Language acquisition, perception and production

Lecture 4 – Language acquisition - later

Plan for today

- Acquisition of morphology
  - Past tense debate
- Cross-linguistic aspects of later grammar
- Linguistic awareness
- Discourse processes
- Reading

Introduction

- Language acquisition is not only restricted to first years of life

Later developments include

- More advanced grammatical structures

- Increased linguistic awareness

- Development of discourse processes

- Language used in school

Acquisition of morphology

- Grammatical morphemes are largely absent in early speech (e.g., baby cry)
- It takes children years to acquire morphology of their language

Acquisition of morphology

- Study by Brown and Cazden (1973; 1968).
- Followed three kids in longitudinal study
- Studied emergence of 14 grammatical morphemes
- 1. present progressive (I driving)
- 2,3. prepositions (in, on)
- 4. plural (cars)
- 5. irregular past tense (broke, fell)
- etc

Acquisition of morphology

- Why were the morphemes acquired in this order?

- Simple frequency of occurrence? No because Brown found no correlation: articles (the, a) were most common, yet acquired late (step 8).

- Linguistic complexity? Plural marker is relatively simple (denotes number), third person singular is more complex (number and time). Predicts plural before third person, which is what was found.

- Thus, linguistic complexity and not frequency could account for order of emergence.

Productivity in morphology

- Once morphemes are acquired, they are used productively

- Berko (1958)

- Children produce plural and past tense markers

- Means they are learning morphological rules

THIS IS A WUG.

NOW THERE IS ANOTHER ONE.
THERE ARE TWO OF THEM.
THERE ARE TWO _____.
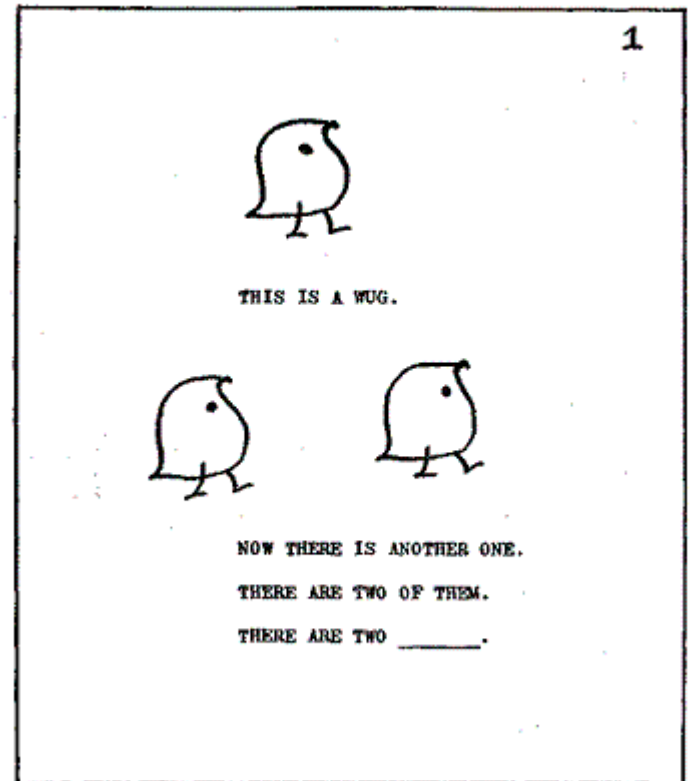
Overregularization

- Intensely studied are the overregularizations of irregular past tense verbs
- Yo se → sabo
- He went → goed
- There are three stages involved
- 1. The child uses the word correctly
- 2. the child overregularizes the word
- 3. the correct form re-appears

Overregularization

- The overregularization has been used as evidence in favor of word+rules models of language (Pinker, 1997), and against non-symbolic, connectionist models.

- When children overregularize, it reveals the acquisition of a rule (past tense = stem + ed).

- The past tense debate…

The past tense debate

- The past tense debate is about two very different proposals about the architecture of human language processing:

- Processing operates on the basis of symbolic rules (Pinker, 1997).

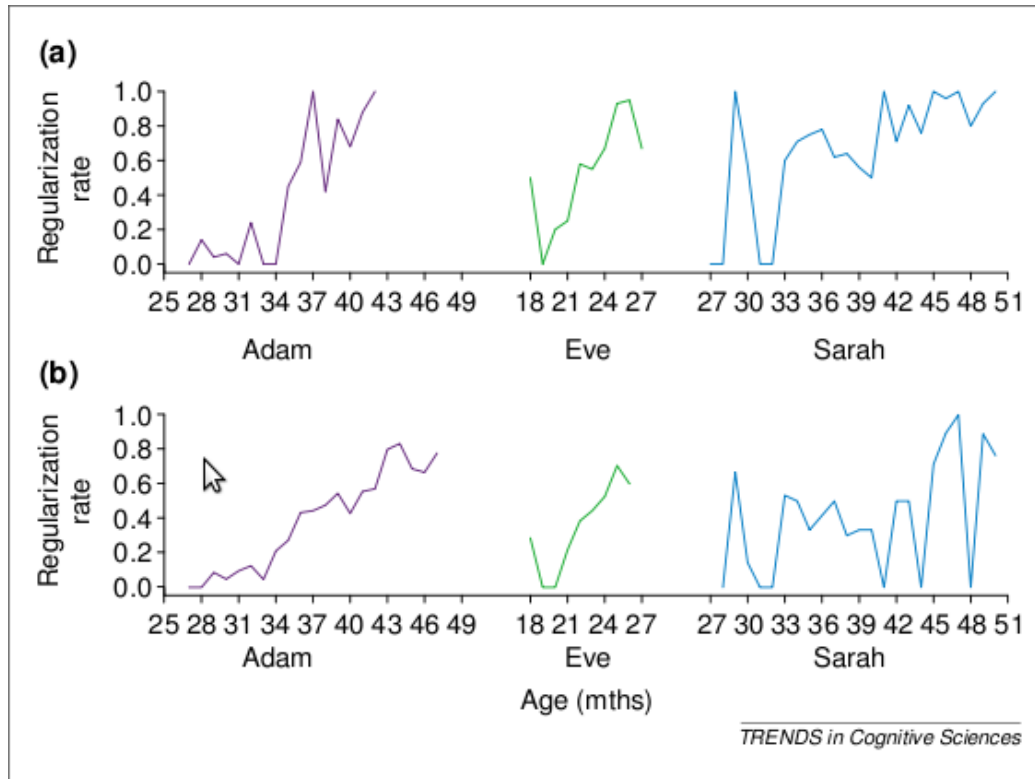- Processing operates on the basis of non-symbolic associative networks (Rumelhart & McClelland, 1985).

Past tense debate

- According to symbolic account, overregularization reveals presence of rules

- According to connectionist account, it does not reveal presence of rules.

- Who is right?

Past tense debate

1. If it is a rule, its onset must be sudden

However, evidence suggests acquisition is gradual.

Past tense debate

- To summarize, there evidence seems to be ambiguous between an interpretation in terms of symbolic rules (Pinker) or in terms of non-symbolic connectionist models (McClelland).

- This debate continues to this day ☺

Later Syntactic Development

- While children's morphology improves, so do their syntactic constructions.

- Negatives come relatively late in English, perhaps not in Spanish

- They are acquired in a series of stages:

No wipe finger
No doggie bite
Doggie no bite
Doggie doesn't bite

Cross-linguistic aspects of later grammar

- Slobin has shown that there are similarities between various languages in how they are acquired: Tendency to place negative markers at beginning or end of utterances.

- The order in which prepositions are acquired is universal: in, on, under, beside, between, front, back. Due to conceptual complexity

Cross-linguistic aspects of later grammar

- There are also language-specific aspects during acquisition.

- Berman (1985) shows that in some languages questions are produced much earlier than in English. Presumably this is due to simpler structure of questions in these languages (Herbrew, Spanish).

- Interesting because it shows that *structural complexity* (and not just conceptual complexity) is an important factor in driving language acquisition.

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- **Linguistic awareness**
- Discourse processes
- Reading

Linguistic awareness

- We are usually not aware of the grammatical rules of the language we speak.

- However, we are able to think about language and its linguistic units.

- Such meta-linguistic knowledge develops slower and different from the primary linguistic knowledge.

- How do we acquire this meta-linguistic awareness?

Linguistic awareness

- One of the first studies is Gleitman, Gleitman, & Shipley (1972).

- 2 yr old children had to listen to their mother say sentences and say "good" or "silly".

- The sentences were grammatical or ungrammatical.

- The children were able to discriminate between acceptable and unacceptable sentences.

- This suggests that even 2 yr olds already have some meta-linguistic awareness.

Linguistic awareness

- Other aspects of linguistic awareness: words separate from its referent:

- When asked for a long word, 4 and 5 yr olds often say "train" (Sinclair, 1982).

- Similarly, if a dog is called "cat", it meows, and when it is called "cow" it has horns (Ohserson & Markman, 1975)

- Words and not separate from its referent.

Linguistic awareness

- Phonological awareness

- 6 yr old children have problems with this task. Take the word "snail", and take off the 'n', what word do you have left? (Bruce, 1964)

- Similarly before 6 yr old, children are unable to say the first letter of a word.

Linguistic awareness

- These skills have been found to correlate with other aspects of linguistic behavior, such as communication

- Phonological awareness is very important in the development of reading

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Discourse processes

- Children also need to learn conversational skills.
- The most important one is "turn taking", meaning you speak, and then the other person speaks.
- Bloom et al. (1976) show that 19 and 23 months children produce sentences in turn, but they do not share topic.
- By 35 and 38 months, more and more sentences were produced on the same topic.
- So around 2 or 3 years children start to really use turn-taking in conversation.

Discourse processes

- You need to adapt your speech to the social context (speaking to grandmother, your baby sister).

- Piaget thought young children were unable to do this, since this requires a theory of mind, which does not develop until 7 years.

- However, Shatz & Gelman (1973) have shown that 4 year olds use simpler and shorter sentences to speak to 2 year olds than to adults when telling a story.

Discourse processes

- Narrative skills (story telling)

- Peterson and McCabe (1983) collected 1124 stories from children aged 3.5 to 9.5

- Youngest children often produced unrelated sentences

- By 6 years, most children are able to produce a good story: presented a setting, identified a problem or complication, and described how the problem was resolved.

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Reading and language development

- Beginning reader is already a fluent language user
- General comprehension skills from oral language also apply to written language (get meaning from sentence, interpret in communicative context, etc)
- Reading requires learning to plan eye-movements, identifying visual features of letters and words, and reading from left to right on a page.
- Reading relies on a variety of skills, and involves the identification of familiar words in an unfamiliar mode.

Reading and phonological awareness

- Linking printed letters (graphemes) to phonemes. This is difficult because

1. Often no clear correspondence between letter and sound (cf., coffee, circus).

2. Letters strange pronunciation (ph in phoneme)

3. Silent letters (e in house).

Reading and phonological awareness

- Another reason why reading is difficult is that young children have weak phonological awareness

- Rozin, Bressman & Taft (1978). Told children two words "mow" and "motorcycle", and wrote the words down. Then asked to say which one corresponds to "mow". Only 10% of children were able to point to correct word satisfactorily.

- This shows children are unaware that words that take longer to say are also written longer.

Reading and phonological awareness

- Liberman, Shankweiler, Fischer & Carter (1974) examined phonemic and syllabic awareness in 4, 5, and 6 yr olds.

- Listen to words and tap on table number of syllables or phonemes (hos-pi-tal, b-a-g, 3 taps).

- Phonemes much harder than syllables, no 4 yr olds, and only 17% of 5 yr olds could do it.

- 48% of 5 yr olds could do the syllable task

- Why phonemes difficult? Syllable is more natural unit. Consider sound of /b/ in "ball". This sound is spread throughout the word, and its less obvious it can be seen as an independent unit.

Reading and phonological awareness

- Is phonological awareness necessary for reading? Is there a causal relation?

- If so then training phonological awareness should improve reading.

- This is confirmed by Lundberg et al. (1988). After 8 months of training 155 Danish kids, there were significant and sustained gains in reading skills.

Top-down and bottom-up processes

- Is reading purely a bottom-up process?
- Allington & Strange (1977), asked poor and good readers to read sentences like "the frog hopped oven the snow", which contains the error 'oven → over'.
- Poor readers more often read "over" than "oven" than good readers.
- This might seem counterintuitive. However, good readers might rely more on bottom-up processes than poor readers who need to rely on other types of information to understand the sentence.

- This result shows that bottom-up and top-down processes jointly determine the outcome of reading processes.

Summary

- Focused on "later grammar"

- Acquisition of grammatical morphemes

- Overregularization

- The past tense debate

- Acquisition of complex syntax

- Meta-linguistic awareness

- Reading and phonological awareness