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# The Grammar of Clause Type and the Pragmatics of Illocution Type

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## 1. Introduction

Theories of speech acts usually take notions like declarative sentence, imperative sentence, etc. as input, i.e. they treat notions of sentence type (form type), as primitives, and then they try to correlate them adequately with notions of illocution type (function type). Linguists, on the other hand, are interested in taking the former apart and determining the grammatical properties of the sentence types as form types.

The history of theories of sentence type is full of controversies, and it seems to me that so far, no generally accepted 'standard view' has emerged yet from these quarrels. About 16 years ago, the so-called Performative Hypothesis was fashionable, and many young linguists were busy trying to find new data supporting it. But then it collapsed, and the collected data remained orphans, since the only visible alternative to the Performative Hypothesis, the Pragmatic Analysis, kept people waiting.

What I am trying to do here is give the lingering theory of sentence types a new push towards its goal: Meeting the criteria of adequacy that the different parties involved want it to meet.

Philosophers of language and students of linguistic communication typically want an account of the linguistic meaning of sentences that provides the proper input for their analyses of what is communicated.

Linguists typically want an account that captures the right generalizations, cross-linguistically, but also across constructions in one language.

In trying to push the theory of sentence types towards that goal, I will mainly make use of two tools: Transparent terminology and a flexible formal semantics. I feel strongly that the lack of both has contributed considerably to the present not very satisfying state of the theory of sentence types.

So let me first make clear that by sentence type, I mean a special case of clause type, namely the type of non-embedded, syntactically independent (main) clauses, and by clause type, I mean a syntactically, i.e. structurally defined subcategory of the syntactical category of a clause, taken in its broadest sense that allows for complex clauses, hence an instantiation of what is standardly called a construction type. So my notion of sentence type is more general than that of Sadock and Zwicky (Sadock/Zwicky 1985), who define sentence type as a pairing of grammatical structure and conventional conversational use. The decision

to conceive of sentence type as of a form type makes it possible for the notion of sentence mood to play a special role: I call sentence mood that part of the structural meaning of a sentence type that is correlated with its conventional use in the performance of illocutionary acts, i.e. the structural linguistic contribution to the determination of illocution type.

Putting things that way we can say that different sentence types can express the same sentence mood (a non-trivial example are English auxiliary first interrogatives and wh-interrogatives, a trivial one single and conjoined declarative clauses), and one sentence type can express different sentence moods (in sequence, as in a conjunction of a declarative clause with an interrogative one, but possibly also at once, in the sense of ambiguity).

The flexible formal semantics I was alluding to is taken from situation theory and can hence be regarded as a variety of situation semantics, with two major modifications: First, unlike 'regular' situation semantics, I do not analyze linguistic meaning as a relation between utterance situation and described situation, but as a relation between utterance situation or utterance act and illocutionary situation or illocutionary act. Second, I will make more use of algebraic structures than 'standard' situation semantics (if there is any).

The main motivation for the first modification is that it seems unwise for a theory that is meant to provide the input for analyses of illocutionary acts of all kinds to presuppose that there is such a thing as a described situation at all, which is of course a natural assumption as long as only assertive speech acts are considered.

The motivation for the second modification will become clear later (or so I hope).

## 2. Desiderata for a Theory of Sentence Mood

### 2.1 Some Generalizations to Be Captured

I believe that there are at least three groups of data, giving rise to three kinds of criteria of adequacy, that are relevant for a theory of sentence mood. The first group of data is the striking main clause/embedded clause parallelism that can be observed in many languages at least for declaratives, interrogatives, and exclamatives. The second group of data is the occurrence of construction types that are cross-classified with the mood-related clause types, e.g. wh-constructions in relatives, pseudo-clefts, interrogatives, exclamatives, no-matter-conditional antecedents. The third group of data is cross-linguistic similarities in the internal structure of clause types. E.g. both polarity interrogatives with an indefinite and constituent interrogatives are built in many languages from the same elements: an indefinite and an interrogative marker, the distinction being made only through different scope markings.

### 2.2 Main Clause/Embedded Clause Parallelisms

For an example of such a main clause/embedded clause similarity witness English, where they can be even surface-identical in some cases:

**(a) Declaratives**
(1a) You are happy.
(1b) I know you are happy.
**(b) Interrogatives**
(2a) Who is happy?
(2b) I wonder who is happy.
**(c) Exclamatives**
(3a) How happy you are!
(3b) I am amazed how happy you are.

Here, a specialization of Occam's Razor: 'Avoid the stipulation of unnecessary ambiguities!', leads to what I would like to call the Karttunen criterion (he used it in Karttunen, 1977, quite successfully): The structural meaning of an embedded clause type should be compatible with all embedding contexts and with that of the non-embedded counterpart.

In other words, sentence type should be treated as a special case of clause type, and the structural meaning of sentence type indicators should be identical with or closely related to the structural meaning of the embedded counterpart.

## 2.3 Cross-classification of Construction Types

An example of a construction type that is cross-classified with the mood-related sentence types are the wh-constructions.

Consider (4) through (9), where the non-bracketed parts are almost surface-identical, although there are major and minor differences in structural meaning:

(4) [The book] that you brought [is beautiful].
(5) [I like] what you brought.
(6) [I wonder] what you brought.
(7) [It is amazing] what you brought!
(8) What you brought [is a book].
(9) What you see [is] what you brought.

In (4), we have an attributive adnominal relative clause, in (5) a free relative, in (6) a constituent interrogative, in (7) a constituent exclamatory, in (8) a pseudo-cleft subject, and in (9), in addition, a pseudo-cleft predicate nominal.

The desideratum to be derived is a proper account of the differences between the structural meanings of these forms that also shows their similarities and common denominators.

## 2.4 Cross-linguistic Regularities

The example I would like you to consider here has to do with the relation of existential quantification and constituent interrogative formation. Semantic considerations have led to the assumption that the latter involves the former (cf. e.g. Karttunen, 1977), even in English, where the surface is not transparent to that connection (cf. (10)). Sentences (11) through (13) show that other languages are much more transparent in that respect: At least in German, Guaraní, and Korean, the combination of an indefinite proform and an interrogative marker in the

same clause can result in two different things - a yes-no interrogative with an indefinite and a wh-interrogative - according to where the scope marker goes:

(The a-examples are the yes-no interrogatives, the b-examples the wh-interrogatives; INDEF stands for '+NP, +Pro, -Def, -Person')

English:
(10a) Did you bring anything?
[INDEF,-Int]
(10b) What did you bring?
[INDEF,+Int]
German:
(11a) Hast du was mitgebracht?
Did you [INDEF] bring?
(11b) Was hast du mitgebracht?
[INDEF] did you bring?
Guaraní:
(12a) re- ru -pa mbae?
2psg bring INT [INDEF]
(12b) mbae -pa re- ru?
[INDEF] INT 2psg bring
Korean:
(13a) ne -ka muet -ul kazje o -nun- -ya?
you Subj [INDEF] Obj have come Tns INT
(13b) ne -ka muet -ul kazje o -nun- -ya?
you Subj [INDEF] Obj have come Tns INT
(13c) muet -ul ne -ka kazje o -nun- -ya?
[INDEF] Obj you Subj have come Tns INT

Note that in Korean, the difference between the two cases is not even visible in the orthographic representation, since it consists only in the fact that the indefinite pronoun is unstressed in the first case and stressed in the second. Interestingly enough, (13c), the variant with the sentence initial indefinite, allows only for the wh-reading, even if there is no special stress on the indefinite.

In German, the relative scopes of indefinite and interrogation are determined by the position of the indefinite, and in Guaraní by the position of the interrogative suffix.

Semantically, the existential quantifier is inside the scope of the interrogative operator in the (a)-cases, and outside with the wh-interrogatives.

The corresponding desideratum is of course a proper account of such cross-linguistic regularities.

A synopsis of the desiderata shows that they can be regarded as instances of one single principle: Take linguistic form seriously! Identity and similarity in form tends to point at identity and similarity in meaning.

## 3. Capturing the Generalizations

### 3.1 Outline of an Algebraic Speech Act Semantics

#### 3.1.1 ABE-Propositions

Since the formal framework to be used here is built on top of Barwise and Etchemendy's reconstruction of Austinian propositions (Bar-

wise/Etchemendy, 1986), it seems appropriate to start this section by outlining their basic assumptions.

According to the ABE-view (ABE stands for Austin-Barwise-Etchemendy), a proposition p consists of two parts: About(p), the situation the proposition is about, provided by demonstrative conventions, and Type(p), the type of which this situation is, according to p, provided by descriptive conventions. Since the type is determined by a set of states of affairs (short: soas), a soa consists of an issue and a polarity, and an issue of a relation with the fitting arguments (here in SOV-order), we get the following picture for the one-place case (with the obvious generalizations):

(14a) {s;[a,R;p]}

Here, the whole thing denotes an ABE-proposition, its left side a situation, its right side a type, the thing inside the square brackets a state of affairs, its left part an issue, its right side a polarity, and a is a fitting argument of the relation R. The first semicolon stands for the 'is of'-relation, the second one can be read as 'has polarity'.

The dual of such a proposition is called a denial by Barwise and Etchemendy and written as follows:

(14b) $\overline{\{s;[a,R;p]\}}$

Since propositions can be arguments, especially also arguments of a relation in their own type, circular propositions can occur, and that is the case Barwise and Etchemendy are interested in. So the only speech acts they consider are assertion and denial.

My interest here is a quite different one: To treat speech acts of any kind, and at the same time to account for cross-illocutionary similarities. For that purpose, a richer semantic structure is called for.

Before giving an outline of this, I will introduce two notational modifications that should increase the readability of the semantic representations. First, I replace the polarity symbol by a positive or negative prefix of the relation symbol. Second, I visualize the fact that a proposition is a special case of a soa by writing it in the same way (except that square brackets are replaced by curly ones): The first argument is a situation, the second one a soa, and the relation is the 'holds in'-relation, written as H.

So, the modified notation for both (14a) and (14b) looks like follows ('p' and 'p'' stand for either '+' or '-'):

(15) {s,[a,pR],p'H}

### 3.1.2 Adding structure to the ABE-view

The main part of my extension of the ABE-view has been inspired mainly by Godehard Link's lattice-theoretical approach to the semantics of number and mass terms (Link, 1983). It consists in a 'Boolification' of the whole domain and is therefore, as it turns out, closer to the Keenan/Faltz approach than to Link's.

I assume that ordinary as well as polarized objects (the latter are the soas and propositions) form complete (atomic or non-atomic,

according to the kind) Boolean algebras with join and meet operations, written as Join and Meet. The induced partial ordering is written as Leq, and is defined as usual (with Eql standing for the identity relation):

(16) $[a,b,+Leq] =_{def} [a\ Join\ b,b,+Eql]$

H stands for the relation of holding-in between a situation and a soa, which can be interpreted as the element-of relation, if we model situations as sets of soas. A join of two soas is interpreted as their disjunction and a meet as their conjunction; correspondingly the generalized join, the supremum, as existential, and the generalized meet, the infinum, as universal quantification. The principled relativization of Austinian propositions to the situation s they are about makes it possible to relativize the domain of quantification to the objects that are part of s.

Suprema (and infima) can be distinguished according to the kind of condition all objects they are built from must meet. Normally, they are exterior conditions, giving rise to what I would like to call exterior supremum, as in (17), which represents the supremum of all objects that have property R:

(17) $Sup\ (x)\colon [x,+R]$

But suprema can also be built from all objects that meet an interior condition, forming an interior supremum as in (18), which represents the supremum of all objects $\phi'$ that come from $\phi$ through proper anchorings of x in $\phi$. (19) is an instantiation of this, expressing the existential quantification that is normally written as in (20).

(18) $x.Sup\ \phi\ [x]$
(19) $x.Sup\ [x,+R\ ]$
(20) $\exists x\ [R(x)]$

The distinction between interior and exterior suprema will become relevant in sections 3.4 and 3.5 below.

### 3.1.3 The Basic Constraint of Linguistic Action

The world is full of situations that involve other situations: Every walking involves some moving, and, as should be known by now, every kissing involves touching. Linguistic meaning is just a special case of such an involvement; it conventionally correlates perceivable action to inferrable action. Uttering "It's raining" under appropriate circumstances conventionally involves claiming that it is raining.

This is almost trivial to say, but it is less trivial to point out that ABE-propositions encode in their very structure a view that Austin used to stress, viz. that it is two basic kind of conventions that determine the correct and successful use of language: descriptive conventions, and demonstrative conventions.

Since 'descriptive' seems to me too narrow a term, and 'demonstrative' has a narrower use in linguistics, I replace these notions by L-semantic conventions and C-aboutness conventions, where L is a language, and C a communicative community, since I assume that aboutness conventions are part of the communicative conventions in a community. This

allows for the possibility that different communicative communities use the same language (in the sense of grammar), and that the same communicative conventions are valid for different groups of language users.

Now it is possible to informally state the basic constraint of linguistic action:

Suppose a situation s where a given set of C-aboutness conventions and L-semantic conventions are valid. Then the performance of an act of uttering L-expression $\phi$ in s CL-involves the performance of an act of expressing the CL-meaning of $\phi$ in s, if seriousness and literalness conditions hold in s, and it involves the performance of an act of expressing something c-related to the CL-meaning of $\phi$ in s, if some other conditions c hold in s.

## 3.2 Main/Embedded Clause Correlations: Mood-related Clause Types in Korean

Korean exhibits an especially nice system of marking mood-related clause types: A verb- and sentence-final affix marks the mood, and the absence or presence of the complementizer ko marks the status (non-embedded or embedded) of the clause. Without further discussion, I will give a set of tentative semantic representations for twelve clause types of Korean, where the meanings of the main clauses are given in the format of the constraint stated above, and the meanings of the embedded counterparts are what is to the right of the colon.

Let p be in every case the proposition that is the core of the CL-meaning of the sentence in question. Then whoever utters

- a declarative sentence (suffix -ta), expresses the belief that: p;
- an interrogative sentence (suffix -ni), the interest in the: issue(p);
- an exclamative sentence (suffix -kulye), the amazement that: fact(p);
- an imperative sentence (suffix -ela), the desire to reach the: goal(p);
- a propositive sentence (suffix -ca), the desire to make a: goal-offer(p);
- a promissive sentence (suffix -ma), the desire to undertake the: commitment(p).

Since this is only meant to give the general idea, I will define only two of the functions used: issue(p) is the join of p with that proposition that comes from p by inverting the sign(s) in its soa(s), and fact(p) is the meet of all disjuncts of p that are purported to be true.

## 3.3 Polarity vs. Constituent Interrogatives

This opposition and what its participants have in common has been most transparently shown in examples (13a) through (13c) in section 2.4 above. Given the framework at hand, it can be represented as follows (omitting the attitudinal part):

(10a') issue({s,x.Sup[ad,x,+kazye-o],+H})
(10b'/c') issue(x.Sup {s,[ad,x,+kazye-o],+H})

If we correlate the H-relation with the interrogative marker, and the supremum operator with the indefinite, we see how the different scopings result in different things: In the first case, we have a single proposition, that happens to be about a supremum of soas, and in the

second we have a supremum of propositions that involve all the same soa scheme.

## 3.4 Wh-Constructions in Different Clause Types

### 3.4.1 Lexical wh-Constructions: German Weak Indefinite Proforms

In German, there is a group of weak (i.e. unstressable) proforms that are homonymous with relative and interrogative proforms: wer, was, wo, welche etc. (cf. Zaefferer (forthcoming)). In Algebraic Speech Act Semantics, it is possible to take this homonymy seriously by showing the common denominator of these functions. But first consider sentences (21a) through (21c) that show the contrast between the anaphoric (a), the deictic (b), and the indefinite proform (c) (since all translations, representing declarative main clauses, have the form Bel({s,σ,+H}), only σ is spelled out in the translations; temporal aspects are omitted):

(21a) Jetzt singt er.
Now is singing he
(21a') [x,+sing], where x is anaphorically anchored.
(21b) Jetzt singt der.
Now is singing this one
(21b') [x,+sing], where x is deictically anchored.
(21c) Jetzt singt wer.
Now is singing someone
(21c') x.Sup[x,+sing]

### 3.4.2 Phrasal wh-Constructions: German Free Relatives and Pseudo-Cleft Arguments

It seems to be obvious that the indefinite/relative homonymy of German wer etc. is not by accident, since there is a feeling that their meanings, although clearly distinct, have a common denominator. My claim here is that this common denominator is the formation of a supremum, and that the specific difference is exactly the one introduced as exterior vs. interior supremum in section 3.1.2 above. A comparison of (21c') above and (22a') below shows this. The examples (22) reflect furthermore the claim that the interior structure and meaning of free relative clauses is the same, whether they occur in predicational sentences (regular free relatives, (22a)), or equational ones (as pseudo-cleft arguments, (22b) and (22c)). (The translations are again abbreviated, in the sense explained above.)

(22a) Wer singt, gewinnt.
Who sings wins
(22a') [Sup(x): [x,+sing],+gewinn]
(22b) Wer singt ist Eva.
Who sings is Eva
(22b') [Sup(x): [x,+sing],Eva,+Eql]
(22c) Wer singt ist wer gewinnt.
Who sings is who wins
(22c') [Sup(x): [x,+sing],Sup(x):[x,+gewinn],+Eql]

### 3.4.3 Clausal wh-constructions: German Interrogatives, Exclamatives, and No-matter-conditional Antecedents

Again, the surface identity of the first words in (23) with one another, with the first words in (22), and with the last word in (21c) is not an accident, but due to what their meanings have in common, even where there are clear differences, as between (21c) and (22) above. With respect to clausal wh-constructions, I claim that the wh-word that occurs in them is the same as in (21c), but that the meanings of the clauses themselves differ slightly from one another due to their embedding environments. Here are the examples with their translations (abbreviated as above):

(23a) Wer singt, ist unbekannt.
Who is singing is unknown
(23a') [issue(x.Sup{s,[x,+sing],+H}),+unbekannt]
(23b) Wer singt, ist erstaunlich.
Who is singing is amazing
(23b') [fact(x.Sup{s,[x,+sing],+H}),+erstaunlich]
(23c) Wer auch singt, Eva gewinnt.
Whoever is singing Eva wins
(23c') [x.Sup{s,[x,+sing],+H},{s,[Eva,+gewinn],+H},+Leq]

Note that (23c'), stating that any proposition that someone is singing involves the proposition that Eva wins, is equivalent to a general conditional 'For any person x: if x is singing, then Eva wins'.

### 3.4.4 Multiplicity in Different Kinds of wh-Constructions

In closing, I would like to point out that the unified account of wh-constructions outlined above provides, among other things, an answer to a question that so far, to my knowledge, nobody has answered yet: Why is it that there is multiplicity with clausal wh-constructions, whereas there seems to be none with phrasal ones? If one assumes, which seems to be plausible, that, in principle, one constituent denotes one entity, the distinction between interior and exterior suprema allows for an easy explanation: Multiplicity in clausal wh-constructions poses no problem, since they denote interior suprema, i.e. the objects to be joined must meet conditions with respect to different parts of their internal structure, but there is one single result of the joining.

Phrasal wh-constructions, on the other hand, denote exterior suprema, and hence multiplicity would mean that different unrelated objects are denoted by one and the same constituent, which contradicts the assumption. Therefore, (24) is fine, but (25) is not:

(24) Who kisses whom does not matter.
(25) Who(ever) kisses whom(ever), touches him.

Exceptions are to be expected to the extent that the assumption is too strong.

## 4. Conclusion

Two consequences can be derived from this (very sketchy) investigation into the grammar of clause type as related to the pragmatics of illocution type. First, the strategy of taking linguistic form seriously, misleading as it may be sometimes, can yield interesting results. Second, and related, the semantic analysis of natural language requires the assumption of structures that are rich enough to reflect what linguistic form indicates.

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