THE RELATIONSHIP OF UNDERLYING AND SURFACE STRUCTURE IN GENERATIVE DESCRIPTION OF LANGUAGE

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The distinction between underlying and surface structure is more or less well established in contemporary grammatical analysis. The form and depth of the underlying structure and its relationship to observable language reality are, however, permanently in the focus of linguistic disputes.

In the standard generative transformational model (Chomsky, 1965) underlying structure was moderately deep. It reflected the surface structure of English and catered for semantic distinctions mainly through the inherent semantic features of the lexicon. The semantic component, to which the derived sentences were being sent for semantic processing, was not well defined.

The generative semantics models deepened the underlying structure and imposed a considerable gap between the latter and the surface structure. This gap was to be bridged by transformations, which with McCawley included very extensive lexical changes.

The functions of the underlying participants in the action or state came to differ signifficantly from those of the surface nominal constituents. In Fillmore's model (Fillmore, 1969) the subject of the surface structure correlated not only with the "underlying subject" or "actor" but also with an underlying patient, experiencer, locative... To provide for this correlation, Fillmore set up rules for systhematic subjectivization of non-agentive "underlying cases". What's more,

he assigned to each verb a specific "case frame" which often
lead to proposing features of conditional obligatoriness (re-
presented in his notation by embedded and intersecting brack-
ets). Similar endeavours for correlating underlying functions
with divergent surface constituents lead Gruber (1967) to
vague characterizations, often in different terms for differ-
ent classes of verbs. Anderson (1971), in his turn, opposing
the characterization of subject/verb relations in terms like
"actor/action", offered a great variety of case functions to
be assigned to his noun phrases, depending on the nature of
their participation in the "process" or "state" represented
by the predicate.

More recently, generative linguists have been becoming
increasingly aware of the necessity to distinguish meaning,
taken as the linguistic counterpart of intensional structure
of sense, from cognitive content, i.e. from the language inde-
pendent patternings of factual knowledge. Thus, Fillmore (1977)
reexamines his underlying cases, places them outside the lan-
guage system in a strict sense - in the realm of conceptual-
ization, and assumes that the underlying structure of language
proper is set up by "creating conditions under which a speaker
choses to draw certain case roles into perspective". Sgall
(1980), in his turn, claims that his multi-level generative
model permits to set up semantic, underlying, tectogrammatical
units, which are set off from the cognitive level "case-roles"
but relate to them through Panevová's regular system of shift-
ing (Panevová, 1980). This shifting can, of course, be accom-
modated in the realm of conceptualization without the system
of levels of functional generative grammar. Recent transfers
of selection of "case-roles" into conceptualization has not
made linguistic description perspicuously simpler. The analyst
has the choice of (a) introducing a set of rules that would
"shift" the conceptual case roles so that they may naturally
take their appropriate places in underlying structure or else
(b) making provisions for adjustment rules between the levels

of underlying and surface structure.

In the belief that the constituents of the underlying
structure of a model for automatic generation of the sentences
of a natural language should be defined in terms that associa-
te them closely to respective surface structure constituents,
our initial efforts for the construction of a grammar for
automatic generation of Serbo-Croatian have lead us to a pre-
dicate-centered underlying structure whose nominals fall with-
in two general types: nuclear and extranuclear or adverbial.
While the latter are optional, the former are obligatory for
a given predicate; they can be abstent from the surface
structure but are always recoverable. The number and type of
nuclear nominals that relate to each given predicate can be
stated in a predicate dictionary. When the underlying struct-
ure of individual sentences are being generated, these dict-
ionaries can serve as guides for the selection of the nuclear
nominals for each predicate, which can be defined as the
first, second, third ... nominal of a given predicate (the
exact number should be determined with tests for obligatori-
ness). The first nominal (or nominal one) is the nominal from
which the action or state denoted by the predicate originates,
the second nominal (or nominal two) is the nominal towards
which the action or state of the predicate is directed, where-
as the third nominal (or nominal three) is the nominal funct-
ioning as an intermediary between nominal 1 and nominal 2.

The linear ordering of the surface structure constituents
does not always correspond to the ordering of the underlying
nominals; however, in the communicatively unmarked sentences
the correspondence between the type of surface structure
function and type of underlying structure nominal is stable.
In these sentences, nominal one is realized as subject, nomi-
nal two as direct object or any other type of direct comple-
ment (i.e. complement which relates to the verb directly),
while nominal three is realized as indirect object or any
other complement that is contingent on the presence of another
complement.

In the inflective languages (and Serbo-Croatian is one of them) the surface structure constituents are marked by specific suffixes. The morphonological changes incurred by suffixation are usually being attributed to the operations of some morphonological component or stratum. We, however, maintain that the assignment of the suffix and the morphonological changes accompanying it can be done by the rules that transform (or translate) the underlying structure into surface structure. Vitas (1980) has constructed a program for automatic generation of the nominal paradigm. We are now devising signals which, when attached to the arguments and adverbial nominals of the underlying structure, would trigger the generation of inflected nominal surface structure constituents along with their respective prepositions, if any. At the same time, work on the automatic generation of the predicate phrase constituents is under way.

In the first generative (English language based) models morphology was assigned an anscillary role. Work with inflected languages has shown that it should be dealt with independent of, though in coordination with, syntax. By developing programs for automatic generation of the morphonological forms, while working on the syntactic and semantic component(s) of the grammar, we hope to be able to build a model which is formally simple and in which the underlying structure will not be excessively remote from the surface one.

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