initial* (hereafter, s-initial) coordinating conjunctions (hereafter, CCs) and s-initial discourse adverbials, and what such differences imply for discourse structure and semantics. Data are mainly from the Penn Discourse TreeBank[1] (PDTB), which contains the annotation of discourse relations in 2304 articles of the Wall Street Journal corpus (Marcus *et al.*, 1993) in terms of *discourse connectives* and the minimal text spans that give rise to their arguments (Prasad *et al.*, 2008), as in Example 1:

(1) *Even so, according to Mr. Salmore, the ad was "devastating" because it raised questions about Mr. Courter's credibility*. But **it's building on a long tradition**. (0041)

The connective ("but") is underlined, the first of its two arguments, ARG1, is shown in italics and the second, ARG2, is shown in boldface. The number 0041 indicates that the example comes from subsection wsj_0041 of the corpus. All annotation has been done by two annotators and adjudicated by a third (often a committee) in cases of disagreement. Only where connectives serve to connect **clauses** (or possibly an event-denoting nominalization, in the case of ARG1), have they been annotated. The PDTB also annotates the sense of each connective and the attribution of both connectives and their arguments, but since neither plays a role in our presentation here, we omit further discussion.

As well as annotating explicit connectives, the PDTB annotates *implicit connectives*, which the annotators insert between paragraph-internal adjacent sentence not otherwise linked by an explicit connective, in order to express the inferred relation(s) between them. For example,

(2) *The projects already under construction will increase Las Vegas's supply of hotel rooms by 11,795, or nearly 20%, to 75,500*. **By a rule of thumb of 1.5 new jobs for each new hotel room, Clark County will have nearly 18,000 new jobs**. (0994)

Here, the annotators take the connective "so" as implicitly connecting arguments found in the adjacent sentences, shown in italics (ARG1) and boldface (ARG2). Differences between this style of annotation and annotation in the RST corpus and in the GraphBank corpus are discussed in (Webber, 2006).

Here we focus on s-initial discourse connectives whose first argument comes from the preceding discourse (ie, CCs and discourse adverbials). Of interest is the location and form of ARG1, and what it is that cases where ARG1 is not immediately adjacent to the connective say about the intervening matieral. We present data on the CC "but" (as in Example 1) and on "so", which Huddleston and Pullum (2002) note has more similarities to CCs than it does differences. Both occur frequently in the *WSJ* corpus as s-initial clause connectors. While ARG1 of these connectives is always to their left and ARG2, to their right, ARG1 is not necessarily immediately adjacent to the connective.[2] Specifically, 20% of the 111 instances of s-initial "so" (22) have a non-adjacent ARG1, while 15.4% of s-initial "but" do so. While a similar pattern is found with discourse adverbials like "instead" and "nevertheless", does this mean that s-initial "but" and "so" behave not as CCs, but as adverbials?

Huddleston and Pullum (2002) describe *coordinators* (including CCs) as expressing "a relation between two or more elements of syntactically equal status". And in all instances of s-initial "so" and all but one instance of s-initial "but", we can show that ARG1 spans one or more clauses at a similar level of embedding as ARG2.[3] With s-initial discourse adverbials (which Huddleston and Pullum (2002) call "connective adverbials"), this is frequently not the case: Of the 61 s-initial instances of "instead" in the corpus, ARG1 spans text other than the main clause in 31 (51.7%), as in

(3) The tension was evident on Wednesday evening during Mr. Nixon's final banquet toast, normally an opportunity *for reciting platitudes about eternal friendship*. Instead, **Mr. Nixon reminded his host, Chinese President Yang Shangkun, that Americans haven't forgiven China's leaders for the military assault of June 3-4 that killed hundreds, and perhaps thousands, of demonstrators** (0093).

[1] available from the LDC, catalogue number LDC2008T05

[2] With *But*, figures are based on the first 410 of 2123 S-initial instances.

[3] Here we ignore attribution phrases such as "Mr. Dinkins argued", which are frequently not included in arguments to connectives (Dinesh *et al.*, 2005).

where ARG1 spans the gerund complement of an appositive NP. (The inclusion of "for" as part of ARG1 is simply a PDTB annotation convention.) Within a sentence, Huddleston and Pullum (2002) note that connective adverbials can link "non-coordinating elements". This clearly holds true in discourse as well.

Note, however, that when ARG1 of a s-initial "but" or "so" is non-adjacent to the connective, also of *syntactically equal status* is the intervening material. (This is not the case with discourse adverbials.) If both arguments of a s-initial CC are taken to be of "equal status" with respect to the discourse, then the intervening material might be serendipitous evidence for what Bluhdorn (2007) and others have called *subordination* in discourse, or what Mann and Thompson (1988) had in mind when they defined one argument of a rhetorical relation as a *satellite*, supporting the other argument (termed a *nucleus*). Subordination has not been directly annotated in the PDTB, but along with the exceptional instance of s-initial "but" mentioned above, it bears further analysis if we are to understand the annotation patterns in the PDTB, as well as discourse structure and semantics, more generally.

Also of interest is the patterning of s-initial discourse adverbials. If they can link non-coordinating elements in discourse (as well as within a sentence), then the coordinating elements (ie, the matrix sentence and a coordinating element in the previous discourse) can be linked by something else. Sometimes, this is an explicit connective, as with "so" in

(4) Long-winded people are boring, and writing full sentences is for chumps. So instead you have just SIX words to sum up the way you feel about Arsenal. (http://www.caughtoffside.com/?=pie, 6 May 2008)

More often, an *implicit connective* can be seen to link the matrix sentence of the connective and ARG2 to the previous discourse, as in

(5) *No price for the new shares has been set*. <u>Instead</u>, **the companies will leave it up to the marketplace to decide**. (0018)

where an implicit "and" is justified. That this implicit connective is not always "and" can be seen in such minimal pairs as

(6) a. *There wasn't any bread*. <u>Instead</u> **we ate crackers**.

b. *We wanted to eat bread*. <u>Instead</u> **we ate crackers**.

where "so" is an appropriate implicit connective for (a), while "but" is an appropriate implicit connective for (b). Although implicit connectives have not been annotated in the PDTB in cases of s-initial discourse adverbials, it is worth doing so, in order to more fully capture discourse semantics and structure.

References

Bluhdorn, H. (2007). Subordination and coordination in syntax, semantics and discourse In C. Fabricius-Hansen and W. Ramm, editors, *Subordination versus Coordination in Sentence and Text — from a cross-linguistic perspective*. John Benjamins.

Dinesh, N., Lee, A., Miltsakaki, E., Prasad, R., Joshi, A., and Webber, B. (2005). Attribution and the (non-)alignment of syntactic and discourse arguments of connectives. In *ACL Workshop on Frontiers in Corpus Annotation*, Ann Arbor MI.

Huddleston, R. and Pullum, G. (2002). *The Cambridge Grammar of the English Language*. Cambridge University Press, Cambridge UK.

Mann, W. and Thompson, S. (1988). Rhetorical Structure Theory: Toward a functional theory of text organization. *Text*, **8(3)**, 243–281.

Marcus, M., Santorini, B., and Marcinkiewicz, M. A. (1993). Building a large scale annotated corpus of English: The Penn TreeBank. *Computational Linguistics*, **19**, 313–330.

Prasad, R., Dinesh, N., Lee, A., Miltsakaki, E., Robaldo, L., Joshi, A., and Webber, B. (2008). The Penn Discourse TreeBank 2.0. In *Proceedings, 6th International Conference on Language Resources and Evaluation*, Marrakech, Morocco.

Webber, B. (2006). Accounting for discourse relations: Constituency and dependency. In M. D. M. Butt and T. King, editors, *Intelligent Linguistic Architectures*, pages 339–360. CSLI Publications.