Fry, Dennis B.

**The linguistic evidence of speech errors**

*Brno studies in English.* 1969, vol. 8, iss. 1, pp. [69]-74

# THE LINGUISTIC EVIDENCE OF SPEECH ERRORS

D. B. FRY

*University College, London*

At every moment of our clock time, our so-called 'real time', some millions of words are passing from speaker to listener over a considerable portion of the earth's surface. In only a negligibly small proportion of this vast number of words do errors occur, either on the speaker's side or on the listener's. It happens very infrequently that a speaker utters anything other than the sounds he intended to make or that a listener takes in anything other than the sequence the speaker meant him to receive. When errors do occur, they are usually corrected very rapidly; those made by the speaker are often corrected by the speaker himself or, if he fails to do this, by the listener in receiving the message; errors generated by the listener are almost always corrected later by the constraints of the message.

The almost incredibly high percentage of correct transmissions in speech generally is made possible only by the immense store of linguistic information that is continuously available to each individual speaker and listener. The majority of language-users are unaware of the existence of this knowledge and its application in correct transmissions passes unnoticed. When errors do occur, however, they cast valuable light on the processes which are normally going on and provide evidence of the linguistic information and the purely linguistic operations that communication by speech calls upon. This paper will be concerned only with errors in the generation of speech sequences and will examine examples of such errors in English in an attempt to show that they cannot be accounted for except by attributing to speakers a knowledge of a language system certainly similar to and even in many details coincident with that constructed by linguists. The examples given are all taken from direct observation of spontaneous speech; they have all actually occurred, even the seemingly most outlandish of them.

## Speech Programming

In common parlance we refer to all speech errors as 'slips of the tongue'. It happens rather rarely, however, that an error is actually a mistake in articulation. There are a number of stages between thinking of something to say and making the speech muscles work and errors can originate at all of these stages. We need first of all, therefore, some framework that will indicate the nature of the successive stages. What is in question is the programming of utterances, which is a specific function of some part of the speech centres in the brain. The programming entails calling upon large memory stores, which are also located in the cortex, but we shall not be much concerned here with those stores nor with the connections between them and the programming mechanisms.

BRNO STUDIES IN ENGLISH, Volume Eight (Brno 1969)

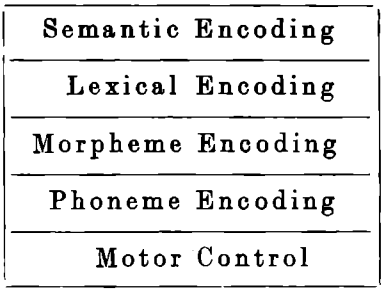


Fig. 1.

The encoding process itself can be viewed somewhat in the manner suggested in Fig. 1. The first level, that of semantic encoding, is equivalent to what, in everyday terms, we call 'thinking what we want to say'. This is distinct from the selection of the words actually used in the message and is a necessary stage in the whole encoding operation. We can see a parallel and indeed an example of this activity in the case of a practised speaker who may write half-a-dozen words, one under the other, on a slip of paper and then talk for twenty minutes, using this as a guide and perhaps not even uttering the particular words noted. This is long-term semantic planning, but every speaker goes through a similar process on a short-term basis when he is encoding speech.

It will be made clear a little later that semantic encoding, like the encoding at all other levels, is a continuing process. The speaker does not complete the semantic encoding for any sequence before he embarks on the rest of the programming; operations at this level simply lead in time the corresponding operations at lower levels. We must, of course, accept the semantic encoding as an error-free process, since it does not make any sense to think of errors occurring at this level. In the very frequent case of the speaker's 'changing his mind' about what he wants to say, we are faced only with a particular time sequence in the semantic programme which differs from some other time sequence that would have resulted if there had been no change of plan.

At the next level, lexical encoding, the programme selects the words which the speaker intends to use in the actual message, but in their root form. This means that at this level polymorphemic words are specified in the programme only as to their roots, the necessary affixes being written into the programme at the next level, that of morphemic encoding. The lexical encoding level has access to the large store of word units; the morphemic encoding is connected to the circuits which store grammatical and syntactic rules and to the relatively small store of bound morphemes.

The task of the phoneme encoding level is to programme the sequence of phonemes in accordance with the morpheme string, selecting the items from the small store of phonemic units, and the motor control programme then instructs the muscles involved in respiration, phonation and articulation to carry out the actions demanded by the phoneme sequence. In doing so it draws upon the memory store of patterns of habitual movement in such a way as to specify very accurately the timing and sequence of muscle actions.

Whenever speech is being generated, these five programmes are running continuously in the speaker's brain. The first important feature to be noted is that if we take any point in the programme on one level and look for the corresponding point in the programme below, a time-lag will be apparent. Let us imagine that the legends in the different levels of Fig. 1 represent the form of the programme that is being implemented. We take a given instant in clock-time and examine the progress of each programme up to that moment. The state of affairs will in principle be that indicated by Fig. 2. At the selected instant, the semantic programme is well-advanced, the lexical encoding is lagging behind it by a certain amount, and at each level below,

the time-lag is progressive. The time difference between levels is variable, though it does not of course change in such a way as to cause any level to lead the one above. We might think of the five programmes as being each on a moving belt with its own drive; as the generation of a message proceeds, the programme on one belt may move up on or lag further behind the one above. It is this variable time relation between programmes which appears to lie behind a considerable proportion of the errors in speech.

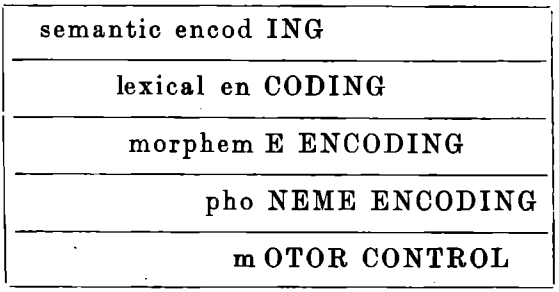

Fig. 2.

In the following sections we shall try to classify a number of examples of speech errors, showing how they may be due to changing time relations between levels, and how they may be accounted for by errors occurring in the phonemic, the morphemic or the lexical encoding programmes.

## Phoneme Errors

Although the time-lag between programmes is variable, it is probable that in normal error-free working the range of variation is not very great and it is quite likely that any individual speaker has a preferred set of time-relations which he likes to keep to, within certain limits. When for some reason the time-relations change rather abruptly, perhaps because the time-lag has become uncomfortably large, then errors may occur which are triggered off by the new relation between one programme and another. If this happens, for example, between the phoneme programme and the morpheme and lexical encoding, there may be **anticipation errors** at the phoneme level, that is to say that a phoneme will appear in the phoneme string in advance of its proper position in the sequence. This seems to have happened in examples like: [*ə weðəz nou ju:s wiðaut wo:tə*] for *a leather's no use without water*, [*grotl strein*] for *glottal strain*, [*ðə depjutri redʒistra:*] for *the deputy registrar*]. Anticipation errors in the phoneme encoding affect vowels as well as consonants. as in [*wi not i:nli ni:d tə nou*] for *we not only need to know*, [*daitekʃn kraitiəriən*] for *detection criterion* and [*teibl nipkinz*] for *table napkins*.

A very common form of the anticipation error at the phoneme level is the spoonerism. Here the serial position of two phonemes is reversed; anticipation inserts one phoneme in the string in advance of its right position and the error is then compensated for by putting the displaced phoneme in the gap left in the sequence. Thus we get examples like: [*ə gei əv deilz*] for *a day of gales*, [*lə:n tə ripli:d*] for *learn to lip-read*, [*ə tilvə si:spu:n*] for *a silver teaspoon* [*ə reəli wə:d hə:k*] for *a rarely heard work*. Spoonerisms are traditionally reversals of the initial phonemes of words or at least syllables, but anticipation errors in the phoneme programme can also produce more unusual reversals, as in [*fəmilə tə miljə*] for *familiar to Miller*, and can affect vowel phonemes, as in [*kə:v ðə ta:ki*] for *carve the turkey*.

One further type of anticipation error is that which leads to the dropping out of some considerable portion of the complete sequence. Such mistakes are invariably noticed by the speaker and are corrected by going back and uttering the expanded form of the sequence. Naturally they may and generally do affect the programmes at higher levels and these effects will be referred to in later sections. One example of such an error is: [*ətʃi:vl*] for *achievement level*; an extreme case heard from one speaker was the utterance of the syllable [biŋ], which was a contraction of the phrase *bent on ruining*; and a further example which has implications at the morpheme level to be discussed below was: [*əsatl jo:self*] for *observe subtlety yourself.*

The reverse of the anticipation error is the type which appears to be due to persistence, what we might term *perseveration errors.* Here the part of the programme which has already been implemented at a given level is not cleared and there is an iteration of a short sequence or item before the continuation of the programme begins to operate. If anticipation errors at the phoneme level are due to the fact that the phoneme encoding has lagged too far behind the morpheme encoding and there has consequently been a rather abrupt moving up of the phoneme programme on the morpheme programme, then perseveration errrors may conceivably be the result of the opposite operation, that is to say the time-lag between phoneme and morpheme encoding has become uncomfortably small and there is a rather sudden increase in the lag. In fact, perseveration errors at the phoneme level do not seem to be as common as anticipation errors, but they do occur fairly often at the morpheme level. The following are some examples of the effect in the phoneme programme: [*kiŋstən ənd hampstən*] for *Kingston and Hampton,* [*ətribju:titid*] for *attributed,* [reprizentitei∫n] for *representation,* [*simbələlədʒi*) for *symbology.*

It is worth pointing out in passing that the occurrence of such phonemic errors makes it impossible to accept the hypothesis which has sometimes been advanced that language-users do not operate with phonemes and that we must regard the syllable or the word as the smallest functional unit for speakers and listeners. If this were true, then all the errors just given could not have occurred at all. To account for a spoonerism such as [*ən isteip əv ski:m*] for *an escape of steam,* we should be compelled to say that the speaker had, on the spur of the moment, coined a word-final syllable new to the language in [*steip*] and had followed this up by selecting the word *scheme* from the word store in the face of all the constraints of semantic planning and sequential probability. To call such an explanation far-fetched would be an understatement.

Over thirty years ago, Twaddell in his monograph 'On defining the phoneme' referred to a 'mythological view of the linguistic process according to which a speaker reaches into his store of phonemes, selects the proper number of each, arranges them tastefully and then produces an utterance'. All the evidence points to the fact that this is what the speaker does, if we discard the ironical adjective 'tastefully', and far from being mythological, this view is the only one which allows us to account for many of the things which actually happen in speech, particularly the kind of errors in speech generation which have been cited above.

## Morpheme and Word Errors

We will now turn to errors in morpheme and word encoding and see whether the same types of error tend to occur. The reason for considering the two levels in con-

junction with each other is that the first question to be answered is clearly whether we need to postulate separate programmes for morphemes and words, or whether we cannot think of the processing as being carried out with a word programme only, polymorphemic words being selected as single items from the store. It will in fact be evident from the errors that occur that there are two separate programmes and that there is a certain freedom between the word and morpheme encoding.

The morpheme programme appears to be in general rather resistant to error; it shows markedly fewer errors than either phoneme or word encoding. The principal reason for regarding it as a separate programme is indeed that examples are fairly frequent in which word errors do not upset the morphemic structure of the sequence. Nonetheless there are some morpheme errors, like the following anticipation errors: [*ðis iz naisli wenzlideil*] for *this is nice Wensleydale*, [*testəriŋ hə ri:fleksiz*] for *testing her reflexes*, and these perseveration errors: [*nou mi:nz əv letiŋ dð famli nouiŋ*] for *no means of letting the family know* and [*əz tenəz ənd beisiz əv ko:siz*] for *tenors and basses of course.*

One further type of error occurs at the morpheme and word levels which we might term a selection error. In cases of this kind, the wrong morpheme or word inserted into the string is not obviously linked with another item which is about to occur or has occurred in the same or a neighbouring sequence. This probably means only that it is difficult to see the connection or that the link is with some alternative programme which is not implemented in actual speech. Whatever the basis for the error, the result is the selection of the wrong item from the store. The following are some examples of this kind of error in morpheme encoding: [*fansi hiz θo:tiŋ*] for *Fancy his thinking* might represent a confusion of this construction with *Fancy, he thought...* [*didnt, fi bikeim*] for *Didn't she become*, perhaps confounded with *She became, didn't she, ...*; [*ai fəget hu:m sədʒestid*] for *I forget who suggested*; [*intrədʌkt*] for *introduce*; [*kəmpleksibiliti*] for *complexity.*

These last examples already indicate that word and morpheme encoding have some degree of independence from each other, for no English speaker will find ready-made in his word store the forms 'thoughting', 'introduct' or 'complexibility'. These must be ad hoc creations of the current programme and they must be formed by combining a root word with bound morphemes in an unorthodox way. Examples are much more frequent however in which an error in lexical encoding fails to disturb the proper arrangement of bound morphemes. For instance, [*wi:v lʌvd tə lə:n mauntənz*] for *We've learned to love mountains* is a reversal equivalent to a spoonerism on the word level. If there were no morpheme programme and words had to be selected in their entirety from a word store, then the error form of this sequence would have to be: [*wi:v lʌv tə lə:nd mauntənz*]. Yet this kind of double error practically never seems to occur. The following are examples of a similar kind: [*θri: digri: sʌbdʒikts*] when the speaker intended to say *three-subject degrees* (here he would be incapable of saying [*θri: digri:z sʌbdʒikt*]); [*vəkeiʃnəli obviəs*] for *obviously vocational* (but not [*vəkeiʃnl obviəsli*], which would require a different context).

The example given earlier in which a sequence was telescoped also illustrates the same point. The speaker meant to say: *observe subtlety yourself* and this was contracted to [*əsʌtl jo:self*]. In this anticipation error the root [*sʌtl*] is moved up so that it appears in the sequence at the verb position, but we notice that it is not the whole word which is transposed; the noun-forming suffix [*-ti*] is discarded altogether and the root combines with [*ə-*] to form a pseudo-verb with the correct ending.

Another example in which the semantic level is also involved is provided by the case in which the speaker said: [*anfo:tʃnitli its egenst wilz dizaiə*]. What he intended to say was: *unfortunately it's against Leigh's will.* There is an anticipation error in the lexical encoding so that the word 'will' is moved up and functions as the proper name, but notice that the morpheme [-*z*] showing possession is correctly placed. Now the semantic programme has to be completed, the word *will* has already occurred and the speaker, looking for a substitute, finds the word *desire*, a very reasonable choice in the context. It seems that errors of this nature cannot be accounted for except by assuming that word and morpheme encoding, though interconnected, are in some sense separate processes.

The lexical errors given above are all anticipation errors. If the hypothesis suggested earlier is well-founded, this will mean that the word encoding gets too far behind the semantic encoding and the lag has to be abruptly reduced. This is on the whole much more likely to happen than the reverse; we should not expect lexical encoding to tend to get too far ahead in time compared with semantic encoding, since the semantic programme provides the only basis for word selection. This suggests a further contrast between the word and the morpheme levels which we might express by saying that the coupling between the semantic and lexical programmes is tighter than that between the lexical and morpheme programmes. Lexical encoding is a matter of word selection and is wholly dependent on the semantic programme, morpheme encoding is only partly dependent on the lexical programme and is in part dictated by the selection of sentence form and syntactic rules.

In addition to word errors which call for some adjustment on the morpheme level, it is possible to find both anticipation and perseveration errors confined to the word level, such as: [*ʃal ai bai ə kli:n ʃət*] for *Shall I wear a clean shirt* (*or shall I buy a new one?*), [*ðə prəfesə əv ði i:vniŋ standəd*] for *the editor of the Evening Standard* (referred to him as a professor) and [*bel paeze wið biskits o: tʃi:z*] for *Bel Paese, with biscuits or bread?*, and also selection errors such as: [*ju:l hav tə speʃəlaiz ðe rikwaiəmənts*] for *you'll have to specify the requirements* and [*ðeiə not i:zili əksesəbl*] for *they're not easily assessable.*

The complete process of speech generation is so complex as to be at present beyond our comprehension and so of course the errors in speech depend on a far more intricate mechanism than we can describe in the present state of our knowledge. It is doubtful whether this mechanism could ever be indicated by any diagram or verbal explanation. The purpose of this paper has been simply to show that errors of different kinds are made in the generation of speech and that they are all of such a nature as to indicate that speakers are operating with a linguistic system essentially similar to that arrived at by linguistic analysis.


## RESUMÉ

### Přeřeknutí ve světle lingvistiky

V článku se dovozuje, že různé typy přeřeknutí vesměs svědčí o tom, že mluvčí používají lingvistického systému, který se v podstatě shoduje s obrazem systému, k němuž dospívá lingvistická analýza.