

LANGUAGE PRODUCTION AND SPEECH ERROR

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Objectives:

- Understanding the system and process of language production
- Exploring language production issues
- Explaining the stages of language production
- Explaining the nature of speech error
- Understanding the sources and factors causing speech error

Instructions:

- Read the following section on speech production (Source: Field, John. 2004. *Psycholinguistics: the key concept*, New York: Routledge.)
- Is it right that comprehension is slower in progress compared to language production? Why?
- What do you know about hesitation?
- What are the stages involved in speech production? Make example(s) to clarify it.
- How do people self-monitor their speech?
- Read the class notes on speech error.
- What are the sources of speech errors? What are the factors causing them?
- Is it right that signers do not have spontaneous errors in their language production? Why?
- Do you think that errors produced because of low language proficiency also belong to speech error? What about the errors produced by children?
- Do you think that errors produced by old people suffering dementia also belong to speech error?
- Write a one page summary on language comprehension.

Source: Field, John. 2004. *Psycholinguistics: the key concept*, New York: Routledge

SPEECH PRODUCTION

Speaking, one of the most complex cognitive operations that human beings perform. A normal speech rate in English is around 150 words a minute. This means that a speaker retrieves two or three words per second from an everyday vocabulary of about 30,000. What is more, they continue to do so over very extended periods of time and with remarkable accuracy (about one slip per 1000 words).

Studies of the pausing and hesitation patterns of speakers provide insights into the way speech is planned and executed. Pauses in connected speech occur mainly at the ends of major syntactic units, usually clauses. This suggests that a major unit of planning is the clause or (often the same thing) the phonological phrase.

Research in speech production has aimed to identify the stages through which a speaker passes in assembling an utterance. Evidence has been sought in Slips of the Tongue (SOTs), inadvertent speech errors which, by showing us the system malfunctioning, can provide insights into the choices that a speaker makes. By examining a misplaced feature, it is sometimes possible to form conclusions as to the stage in the process when the feature was inserted into a partly assembled sentence. For example, in the SOT sequence *the forks of the prong*, the -s of *forks* is pronounced /s/ in conformity with the unvoiced nature of the /k/ at the end of *fork*. It must thus have been added after the transposition of *fork* and *prong* occurred. Introspection and research have suggested that models of speech production need to incorporate the following stages:

- A conceptual stage, where the proposition that is to be expressed is identified, but in abstract form.
- A syntactic stage, where an appropriate frame is chosen, into which words are to be inserted. Evidence for this comes from SOTs such as: *She promised me to secrecy*, where a syntactic frame seems to have been prepared for the word SWORE but the word PROMISED seems to have been substituted.
- A lexical stage, where a meaning-driven search of the lexicon takes place, supported by cues as to the form of the target word. Once the lexical entry for a word is accessed, information about the word becomes available (its sense, collocational potential, phonology and morphology).

- A phonological stage, where the abstract information gathered so far is converted into a speech-like form.
- A phonetic stage, where features such as assimilation are introduced, and instructions are prepared to the muscles that control the articulators.

In addition, a model of speech must allow for:

- A forward-planning mechanism at discourse level which (for example) determines which parts of the message are to receive informational focus by way of intonation.
- A buffer in which the whole of a planned clause can be held while the clause is being articulated.
- A monitoring mechanism which enables a speaker to check their own speech for errors or for lack of clarity.

This outline of components represents a considerable simplification. First, uncertainty arises as to the exact relationship between syntax and lexis. Current grammar theory views the two as closely interconnected. If one chooses the word PUT as the predicate (central element) of an utterance, then with the word come important syntactic constraints on the structure to be used (PUT X \bar{p} preposition on/in/into \bar{p} Y) as well as semantic constraints on what can fit into the X and Y slots. These constraints are said to be part of the lexical entry for the word PUT. It therefore seems that the lexical and syntactic operations involved in constructing an utterance must be closely interconnected and mutually supportive. In Garrett's (1988) model of speech production, the situation is dealt with by bifurcation, with the two processes taking place in parallel.

It is also difficult to determine when certain features of connected speech are added into the plan. For example, lexical stress can only be marked once word forms have been retrieved from the lexicon. This means that sentence stress cannot be allocated until that moment, as it has to fall on the stressed syllable of one of the words. But surely the placing of sentence stress must be the outcome of an earlier decision at discourse level? A similar problem arises with the syntactic frame into which words are slotted. One might assume that it is already tagged for inflections such as -ed (past) or -s (plural). However, the *forks of a prong* example indicates that inflections are not added on until lexical items are already in place.

A favoured solution is to assume that in the early stages speech is assembled in an abstract preverbal form which has not yet been realized phonologically. We can thus mark a particular component of a proposition as due to receive semantic focus, without yet needing

to specify the precise syllable that it will fall on. We can retrieve a lexical item in the form of an abstract meaning code without yet needing to attribute a phonological form to the word. And we can mark a position in a frame with some kind of abstract tag indicating that an inflection is needed ('past', 'plural') without yet specifying exactly what form the inflection takes. The inflection is given phonological shape only after the root has been inserted. Support for this version of events comes from the Tip of the Tongue experience where language users confidently state that a word exists and can specify the semantic range that it covers, but cannot retrieve its form. This suggests that a word's lexical entry falls into two parts, one related to form and one related to meaning.

Levelt (1989) has produced the most detailed model of speech production. It incorporates three major processes – conceptualising, formulating and articulating. The Conceptualiser chooses a particular proposition, selects and orders the appropriate information and relates it to what has gone before. The Formulator translates this conceptual structure into a linguistic one. It first engages in a process of grammatical encoding which builds an abstract syntactic structure. This is followed by phonological encoding, in which the syntactic structure is tagged for inflection and is then given phonological form. Other processes specify the form and duration of the syllables as they are to occur in connected speech and add rhythm and prosody. The outcome of these operations is a phonetic or articulatory plan, a representation of how the planned utterance is to be articulated. It is temporarily stored in an articulatory buffer. The articulator then retrieves chunks of internal speech from the buffer, unpacks them into sets of motor commands and issues the commands to the muscles controlling the larynx, the articulators and the respiratory system.

Text 2: Class Notes

1. Definition of Speech Error

Speech error has become common phenomena happened among children who have not refined their speech. Besides, it is also common for them to enter the popular culture as a kind of linguistic “flavoring”. For instance, speech errors may be used intentionally for humorous effect. During the development of several related studies in accordance with speech error, there are some definitions of speech error (slip of the tongue) provided based on some scholars as follows:

1. Speech errors are unintentional deviations from the target form one intends to produce (Goldrick and Daland, 2007).
2. Sturtevant (1947:38, cited in Fromkin, 1973:217) defines speech error (lapse) as an unintentional linguistic innovation.
3. “A slip of the tongue ... is an involuntary deviation in performance from the speaker’s current phonological, grammatical or lexical intention.” (Bomer and Laver)
4. Slip of the tongue is the product both of a local opportunity from the particular circumstances and of a struggle between two mental forces: some underlying need or wish and the desire to keep it hidden. Yet, speech error itself is the result of an intra-physic conflict of concurrent intentions. (Sigmund Freud)
5. Speech error is a deviation (conscious or unconscious) from the apparently intended form of an utterance.

The case of speech error is firstly introduced by Reverend Spooner. He is quite commonly known since his name is used as one of the types of speech error called Spoonerism or Marrowsky. Historically, speech errors have been a source of humor as well as of serious study. Recently, speech errors have been studied as a source of old data in search of new theories (Butterworth); as an acoustic analysis of slips of the tongue (Frisch & Wright, 2002); and to gain insights from Harmonic Grammar Networks related to linking speech errors and phonological grammar (Goldrick & Daland, 2007).

Goldrick and Daland, (2007) has reviewed evidence that markedness influences speech error probabilities. Different with Goldrick and Daland, Butterworth reexamined and reviewed many related theories which have been explained by the previous scholars such as Fromkin, Meringer, Freud, etc. then Frisch and Wright, (2002) conducted research on three

measurement in the twister tongue process such as (1) percent voicing, (2) duration of frication, and (3) amplitude of frication.

Despite those all previous studies, there are some popular uses of speech error such as the use of spoonerism on the TV series, Poetry, twisted Tales, and Films. For instance, the spoonerism used below:

Field of Use	Target	Error
TV Series	Tom Cruise	Com Truise (this name is used as the name of electronic musician)
Poetry	Took a shower	Shook a tower
Twisted Tales	Rapunzel	Parunzel
	Romeo and Juliet	Jomeo and Ruliet
	Cinderella	Rindercella
	Little Red Riding Hood	Rittle Led Hiding Rood
	Sleeping Beauty	Beeping Sleauty
Films	"Loxley has struck again!"	"Struckey has loxed again!"
News on Radio	Herbert Hoover (the name of US President)	Hoobert Heever

The cause of speech error

In the seminal work on speech errors, *Versprechen und Verlesen*, Rudolf Meringer and Karl Mayer proposed three distinct sources of error:

- (i) Interference from intended elements of the utterance (PLAN INTERNAL ERRORS);
- (ii) Interference from an alternative formulation of the intended thought (ALTERNATIVE PLAN ERRORS);
- (iii) Interference from an unintended thought (COMPETING PLAN ERRORS).

Generally, we can summarize that the causes of speech error are stated as follows:

1. Speech error occurs more often when speakers are are nervous, tired, anxious or intoxicated. It is support by Charles F. Hockett who explained that "whenever a speaker feels some anxiety about possible lapse, he will be led to focus attention more than normally on what he has just said and on what he is just about to say."

2. Peculiar speech may be caused by a cerebral dysfunction. It is happened in the case of Spoonerism.
3. According to Freud, speech errors are caused by the intrusion of repressed ideas from the unconscious into one's conscious speech output.
4. Neurological traumas can induce much greater rates of errors.
5. Speech errors are influenced by representational structures across the prosodic hierarchy. Individual sub-segmental representations such as Distinctive features (Chomsky & Halle 1968) or gestures (Browman & Goldstein 1989) can be misproduced.
6. Markedness. For example, when producing utterances quickly, speakers often switch two sounds occurring in similar environments (e.g., "she sells" may be misproduced as "see shells").

Classification of speech error

Throughout the development of speech error, Meringer was mainly interested in classifying the kinds of errors which occurred in spontaneous speech; and since his time, one finds in the literature different classification schemes and varying terminology.

In Boomer and laver's classification scheme, speech errors show a misordering of units in the string, omission of a unit or replacement of a unit. The units so misordered, omitted, or replaced may be segments, morphemes, or words. Nooteboom (1969, cited in Fromkin 1973) classifies segmental errors as phonemic speech errors and non-phonemic speech errors, including in the latter classification "meaningless combination of phonemes", morphemes (including affixes and root morphemes), and whole words. Yet, Nooteboom dismisses the possibility that 'distinctive features' behave more or less like independent elements just as phonemes do. Finally, Hockett implies the independence of such features.

Analysis of speech errors has found that not all are random, but rather systematic and fall into several categories. Although speech production is very fast, (2 words per second) the error rate of the utterances are relatively rare (less than 1/1000) and according to Butterworth, those errors are categorized as follows:

1. *Plan internal errors*. Most of scholars assumed that the generation of an utterance involves the translation or transduction of an intended thought into articulate speech via a hierarchy of levels of linguistic description - roughly, syntactic structures, intonational patterns, words (or morphemes), sequences of items representing sounds, sequences of motor commands, etc. Generally, it is held that at a given linguistic level

there will be a (not necessarily complete) representation of the intended elements. So at a level where words (or morphemes) are represented, errors can lead to the anticipation, perseveration or transposition of these elements.

2. *Alternative plan errors.* An intended thought might not have a unique linguistic expression, and thus the translation may lead to two, or more, alternative and equally appropriate plans for linguistic expression. This shows up in the blending of the alternatives.
3. *Competing plan errors.* (Competing plan errors are held to be connected in meaning since they satisfy the meaning specification of the competing plans, but are not similar in meaning).

Thus, we can also specifically categorize speech errors as follows:

- Based on Phonological substitutions (only lexemes)

Type	Definition	Example
Perseveration	"An earlier segment replaces a later item."	Target: black boxes Error: black bloxes
Feature Substitution:	The switch between voiced and voiceless sound, etc.	Target: tap stobs ([^Voiced]) Error: tab stops
Anticipation	"A later segment takes the place of an earlier segment."	Target: reading list Error: leading list
Metathesis	"Switching of two sounds, each taking the place of the other."	Target: pus pocket Error: pos pucket
Sound-exchange error	Two sounds switch places.	Target: Night life [nait laif] Error: Knife light [naïf lait]

- Lexical (Word) Selection Errors (Only Lexemes)

Type	Definition	Example
Lexical selection error	The speaker has "problems with selecting the correct word".	Target: tennis racquet Error: tennis bat
Blends	More than one item is being considered during speech production. Consequently, the two intended items fuse together.	Target: person/people Error: people

Malapropism, classical	The speaker produces the intended word which is semantically inadequate. Malapropism refers to a character from Sheridan's eighteenth-century play "The Rivals".	Target: The flood damage was so bad they had to evacuate the city. Error: The flood damage was so bad they had to evaporate the city.
Morpheme stranding	Morphemes remain in place but are attached to the wrong words.	Target: He has already packed two trunks. Error: He has already trunked two packs.
Spoonerism	Switching of initial sounds of two separate words. It is named after Reverend William Archibald Spooner.	Target: I saw you light a fire. Error: I saw you fight a liar.
Substitution	One segment is replaced by an intruder. The source of the intrusion is not in the sentence.	Target: Where is my tennis racquet? Error: Where is my tennis bat?
Exchange	Exchanges are double shifts. Two linguistic units change places.	Target: getting your nose remodeled Error: getting your model renosed
Addition	"Additions add linguistic material."	Target: We Error: We and I
Word-exchange error	A word-exchange error is a subcategory of lexical selection errors. Two words are switched.	Target: I must let the cat out of the house. Error: I must let the house out of the cat.

➤ Morphological Error (Only Morphemes)

Type	Definition	Example
Morpheme-exchange error	Morphemes change places.	Target: He has already packed two trunks.

		Error: He has already packs two trunked.
Deletion	Deletions or omissions leave some linguistic material out.	Target: unanimity of opinion Error: unanimity of opinion
Omission	cf. deletions	Target: She can't tell me. Error: She can tell me.
Shift	"One speech segment disappears from its appropriate location and appears somewhere else."	Target: She decides to hit it. Error: She decide to hits it.

2. The Process of Speech Error

The process of speech error closely related with the process of language production. Speech error might be done by first language or second language learner. Here are several factors influencing the process of speech error (Suryadi,2011):

- a. *Language transfer*, speech error may be caused by the language transfer. That is the tendency of learner in transferring language elements such as sound, form, meaning, and even culture of their first language to the language that they learned.
- b. *Language transfer learning*, the error could be the influence of poor learning provided by the teacher. For example, teachers' explanation which is confused or unclear will make student unable to practice the language correctly.
- c. *Second language learning strategies*, in the process of learning second language, learner has certain strategies. Brow (1980) as cited in Suryadi says that the leaning language strategy essentially consist of transfer, interference, generalization, and simplification.
- d. *Communication strategy* is another causal factor of speech error. Communication strategy used by learners will determine the way how they speech in order to communicate with other. For example, someone who has a conservative style in communicating may produce utterances which are full of doubt. Furthermore, this hesitant may appear to be the error. The error may be a mistake applying the rules of the language that is already mastered.

In addition to those factors, the process of speech error can be explained in both semantic and phonological form. There are three ways in which unintended or erroneous output from semantic lexicon can arise:

- a) Two competing semantic representations may be input, yielding either the competing (unintended) output or both unintended and intended.
- b) Two alternative semantic representations may be input, yielding either the alternative output or both.
- c) Addressing error: since items in semantic lexicon are held to be arranged according to their meanings, hence content addressing, an addressing error will yield a near neighbor close in meaning but not necessarily close in sound.

Besides, there are two ways in which an error output from phonological lexicon can occur:

- a) Two addresses can be forwarded from semantic lexicon (i.e. competing or alternative items) yielding two outputs instead of the intended one from phonological lexicon.
- b) Addressing error: since items in phonological lexicon are held to be arranged according to their sound (phonological structure), an addressing error will yield a near neighbor close in sound, but not necessarily close in meaning.

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