

Meaning, Use, and Interpretation of Language

Edited by

Rainer Bäuerle

Christoph Schwarze

Arnim von Stechow



Walter de Gruyter · Berlin · New York
1983

9101563*4



CIP-Kurztitelaufnahme der Deutschen Bibliothek

Meaning, use and interpretation of language / ed. by
Rainer Bäuerle ... – Berlin ; New York : de Gruyter, 1983.
(Foundations of communication : Library ed.)
ISBN 3-11-008901-7
NE: Bäuerle, Rainer [Hrsg.]

© Copyright 1983 by Walter de Gruyter & Co., vormals G.J. Göschen'sche Verlagshandlung – J. Guttentag, Verlagsbuchhandlung – Georg Reimer – Karl J. Trübner – Veit & Comp., Berlin 30. Printed in Germany.

Alle Rechte des Nachdrucks, der photomechanischen Wiedergabe, der Herstellung von Photokopien – auch auszugsweise – vorbehalten.

Satz und Druck: Passavia, Passau

Buchbinder: Lüderitz & Bauer, Berlin

1085/4797

Contents

Preface	V
Peter Auer and Aldo di Luzio	
Structure and meaning of linguistic variation in Italian migrant children in Germany	1
Nuel D. Belnap Jr.	
Approaches to the semantics of questions in natural language (I)	22
Rudolf Cohen, Angelika Glöckner, Margit Lutz, Thomas Maier, and Erwin Meier	
Cognitive impairments in aphasia: new results and new problems	30
Florian Coulmas	
Underdeterminacy and plausibility in word-formation	46
Maxwell J. Cresswell	
A highly impossible scene. The semantics of visual contradictions	62
Urs Egli	
The Stoic theory of arguments	79
Cathrine Fabricius-Hansen	
Wieder éin <i>wieder</i> ? Zur Semantik von <i>wieder</i>	97
Jacques François	
On the perspectival ordering of patient and causing event in the distribution of French and German verbs of change: a contrastive study	121
Harold Goodglass	
Disorders of lexical production and comprehension	134
Christopher Habel	
Inferences – the base of semantics?	147

Irene Heim

File change semantics and the familiarity theory of definiteness 164

Jaap Hoepelman

Adjectives and nouns: a new calculus 190

Hans Hörmann

The calculating listener, or: How many are *einige*, *mehrere*,
and *ein paar* (*some*, *several*, and *a few*)? 221

Karlheinz Hülser

The fragments on Stoic dialectic: a new collection 235

Hans Kamp and Christian Rohrer

Tense in texts 250

Walther Kindt

Neue modelltheoretische Ansätze für die Semantik.
Die Behandlung von Vagheit als Grundproblem. 270

Jean-Yves Lerner and Thomas Ede Zimmermann

Presupposition and Quantifiers 290

Godehard Link

The logical analysis of plurals and mass terms:
a lattice-theoretical approach 302

Thomas Lorscheid, Sabine Kulesa, Robert B. Freeman,
and Klaus Hofmeister

Hemispheric conceptions of imagery: spectral analyses of the EEG . . . 324

Uwe Mönnich

Toward a calculus of concepts as a semantical metalanguage 342

Barbara Partee and Mats Rooth

Generalized conjunction and type ambiguity 361

Eberhard Pause

Context and Translation 384

Manfred Pinkal

On the limits of lexical meaning. 400

Eike von Savigny

Sentence meaning and utterance meaning: a complete case study 423

Michael Schluroff

In the eye of the beholder: cognitive effort during sentence
processing 436

Dieter Wunderlich

On the compositionality of German prefix verbs 452

Dietmar Zaefferer

The semantics of non-declaratives:
investigating German exclamatories 466

The Semantics of Non-Declaratives: Investigating German Exclamatories*

Dietmar Zaefferer, München

0. Introduction

Four years ago I heard John Searle speak at the Speech Acts Working Group of the Vienna International Congress of Linguistics and was quite impressed by his sportsmanlike give and take in argument, which contrasted pleasantly with the stiff academic style still customary in some German universities. This experience gave me the idea of regarding the comparison of different approaches to the semantics of non-declaratives as a kind of sports competition, the theories being the competitors and their authors being the coaches. The problem is that most coaches never let their trainees really run, but just describe what it would look like if they ran. So the task of comparing turned out to be guesswork with respect to many criteria and the focus of my investigation shifted gradually from a comparison of approaches to the problems they try to solve, or, more precisely, to one special problem from among them, namely the semantics of German exclamatories. I can only hope that the reader will not be too disappointed if therefore I will give only a sketchy survey of only some approaches, and that he will share instead my interest in the relatively little known problems to which the semantics of exclamatory sentences give rise,¹ even if the results may seem somewhat provisional.

1. The Rules of the Competition

The rules are nowhere explicitly stated, but I hope to do justice to most of the people involved in proposing the following framework of reference:

* I should like to thank Godehard Link and Thomas Becker for stimulating discussions at various stages of this paper as well as Barbara H. Partee and Nuel D. Belnap for their encouraging and helpful comments on its first version; thanks are due also to Mary Howard, Craig Thiersch and Jane Garrett for checking my English and to Gabriele Hollmann for typing the manuscript. I dedicate this paper to my son Sirtan whose birth caused a rejoicing interruption in my work on this paper as well as many joyful exclamations.

¹ Correspondingly, the size of the relevant literature is rather small. Examples are von Roncador 1976 for German, Culioli 1974 and Gérard 1980 for French, and Elliott 1974 and N. McCawley 1973 for English.

1.1 Terminological Preliminaries

- a) 'Semantics' should be understood in a broad sense as the theory of meaning in a pretheoretical sense, where 'meaning' includes almost anything which can systematically be assigned to the form or gestalt of linguistic signs: content, function, lexical, grammatical, and structural meaning;
- b) the distinction between declarative and non-declarative sentences should be regarded as a matter of syntactic sentence mood and it should not be confused either with the indicative/non-indicative distinction, the latter being a matter of verbal mood – which only co-determines sentence mood –, or the statement/non-statement distinction and the distinction between constative and non-constative utterances, these latter being a matter of illocution type.

1.2 Handicaps: Theoretical Presumptions

Since I am a coach of competitors myself I cannot avoid some personal bias. This enters the game with my theoretical presumptions, which – although they are rather weak – naturally are handicaps for all those who reject them:

- (TP 1) It is necessary to distinguish between a locutionary and an illocutionary level of linguistic analysis, the former being concerned with propositional content and the like, the latter with communicative function, conventional force and the like.
- (TP 2) On the locutionary level, the notion of truth should be taken as central for the meaning of at least a large subset of the declarative sentences of the language under consideration, i.e. a truth conditional semantics is presupposed for the locutionary aspect of the meaning of declarative sentences, whether it be of the possible worlds (Montague, Lewis) or the situation semantics (Barwise) variety.

1.3 Score Scheme: Criteria of Adequacy

Let me now (without discussion of the proposals made in the literature) present the catalogue of criteria I should like to make use of.

Let L be a natural language.

Every adequate linguistic theory of the meaning of non-declarative sentences of L (L-NDS) should meet the following criteria:

- (CA 1) It should be based on a complete and correct syntax of the L-NDS, which
 - (CA 1.1) includes a list of the types (categories) of L-NDS;
 - (CA 1.2) accounts for the structural connections among L-NDS and also between L-NDS and syntactically related L-DS (declarative sentences of L);
 - (CA 1.3) accounts for the structural connections between L-NDS and their embedded counterparts, if any;

- (CA 1.4) accounts for the syntactic relations between embedded counterparts of L-NDS, if any, and the embedding structures.

Such a theory should furthermore

- (CA 2) explicate the notions of meaning and logical content of L-NDS in such a way that it
- (CA 2.1) gives an intuitively adequate evaluation (analogous to truth conditions) for every illocutionary reading of an L-NDS;
- (CA 2.2) accounts for the intuitive ambiguities of L-NDS, both on the locutionary and on the illocutionary level, if any, and predicts correctly their interaction;
- (CA 2.3) accounts for the logical properties of L-NDS and the logical relations among them and also between L-NDS and L-DS, on the illocutionary as well as on the locutionary level;
- (CA 2.4) explicates the relations between the meanings of L-NDS and those of their embedded counterparts, if any;
- (CA 2.5) makes it possible to explicate the meaning of predicates which embed these counterparts, if any.

2. The State of the Competition: Assessment of Actual score

2.1 List of Competitors

Having laid down the rules of our imaginary game, let us now list the competitors:

2.1.1 The Two-Kinds-of-Semantics-Approach

The first group of participants, coached by Erik Stenius and, at least in 1967, by Lennart Åqvist applies the following training principle:

The rules which determine meanings at the illocutionary level are wholly different in kind from the rules which determine meanings on the locutionary level (cf. Stenius 1967: 259).

I shall call this method the Two-Kinds-of-Semantics-Approach. Stenius presents, among others, two competitors subsequently formalized by Åqvist: the first form, and the second form of the 'combined game', both of them dealing with the communication of two people who report and command certain situations in a garden. Stenius' notion logico-semantic mood corresponds to what I call illocution-type.

The first form of the 'combined game' has no modal element: mood is determined entirely by context; the second form of the 'combined game' does have modal elements (the modal signs 'I' and 'O'), but these determine logico-semantic mood, and not grammatical mood. I do not think it trivial to point out that natural languages do not correspond to either of these forms but seem to be located somewhere between them, since natural modal elements

determine not logico-semantic mood, but grammatical mood. Logico-semantic mood (i.e. illocution-type) in turn seems to be determined partly by grammatical mood, partly by other features of the sentence, and partly by context.

2.1.2 The Method of Syntactic Imperialism

The second group of competitors is coached by Ross, Lakoff, Sadock and others² in conformity with the principles of the so-called Performative Analysis which may be summarized as follows:

All sentences occurring in personal contexts derive from deep structures containing one and only one superordinate performative clause whose main verb is a verb of saying (cf. Ross 1970: 252).

Since this approach attempts to pass on to syntax the whole bunch of problems connected with illocutionary meanings, I call it the method of Syntactic Imperialism. There are however, as Gazdar has recently summarized (Gazdar 1979: 15–35), only very few, if any, syntactic arguments in favor of this approach which bear closer examination. Moreover, the above-mentioned principle hinges on the notion of deep structure which is far from being unproblematic, as we all know.

The next four methods start from the observation that the truth-conditional approach has proved very fruitful for the semantics of declarative sentences. They ask: How can this approach be modified in order to encompass non-declarative sentences as well?

2.1.3 The Procrustean Method

There is a very simple, but rather violent answer to this question, which I shall call the Procrustean Method and which has been advocated by David Lewis among others:³ We extend the truth-conditional semantics simply by extending the notion of truth, laying it on a Procrustean bed, so to speak, and covering both declarative and non-declarative sentences with the extended notion of truth. How can we do that? Lewis' answer is as ingenious as it is simple: In dealing with a non-declarative sentence we first look for a paraphrase which syntactically is a declarative sentence, and then we simply stipulate that the meaning of the former equals the meaning of the latter. In fact, the existence of Austin's well-known explicit performative sentences⁴ seems to make this search successful, so that Lewis himself calls his method the method of paraphrased performatives. Unfortunately, this seems to be a rather crude kind of reductionism.

² Cf. Ross 1970, Lakoff 1975, Sadock 1974, and the literature indicated there.

³ Lewis 1972.

⁴ Austin 1962.

2.1.4 The Double Evaluation Method

A more sophisticated way of reducing the semantics of non-declaratives to truth-conditions has been proposed by Donald Davidson.⁵ I shall dub it the Double Evaluation method, because it assigns to non-declarative sentences not just one, but two truth conditions: firstly, the truth condition of some kind of performative paraphrase – in this respect the method resembles that of Lewis –, and secondly, that of its declarative counterpart. Thus the meaning of *Get off!* would be represented by a) the truth-condition of *I order you to get off.* and b) the truth-condition of *You get off.*

So if people feel that it's nonsense to speak of the truth-condition of an imperative sentence, Lewis just says "I don't care", while Davidson replies in a rather tricky way. He says: "Yes, you are right, it's nonsense indeed to speak of the truth-condition of a NDS, but not, as you might suppose, because the existence condition is not fulfilled, but because the singularity condition is not fulfilled: We cannot speak of the truth-condition of a NDS, because there are two of them." But I doubt that this proposal comes much closer to intuition than that of Lewis: Whoever thinks that it is counterintuitive to assign to a NDS its truth-condition, will not be very happy with a theory which assigns to it two of them.

2.1.5 The Method of Sentence-Mood-Specific-Evaluation

People who think in the above-mentioned way will be much more content with a theory which assigns for instance to an imperative sentence its fulfilment condition, because it is very natural to ask, with respect to an order, whether it has been fulfilled or not. This is entirely in line with the following remark of Richard Montague: "In connection with imperatives and interrogatives truth and entailment conditions are of course inappropriate, and would be replaced by fulfilment conditions and a characterisation of the semantic content of a correct answer." (Montague 1974: 248, n. 3) He didn't have the time to demonstrate how this could be done, but the answer seems to be quite obvious: In the imperative sentence case we can simply equate the fulfilment condition of such a sentence with the truth condition of its declarative counterpart: e.g. *Be late!* is fulfilled if and only if the addressee is late; in the interrogative sentence case we can characterise a declarative sentence as a correct answer if it conjoins the assertion of some subset of T with a denial of its complement, where T is the set of propositions determined by the interrogative sentence. Since it is sentence mood, which determines in this approach the choice of an appropriate value assignment, I shall call it the method of Sentence-Mood-Specific-Evaluation.

⁵ Davidson 1979.

2.1.6 The Method of Illocution-Type-Specific-Evaluation

The method outlined in the preceding section was the one I had in mind when I started out to write my thesis on Interrogatives and Questions in German (Zaefferer 1982). But I soon found reasons for abandoning it as still too crude a method in order to replace it by what I shall call the method of Illocution-Type-Specific-Evaluation: After all it is not so much sentence mood which determines the choice of an appropriate evaluation, but the type of illocution realized by an utterance of the sentence under consideration, and illocution-type is only partly determined by sentence mood, other factors being particles, propositional content and context. This view leads to the conclusion that sentences can be ambiguous on the illocutionary level. For my fragment of German I proposed that in principle declarative and interrogative sentences can have two il-readings each: The former an assertive and a declarational reading, and the latter an erotetic and a rhetorical reading. Disambiguating elements could be *hiermit* 'hereby' in the first and the modal particle *schon* in the second case (more precisely in the case of WH-interrogatives).

2.1.7 The Sentence-Type Approach

This approach has been challenged in a way by a syntactician, Hans Altmann, who is coaching his competitor according to the following, at first glance somewhat surprising, hypothesis:

There is, in principle, a one-to-one correspondence between sentence-type and illocution-type.⁶

To make this claim plausible, however, three specifications are in order:

- a) Illocution-type should not be regarded as being determined by some pre-conceived taxonomy like the one proposed by Searle;
- b) sentence type is a much less coarse notion than sentence mood;
- c) the qualification 'in principle' is meant to admit of ambiguities, if necessary.

Thus the challenge turns out to be rather a refinement and a completion, given the fact that Altmann distinguishes some 60 sentence types in German.

2.2 Assessment of Actual Score

If we try to assess the actual score of each of our competitors according to the proposed criteria, we are confronted with the problem which was mentioned at the beginning, that most coaches haven't developed their competitors to the point where they really do run and that we are forced to guess how they would do so. So the reader should take my own guess presented below not too seriously: he may prefer to fill in his own assessment.

⁶ Altmann 1981: 6.

Assessment of actual score

	(CA 1.1)	(CA 1.2)	(CA 1.3)	(CA 1.4)	(CA 2.1)	(CA 2.2)	(CA 2.3)	(CA 2.4)	(CA 2.5)
1. Two-Kinds-of-Semantics-Approach	*	*	*	?	**	?		*	?
2. Method of Syntactic Imperialism	**	**	**	**		**	*	**	* **
3. Procrustean Method	*	*	*	?		?	**	*	?
4. Double Evaluation Method	*	*		?	*	?	**	?	?
5. Method of Sentence-Mood-Specific-Evaluation	*	*	**	*	**	*	* **	*	?
6. Method of Illocution-Type-Specific-Evaluation	**	**	**	**	* **	* **	* **	* **	* **
7. Sentence-Type Approach	* **	* **	* **	* **	?	*	?	?	?

3. Outline of a Promising Strategy

Three principles seem important for a promising strategy:

(P 1) To keep in mind all the criteria mentioned above.

(P 2) To advance step by step from the better known to the less known.

(P 3) To proceed from the form-types to the function-types.

3.1 Watching the Criteria Simultaneously

I think there are two good illustrations for the consequences of disregarding this principle: The first one is the Double Evaluation method, which for instance reduces the sentence *Are you late?* to something like: *The following is a question: You are late.* Here the coach seems to have lost sight of the syntactic criteria, otherwise he would have seen the trouble he runs into with respect to the distinction between existential and WH-interrogatives. He cannot reduce both *Is anybody late?* and *Who is late?* to *The following is a question: Anybody/Somebody is late.* The second illustration is the Sentence-Type approach which specifies its semantics in such a low degree, that almost none of the semantic criteria can be satisfied to a reasonably interesting extent.

3.2 Advancing Step by Step from the Better Known to the Less Well Known

Principle (P 2) is almost generally heeded, let me just point out a) that it confirms our decision to take truth-conditional semantics as a starting point

for the semantics of NDS, and b) that it supports the strategy of enlarging fragments of grammars for natural languages.

3.3 Proceeding from Form-Type to Function-Type (Illocution-Type)

The reason for preferring this direction of research over its reversal lies in the history of speech act theory. I have the impression that it has, involuntarily, contributed more to the semantics of natural labels for illocutions than to the semantics of natural illocutionary indicators. In fact, there is quite an interesting difference between the (mostly syntactical) means natural languages provide for indicating illocution-type, and the lexical means they have for labeling it. Whoever has tried to define the form-type corresponding to the illocution-type of a warning, or worse, of an examination question, will understand why I believe that it is more profitable first to define a form-type and then to look for the type of function or functions it fulfils.

Let me now illustrate the proposed strategy by outlining a semantics for some types of non-declarative sentences in German.

4. The Strategy Illustrated: Syntax and Semantics for some NDS-Types of German

4.1 Approaching the Syntactic Criteria ((CA 1.1)–(CA 1.4))

4.1.1 Types of Sentences ((CA 1.1))

I claim that – disregarding mixed types – there are five main types of sentences in German,⁷ which are exemplified below together with their embedded counterparts and for which I will use the following labels:

DS (declarative sentences)	DSI (declarative sententials)
<i>Du bist mein Partner.</i>	<i>... daß du mein Partner bist.</i>
IS (interrogative sentences)	ISI (interrogative sententials)
<i>Bist du mein Partner?</i>	<i>... ob du mein Partner bist.</i>
<i>Wer ist mein Partner?</i>	<i>... wer mein Partner ist.</i>
ES (exclamatory sentences)	ESI (exclamatory sententials)
<i>Daß du so groß bist!</i>	<i>... daß du so groß bist.</i>
<i>Wie groß du bist!</i>	<i>... wie groß du bist.</i>
OS (optative sentences)	(OSI) (counterfactual conditionals (antecedens))
<i>Wäre ich nur hingefahren!</i>	<i>Wäre ich hingefahren, (so ...)</i>

⁷ They correspond to five of the eight types of sentences listed by Brugmann (1918) for the indo-european languages.

JS	(jussive sentences)	(JSI)	(infinitive phrases)
	<i>Sei mein Partner!</i>		<i>...mein Partner zu sein.</i>
	<i>Seien Sie mein Partner!</i>		
	<i>Seien wir Partner!</i>		

4.1.2 Structural Connections Between Different Types of Sentences and Sententials ((CA 1.2), (CA 1.3))

I assume that sentence-type and type of sentential in German can be defined by a six-tuple specifying the properties listed below. So the above-mentioned connections correspond to systematic variations in the following six co-ordinates:

- Position of the finite part of the verb,
- verbal mood,
- reference of subject and object in terms of person-deictic-category,
- occurrence, quantity, and quality of interrogative words or complementizers,
- set of admissible modal particles,
- punctuation/intonation.

Since the semantics of declaratives and interrogatives has already been quite extensively studied,⁸ let us now follow principle (P 2) and let us try to investigate the semantics of exclamatory sentences, which seem to be syntactically akin to both declarative and interrogative sentences.

Before we do that, just one remark regarding (CA 1.4).

4.1.3 The Distribution of Exclamatory Sententials ((CA 1.4))

I take it to be a sufficient condition for an embedded +W-sentential⁹ to be an ESI, if it complements a superordinate structure which doesn't admit ISI-complements. Compare the following examples:¹⁰

Ich frage mich, $\left\{ \begin{array}{l} \textit{ob der kommt.} \\ \textit{was der alles gelesen hat.} \\ \textit{*daß der schläft.} \end{array} \right.$

⁸ See the bibliographies by Egli and Schleichert (in Belnap and Steel 1976) and by Ficht (1978). For a recent fragment of German including declarative, interrogative and imperative sentences cf. Zaefferer 1982.

⁹ I call +W and -W-structures clauses with and without, respectively, the occurrence of a W-word (like *wer*, *wann*, *was* etc.) in the topmost clause (corresponds to the english WH).

¹⁰ Note that the grammaticality of the embedding can depend on the exclamatory type of the superordinate clause:

Du glaubst nicht, was der alles gelesen hat!

**Glaubst Du nicht, was der alles gelesen hat?*

**Hans glaubt nicht, was der alles gelesen hat.*

The first sentence is also deviant, if it is read as an ordinary declarative and written with a full stop.

Es ist unglaublich, $\left\{ \begin{array}{l} *ob\ der\ kommt! \\ was\ der\ alles\ gelesen\ hat! \\ daß\ der\ schläft! \end{array} \right.$

As a sufficient condition for a *daß*-clause to be a – W-ESI, I take its interchangeability with a + W-ESI. Accordingly, *daß du schläfst* is a – W-ESI in the example above, but not in the following case, where it is a DSI:¹¹

Ich glaube nicht, $\left\{ \begin{array}{l} *was\ du\ alles\ gelesen\ hast. \\ daß\ der\ schläft. \end{array} \right.$

4.2 Approaching the Semantic Criteria ((CA 2.1)–(CA 2.5))

The core of the semantic criteria is (CA 2.3), I think, and therefore I will say only a few words concerning (CA 2.1) and (CA 2.2) in the next two sections. (CA 2.4) will be met on the way, but we will touch upon (CA 2.5) only marginally.

4.2.1 Intuitively Adequate Evaluations ((CA 2.1))

What are the intuitively adequate evaluations for declaratives, interrogatives, optatives, jussives, and exclamatories, respectively, in their most prominent illocutionary reading each? Disregarding the illocutionary level (cf. (TP 1)), it was presumed at the outset that most declarative sentences are most naturally evaluated in the true/not true dimension ((TP 2)). Interrogatives and jussives seem to be most naturally evaluated in the dimensions of answerhood and fulfilment, respectively, and optatives and exclamatories I would like to evaluate according to their sincerity, the latter ones according to their justifiedness as well. Three remarks are in order with respect to these proposals. First, the entities to which sentences are related through the notions of truth, answerhood etc., are of quite different nature: Whereas answerhood is a relation between interrogative and declarative sentences, with respect to a class of models, sentences are true, fulfilled, sincere or justified with respect to one given model, which has to specify at least speaker and addressee. Second, sincerity also plays a role in the intuitive evaluations of assertions, questions and commands, and truth also plays a role in the evaluation at least of exclamations: This shows that dimensions of evaluation are not exclusively correlated with one single illocution-type but that they rather seem to form a bundle from among which one on the other member appears to be more prominent, according to the illocution-type chosen. Third, the choice of an

¹¹ The grammaticality of the following example does not lessen the validity of the above characterisation, since the W-clause is in this case a free relative:

Ich glaube nicht, was der sagt.

For a systematic treatment of the IS/ free relative ambiguity in German see Zaefferer (forthcoming).

adequate dimension of evaluation for a sentence at the locutionary level seems to depend on its meaning at the illocutionary level. At this level, the adequate dimension of evaluation is the same for all types of sentences: namely the dimension of happiness. So we will have to define at least the notions of sincerity, justifiedness and happiness for our exclamatory sentences.

4.2.2 I-and il-Ambiguities ((CA 2.2))

The treatment of ambiguities is an interesting touch-stone for every semantic theory and if there are illocutionary ambiguities as well, it is an important task for the semantics of illocutionary indicators to account for them. As mentioned in 2.1.6 above, I claimed in Zaefferer 1982 that there are at least two il-ambiguities in German: between an assertive and a declarational reading of certain declarative sentences, and between an erotetic and a rhetorical reading of many interrogatives. Let me just add for the present context that some German sentences, in their orthographic representation, have a directive as well as an exclamatory reading, e.g.:

Sprechen Sie aber deutlich!

This sentence has two phonologically as well as il-semantically clearly distinct readings, although both express the same proposition, namely that the addressee speaks distinctly. The exclamatory reading has stress on *Sie*, the polite second person pronoun, and expresses amazement about the addressee's clear pronunciation, the directive reading has stress on *deutlich* and expresses some kind of admonition to pronounce clearly.

The example is a case of homography without homophony, and in this respect it is like many il-ambiguities, since intonation is often used for il-disambiguation.

4.2.3 Logical Properties and Relations ((CA 2.3), (CA 2.4))

Let us now start our investigation of the meaning of German exclamatory sentences by trying to find out their logical properties. What are the logical properties of sentences like (1)–(5)?

- (1) *Kennt Mia die (doch glatt) alle!*
Knows Mia them (really) all
- (2) *Mia kennt die (doch glatt) alle!*
- (3) *Daß Mia die (doch glatt) alle kennt!*
- (4) *Wen Mia alles kennt!*
Who Mia all knows
- (5) *Wen kennt Mia nicht alles!*

Although there are clear syntactic differences between (1)–(3) (– W-ES) as well as between (4) and (5) (+ W-ES), I will ignore the possibility that there are semantic differences associated with them and start out from the simplifying assumption that the members of each group are synonymous, so that only two meanings have to be investigated.

4.2.3.1 The Semantics of – W-ESl

First let us have a look at the – W-ES (1)–(3). They have a natural declarative counterpart in (6):

(6) *Mia kennt die alle.*

Mia knows them all

Since *die alle* is a deictic term, the logical properties of (6) are best illustrated by specifying a context for (6). Let us suppose for simplicity a context C_1 , where just Karl and Noam are the persons to whom *die alle* refers. Then (6) is C_1 -equivalent to (7) and it C_1 -entails (7)–(9):

(7) *Mia kennt Karl und Noam.*

Mia knows Karl and Noam

(8) *Mia kennt Karl.*

(9) *Mia kennt Noam.*

This is due to the fact that *kennen*, by contrast to e.g. *verwechseln* (to mix up), is a distributive predicate.¹² The question is now whether analogously one of the exclamatory counterparts of (6), e.g. (1), C_1 -entails somehow one of the exclamatory counterparts of (8), e.g. (10):

(10) *Kennt Mia (doch glatt) Karl!*

In order to answer this question, however, we have to leave the field of truth-conditional semantics, and before we do that, it is perhaps useful to investigate first the semantics of embedded exclamatories (ESl), which pose no problems to truth-conditional analysis, if they are embedded in declarative sentences. We said above (4.1.3) that – W-ESl are *daß*-clauses just like ordinary DSl, except that they are interchangeable with + W-ESl. Let us therefore first have a look at the semantics of DSl and ask for the logical properties of a DS which embeds the DSl-counterpart of (6):

(11) *Es trifft zu, daß Mia die alle kennt.*

It is the case, that Mia them all knows

There is little doubt, I think, that (11) is C_1 -equivalent to (12), and that it C_1 -entails (12)–(14):

(12) *Es trifft zu, daß Mia Karl und Noam kennt.*

(13) *Es trifft zu, daß Mia Karl kennt.*

(14) *Es trifft zu, daß Mia Noam kennt.*

This is due to the fact that in addition to what we know about (6)–(9), *zutreffen* is closed under logical entailment, by contrast to, e.g. *glauben* (believe). Now let us compare the logical properties of another DS which embeds the ESl-counterpart to (1)–(3):

(15) *Es ist erstaunlich, daß Mia die alle kennt.*

It is astonishing, that Mia them all knows

It seems to me that although (15) is C_1 -equivalent to (16), it does not C_1 -entail either (17) or (18):

¹² Not in the technical sense explicated in Link 1982 but in an intuitive one: If a distributive predicate is true of a sum of entities, then it is true of all subsums, including the atoms, if any.

- (16) *Es ist erstaunlich, daß Mia Karl und Noam kennt.*
 (17) *Es ist erstaunlich, daß Mia Karl kennt.*
 (18) *Es ist erstaunlich, daß Mia Noam kennt.*

Of course, the names are chosen in such a way that probably the truth of the complement of (18) is the reason for the truth of (16) – if we understand *kennen* in the sense of *being personally acquainted with* –, so removing Karl from the sum of persons under consideration wouldn't make the proposition false, but in general we can't be sure that truth is preserved if we remove any one of these persons. It doesn't matter, whether it is the quantity or the quality of the persons referred to by *die alle* in (15), or some combination of quantity and quality which is amazing: taking away one person might change the truth value, so no corresponding sentence is entailed by (15).

In other words, unlike *zu treffen*, *erstaunlich sein* is not closed under logical entailment, and, generalising, one might hypothesize that no ESI-taking predicate has this property, whereas some DSI-taking predicates do.

Since the semantic differences between these sentences can be reduced to meaning differences between the embedding predicates, it seems safe to assume that the embedded structures, namely DSI and –W-ESI are not only syntactically, but also semantically identical.

4.2.3.2 The Semantics of +W-ESI

Now we will investigate the semantics of +W-ESI, contrasting them first with their homonymous counterparts, which this time are interrogative sententials. Consider (19)–(22):

- (19) *Es fragt sich, wen Mia alles kennt.*
 It asks itself whom Mia all knows
 (20) *Es fragt sich, ob Mia Karl und Noam kennt.*
 It asks itself whether Mia Karl and Noam knows
 (21) *Es fragt sich, ob Mia Karl kennt.*
 (22) *Es fragt sich, ob Mia Noam kennt.*

In all contexts C_2 , where Karl and Noam are persons, (20)–(22) are C_2 -entailed by (19). But now compare a DS with a homonymous exclamatory sentential:

- (23) *Es ist erstaunlich, wen Mia alles kennt.*

Even if C_3 is such that Mia knows Karl and Noam, (23) doesn't C_3 -entail any one of (16)–(18), since Mia might know 400 other persons, and it might be the quantity and quality of this sum which makes Mia's knowing all of them astonishing. If we consider, however, a C_4 where Karl and Noam are the only persons known by Mia, we can say that (23) is C_4 -equivalent to (16). Analogously, if in C_5 *die alle* are the only persons known by Mia, (23) is C_5 -equivalent to (15).

These data point at the possibility of approaching the semantics of (23) by trying a paraphrase like (23a):

(23 a) *Es ist erstaunlich, daß Mia alle die kennt, die sie kennt.*

But ist (23 a) really a paraphrase? Doesn't (23 a) express a rather silly proposition, whereas (23) does not, namely that a triviality is astonishing? In one reading yes, but in another reading not. I will try to make the second reading clear by giving a somewhat less natural paraphrase:

(23 b) *Die Summe der Personen, die Mia kennt, ist derart, daß es erstaunlich ist, daß Mia sie alle kennt.*

The sum of persons known by Mia is such that it is astonishing that she knows them all.

How can we formally represent this? Let us first look for translations of (6) and (15). There we have the deictic plural term phrase *die alle*. I will take Link's plural extension of Montague semantics as a starting point. (Cf. G. Link's contribution to this volume.) Link translates for instance the plural term phrase (24) into (24'):

(24) *die Kinder*

(24') $\bar{P}\forall y[y = \sigma^*x[Kind'(x)] \wedge P\{y\}]$

The set of properties of some individual concept which is the plural sum of those individual concepts which are children.

The plural sum operator σ^*u , where u is a variable, takes open formulas and builds a term denoting the at least two-membered sum of all those entities which satisfy the formula. Correspondingly, we translate *die alle* as follows, treating the free variable as deictic element:

(25) *die₁ alle*

(25') $\bar{P}\forall y[y = \sigma^*x[*Pers(x) \wedge \tilde{x} \Pi v_1] \wedge P\{y\}]$

The set of properties of some individual concept which is the p-sum (plural sum) of those individual concepts which are persons and part of v_1 .

v_1 is meant to denote the sum of individuals pointed at, capital Greek Π denotes the individual-part-of relation.

The left side upstar operator takes any predicate F and converts it into a predicate of arbitrary sums of elements of the extension of F .

Now we are in a position to translate (6) and (15). (I give first order-reduced versions as far as this is possible):

(6') $kenn'_*(m, \sigma^*u[*Pers_*(u) \wedge u \Pi v_1])$

(15') $erstaunlich'(\tilde{kenn}'_*(m, \sigma^*u[*Pers_*(u) \wedge u \Pi v_1]))$

Starting from (15') it's easy to translate (23 b): We lambda-abstract from (15') the set of sums of persons for which it is astonishing that Mia knows all of them, and assert that the sum of persons actually known by Mia belongs to it. This is what (23') says:

(23') $[\lambda v\ erstaunlich'(\tilde{kenn}'_*(m, \sigma^*u[*Pers_*(u) \wedge u \Pi v]))]$
 $(\sigma^*u[*Pers_*(u) \wedge kenn'_*(m, u)])$

(23') is not equivalent with the 'silly reading' which would assert a triviality to be astonishing, since lambda-conversion is here blocked by the fact that the denotation of the argument is index-dependent and the lambda-bound

variable v is in the scope of an intensional operator. So I propose (23') as a (maximally first order reduced) translation of (23).

Let us stop here for a while and let's try a first test of intuitive adequacy. I indicated above that in contexts of type C_5 , where the set of persons denoted by *die alle* equals the set of persons known by Mia, (15) is intuitively C_5 -equivalent with (23). Let's see whether our translations give a formal reconstruction of this datum.

I take a model to be an ordered triple $\langle \mathcal{A}, i, g \rangle$, where \mathcal{A} is an interpretation, i is an \mathcal{A} -index including a speaker coordinate and g is an \mathcal{A} -assignment of values to variables, and I take a context-type to be any subset of MDG, the set of models for Disambiguated German. I call $m\text{-Ex}(x)$ the extension of x in a model m . Let us define context-type C_5 as follows:

$$(D1) \quad C_5 := \{m \mid m \in \text{MDG} \ \& \ m\text{-Ex}(v_1 = \sigma^*u [*Pers_*(u) \wedge kenn'_*(m, u)] = 1)\}$$

The formula in the definition of C_5 works as a, as I like to call it, local meaning postulate, which if we conjoin it with any formula yields a C_5 -equivalent one. Therefore, (15') is C_5 -equivalent with (15a'), and the C_5 -equivalence of (15a') with (23a') and then with (23') is easy to see:

$$(15a') \quad v_1 = \sigma^*u [*Pers_*(u) \wedge kenn'_*(m, u)] \wedge \textit{erstaunlich}'$$

$$(\wedge kenn'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v_1]))$$

$$(23a') \quad \forall v [v = \sigma^*u [*Pers_*(u) \wedge kenn'_*(m, u)] \wedge \textit{erstaunlich}' (\wedge kenn'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v]))]$$

This seems to be a quite satisfactory result, but thus far we didn't yet leave the solid ground of truth conditional semantics for declarative sentences. Let us now venture on more shaky soil and come back to the question pondered at the outset of the last paragraph, whether (1) intuitively entails (10).

4.2.3.3 The Semantics of – W-ES

Since entailment cannot be defined here in terms of truth conditions, unless we subscribe to the Procrustean method, let us take the following sketch of a definition as a guideline for our intuitions:

$$(D2) \quad \text{Sentence } S_1 \text{ il-entails sentence } S_2 \text{ iff whoever does what normally is done by an utterance of } S_1 \text{ also does what normally is done by an utterance of } S_2.$$

Let C_1 be again the context-type where *die alle* refers to just Karl and Noam. Let us assume furthermore that by uttering (1) one normally expresses his amazement (or something like that) at the fact that Mia knows all of them, and that by uttering (10) one normally expresses his amazement at the fact that Mia knows Karl. Then our question whether (1) C_1 -il-entails (10) amounts to the question, whether whoever expresses his amazement at Mia's knowing both Karl and Noam also expresses his amazement at Mia's knowing Karl. And this, it seems, is not the case, for the very same reason which led us to reject the inference from (16) to (17) or (18). Note that the precise nature

of the attitude expressed, be it amazement, astonishment, surprise or something like that, need not concern us here, provided it has this feature of – as I'd like to call it – non-distributivity, and I'd like to venture the thesis that all attitudes expressible by the use of exclamatory sentences share this feature.

One might suppose furthermore that all predicates embedding exclamatory sententials share this feature as well. But the observation that their negative counterparts seem to lack it shows that this is too strong an assumption:

(26a) *Es ist nicht erstaunlich, daß Mia die alle kennt.*

(26b) *Es ist nicht erstaunlich, daß Mia Karl kennt.*

Apparently, (26a) does C_1 -entail (26b). And the difference cannot be made dependent on overt negation since predicates like *es ist ganz normal* (*it is quite normal*) behave in the same way. Further research would be needed in order to satisfy (CA 2.5), but I don't want to go here into that matter further.

Let us now try to reconstruct formally our intuitions about the logical properties of exclamatory sentences. The logical representations of our sample sentences (1) and (10) will probably be similar to those of their declarative counterparts (6) and (8), which are as follows (6' is repeated for convenience):

(6') $kenn'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v_1])$

(8') $kenn'_*(m, k)$

But whereas (8) is C_1 -entailed by (6), some device will have to block the analogous inference from (1) to (10). In the corresponding embedded cases ((11) to (13): C_1 -entailment; (15) to (17): no C_1 -entailment) it was the nature of the embedding predicate which effected the difference. It seems natural to proceed in an analogous way by introducing an abstract predicate EXC, intended to represent the grammatical meaning of the combinations of syntactic features that characterize the exclamatory sentence type, about which nothing has to be known except that *ist* has the above-mentioned feature of non-distributivity.

The introduction of abstract predicates need not worry us too much since we need them anyway: In order to capture the semantic correlate of the morphosyntactic forms *die alle* and *wen* (as opposed to *das alles* and *was*, respectively) we used without discussion the abstract predicate '*Pers'. Why shouldn't we capture the semantic correlate of the syntactic difference between e.g. (1) and (6) in an analogous way? So we get the following translations:

(1) *Kennt Mia die (doch glatt) alle!*

(1') $EXC(\hat{kenn}'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v_1])$

(10) *Kennt Mia (doch glatt) Karl!*

(10') $EXC(\hat{kenn}'_*(m, k))$

(27) *Kennt Mia (doch glatt) Karl und Noam!*

(27') $EXC(\hat{kenn}'_*(m, \sigma^*u [u \equiv k \vee u \equiv n]))$

It is easy to see that (1') doesn't C_1 -entail (10'), but that it does C_1 -entail (27'), if we define C_1 as follows:

$$(D3) \quad C_1 := \{m \mid m \in \text{MDG} \ \& \ m\text{-Ex}(v_1 = \sigma^*u[u = k \vee u = n]) = 1\}$$

According to (D3), C_1 is that type of context, where *die alle* refers to Karl and Noam.

The introduction of our abstract predicate seems to pay, but not yet enough to dissipate the qualms some may have about it. We need more evidence for its usefulness or perhaps necessity. And we'd like to know more about its properties, if it is indeed necessary.

4.2.3.4 The Semantics of +W-ES

The next step we can take is to see how our abstract predicate works in connection with +W-exclamatory sentences. We have shown above the C_5 -equivalence of (15) and (23) for contexts of type C_5 where *die alle* refers to the sum of persons known by Mia. The question is now, whether intuitively (1) C_5 -il-entails (4) and vice versa. I think, this is the case, and if we translate (1) and (4) in a way analogous to (15) and (23), we can indeed reconstruct this finding formally ((1') is given above, (4) is repeated for convenience):

(4) *Wen Mia alles kennt!*

$$(4') \quad [\lambda v \text{EXC}(\tilde{kenn}'_*(m, \sigma^*u[*\text{Pers}_*(u) \wedge u \Pi v])] \\ (\sigma^*u[*\text{Pers}_*(u) \wedge kenn'_*(m, u)])]$$

The fact that without the intension operator we would get a 'silly reading', namely that the attitude is expressed with respect to a triviality, motivates a further property of EXC, namely that it is of type (st)t, and not just a truth function. But this is still very little.

4.2.3.5 Characterizing EXC: Some Hypotheses

An additional hypothesis concerning the properties of EXC might be derived from the fact that ESI-taking predicates tend to be factive, i.e. to entail the truth of their complement, whether they are negated or not. Since there will be no opportunity to test the properties of a negated EXC, we can content ourselves with hypothesizing that EXC is implicative, i.e. that it entails the truth of its complement. This hypothesis can be formulated as the following meaning postulate:

Implicativity

$$(MP1) \quad \Box [\text{EXC}(\Theta) \rightarrow \tilde{\Theta}] \quad (\Theta \in \text{ME}_{st})$$

Then, given the indicated translations, (28) entails formally (7):

(28) *Kennt Mia (doch glatt) Karl und Noam!*

(7) *Mia kennt Karl und Noam.*

(7') $kenn'_*(m, \sigma^*u[u = k \vee u = n])$

Let us see whether this is quite in line with intuition, if we let (D1) be the guideline for intuition. Does whoever expresses his amazement at Mias know-

ing Karl and Noam also assert (or something like that) that she knows them? (For asserting this seems to be what speakers normally do, when they utter (7).) I am inclined to say yes, but I am also quite sure that not everybody will agree. The issue cannot be settled, of course, unless we explicate what it is what speakers normally do when they utter sentences like (7). Probably I have a weaker notion in mind than my opponents. But we can leave the question open if we are willing to name this notion with the abstract predicate ASS (which is not meant to coincide with the natural predicate 'assert', but to be related to it) and to represent the meaning of (7) by (7''):

(7'') $ASS(\hat{kenn}'_*(m, \sigma * u [u = k \vee u = n]))$

Then there are two meaning representations, for (7): (7') for the locutionary or l-meaning and (7'') for the il-meaning, and since we have two levels of meaning, we get four kinds of entailment: l-entailment, il-entailment, il, l-entailment, and il,l-entailment. The above-mentioned hypothesis now amounts to the assumption that (27) il,l-entails (7), that is, that what is done by a normal utterance of (27) entails what is asserted by a normal utterance of (7), in other words, that (27) cannot be given successfully its normal use without (7) being true (truth of course being defined on the locutionary level).

And this is of course much too strong an assumption, since it would make it impossible e.g. to exclaim at a state of affairs which only seems to exist. So implicativity does not make sense as a partial characterization of EXC. It does make sense, however, to see whether (27) il-entails (7), in other words, whether (MP 2) is intuitively correct or not:

Assertiveness

(MP 2) $\square [EXC(\Theta) \rightarrow ASS(\bar{\Theta})]$ ($\Theta \in ME_{st}$)

If not, the intuitive relationship is better accounted for by (MP 3), which represents the common denominator hypothesis:

Common denominator

(MP 3) $\square [EXC(\Theta) \vee ASS(\Theta) \rightarrow BEL(\Theta)]$ ($\Theta \in ME_{st}$)

(MP 3) seems to be less attractive, since it introduces a third abstract predicate, BEL, which may be read intuitively as 'speaker commits himself to the belief that', but which of course has to be characterized formally. It might turn out that it is needed anyway, e.g. in order to explain Moore's paradox. In any case, we are free now to drop (MP 1), which makes it possible to separate the notions of happiness and of truth of exclamatory sentences, which will be done in (D 6) below.

4.2.3.6 Content, Topic and Focus of +W-Exclamatories

Before we can come back to the characterisation of EXC, the following problem has to be solved: If we adopt the indicated way of implementing the

Austinian idea of two levels of meaning generally, how can we represent the l-meaning of sentences like (4)? Remember that (7') is just (7'') minus the abstract predicate, parentheses and intensionalizer. If we subtract analogously from (4'), we get (4''):

$$(4'') \quad [\lambda v \text{ kenn}'_*(m, \sigma^*u[*\text{Pers}_*(u) \wedge u \Pi v])](\sigma^*u[*\text{Pers}_*(u) \text{ kenn}'_*(m, u)])$$

But this is equivalent with (4'''), the trivial formula which was the core of what we called the 'silly reading' of (23 a), and which is false only if Mia knows less than two persons:

$$(4''') \quad \text{kenn}'_*(m, \sigma^*u[*\text{Pers}_*(u) \wedge \text{kenn}'_*(m, u)])$$

So the m-intension of (4''') cannot be the object of the propositional attitudes expressed by the m-speaker of (4). But how else can we construct this object? Let us first see what these attitudes are related to. First, they are related to the p-sum of persons actually known by Mia; let us call this the *topic* of this object. Second, they are related to the open proposition that Mia knows all persons from v; let us call this the focussed entity and the corresponding function from individuals in propositions the *focus* of the object we are looking for. Then this topic and this focus can be represented as follows:

$$(4 \text{ top}) \quad \sigma^*u[*\text{Pers}_*(u) \wedge \text{kenn}'_*(m, u)]$$

$$(4 \text{ foc}) \quad \lambda v \hat{\text{kenn}}'_*(m, \sigma^*u[*\text{Pers}_*(u) \wedge u \Pi v])$$

Now the object in question is nothing else than the proposition obtained by applying its focus to its topic; let us call this the *content* of (4). It can be represented as follows:

$$(4 \text{ con}) \quad [\lambda v \hat{\text{kenn}}'_*(m, \sigma^*u[*\text{Pers}_*(u) \wedge u \Pi v])](\sigma^*u[*\text{Pers}_*(u) \wedge \text{kenn}'_*(m, u)])$$

So what matters with respect to propositional attitudes is not the m-intension of the l-meaning representation of a sentence but its content in m, and these may be different propositions, although their truth values at the index of m coincide. This explains why + W-exclamatories are so little informative: They tell us a triviality, e.g. what (4'') says, but nevertheless they express attitudes towards non-trivial propositions, e.g. the one represented in (4 con).

Accordingly, the question whether a + W-exclamatory is true in m is not very interesting, since they are almost always true ((4''') represents the truth-condition of (4)). Of greater interest are the questions whether it is justified in m, i.e. whether its content is really amazing, and whether its speaker is sincere in m, i.e. whether he believes that its content is true in m (t-sincerity) and that it is justified in m (j-sincerity). Before I proceed to a definition of these notions, some remarks are in order with respect to the concepts of topic and focus we used in constructing the content of + W-exclamatories.

Can we forget about them once they have done their job? I think not, since we need them anyway in order to answer questions of contextual appropriateness, and since they are already well-established in the literature in connection with the other prominent category of +W-sentences, namely +W-interrogatives. It will be illuminating to contrast the semantic properties of exclamatory sentences with those of their interrogative counterparts.

+W-interrogatives are generally regarded as topic-setters for answering declaratives.¹³ Concerning their own topic-focus-structure, however, different opinions can be found in the literature (cf. e.g. von Stechow 1980 and Wunderlich 1981). My own view agrees with von Stechow in identifying the topic of an interrogative like *Who comes?* with the property (of persons) of coming, it disagrees, however, with von Stechow in as far as it regards the content of this interrogative as the open proposition that *x* is the maximum entity which has this property. So the notions of an *answer* and a *complete direct answer* are definable in terms of the topic and the content, respectively, of the interrogative in question:

(D 4) A declarative sentence S_2 is an *answer* to an interrogative sentence S_1 iff their topics coincide; S_2 is a *complete direct answer* to S_1 iff their contents coincide for some variable assignment *g*; and S_2 is a *complete indirect answer* to S_1 iff it entails a complete direct answer to S_1 without being equivalent to it.

(D 5) A possible denotation *d* is the *topic of a declarative sentence* S_2 with respect to an interrogative sentence S_1 iff a) *d* is a possible topic of S_2 and b) *d* is the topic of S_1 .

A possible denotation *d* is a *possible topic of a declarative sentence* *S* if there is a possible denotation *f* such that *f*(*d*) is the content of *S*.

Now the promised definitions for exclamatories:

(D 6) An exclamatory sentence is

- (a) *happy in m* iff the *m*-extension of its *il*-meaning representation is 1;
- (b) *true in m* iff the *m*-extension of its *l*-meaning representation is 1;
- (c) *justified in m* iff the *m*-extension of *erstaunlich'* (Θ) is 1, where Θ is its content representation;
- (d) *t-sincere in m* iff the *m*-speaker believes the *m*-extension of Θ (Θ as above);
- (e) *j-sincere in m* iff the *m*-speaker believes the *m*-intension of *erstaunlich'* (Θ) (Θ as above);
- (f) *perfect in m* iff it is happy, justified, and *j-sincere* in *m*.

If we assume factivity of *erstaunlich'* and a rational notion of belief, i.e. one that is closed under K-entailment (K being the class of interpretations for which the meaning postulates hold), then *justified* entails *true*, and *j-sincere* entails *t-sincere*.

¹³ This tradition can be traced back at least to Hatcher 1956.

Furthermore:

- (D 7) Let S_2 be an exclamatory sentence and S_1 a declarative one. Then
- (a) S_2 is *contextually appropriate* with respect to S_1 iff the l-meaning representation of S_2 is entailed by the l-meaning representation of S_1 ;
 - (b) S_2 is *topic-preserving* with respect to S_1 only if either (S_2 top) and (S_1 top) are equivalent or (S_2 top) denotes the sum of possible denotations having the property denoted by (S_1 top); otherwise S_2 is *topic-shifting* with respect to S_1 .

4.2.3.7 The Upward Closure Property

Up to now, our attempts to characterize EXC have not yet been very successful. We have stated that unlike *zutreffen* and like *erstaunlich* it is not closed under logical entailment, that unlike *erstaunlich* it is not factive (or implicative), and that like ASS it entails that the speaker is committed to believing the propositions denoted by its argument expression. Now the findings of the preceding paragraph point at an additional property of *erstaunlich*, which seems to be shared by EXC.

Remember the reason which blocked the inference from (16) to (17) or (18): The fact that Mia knows Karl and Noam entails the fact that Mia knows Karl, but the fact that the first thing is amazing does not entail that the second one is so too: The reason for the amazingness might be the identity of Noam, and not that of Karl or some property of the sum of the two. If, however, we widen our scope on persons known by Mia, amazingness is preserved: If she knows Karl and Noam, and if it is amazing that she knows Noam, then it is amazing that she knows them both, and so on up to the sum of all persons known by her. I will call this the *upward closure property*. MP 4 formulates my hypothesis that *erstaunlich* and EXC have this property:

Upward closure property

(MP 4) $[\gamma(\hat{\zeta}(\eta)) \rightarrow \gamma([\lambda x \hat{\zeta}(x)](\sigma y[\zeta(y)])]$

where $\gamma \in \{\text{'erstaunlich'}, \text{EXC}\}$,

$\eta \in \text{ME}_x$, $x, y \in \text{Var}_x$, and

$\zeta \in \text{ME}_{\text{qst}}$, Q and τ being types.

4.3 Interrogatives, Declaratives, and Exclamatories in German: an Illustrative Example

I will summarize my proposal for a semantics of German exclamatory sentences not by giving the syntactical and the translation rules,¹⁴ but by an illustration which shows the similarities as well as the differences between such sentences and related declaratives and interrogatives. The notation is as follows: If (n)

¹⁴ How this could be done in principle should be obvious from the examples. I plan to do it explicitly in a revised and enlarged version of my 1982 fragment of German.

is the (orthographic representation of) the sentence under consideration, (n il) is an il-meaning representation of (n), (n top) ((n/m top)) is a topic representation of (n) (in the context of (m)), (n foc) ((n/m foc)) is a focus representation of (n) (in the context of (m)), (n con) is a content representation of (n). A separate representation of the l-meaning of (n), (n l) is not needed since it is always Θ , if Θ is a (n con).

(28) *Wen kennt Mia alles?*

(28 il) $\Lambda u [\textcircled{*}\text{Pers}_*(u) \rightarrow \text{ERO}(\hat{kenn}'_*(m, u))]$

For all p-sums of persons u: Speaker asks whether Mia knows u.

(29 top) $\hat{u} [\textcircled{*}\text{Pers}_*(u) \wedge kenn'_*(m, u)]$

The property of being a p-sum of persons known by Mia.

(28 foc) $\lambda M [\hat{v} = \sigma * u [M \{u\}]]$

The function which maps properties on the open proposition that v is the p-sum of individuals having this property.

(28 con) $\hat{v} = \sigma * u [\textcircled{*}\text{Pers}_*(u) \wedge kenn'_*(m, u)]$

The open proposition that v is the p-sum of persons known by Mia.

(29) *Kennt Mia die₁ alle?*

(29 il) $\text{ERO}(\hat{kenn}'_*(m, \sigma * u [* \text{Pers}_*(u) u \Pi v_1]))$

Speaker asks whether Mia knows the p-sum of persons which are part of the deictically identified object denoted by v_1 (for short: the v_1 -persons).

(29 top) $\hat{kenn}'_*(m, \sigma * u [* \text{Pers}_*(u) \wedge u \Pi v_1])$

The proposition that Mia knows the v_1 -persons.

(29 foc) $\lambda q \hat{p} [[p = q \vee p = \hat{\neg} q] \wedge \check{p}]$

The function which maps propositions q on the open proposition that p is the case, where p is either q or its negative counterpart.

(29 con) $\hat{p} [[p = \hat{kenn}'_*(m, \sigma * u [* \text{Pers}_*(u) \wedge u \Pi v_1]) \vee p = \hat{\neg} kenn'_*(m, \sigma * u [* \text{Pers}_*(u) \wedge u \Pi v_1])] \wedge \check{p}]$

The open proposition that p is the case, where p is either the proposition that Mia knows the v_1 -persons or the proposition that she doesn't know them.

(6) *Mia kennt die₁ alle.*

(6 il) $\text{ASS}(\hat{kenn}'_*(m, \sigma * u [* \text{Pers}_*(u) \wedge u \Pi v_1]))$

Speaker asserts that Mia knows the v_1 -persons.

(6/28 top) $\hat{u} [\textcircled{*}\text{Pers}_*(u) \wedge kenn'_*(m, u)]$

(6/29 top) $\hat{kenn}'_*(m, \sigma * u [* \text{Pers}_*(u) \wedge u \Pi v_1])$

(6/28 foc) $\lambda M \hat{M} \{ \sigma * u [* \text{Pers}_*(u) \wedge u \Pi v_1] \}$

The function which maps each property on the proposition that the v_1 -persons have this property.

(6/29 foc) $\lambda p p$

The identity function on propositions.

(6 con) $\hat{kenn}'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v_1])$

The proposition that Mia knows the v_1 -persons.

(30) *Mia kennt die₁ alle und sonst niemand₁.*

(30 il) $ASS(\hat{kenn}'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v_1]) \wedge \neg \forall v [\neg v \Pi v_1 \wedge kenn'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v])])$

Speaker asserts the content (see below).

(30/28 top) $\hat{u}[\otimes Pers_*(u) \wedge kenn'_*(m, u)]$

(30/29 top) $\hat{kenn}'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v_1])$

(30/28 foc) $\lambda M [\hat{M}\{\sigma^*u [*Pers_*(u) \wedge u \Pi v_1]\} \wedge \neg \forall v [\neg v \Pi v_1 \wedge M\{\sigma^*u [*Pers_*(u) \wedge u \Pi v]\}]]$

The function which maps each property on the proposition that the v_1 -persons have this property and nobody else.

(30/29 foc) $\lambda p [\hat{\sim} p \wedge \neg \forall v [\neg v \Pi v_1 \wedge kenn'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v])]]$

The function which maps each proposition p on the proposition that p is the case and that there is no object except the one denoted by v_1 such that Mia knows the p -sum of persons which are part of it.

(30 con) $\hat{kenn}'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v_1]) \wedge \neg \forall v [\neg v \Pi v_1 \wedge kenn'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v])]$

The proposition that Mia knows the v_1 -persons and nobody else.

(3) *Daß Mia die₁ alle kennt!*

(3 il) $EXC(\hat{kenn}'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v_1])$

Speaker exclaims at the content (see below).

(3 top) $\hat{kenn}'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v_1])$

(3 foc) $\lambda p p$

The identity function on propositions

(3 con) = (3 top)

(4) *Wen Mia alles kennt!*

(4 il) $EXC([\lambda v \hat{kenn}'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v]) (\sigma^*u [*Pers_*(u) \wedge kenn'_*(m, u)])]$

Speaker exclaims at the content (see below).

- (4 top) $\sigma^*u [*Pers_*(u) \wedge kenn'_*(m, u)]$
 The p-sum of persons known by Mia
- (4 foc) $\lambda v [\hat{kenn}'_*(m, \sigma^*u [*Pers_*(u) \wedge u \Pi v])]$
 The function which maps each individual on the proposition that Mia knows the p-sum of persons which are part of it.
- (4 con) $[\lambda v \hat{kenn}'_*(m, \sigma u [*Pers_*(u) \wedge u \Pi v])]$
 $(\sigma^*u [*Pers_*(u) \wedge kenn'_*(m, u)])$
 The proposition that Mia knows the p-sum of persons which are part of v , where v is the p-sum of persons known by her.

The examples show that I regard declarative sentences as having a context-dependent topic-focus structure, whereas interrogatives and exclamatories (without special intonation) are supposed to have a fixed one. Topic and focus of (6) and (30) with respect to (28) and (29) are constructed in accordance with (D 5).

According to (D 4), (6) and (30) are an answer and a complete direct answer to (28), respectively; with respect to (29), (6) is a complete direct answer and (30) is a complete indirect answer. According to (D 7), both (3) and (4) are contextually appropriate with respect to both (6) and (30). (3) is topic-preserving with respect to (6/29) and (30/29), it is topic-shifting with respect to (6/28) and (30/28). (4), on the other hand, is topic-preserving with respect to (6/28) and (30/28), and topic-shifting with respect to (6/29) and (30/29).

Finally, according to (MP 4) and (D 6), (3) il-entails (4) but not vice versa, and (3) is perfect only if (4) is, but not vice versa. And this is, I think, as it should be, since to utter (4) seems to be a much weaker and safer thing than to utter (3), and I cannot think of anything which is done by a normal utterance of (4), which would not also be done by a normal utterance of (3).

References

- Altmann, Hans (1981): Satzmodi. MS University of Munich.
- Åqvist, Lennart (1967): 'Semantic and Pragmatic Characterisability of Linguistic Usage', in: *Synthese* 17, 281–291.
- Austin, John L. (1962): *How to do Things with Words*. Cambridge, Mass.
- Belnap, Nuel D., and Thomas B. Steel (1976): *The Logic of Questions and Answers*. New Haven.
- Brugmann, Karl (1918): *Verschiedenheiten der Satzgestaltung nach Maßgabe der seelischen Grundfunktionen in den indogermanischen Sprachen*. Leipzig.
- Culioli, Antoine (1974): 'A propos des énoncés exclamatifs', in: *Langue française* 22, 6–15.
- Davidson, Donald D. (1979): 'Moods and Performances', in: A. Margalit (ed.), *Meaning and Use*. Dordrecht, 9–20.
- Elliott, Dale (1974): 'Towards a Grammar of Exclamations', in: *Foundations of Language* 11, 231–246.
- Ficht, Heribert (1978): 'Supplement to a Bibliography of the Theory of Questions and Answers', in: *Linguistische Berichte* 55, 92–114.

- Gazdar, Gerald (1979): *Pragmatics. Implicature, Presupposition and Logical Form*. New York.
- Gérard, Josselyne (1980): *L'exclamation en français. La syntaxe des phrases et des expressions exclamatives*. Tübingen.
- Hatcher, Anna G. (1956): 'Syntax and the Sentence', in: *Word* 12, 234–250.
- Lakoff, George (1975): 'Pragmatics in Natural Logic', in: E. Keenan (ed.), *Formal Semantics of Natural Language*. Cambridge U.K., 253–286.
- Lewis, David (1972): 'General Semantics', in: D. Davidson/G. Harman (eds.), *Semantics of Natural Language*. Dordrecht, 169–218.
- Link, Godehard (1982): 'The Logical Analysis of Plurals and Mass-Terms: A Lattice-Theoretical Approach', this volume.
- McCawley, Noriko (1973): 'Boy! Is Syntax Easy!', in: *CLS* 9, 369–377.
- Montague, Richard (1974): *Formal Philosophy. Selected Papers of R. M.* New Haven.
- von Roncador, Manfred (1976): 'Zur Linguistik der intensivierenden Ausrufe', in: K. Sprengel et al. (eds.), *Semantik und Pragmatik*. Tübingen, 103–114.
- Ross, John R. (1970): 'On Declarative Sentences', in: R. Jacobs and P. Rosenbaum (eds.), *Readings in English Transformational Grammar*, Waltham, Mass., 222–272.
- Sadock, Jerrold G. (1974): *Toward a Linguistic Theory of Speech Acts*. New York.
- von Stechow, Arnim (1980): *Notes on Topic and Focus of Interrogatives and Indicatives*. Konstanz.
- Stenius, Erik (1967): 'Mood and Language Game', in: *Synthese* 17, 254–274.
- Wunderlich, Dieter (1981): 'Questions about Questions', in: W. Klein and W. Levelt (eds.), *Crossing the Boundaries in Linguistics*. Dordrecht, 131–157.
- Zaefferer, Dietmar (1982): *Frageausdrücke und Fragen im Deutschen. Zu ihrer Syntax, Semantik und Pragmatik*. München.
- Zaefferer, Dietmar (forthcoming): 'Was indirekte Fragesätze von Relativsätzen unterscheidet'.