

Semantics of Slavic anaphoric possessive determiners

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Summary: Slavic possessive determiner SVOJ (and its plural form), meaning roughly *his/her own* (glossed by HOWN) can in addition to its bare form also be used in composition with other ordinary determiners. Such compositions form complex anaphoric possessive determiners (ADets), that is expressions which take CNs as arguments and form NPs denoting nominal anaphors. Thus one can have in various Slavic languages compositions with *SVOJ*, corresponding to EVERY HOWN, NO HOWN, FIVE HOWN, etc. In this talk, using data from Polish, semantics of complex Adets, and to a lesser degree of bare Adets, will be given. Conservativity and some problems of expressive power of such constructions will also be discussed.

Data: the Polish third person possessive *swój* (and *swoja* and *swoje*) can combine with virtually any determiner to form a complex determiner which, when applied to a common noun, gives a nominal anaphora. Thus one has *wiekszość swoich.../MOST HOWN*, *10 swoich.../10 HOWN*, *żaden ze swoich.../NO HOWN*, *co najmniej 5 swoich.../AT LEAST 5 HOWN*, *wszystkie swoje... oprócz Kazia/ALL HOWN, EXCEPT K.*, as in *On lubi wszystkie swoje dzieci, oprócz Kazia* (He likes all his (own) children, except Kazio), *niektóre swoje..., włącznie z Kaziem/SOME HOWN, INCLUDING K.*, etc.

Adets have Boolean structure, and consequently can form their Boolean compounds. In particular bare Adet *swój* (and the corresponding feminine, neuter and plural forms) has the negative form *nieswój/NOT-HOWN*. Such negative forms are much better with the plural *swoje* to form *nieswoje*. The negative forms in their turn can combine with "ordinary" determiners to give complex Adets. Both bare, negative and positive, forms can occur in such complex Adets. Thus we have *Niektóre nieswoje.../SOME NOT HOWN*, *5 swoich i 6 nieswoich.../5 HOWN and 6 NOT-HOWN* as in *Ona lubi 5 swoich i 6 nieswoich kotów* (She likes 5 (of) her (own) and 6 (of) not her (own) cats), *wszystkie swoje albo większość swoich.../ALL HOWN or MOST HOWN*, etc.

Adets can also Booleanly combine with "ordinary" possessive (non-anaphoric) determiners to form complex Adets; one has *swoje i Kazia.../HOWN and K.'s*, *5 swoich i 6 Kazia.../5 HOWN and 6 K.'s*, etc.

Bare determiner *swój* can also combine with binary (or even n-ary) determiners to give binary (or n-ary) Adets. For instance, *swój* combined with the binary determiner *wiecej...niż (more...then)* gives the binary Adet *wiecej swoich... niż swoich.../MORE HOWN THAN HOWN*. Similarly with reducible (by conjunction) n-ary determiners (such as for instance English *All A, B, and... C* read as *All A and All B and... and All C*). In Polish such determiners can combine with *swój* to give (reducible) n-ary Adets.

Complex Adets share many properties with bare Adets: they cannot occur in NPs on subject position (consequently they are not used in the nominative case), they do not give rise to the sloppy-identity ambiguity, etc.

Semantics: Let D be a type $\langle 1, 1 \rangle$ quantifier, the denotation of some unary determiner *Det*. D_S is the denotation of the anaphoric determiner *Det swój*

obtained by combining *Det* with *swój* according to the rules underlying the above examples. Such a determiner applies to a CN and gives an (accusative) anaphor, in the sense of Keenan 2007. Anaphors denote functions from binary relations (denotations of transitive verbs whose complements are anaphors) to sets. If such functions are not (accusative) extensions of type $\langle 1 \rangle$ quantifiers (denotations of "ordinary" NPs) then they are proper anaphors. Given this, D_S can be considered as a function taking two arguments, a set and a relation, and giving as result a set (the denotation of the whole VP).

For R a binary relation $xR = \{y : \langle x, y \rangle \in R\}$. To account for the possessive nature of Adets we need in addition the binary relation *POS* which expresses the possessor relation (which needs not to be just ownership or authorship relation). Such a relation, contextually determined, is needed for the semantics of "ordinary" possessives as well (Peters and Westerstahl 2006). Then:

$$D_S(A, R) = \{x : xPOS \cap A \neq \emptyset \wedge D(xPOS \cap A)(xR) = 1\}$$

The clause $xPOS \cap A \neq \emptyset$ expresses the existential presupposition that possessives induce. The remaining part shows how the anaphoricity is expressed by the accusative case extension of the type $\langle 1 \rangle$ quantifier formed with D applied to A which is modified with the help of *POS*. Thus *Kazio hates most of his mistresses* is true if K is a member of the set $\{x : xPOS \cap M \neq \emptyset \wedge MOST(xPOS \cap M)(xH) = 1\}$.

The above formula gives a semantics for complex Adets containing the positive "swój". Another formula is needed for Adets containing the "negative" *nieswój* and for those formed with binary determiners.

Interestingly, bare plural Adets like *swoje* (used without a "normal determiner") are more complicated to analyse. As many other possessives (or bare NPs) they are ambiguous and can have either existential or universal readings. The sentence *Kazio nienawidzi swoje kochanki* (K. hates his mistresses) does not imply that K. hates all of his mistresses (though this is a strongly preferable reading). There are important variations in readings of such constructions. A good approximation is to consider that bare Adets contain in fact a hidden determiner corresponding to the quantifier *ALL OR SOME*.

Given the above analysis we show that the function $F_A(R) = D_S(A, R)$ is not an extension of a type $\langle 1 \rangle$ quantifier (for any A) and that it satisfies anaphor condition AC (Keenan 2007). Thus NP-like expressions formed from complex APdets (that is NPs formed from Adets applied to CNs) are proper anaphors.

One can generalize the notion of conservativity in the way that it applies also to functions like $D_S(A, R)$ above. Then $D_S(A, R)$ is conservative iff D is conservative. Finally, the syntactic analysis adopted here is preferable to the one in which *swój* would be treated as a modifier of CN (as an adjective) because in this case a compositional account would be more complicated.

References:

- Keenan, E. L. (2007) On the Denotations of Anaphors, *Research on Language and Computation* 5:5-17.
 Peters, S. and Westerstahl, D. (2006) *Quantifiers in Language and Logic*, Oxford U.P.