ON THE REALITY OF LINGUISTIC CONSTRUCTS: EVIDENCE FROM SPEECH ERRORS*

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During the period when anti-mentalism dominated American linguistics, the 'reality' of abstract constructs was denied by those linguists who agreed with Twaddell (1935) that "the linguistic processes of the 'mind' are... simply unobservable (and)...we have no right to guess about the linguistic workings of an inaccessible 'mind'." But just as there is evidence for such 'unobservable' physical entities, as atoms and electrons, so too there is evidence for linguistic processes of the mind. Speech error data provide such evidence.

In fact, linguistic behavior cannot be explained without assuming the reality of independent distinctive features and of discrete phonemic segments, despite the fact that the emitted speech signal is a continuous one. The substitution and transposition, deletion or addition of segments and individual features which occur in deviant utterances (deviant in the sense that the spoken utterance differs from the intended target) justify their 'reality'. The fact that consonant clusters can be separated reveals that at the point in the production process where the error occurs, the clusters consist of sequences of discrete segments. This is not to deny, of course, that at some later stage clusters, or syllables, or even larger units may constitute one articulatory program. The fact that affricates do NOT behave as other clusters, that is, the stop and fricative are never split in errors, reveals that such affricates are underlying single segments in English.

Because of time limitations, I shall not reiterate the published arguments supporting the reality of such elements (Cf. Fromkin 1971). I shall, however, attempt to demonstrate the way speech error data support the reality of even more highly abstract constructs.

(1) is an example of a speech error which involves a velar nasal.

(1) swing and sway ([swiŋ] and [swej]) → [swin] and [swejġ][1]

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[1] In examples, the arrow is to be interpreted as 'spoken as', i.e., the intended utterance occurs on the left of the arrow and the actual deviant utterance on the right.

Such errors which produce a phonetic [g] which does not occur in the intended PHONETIC utterances support the proposal made by Sapir (1925), Chomsky and Halle (1968), and others, for deriving the phonetic [ŋ] from an underlying sequence of /ng/ in English. To suggest that what occurs in the process of producing this utterance is that the velar nasal becomes alveolar in *swing* and in addition a non-nasal velar stop is added to *sway* may describe the result but does not explain it. If on the other hand, we assume that prior to the articulatory stage, the phonological representation of swing is /swing/, then the error is similar to others in which a single segment is disordered. This is illustrated in (2).

(2) /swing/ and /swej/ → /swinØ/ and /swejg/

Such errors provide 'behavioral' support for the English phonological rule $g \rightarrow Ø/n—\#$, since the [g] emerges if the nasal is deleted or transported during speech production. Should this hypothesis be accepted, it shows that the homorganic nasal rule must occur after the error in serial ordering, since the nasal in *swin* is alveolar rather than velar.

It should not be surprising to find such evidence for underlying segments which never occur phonetically in normal utterances. Even more abstract structures are shown to be 'real'.

(3a) I regard this as *im*precise → I *dis*regard this as precise.
(3b) It's *not* possible that he's going → It's possible that he's *not* going — It's *not* possible that he's *not* going — I mean, it's *IM*possible that he's going.
(3c) People agree that it is *not* well formed → People *don't* agree that it is well formed.

Examples under (3) demonstrate that in producing a negative sentence, a speaker must first generate an abstract NEGATION element which is independent of any particular word or place in the string. In non-deviant sentences this element is placed in a stipulated place in the string. But just as segments or features may be disordered, so may such syntactic elements.

In the intended utterance, the negation occurs in the embedded sentence, while in the deviant spoken utterance the negation occurs in the higher sentence. One cannot explain this error by a performance model which posits a Markovian process of word selection. These examples also show that the morphophonemic rules which produce the phonological and final phonetic realizations of negation must occur after the Negative element has been moved, that is, NEGATIVE + *precise* → *imprecise*, while NEG + *regard* → *disregard*. And as shown by (3b), NEG + *possible* may alternatively become *not possible* or *impossible* under certain conditions.

Evidence for many other such performance rules, or grammatical rules which participate in performance, for semantic features and classes, for the generation of syntactic structures prior to lexical insertion, for the necessity of major category nodes, etc., all of which must be posited in a model of linguistic performance, as well as in a grammar, is similarly provided by speech error data. In this paper just a few illustrations were presented supporting Sapir's statement that "the notion of speech sounds is (not) explicable in simple sensorimotor terms (since)...a complex psychology...is implicit in the utterances of the simplest consonant or vowel" (1925). Speech errors provide a way to investigate this complex psychology.

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DISCUSSION

DAVIDSEN-NIELSEN (Copenhagen)
When the /s/ of an *s*-cluster is moved by a speech error to another place, as in *stack of books → tack of spooks*, does this always reveal underlying /p, t, k/ (not /b, d, g/)?

Does Prof. Fromkin have evidence for underlying /p, t, k/ in *s*-clusters from children who cannot read?

FROMKIN
In all recorded cases where an *s*-cluster is split, the remaining stop is revealed as a voiceless /p t k/ and, in addition seems to be aspirated. Thus for the intended *stick in the mud, tick in the smud* was uttered. Other examples are:

speech area → peach sarea [pʰijtʃ sirija]
state prison → tate sprison [tʰejt sprɪzn̩]
skull dudgery → kull studgery [kʰʌl stʌdʒərij]

There are no cases that I know of where an *s*-cluster is split leaving a single voiced stop, i.e., *st* does not become *d*, etc.

In cases such as the one cited by Mr. Davidsen, when the *s* is moved to a position before a voiced stop, e.g., *stack of books* would become, I predict, *tack of spooks* [tʰæk əv spʊks], or [sb̥ʊks] the remaining *t* would become aspirated and the voiced

stop would become devoiced. This shows that in the process of speech production, the error in serial ordering of the segments must occur prior to the stage where 'allophonic rules' of the language occur, providing evidence for the 'reality' of more abstract underlying segments, and phonological rules.

As to the second question, I have no evidence from children's speech. This is a very interesting question which I think deserves investigation.

BOND (Columbus, Ohio)
Would you explain as to why misorderings occur? I would like to hear some speculation about a performance model that would allow this.

FROMKIN
Unfortunately, time limitations prevent an answer to your very interesting question. The performance model which I put forth in my article in *Language* 47 (March, 1971) suggests WHERE such errors in serial ordering may occur. Lashley, in his classical article on serial ordering, discusses this question. As to WHY they occur, I think we are just beginning to attempt some answers. Nothing is conclusive at present and much more research is required.