POSTSCRIPT TO "FEATURE DELETION UNDER SEMANTIC BINDING": A NOTE ON (KRATZER, 1998)

ARNIM VON STECHOW

After I had delivered the paper (Stechow, 2003), a colleague wrote to me that the system outlined was virtually identical with (Kratzer, 1998), and that this article had not been cited. The longer version (Stechow, 2002 (to appear)) quotes (Kratzer, 1998), and the reference has been deleted by my automatic bibliography program when I rewrote and shortened the paper. I am sorry for that.

I had read Kratzer's article in 1998 but I had forgotten that it deals with the sequence of tense – besides the inspiring and beautiful things Kratzer says about the tense-aspect architecture. My paper was intended to be a comment on (Schlenker, 1999), and there (Kratzer, 1998) and other sources of inspiration including my own work are cited. I should have compared my account with (Heim, 2001), too. This however turned out to be totally impossible given the limitations of space.

Here are some remarks on the relation between (Stechow, 2003) and (Kratzer, 1998). My remarks are sketchy and incomplete; they show that I haven't understood yet every detail of Kratzer's theory. Above all, the syntactic part, which derives locality conditions for PF antecedents of *de se* pronouns is not yet clear to me.

Recall that I delete φ-features under semantic binding, i.e. on the way to LF. Kratzer explicitly rejects this option. On p. 3 she writes: "It seems plausible to assume that interpretable features can't ever be gotten rid of in the process of deriving Logical Form (LF) representations." Kratzer analyses semantically bound personal pronouns of the first person and tenses as zero pronouns $\varnothing_n$, which are featureless variables and obtain their φ-features at PF via agreement with a suitable nominal antecedent, presumably by a copying procedure.

Kratzer's and my system would be descriptively equivalent if the following held: whenever a pronoun, time or world is semantically bound in my system, we have a co-indexed antecedent at the branching point between Root, PF and LF. (I called the branching point s-structure (SS); whereas Kratzers article has no name for it, not an important difference.) In the normal cases the said equivalence holds. But for more complicated data discussed in Schlenker's dissertation, viz. Amharic "I" and Russian Sequence of Tense (SOT), there seem to be differences.

To be concrete, consider the derivation of Heim's example:

(1) My version
     Only I did my home work.
     SS: [Only I_5]$_8$ did my$_8$ home work.
     LF: [$_{DP}$ only I_5] λ_8 t_8 did 8^{1st}'s homework
                    [by QR and feature deletion under semantic binding]

(2) Kratzer's version
     PF branch: [only I]$_1$ did $\varnothing_1$ homework

LF branch: [only I] 1 t_1 did $\varnothing_1$ homework[1]

Kratzer's structure at the branching point must be rich enough to deal with all the φ-features determining the pronunciation of $\varnothing_1$, including case, whereas I can assume that the features of *my* have been generated already at the branching point. Empirically, there is no difference between the two proposals so far.

What I have called Binding by Verbs works similarly for English *de se* pronouns. Consider a derivation in Kratzer's style with time and world neglected.

(3)   Kratzer on English *de se*
        John thinks he is a hero   (de se)
        PF branch: $John_1$ think $\varnothing_1$ be a hero
        LF branch: John think 1 $\varnothing_1$ be a hero
                       (= John think λ_1 $\varnothing_1$ be a hero)

At PF, *John$_1$* is the antecedent of the zero pronoun $\varnothing_1$, which inherits its φ-feature **3rd** person and is therefore pronounced as *he*. The logical type of *think* embeds a property of individuals. Therefore we have to insert a λ-binder for the zero pronoun at LF. (The index of the subject plays no role in semantics and can therefore be deleted.) Note that at LF, there holds no binding relation between the verb and the zero pronoun, i.e. we have different anaphoric relations at the two branches of grammar – an attractive feature of this system.

Consider Amharic "I" next. Kratzer doesn't speak of Amharic, so I have to find out what her theory could say about it. Recall that Amharic expresses a *de se* subject in the first person, no matter what the person of the verb of attitude is. Clearly, the subject of the attitude cannot be the antecedent for the embedded "I" at PF, as Kratzer's account wants to have it for English. The following derivation, which ignores the time and the world variable, illustrates the point:

(4)   (Not working for Amharic)
        John thinks I am a hero (Amharic *de se*)
        'John thinks he is a hero'
        PF branch: $John_1$ think $\varnothing_1$ be a hero
        LF branch: John think 1 $\varnothing_1$ be a hero
        Pronunciation: John thinks he is a hero
        Pronunciation wanted: John thinks I am a hero

There is no way to obtain the pronunciation wanted from the PF in (4). Examples like these were the essential reason for me to make the assumption that the features of *de se* pronouns are controlled by the verb of attitude, not by the subject of the attitude. I realised that when I heard (Heim, 2001). In order to integrate this case into Kratzer's framework, we have to revise the structure at the branching point, perhaps by stipulating that a *de se* pronoun has to be co-indexed with its controlling verb of attitude. So the derivation of the intended reading could be

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[1] The binding index 1 is Kratzer & Heim's notation for λ_1. The LFs with *only*-quantifiers considered in Kratzer's paper are a bit simpler. For the example she would have
        [only I] 1 did $\varnothing_1$ homework
 I am assuming that *[only I]* has the quantifier type (et)t. In order to interpret the binding index and to bind the zero pronoun, we have to QR the subject and arrive at the somewhat more complicated LF in the text.

this:

(5)   (A working revision)
        John thinks I am a hero (Amharic *de se*)
        'John thinks he is a hero'
        PF branch: John thinks$_1$ $\varnothing_1$ am a hero
        LF branch: John think 1 $\varnothing_1$ be a hero
        Pronunciation (First Person Parameter):   John thinks I am a hero

The index of the verb has to be interpreted as a λ-operator that binds the zero pronoun. The resulting interpretation is, of course, exactly the same as the one given in (4), but the PF pronunciation rule is different, for we say that a *de se* pronoun inherits its features from its verbal binder at PF in the normal case. In Amharic, it has the feature **1st person**, no matter what the person of the verb is (First Person Parameter). There is a subtle switch of perspective here: both in the semantics and at PF the controller of *de se* features is the verb of attitude, not its subject.

        In a similar way we can deal with Russian SOT. Recall that the essential property of Russian SOT is the fact that verbs of attitudes in the past are treated as if they had the feature present. My derivation of a run-of-the mill example, where world and person are ignored, is this:

(6)   John thought Mary is sick (Russian *de nunc*)
        'John thought Mary was sick'
        SS: John thought$^{*<*past}$ Mary is^{*pres} sick
        LF: $t_1^{<pres}[t_1 < t_0^{pres}]$ John thought$^{*<*past}$ λ$t_2^{<pres}$ $t_2^{<pres}$ Mary is sick

I assumed that the Russian verb *thought* deletes the feature **pres** of the λ-bound time variable. There is no agreement between the matrix tense and the embedded tense. Compare Kratzer's analysis with that. To begin with, she has two sorts of tenses, deictic and zero tense (cf. her example (31)):

(7)   (Not working for Russian)
        PF branch: past$_1$ John think Mary $\varnothing_1$ be sick
        LF branch: past John think 1 Mary $\varnothing_1$ be sick^2
                (= past John think λ$_1$ Mary $\varnothing_1$ be sick)
        Pronunciation: John thought Mary was sick
        Pronunciation wanted: John thought Mary is sick

Obviously, this doesn't give us the correct pronunciation, because the subordinate verb is predicted to have past morphology, contrary to the facts. A possible revision could be this:

(8)   (A working revision)
        PF branch: past John think$_1$ Mary $\varnothing_1$ be sick
        LF branch: past John think 1 Mary $\varnothing_1$ be sick
                (= past John think λ$_1$ Mary $\varnothing_1$ be sick)
        Pronunciation (Present Parameter): John thought Mary is sick

The Present Parameter for non-SOT languages such as Russian could then be formulated as:

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^{2} In the example given, the matrix tense is a deictic tense. The index 1 fulfils no job at LF and can therefore be deleted.

"Verb of attitudes transmit the feature **pres** to the temporal variable they bind regardless of what their tense morphology is."

If we revise Kratzer's theory along these lines, the approaches appear to be empirically indistinguishable. The revised framework is, however, not exactly Kratzer's original theory because verbs with binding indices are not considered in her paper. Kratzer would presumably not be happy with the idea that the index 1 in the PF is an index of the verb. How could the index be motivated then?

(Percus, 2000) thinks *de se* pronouns are semantically empty pronouns that have to be moved at LF and leave a trace, exactly as (Heim and Kratzer, 1998, p. 227 f.) treat PRO. There are locality restrictions for this movement, which have been studied by Percus. This idea is attractive and might turn out to be correct, but it is not compatible with the semantics given in (Kratzer, 1998), where zero pronouns are variables and hence not semantically empty. So the LF in (8) has presumably to be interpreted in analogy to what (Kratzer, 1998) says on the interpretation of reduced relative clauses. Her example is this:

(9)   PF branch: man$_1$ $\varnothing_1$ attentive to his$_1$ own needs… [= (27)]
       LF branch: man 1 $\varnothing_1$ attentive to his$_1$ own needs…

For type reasons (relatives are composed intersectively with the head noun), the binding index 1 of *man* must be interpreted as a λ-operator, changing the type of the adjunct clause from t to et. The example is interesting because it shows a further complication: *his$_1$* is a bound variable and hence a zero pronoun. So a more accurate representation is the following:

(10)   PF branch: man$_1$ $\varnothing_1$ attentive to $\varnothing_1$'s own needs… [= (27)]
       LF branch: man 1 $\varnothing_1$ attentive to $\varnothing_1$'s own needs…

The zero possessive obviously obtains its φ-features from the head noun *man*. So this is a case of "binding by nouns" in analogy to my "binding by verbs". Returning to the derivation in (8), we apply the same logic: the index of the verb has to be interpreted as a λ-operator for type reasons. Since the verb is the PF-antecedent, the φ-features of the $\varnothing$-pronoun must come from the verb. If this argument is correct, the verb of attitude must be co-indexed with a *de se* pronoun at the branching point already, and it is the verb that determines the pronunciation of a *de se* pronoun, not a nominal antecedent.

This might be wrong, but considerations like these were my motivation for speaking of Binding by Verbs. It is certainly not exactly the same as what Kratzer says.

If we find the idea that a verb deletes φ-features that it doesn't have too stipulative, we have to take another route. The Percus strategy, i.e., the interpretation of *de se* pronouns as semantically empty pronouns, which actually goes back to (Chierchia, 1987), shows the way. If a *de se* pronoun is semantically empty, it has to move at LF for type reasons. These pronouns don't have an index at the branching point and therefore cannot have an antecedent at PF. It follows that the pronunciation of these pronouns is determined before the branching point. The Amharic personal logophor would then invariably have the pronunciation *I* and there would be two other pronouns of the first person, viz. the deictic pronoun and the zero pronoun.[3] The same move must be taken for the interpretation of the Russian Present: there should be a logophoric tense

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[3] I was fascinated by the idea in Schlenker's dissertation that deictic, anaphoric and *de se* pronouns could be treated in a unified way as variables, whose reference is restricted by semantic features. Instead of doing it with three sorts of pronouns, I tried to do it with one sort.

pronounced as present, which is semantically empty, a zero present, which is a variable, and a deictic present. The semantic type of the verb of attitude would then trigger LF movement of an embedded logophor. In order to block the SOT configuration we find in English, we would have to say that Russian has no zero tense. Such a system would work for Russian *de nunc* tense, Amharic *I,* and presumably for the Japanese logophor *zibun*. The analysis would not work for the English SOT and English *de se* pronouns.

Here the former, revised system of Kratzer works better. If we want to treat object control, we seem to need the former system as well.[4] So we seem to need both semantically empty zero pronouns and variable zero pronouns in this enriched version of Kratzer's system. If this were so, no unified treatment of *de se* pronouns would be possible after all. And perhaps this is so, I simply don't know.

Note finally that *de se* readings were only one application of my system. Another very hard semantic problem is the correct integration of temporal adverbs into the theory, and I have said something about that. I find these issues even much harder to deal with and there remain many questions I cannot answer.

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[4] The Binding by Verbs approach has problems with object control. If a verb of object control binds a variable, it does not delete its φ-features at the variable but rather the features of its object, an ugly stipulation.