

Psych 56L/ Ling 51:
Acquisition of Language

Lecture 8
Phonological Development III

Announcements

HW1 graded – check to see your score and any you may have answered incorrectly (you may need to check with your group mates if you worked in a group)

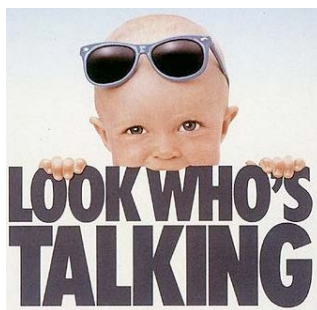
Be preparing for the midterm on 2/06/14 (review questions, HW1, first part of HW2)

- Given through EEE
- Can be taken either in PCB 1100, the computer lab in NS1 2144, or wherever there's an internet connection

Midterm review 2/04/14 in class: Remember to bring questions!

HW2 due 2/20/14

Phonological development once speech begins



Sample speech

<http://www.youtube.com/watch?v=j591kkLwauA&feature=related>

15-month-old talking about the vegetables she's eating



Word production

First words: simple syllable structure, often single syllables or reduplicated syllables (baba, dada). Usually involve the sounds that appear in the noncanonical babbling stage.

Phonological idioms: words the child produces in a very adultlike way while still incorrectly producing other words that use the very same sounds. This demonstrates that children don't really understand that words are broken down into sounds (phonemes), and are just producing some words as unanalyzed chunks (like idioms).

Ex: "ball" [correct: ball, [bɑl]] vs. "widdle" [correct: little, [lɪrəl]]

Phonological process development

18 months: children have developed systematic ways to alter the target language so it fits the sounds they're able to produce (baby accent). These systematic transformations are called **phonological processes**. Most often children either drop the tough sounds (**deletion**) or replace them with sounds they can produce (**substitution**).

This happens a lot! More than 90% of words produced by some children show deletion or substitution processes.



Example of altered pronunciation

http://www.youtube.com/watch?v=4azD_gNz0rw&feature=player_embedded

Pronouncing "popsicle"



Example of phonological development

The evolution of "water"

http://www.ted.com/talks/deb_roy_the_birth_of_a_word.html
(4:19 - 5:40 of 19:52)



Deletion processes

Deletion happens a lot to word-final consonants.

Final consonant deletion examples:

“dog” /dɔg/ →

“bus” /bʌs/ →

“boot” /bu:t/ →

“because” /bɪkɒz/ →

Deletion processes

Deletion happens a lot to word-final consonants.

Final consonant deletion examples:

“dog” /dɔg/ → “dah” /dɑ/ “bus” /bʌs/ → “buh” /bʌ/

“boot” /bu:t/ → “boo” /bu/ “because” /bɪkɒz/ → “becah” /bɪkɑ/

Deletion processes

Deletion can also happen when more than one consonant appears together (consonant clusters).

Consonant cluster deletion examples:

“blanket” /bleɪŋkət/ →

“bring” /brɪŋ/ →

“bump” /bʌmp/ →

“stop” /stɒp/ →

“desk” /dɛsk/ →

“school” /skul/ →

Deletion processes

Deletion can also happen when more than one consonant appears together (consonant clusters).

Consonant cluster deletion examples:

“blanket” /bleɪŋkət/ → “banket” /beɪŋkət/

“bring” /brɪŋ/ → “bing” /bɪŋ/

“bump” /bʌmp/ → “bup” /bʌp/

“stop” /stɒp/ → “top” /tɒp/

“desk” /dɛsk/ → “dek” /dɛk/

“school” /skul/ → “kool” /kul/

Deletion processes

Deletion of unstressed syllables:

Delete a syllable (usually more than one sound, and must include a vowel-like sound) if it is unstressed. (Unstressed syllables in English usually have the ə as their vowel.)

Unstressed syllable deletion process examples:

“giRAFFE” /dʒəˌræf/ →

“aWAY” /əwe/ →

“AlliGATOR” /æləˌɡetə/ →

“baNAna” /bənənə/ →

“BUtterFLY” /bʌtəˌflaɪ/ →

Deletion processes

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Unstressed syllable deletion process examples:

“giRAFFE” /dʒəˌræf/ → “raffe” /ræf/

“aWAY” /əwe/ → “way” /we/

“AlliGATOR” /æləˌɡetə/ → “agay” /æge/

“baNAna” /bənənə/ → “nana” /nənə/

“BUtterFLY” /bʌtəˌflaɪ/ → “bufly” /bʌflaɪ/

Substitution processes

Substitution: Stopping process

Replace a fricative (consonant produced with continuous flowing air) with a stop (consonant where air flow is completely stopped). Note that the place of articulation (lips, alveolar ridge, velum, etc.) and voicing (vocal cords vibrating or not) does not change.

Stopping process examples:

“church” /tʃəɹtʃ/ →

“sing” /sɪŋ/ →

“zebra” /zɪbrə/ →

“thing” /θɪŋ/ →

“this” /ðɪs/ →

“shoes” /ʃuz/ →

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Stopping process examples:

“church” /tʃəɹtʃ/ → “turt” /təɹt/

“sing” /sɪŋ/ → “ting” /tɪŋ/

“zebra” /zɪbrə/ → “debra” /dɪbrə/

“thing” /θɪŋ/ → “ting” /tɪŋ/

“this” /ðɪs/ → “dis” /dɪs/

“shoes” /ʃuz/ → “tood” /tuɹd/

Substitution processes

Substitution: **Gliding** process

Replace a liquid sound like /l/ or /ɹ/ with a glide sound like /j/ or /w/.

Gliding process examples:

“lion” /lajən/ →

“rabbit” /ɹæbət/ →

“look” /lʊk/ →

“rock” /ɹɑk/ →

“story” /stɔɹi/ →

Substitution processes

Substitution: **Gliding** process

Replace a liquid sound like /l/ or /ɹ/ with a glide sound like /j/ or /w/.

Gliding process examples:

“lion” /lajən/ → “yion” /jajən/

“rabbit” /ɹæbət/ → “wabbit” /wæbət/

“look” /lʊk/ → “wook” /wʊk/

“rock” /ɹɑk/ → “wock” /wɑk/

“story” /stɔɹi/ → “stowy” /stɔwi/

Substitution processes

Substitution: **Denasalization** process

Replace a nasal sound with a non-nasal sound. Note that the place of articulation (ex: labial), manner of articulation (ex: stop) and the voicing (ex: +voice) do not change. (You can get this effect yourself by holding your nose when you say words.)

Denasalization process examples:

“jam” /dʒæm/ →

“spoon” /spun/ →

“sing” /sɪŋ/ →

Substitution processes

Substitution: **Denasalization** process

Replace a nasal sound with a non-nasal sound. Note that the place of articulation (ex: labial), manner of articulation (ex: stop) and the voicing (ex: +voice) do not change. (You can get this effect yourself by holding your nose when you say words.)

Denasalization process examples:

“jam” /dʒæm/ → “jab” /dʒæb/

“spoon” /spun/ → “spood” /spud/

“sing” /sɪŋ/ → “sig” /sɪg/

Substitution processes

Substitution: **Fronting** process

Replace a sound with a sound that is made more towards the front of the mouth. Note that the manner of articulation and the voicing do not change – just the place of articulation does.

Fronting process examples:

“thumb” /θʌm/ →
“ship” /ʃɪp/ →
“jump” /dʒʌmp/ →
“chalk” /tʃɔk/ →
“key” /ki/ →
“go” /go/ →

Substitution processes

Substitution: **Fronting** process

Replace a sound with a sound that is made more towards the front of the mouth. Note that the manner of articulation and the voicing do not change – just the place of articulation does.

Fronting process examples:

“thumb” /θʌm/ → “fumb” /fʌm/
“ship” /ʃɪp/ → “sip” /sɪp/
“jump” /dʒʌmp/ → “dzump” /dzʌmp/
“chalk” /tʃɔk/ → “tsalk” /tsɔk/
“key” /ki/ → “tey” /ti/
“go” /go/ → “doe” /do/

Substitution processes

Substitution: **Assimilation** process

A sound becomes more similar to another (usually nearby) sound by taking on one or more of that other sound’s features – voicing, place of articulation, manner of articulation. This is sometimes called **consonant harmony** or **vowel harmony**.

Assimilation (consonant harmony) process examples:

“pig” /pɪg/ → “big” /bɪg/
“push” /pʊʃ/ → “bush” /bʊʃ/
“duck” /dʌk/ → “guck” /gʌk/
“doggy” /dɔgi/ → “goggy” /gɔgi/
“self” /sɛlf/ → “felf” /fɛlf/
“Kathleen” /kæθlin/ → “Kakleen” /kæklin/

Substitution processes

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A sound becomes more similar to another (usually nearby) sound by taking on one or more of that other sound’s features – voicing, place of articulation, manner of articulation. This is sometimes called **consonant harmony** or **vowel harmony**.

Assimilation (consonant harmony) process examples:

“pig” /pɪg/ → “big” /bɪg/ (/p/ takes on **+voice of /g/**)
“push” /pʊʃ/ → “bush” /bʊʃ/ (/p/ takes on **+voice of vowel**)
“duck” /dʌk/ → “guck” /gʌk/ (/d/ takes on **+velar of /k/**)
“doggy” /dɔgi/ → “goggy” /gɔgi/ (/d/ takes on **+velar of /g/**)
“self” /sɛlf/ → “felf” /fɛlf/ (/s/ takes on **+labiodental of /f/**)
“Kathleen” /kæθlin/ → “Kakleen” /kæklin/ (/θ/ takes on **+stop, +velar of /k/**)

Phonological process development

Often, more than one process will apply to a word - which makes the original word harder to decipher.

/bu/ = ???? (referent in world = poop)

/pup/ ---> final consonant deletion = /pu/
---> assimilation with vowel = /bu/



Multiple process examples

“giraffe” /dʒəʃæf/ → “faffe” /fæf/

“room” /ʃum/ → “woob” /wub/

Multiple process examples

“giraffe” /dʒəʃæf/ → “faffe” /fæf/

/dʒəʃæf/ → /ʃæf/

[unstressed syllable deletion]

/ʃæf/ → /fæf/

[assimilation: /ʃ/ picks up +labiodental, -voice from /f/]

“room” /ʃum/ → “woob” /wub/

/ʃum/ → /ʃub/

[stopping or denasalization]

/ʃub/ → /wub/

[gliding]

Multiple process examples

“tent” /tɛnt/ → “det” /dɛt/

“cracker” /kɹækəɹ/ → “gwa” /gwæ/

Multiple process examples

“tent” /tɛnt/ → “det” /dɛt/

/tɛnt/ → /dɛnt/

[assimilation: /t/ picks up +voice of vowel (or /n/)]

/dɛnt/ → /dɛt/

[consonant cluster deletion]

“cracker” /kɹækəɹ/ → “gwa” /gwæ/

/kɹækəɹ/ → /gɹækəɹ/

[assimilation: /k/ picks up +voice of /ɹ/ (or vowel)]

/gɹækəɹ/ → /gwækəɹ/

[gliding]

/gwækəɹ/ → /gwæ/

[unstressed syllable deletion]

Why do they make these errors?

Idea: Just a motor limitation. They can't physically produce it all fast enough, but they can perceive the differences.

Child: “Gimme my guk!”

Father: “You mean your duck?”

Child: “Yes, my guk!”

Father (hands child the duck): “Okay, here's your guk.”

Child (annoyed): “No, Daddy - I say it that way, not you.”



Why do they make these errors?

Idea: Just a motor limitation. They can't physically produce it all fast enough, but they can perceive the differences.



But some contrasts are actually difficult for them to distinguish, such as /θ/ from /f/ and /ɹ/ from /w/. Production errors for these may have a basis in perception - their speech sound representation isn't quite right yet.

The jury is still out on the interaction between speech perception and speech production...

Recap: Phonological development

Given children's incomplete development and lesser experience with the words of the language, they often make mistakes producing even words they're familiar with. However, they make systematic mistakes, reflecting the underlying system they have for representing sounds.

Most of children's errors may stem from motor limitations, since they seem able to perceive incorrect pronunciations but not correct their own. However, there are also some sounds that children have trouble perceiving correctly – which makes errors on those sounds likely due to perception issues.

Questions?



You should be able to do up through question 5 on HW2, and all of the questions from the phonological development review sheet.