

# Language Production - Lexicalization

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# Lexicalization

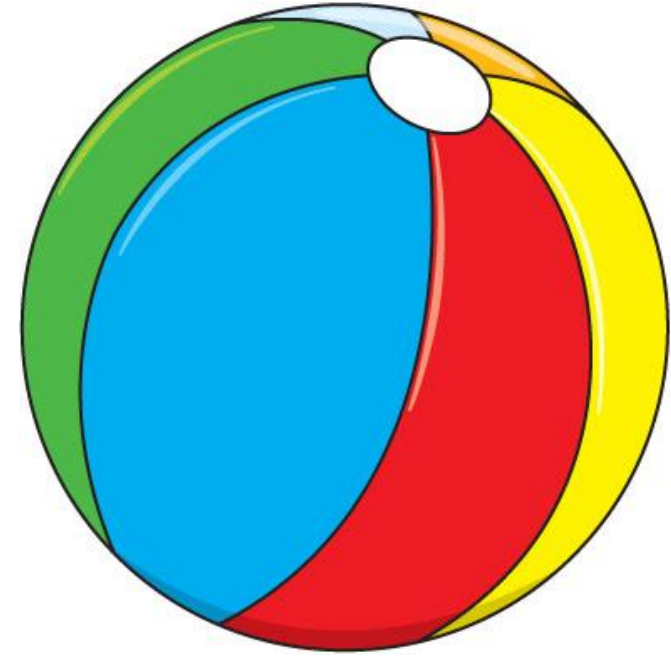
- Lexicalization has been shown (as has everything else) to be a highly **parallel** and **interactive** process
- Some evidence for this comes from speech errors
- If lexicalization is parallel, we would expect the phonological form of semantic competitors to affect language production
  - e.g., the production of *sheep* could be affected by phonological elements of the word *goat*
  - And *sheep* might then be able to prime *goal*
    - But perhaps that's actually too far

# Lexicalization

- A **cascade model** of lexicalization aims to describe the interactions possible in the process
- Activation can cascade from one level to the next because the stages overlap temporally

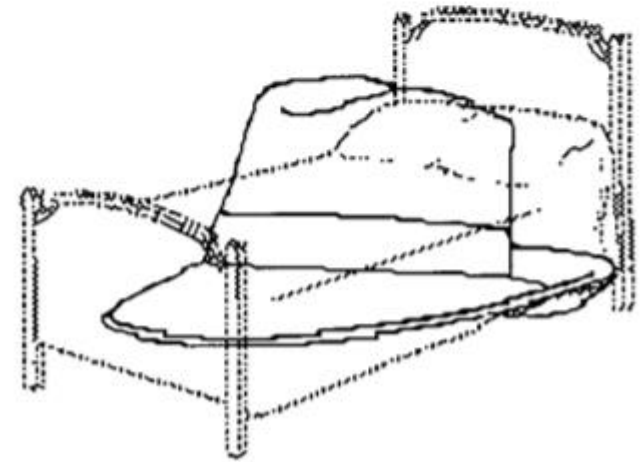
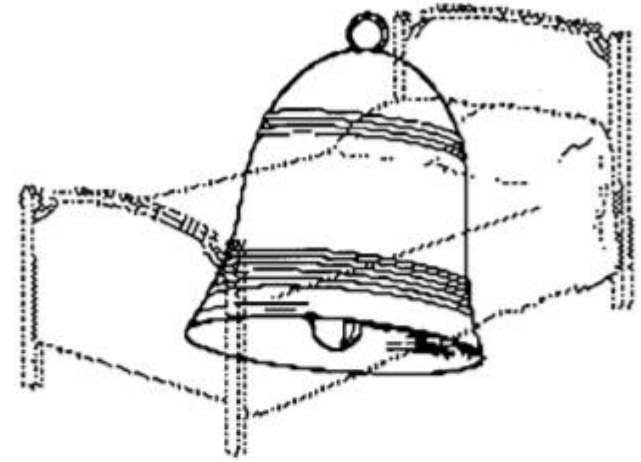
# Lexicalization

- Cutting & Ferreira (1999): picture naming task with homophones
  - Auditory stimulus 150ms before picture, then name the picture as fast as possible
- The word *dance* as an auditory prime facilitated faster naming of *ball* →
- Evidence of a phonologically-related distractor causing early influence



# Lexicalization

- Morsella & Miozzo (2002) picture naming task with superimposed pictures – name one and ignore the other
- Response times were faster when the two words were phonologically related
- Again, evidence that the phonology of unselected lexical items can still affect language production



# Lexicalization

- Naming tasks with bilinguals show evidence of overlap as well
  - Cognate words result in increased activation for shared phonemes, suggesting spreading activation from phonological representations of words in another language (Costa et al., 2000)
- Ample evidence that lexicalization is **parallel**
- [What do cows drink?](#)

# Lexicalization

- What about interactivity?
- Our stages overlap, but do they feed forward only? Or do they feed backwards as well?
- **Lexical bias effect**

# Lexical Bias

- **Lexical bias effect** – Speech errors result in real words more likely than is statistically probable
- Of all the phonologically-valid speech errors possible for a given word, a certain percentage of them should result in real words
- The actual number of speech errors that result in real words is significantly higher than that percentage



# Lexical Bias

- **Lexical bias effect** – Speech errors result in real words more likely than is statistically probable
- Of all the phonologically-valid speech errors possible for a given word, a certain percentage of them should result in real words
- The actual number of speech errors that result in real words is significantly higher than that percentage
- How does this show evidence of interactivity?

# Spoonerisms

# Lexical Bias

- Speech errors can even be primed in an experiment – SLIP technique (Spoonerisms of Laboratory Induced Predisposition)
- SLIP technique tries to recreate that in a lab:
  - Read a list
    - dawn boat
    - dark boast
    - dart bone
  - Produce a pair
    - barn door

# Lexical Bias

- Read a list aloud
    - dawn boat
    - dark boast
    - dart bone
  - Produce a pair
    - barn door
- OR
- barge dope

# Lexical Bias

- Read a list aloud
  - dawn boat
  - dark boast
  - dart bone
- Produce a pair
  - **barn door** → **darn bore**  
OR
  - barge dope → darge bope

# Lexical Bias

- If we want to say *barge dope* and accidentally say *darge* – this can be described as increased (too much) activation of the /d/ phoneme at exactly the time when we're supposed to pronounce /b/
- This could happen for a few reasons
  - Upon seeing “barge dope,” we might have increased activation for *dope* because it's more frequent than *barge*, or because /d/ is a more frequent sound than /b/ → then resulting in increased activation for /d/
- Activation for /b/ is still fairly high, so it replaces where /d/ should have gone

# Lexical Bias

- With the SLIP method, a certain pattern is primed
  - /d/ word /b/ word
- When we read “barge dope,” activation flows back up to the lexical level
  - So in addition to *barge* and *dope*, also activated here would be *large*, *cope*, *bard*, *dole*
  - These competitor words are receiving less activation (though not none)
- People can still usually pronounce the pair correctly, but a small percentage of the trials will show spoonerism errors
- Why is this more likely for “barn door” than “barge dope?”

# Lexical Bias

- What's the “competitor” activation set when we read “barge dope?”
  - *darge, bope*
  - *large, cope, bard, dole*, etc.
- What's the “competitor” activation set when we read “barn door?”
  - *darn, bore*
  - *yarn, more, bard, dole, darn, bore*, etc.



# Lexical Bias

- What's the “competitor” activation set when we read “barge dope?”
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- What's the “competitor” activation set when we read “barn door?”
  - *darn, bore*
  - *yarn, more, bard, dole, **darn, bore***, etc.
- *darn* and *bore* are getting double-activation!
  - “super-competitors”
- This only works if there's feedback from phonological level back up to the lexical level

# Lexicalization

- Fairly high rate of **mixed errors**, too – errors that involve both sound and meaning components
  - let's stop → let's start
  - I miss my cat → I miss my rat
  - look it up in the directory → look it up in the dictionary
  - that's a phonological issue → that's a psychological issue
  - many of us were in Rome for the pope's funeral → president's funeral

# Lexicalization

- Fairly high rate of **mixed errors**, too – errors that involve both sound and meaning components
- Because there is both phonological and semantic activation (like in the rat/cat) example, we again have super-competitors and these errors are more likely than expected by chance
  - I miss my cat
  - I miss my rat
  - I miss my dog
  - ?I miss my vat

# Wagner-Altendorf et al. 2020

- Read this paper!
  - It's required
  - It's brief
  - It's interesting
  - It's funny

# Tip of the tongue states

# Tip of the tongue state

- Retrieval of a **lemma** but not the full word
  - Abstract mental representation of the word
    - Word meaning
    - Syntactic category
    - Possibly some (but not all) elements of its phonology

# Tip of the tongue state

- Warriner & Humphreys (2008) presented participants with a TOT questionnaire (like the one we just did) but one word at a time
- If participants found themselves in a TOT state, they would press a button
- Once the button was pressed the answer was revealed after either **10 seconds** or **30 seconds** (between subjects)
- Two days later, participants brought back in the lab to do the same task
  - Which group (**10 seconds** or **30 seconds**) do you think was more likely to experience the TOT state for the same words again?

# Tip of the tongue state

- 30 second group experienced more TOT states the second time around
  - Faulty phonological activations
    - More time spent in the TOT state → reinforcement of those activations
- Similar study with SLIP technique for spoonerisms (Humphreys et al., 2010)
  - Participants who made an error were significantly more likely to make the same error within the same experiment
    - Difference disappears after 48 hours