Language Acquisition

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LING 101 SSII

Overview

- Basic assumptions of acquisition
- Acquisition Studies
- Stages of language acquisition
- Poverty of the Stimulus
- Critical Period

Review

- Sentence Meaning
- Sentence Meaning Relations
  - Paraphrasing
  - Contradiction
  - Entailment
  - Presuppose
- Gricean Maxims
  - Manner
  - Relevance
  - Quantity
  - Quality

Language Acquisition

- In our previous units, we have discussed that our model is composed of two components:
  - **The Lexicon**
  - **A system of rules**

Language Acquisition

- Any (normally developing) infant has the potential to develop a mental grammar of any language in the world
  - Therefore, all infants start out with their grammar at the same (universal) default settings
  - Infants are then exposed to language data, which allows them to start to develop the mental grammar needed to produce and comprehend a **particular** adult language.

- We can analyze a mental grammar with the same models we use for adult languages.

Language Acquisition

- A child who has not fully acquired a target language still shows evidence of having a grammar – only not (yet) the same grammar s that of the target language.

- Studying the process of language can give us important insight into:
  - The nature of the mental grammar for a particular language.
  - The range of characteristics of possible mental grammars (are there ‘mistakes’ that children never make?)

Language Acquisition

- “Learning” a native language is not the same as learning to do math or ride a bike
  - Hence why we use the term **acquisition** instead of ‘learning’ for this process

- Children do not acquire language because their parents “teach” it to them

- Children acquire language through contact between language data in the environment and the (universal) acquisition mechanism of grammar

Language Acquisition

- Acquisition is **not** just imitation
- Sometimes a child can imitate more accurately than they generally speak. (Children **do** imitate).
  - However, imitation is not the only process involved in language acquisition
    - What characteristics of language are incompatible with the imitation hypothesis?
    - What often happens when a child is explicitly encouraged to imitate?

Language Acquisition

- Acquisition is **not** just imitation
  - What characteristics of language are incompatible with the imitation hypothesis?
    - Creativity/productivity of language
    - Morphological overgeneralization and other child-specific linguistic rules
      - *goed, bringed*
        - » What would the child be imitating?
  - What often happens when a child is explicitly encouraged to imitate?
    - Parent: *What can you see?*

      Child: *What you can see?*
    - The child often continues to follow the rules of his/her own mental grammar, even when it makes the imitation imperfect.

Language Acquisition

- Acquisition is **not** just via feedback
- Some people assume that parents teach language to children by correcting their errors.
  - When parents "correct" their children, it's more likely to be about the truth of the utterance rather than the phonology/ morphology/ syntax
    - Child: Mama isn't a boy; he's a girl!
    - Parent: That's right.
  - Children often "ignore" (or, their mental grammars have difficulty interpreting) parental feedback

Language Acquisition

- Language is **not** acquired solely due to the influence of caregiver speech ("motherese")
- In many (not all!) cultures, adults use a special speech style with young children, known as **caregiver speech**.
- Some characteristics of caregiver speech by middle-class English-speaking mothers (see Table 10.21 on p. 379 of *CL* for more
  - Slower speech
  - Tendency to refer to "the here and now"
- How might these aspects of caregiver speech be helpful in acquisition?

Language Acquisition

- Language is **not** acquired solely due to the influence of caregiver speech ("motherese")
- How might these aspects of caregiver speech be helpful in acquisition?
  - Slower speech might help with phonological acquistion
  - Tendency to reference "the here and now" may help with semantic acquisition
- However, many features of caregiver speech do not seem to affect acquisition
  - Example: Relative frequency of grammatical morphemes (inflectional affixes and function words) does not predict acquisition order

Acquisition Studies

- There are two different ways that we primarily study child language acquisition:
  - Naturalistic
  - Experimental

Acquisition Studies

- **Naturalistic**
  - Observes and records child languae
  - Online data repository: CHILDES

  - Advantages:
    - Data comparatively easy to collect
    - Shows language as it is used in context

  - Disadvantages:
    - Rare structures may not be collected
    - How can we tell what a child's mental grammar will accept as grammatical?

Acquisition Studies

- **Experimental**
  - Explicitly test children's ability to produce, comprehend, or imitate language
  - Advantages:
    - Can study comprehension
    - Can investigate specific linguistic structures
  - Disadvantages:
    - Can be difficult to design successful experiments for children
    - The relatively artificial context may affect aspects of children's language behavior

Acquisition Studies

- Examples of experiments

Stages of Acquisition

- A child who is in the process of acquiring his/her target (adult) language goes through different **stages** of development
  - These stages reflect **intermediate mental grammars** on the way to the adult grammar
- A child often shows **variable** behavior
  - A rule may be applied only some of the time
  - Multiple versions of a rule may be in use
- But we can still find a great deal of **systematicity** in children's language behavior

Stages of Acquisition

- **Phonology**
  - **Distinguishing** different speech sounds
    - **6-8 months**: Infants can distinguish among almost all of the sound categories used in the world's languages
    - **10-12 months**: Infants have difficulty distinguishing sound categories that are **not contrastive** in their target language
      - **Evidence for the beginning of a language-specific phonological grammar**

Stages of Acquisition

- **Phonology**
  - **Babbling** – approximately 6 to 12 months
    - The most frequent consonants used in babbling are very consistent even for babies acquiring different target languages
    - The most frequent consonants used are also frequent sounds in the adult languages of the world
  - Are we seeing effects of Universal Grammar?
    - Or, effects of the way the vocal tract and auditory system work?

Stages of Acquisition

- **Phonology**
  - Individual children develop differently, but some **general patterns** can be observed:
    - Vowels develop before consonants
    - Stops are usually the earliest consonants
    - Labial is usually the first place of articulation (note: sighted children only!)
    - New phoneme categories are distinguished in word-initial position before other positions
  - What factors might lead to these patterns?

Stages of Acquisition

- **Phonology**
  - Children are able to **distinguish between phonemes they hear** even before they can produce them
    - How do we know this?
  - Suppose a child pronounces both *mouse* and *mouth* as [maws], but can point to the correct pictures in a comprehension experiment
    - How is each of these morphemes represented in the child's mental lexicon?
    - How is the child's phonological rule system different from that of an adult?

Stages of Acquisition

- **Phonology**
  - If a child has an adult-like phonemic form stored in the lexicon, but produces a non-adult-like phonetic form, that child bust have a **child-specific phonological rule**
  - Writing child-specific phonological rules
    - We can generally use the same format and the same set of **sound properties** as for the adult phonological rules
    - One key difference: Sometimes, a child-specific rule has **no environment** ("A→B" only) because a certain natural class changes into something else *everywhere*

Stages of Acquisition

- **Morphology**
  - Two strong sources of evidence that children are constructing a mental grammar as they acquire their language come from morphology
    - **Overgeneralization**
      - (also known as overregularization)
    - **Productive use of morphology** (*wug* –tests)

Stages of Acquisition

- **Morphology**
  - **Overgeneralization**
    - Consider the following example of morphological overgenralization:
    - Stage 1: *show, showed; go, went*
    - Stage 2: *show, showed; go, goed*
    - Stage 3: *show, showed; go, went*

Stages of Acquisition

- **Morphology**
  - **Productive use of morphology**
    - Children perform quite well at tasks like these:
      - *This is a wug. Now there is another one. There are two of them! There are two ___.*
      - *What would we call someone who crushes things? Someone who crushes things is a ___.*
    - Children who can complete these tasks have the relevant inflectional and derivational morphological rules in their mental grammar

Stages of Acquisition

- **Syntax**
  - Syntactic development also proceeds in stages:
    - The **one-word stage** (12-18 months)
      - One-word utterances are used to express the meaning of a whole sentence
    - The **two-word stage** (a few months later)
      - Words typically lack inflection at this stage
      - Do children have syntactic categories?
      - Word order mostly matches adult language
      - But children may learn order verb by verb at first (before using a general X'-schema)

Stages of Acquisition

- **Syntax**
  - Syntactic development also proceeds in stages:
    - The **telegraphic stage** (approx. age 2)
      - What morpheme types are generally missing at this stage?
      - Once the child enters the telegraphic stage, further development is very rapid (see Table 10.12 in *CL*, p. 375)

Stages of Acquisition

- **Syntax**
  - An example of later development: Questions
  - The Inversion rule: How does this develop for English-acquiring children?

  a. Questions signaled by intonation only

  b. Can he can look?

  —> What is the child's grammar doing here?

  c. Adult-like application of Inversion
  - Some children pass through a stage where they can apply Inversion, except when they have to apply WH movement too

Stages of Acquisition

- **Syntax**
  - Draw a tree and apply the appropriate rules for this WH question:
    - What do you think is in the box?
      - Note that there are two CPs involved here
  - Look at the video("What Do You Think What She Said?") that shows a child's version of the WH question given above:
    - *What do you think what is in the box?*
  - What does the child's current WH movement rule seem to be?

Innateness Hypothesis

- Universal Grammar (UG): “The set of inborn categories, operations, and principles common to all human languages” (CL, p 383)
- Is there evidence for innate UG? Two important arguments (controversial):
  - The poverty of the stimulus argument
  - Evidence for a critical period

Poverty of the Stimulus

- The poverty of the stimulus argument
  - The argument:
    - Human language grammars are too complex and abstract to be learned only on the basis of the language data to which children are exposed (so some of mental grammar must be innate)
- The extent to which this is true is an area of hot debate among linguists and psychologists
  - The human brain certainly must have innate ways of organizing information
  - But — are any of them specific to language?

Poverty of the Stimulus

- Example: Interpretation of words such as him and himself (see §6.4 in CL for details; you do not have to memorize these details)
  - Requires understanding of "(same minimal) IP"
  - Requires understanding of "c-command"
  - Could these concepts be acquired from observed language data only?
  - These concepts appear to be relevant to pronoun interpretation in all languages
  - The him/himself distinction is acquired quite early

Critical Period

- Some linguists argue that there is evidence for innate UG as a "language instinct" because language acquisition has a critical period

- A **critical period** is a time period during which exposure to stimuli is particularly important (or even crucially necessary) for complete development
  - some types of bird song
  - barn owls coordinating vision and hearing
  - celestial navigation by indigo buntings
  - ...human language?

Critical Period

- Humans who are deprived of language input seem to show that the ability to acquire a native language begins to decline around age 6 and is severely impaired after puberty

- Language data from “Genie,” “Chelsea”

- Question: What would happen if we had no language input but completely normal social interaction? (obviously not ethical to carry out an experiment...)
- Question: Is there a critical period for second (and later) language learning?

Homeworks

- p. 386, Exercise 1
- p. 386, Exercise 2
- p. 389-340, Exercise 12
- p. 389, Exercise 13

Have a good day!