

# PSYC 3320/5597: Psycholinguistics

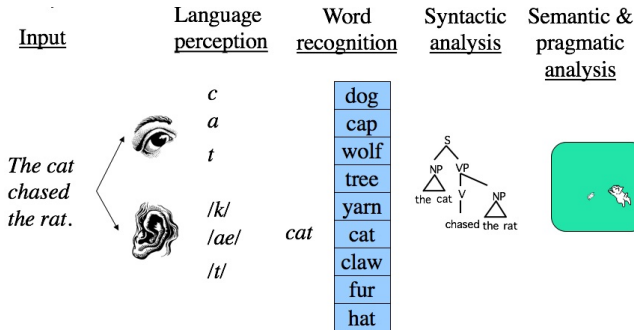
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Unit 8 – Language production

# Language processes

So far, we have spent most of the semester talking about comprehension



This is only **HALF** of the story!

# Language processes

**Production** (the other half) – expressing non-ordered conceptual message via an ordered array of sounds

What we do:

- ▶ Start with a **message/idea** and partition it, sequence it, and articulate it
- ▶ Speakers must produce utterances with:
  - ▶ appropriate meaningful context, lexical items, syntax, pronunciation, intonation, and phrasing
  - ▶ AND they must do it fluently, in real time!

# Errors?

Paradox – we are quite adept at getting the **form** correct, but the **content** wrong

- ▶ subject verb agreement errors – less than 5% (Bock & Miller, 1991)
- ▶ unparseable sentences – 5 out of 10,000 utterances (Deese, 1984)
- ▶ using the wrong word/sound – 4 out of 10,000 utterances (Garnham et al., 1982)

Nevertheless, these errors can be quite informative to help us uncover the mechanisms of language production.

# Speech errors

**Spoonerisms** – named for Rev. Dr. William Archibald Spooner (1844-1930), one of the first people to study speech errors

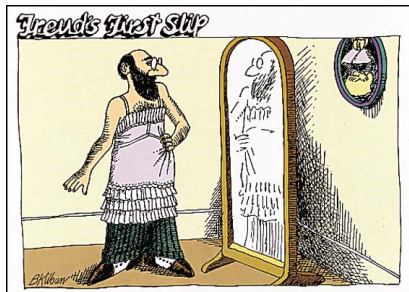
Actual speech	Intended speech
Nosey little cook	Cosy little nook
Cattle ships and bruisers	Battle ships and cruisers
we'll have the hags flung out	we'll have the flags hung out
you've tasted two worms	you've wasted two terms
kisstomary to cuss the bride	customary to kiss the bride

# Speech errors

Wait..aren't these just **Freudian slips**?

Freudian approach

- ▶ Held that speech errors “arise from the concurrent action of two different intentions”
- ▶ Intended meaning + **disturbing intention** = speech error

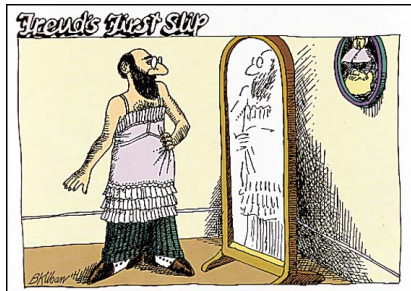


# Speech errors

Wait..aren't these just **Freudian slips**?

## Psycholinguistic approach

- ▶ we assume that “the mechanics of slips can be studied linguistically without reference to their motivation” (Boomer & Laver, 1968)
- ▶ Ellis (1980) – “Freud’s theory can be translated into the language of modern psycholinguistic models without excessive difficulty”



# Speech errors

Modern psycholinguistics uses speech errors to understand production processes

- ▶ when the system breaks down, it tells us something about how it works!





## Types of speech errors

**Exchange:** in effect double shifts, since 2 linguistic units change places

*You have hissed all my mystery lectures **FOR**  
.. You have missed all my history lectures*

*your model renosed. **FOR** ..your nose remodelled.*

# Types of speech errors

**Anticipation:** in anticipation of a forthcoming segment, we replace an earlier segment with the later segment

*It's a meal mystery   **FOR** .. It's a real mystery*

*..bake my bike.       **FOR**       .. take my bike.*

## Types of speech errors

**Perseverance:** an earlier segment replaces a later one  
(while also being articulated in its correct location)

*give the goy **FOR** .. give the boy*

*..he pulled a pantrum. **FOR** ..he pulled a tantrum.*

## Types of speech errors

**Addition:** something is added to the target utterance

*I didn't explain it clarefully enough*

**FOR** *I didn't explain it carefully enough.*

## Types of speech errors

**Blends:** occur when more than one word is being considered, and the two blend into a single item

didn't bother me **FOR** didn't bother me  
in the sleast. in the least/slightest.

# Types of speech errors

**Deletion:** something is omitted

*..mutter \_intelligibly.*    *FOR*    *..mutter unintelligibly.*

# Types of speech errors

**Substitutions (malapropisms):** when one segment is replaced by an intruder, but this differs from the other types of errors since the intruder may not occur at all in the intended sentence

*"Jack" is the president  
of the sentence.*

**FOR**

*"Jack" is the subject  
of the sentence.*

*I'm stuttering  
psycholinguistics.*

**FOR**

*I'm studying  
psycholinguistics.*



# What can we learn from speech errors?

Let's look at the **shift error**:

*“a maniac for weekends” → “a weekend for maniacs”*

- ▶ sentence stress is unchanged
- ▶ plural pronounced /z/ instead of /s/ – sound is consistent with word it belongs to, **not word that was intended** (this is called **acomodation to the phonological environment**)

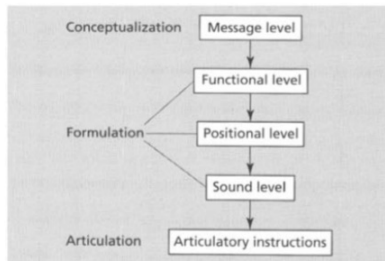
# What can we learn from speech errors?

Implications for models of language production:

- ▶ **Speech is planned in advance**
  - ▶ anticipation and exchange errors indicate that speaker has a representation of more than one word already active
- ▶ **The lexicon is organized phonologically AND semantically**
  - ▶ substitutions appear to occur AFTER syntactic organization (because substitutions are always from same grammatical class – noun for noun, verb for verb, etc.)

# Models of language production

Garrett (1975)



- ▶ Message level – propositions to be communicated
- ▶ Functional level – formulate syntactic elements (how we are going to say it)
- ▶ Positional level – generate a syntactic frame (how elements fit together)
- ▶ Sound level – generate phonemes
- ▶ Articulation – instructions sent to voice apparatus

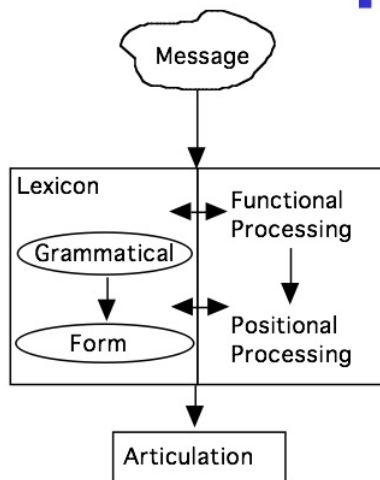
# Models of language production

Central questions for any model of language production:

- ▶ How many levels/stages are there?
- ▶ Are the stages **discrete** or **cascading**?
  - ▶ discrete – stage must be **completed** before moving on
  - ▶ cascading – can get started on next stage **with only partial information**
- ▶ Top-down versus bottom-up?
  - ▶ top-down only – serial model
  - ▶ bottom-up too – interactive model

## Other models

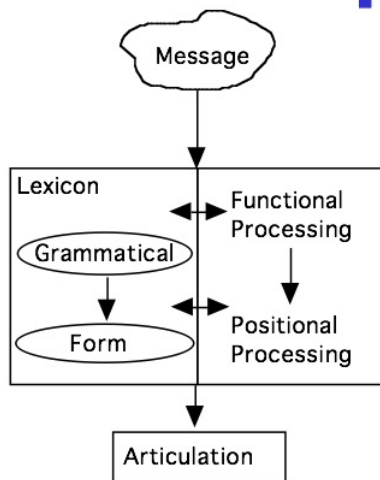
Levelt (1989)



- ▶ Modified from Garrett's (1975) model
- ▶ **Lemma stage** – we pick the word we are about to say in a pre-phonological, abstract way (semantic representation)
- ▶ **Lexeme stage** – specify the concrete phonological form

## Other models

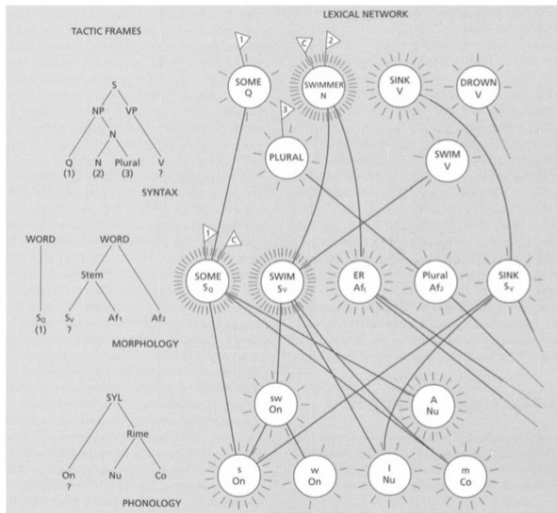
Levelt (1989)



- ▶ Parallel processing – **syntax side** (RHS) and **lexical side** (LHS) operate simultaneously
- ▶ Modular – no feedback from later stage to earlier stage

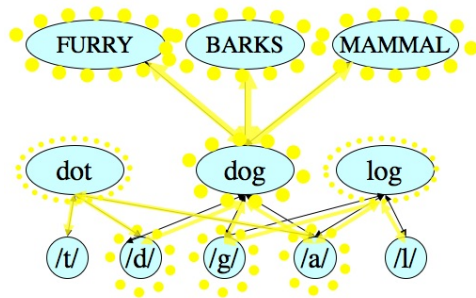
# Other models

Dell (1986)



## Other models

Dell (1986)



- e.g., the semantic features mammal, barks, four-legs activate the word "dog"
- this activates the sounds /d/, /o/, /g/
- these send activation back to the word level, activating words containing these sounds (e.g., "log", "dot") to some extent

this activation is upwards (phonology to syntax) and wouldn't occur in Levelt's account



## Other models

Comparison:

- ▶ Garrett (1975) – serial, modular, discrete
- ▶ Levelt (1989) – serial (with parallel parts), modular, discrete
- ▶ Dell (1986) – interactive, cascading

# Summary of course

This semester, we have talked about a lot!

- ▶ basic linguistics
- ▶ relationship between language and cognition
- ▶ development of language
- ▶ the lexicon
- ▶ models of reading
- ▶ models of sentence comprehension (syntactic parsing)
- ▶ models of semantic access (meaning)
- ▶ language production

There is still MUCH to learn!