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Speech Errors in Language Production

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Speech errors, or slips of the tongue, happen when speakers unintentionally deviate from what they want to say. Errors can involve word exchanges, such as “this spring has a seat in it” instead of “this seat has a spring in it,” moving parts of words while leaving others in place, as in saying “trucked two parks” instead of “parked two trucks,” or switching initial sounds in nearby words, as in “par cark” instead of “car park.” Despite being proficient talkers, all healthy adult native speakers occasionally make these errors. Slips occur not only in spontaneous speech but can also be induced experimentally, even without overt speech, indicating that they originate in the mind, not the mouth. Slips happen in all languages, spoken and signed. Errors provide insight into how humans encode thoughts into language when they speak, write, or sign.

History

The scientific study of slips dates back to the late 19th century with philologist Rudolf Meringer and psychiatrist Carl Meyer, who were the first to collect errors systematically in spontaneous speech ([Meringer & Mayer, 1895](#)). In the 1970s and 1980s, linguist Victoria [Fromkin \(1984a\)](#) and psycholinguist Merrill [Garrett \(1975, 1980a, 1980b\)](#) argued that these errors provide insight into how people represent and use language ([Fromkin, 1984a, 1984b, 1988; Garrett, 1975, 1980a, 1980b](#)), inspiring others to collect and analyze errors in different languages. Several error corpora, including the classic [Fromkin Speech Error Database](#), are now available online.

Core concepts

The most interesting finding about speech errors is that they involve linguistic units of different sizes and kinds—units larger than words, such as phrases, and units smaller than words, such as morphemes, syllables, and phonemes—thus providing converging data for linguistic theory as to the nature of our mental building blocks for language ([Fromkin, 1984b; Dell, 1995](#)). Slips also follow even stronger linguistic constraints. When words are replaced or exchanged in a slip, they typically belong to the same grammatical category. For example, nouns replace nouns, and verbs replace verbs ([Garrett, 1975](#)). In the error “this spring has a seat in it” instead of “this seat has a spring in it” ([Garrett, 1980a](#)) and “you must be too tight for them” instead of “they must be too tight for you” ([Stemberger, 1982](#)), a noun and a pronoun exchanged places, respectively. Despite conveying unintended meanings, these slips are syntactically well formed. Similarly, when sounds are replaced by other sounds, they are of the same type: consonants replacing consonants, vowels replacing vowels. Sounds also tend to come from similar positions in the phonological structure of the word ([Schattuck-Huffnagel, 1979](#)). In the phrase “par cark” instead of “car park,” the initial consonants of each word have changed places. Such errors respect the phonological structure of English words.

Words also adapt to respect the grammatical context they appear in ([Bock, 2011](#)), as in the morpheme error “she’s already trunked two packs” instead of “she’s already packed two trunks” ([Garrett, 1975](#)), in which the

noun “trunk” turns into a verb inflected for past tense (-ed), and the verb “park” changes to a noun, inflected for plural (-s) [see [Morphology](#)].

Slips were instrumental in shaping psycholinguistic models of language production ([Garrett, 1975, 1980a, 1980b](#)) [see [Language Production](#) and [Psycholinguistics](#)]. Errors show that speaking involves planning and building linguistic representations (sentences, phrases, words, syllables) from their component parts rather than retrieving them as preassembled units ([Dell, 1995](#)). This property, known as linguistic creativity, is typically associated with linguistic units above the word level and corresponds to the observation that knowing a language allows us to understand and produce sentences we have never heard or produced before. Less intuitively, errors such as saying “par cark” instead of “car park” demonstrate that creativity is also involved in producing words we have heard and produced many times before. Creativity is thus an intrinsic characteristic of even the most mundane act of language use, such as saying “cat” when one sees one. Errors provided much of the initial data in support of a multileveled architecture for language production, with a distinction between two broad stages of processing, called *grammatical encoding* and *phonological encoding* ([Bock & Levelt, 1994; Garrett, 1975, 1980a, 1980b](#)). Each stage in the model is dedicated to building a distinct type of linguistic structure (syntactic vs. phonological), and certain types of errors reveal where the error occurred. For example, in an error like “you must be too tight for them” instead of “they are too tight for you,” the form of the pronoun in the error is “them,” which is phonologically correct for the syntactic context in which it appears. This shows that the error occurred at the grammatical encoding stage, prior to phonological encoding, because the speaker did not say, “You must be too tight for they.”

Questions, controversies, and new developments

Naturalistic speech errors have been met with some skepticism as reliable data sources for theory development primarily due to methodological concerns about their reliability and interpretation ([Cutler, 1982; Dell, 1995](#)).

To obviate some of these issues, psycholinguists have developed ingenious paradigms to induce speech errors experimentally. Experiments make it possible to predict what errors occur, record them in controlled conditions, and manipulate those factors that induce errors, all while controlling for other variables. One experimental method is the SLIP technique ([Baars et al., 1975](#)), in which participants silently read sequences of word pairs and are then prompted to quickly say the last pair aloud. For example, participants might silently read one set of word pairs (1) and then be instructed to say the pair in (2) aloud.

(1) dog bone

dust ball

dead bug

deer back

doll bed

(2) barn door

The predicted error “darn bore,” which participants indeed produce, is in all respects like the naturally observed error “par cark” (Dell, 1995; Stemberger, 1982). Another experimental technique involves tongue twisters. Interestingly, speakers report making errors even when reciting tongue twisters silently in their heads (Dell & Oppenheim, 2015). Readers can try silently repeating “thirty-seven silver thistles” and see if they notice saying “thilver.”

In addition to experimental paradigms to induce errors, more recent methodological and technological advancements—such as increased access to audio recordings of natural conversations and more rigorous classification protocols—have also significantly improved the quality and reliability of error corpora. This, in turn, has renewed interest in speech error data for linguistic theories (Alderete & Tupper, 2018; Alderete & Davies, 2019; Goldrick, 2011).

Broader connections

Speech error research primarily focuses on errors made by healthy adult native speakers. Following pioneering work by Dell (1986), different computational models were developed to account for behavioral data in word production, including speech errors (see Dell, 1995 and Levelt, 1999 for reviews). These models have also been extended to speakers with language impairments (see Schwartz, 2014 for review). There is some speech error research in language acquisition (Stemberger, 1989; Jaeger, 2005). However, child speech error data have not played a primary role in theoretical accounts of language acquisition [see [Language Acquisition](#)].

In sum, errors have long been used to provide data for the cognitive science of language. Understanding errors requires interdisciplinary views, combining linguistic, psycholinguistic, and computational perspectives.

Further reading

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