

PSYC 3320/5597: Psycholinguistics

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Unit 3 – Language Development

Outline

- ▶ Is language learned?
- ▶ Nature versus nurture debate (again)
- ▶ How do we learn words and their meaning?

Childrens' Language Development

- ▶ Children do not speak at birth (they need exposure and maturity of other processes, such as perception, vision, etc.)
- ▶ Early stage (10-18 months) – single word utterances (holophrastic speech)
- ▶ Later stage (18 months - 2 years) – telegraphic speech (grammatical elements omitted)
 - ▶ “Mommy go”
 - ▶ “Daddy coffee”

Big question

How do we develop our capacity for language?

Is it **learned**?

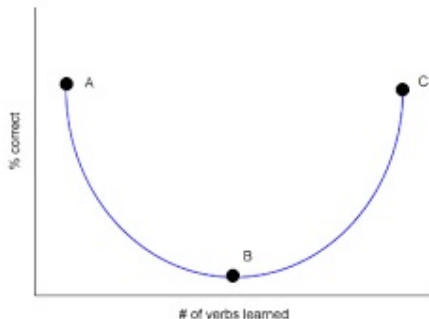
- ▶ Skinner (1957) argued that language was acquired by same mechanisms of **conditioning** that were thought to govern all animal behavior



Is language learned?

Evidence **against** the “language=learning” view:

- ▶ Adults tend to correct only truth/meaning, not syntax
- ▶ pattern of acquisition for some grammatical elements does not follow typical **learning curve**
 - ▶ irregular past verb tenses (e.g., go → went)
 - ▶ irregular plural nouns (e.g., man → men)
 - ▶ pattern of learning is typically **U-shaped**

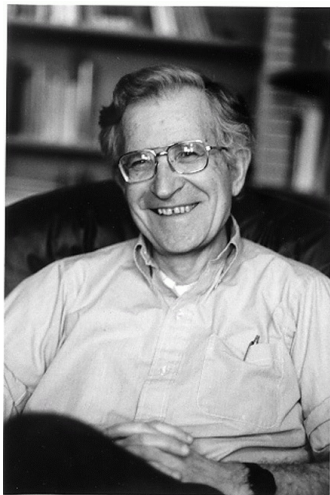


Nature-Nurture

As with most of behavioral science, we can think about language by framing this question as a “nature-versus-nurture” question:

- ▶ Nature (rationalists) – language capacity **innate**
- ▶ Nurture (empiricists) – language derived from **experience**

Chomsky



Chomsky argued for **innate** language structures

- ▶ “Language is not learned – rather, language **grows**”
- ▶ Environmental exposure insufficient
 - “**poverty of the stimulus**”
 - ▶ adults’ language full of errors
 - ▶ not enough information to learn grammar (simplified “child directed speech”)

Child directed speech

- ▶ simplified language
- ▶ “baby talk”
- ▶ How simple?
 - ▶ Linguistic feedback hypothesis (Cross, 1977) - mothers tailor amount of simplification depending on **how much child appears to need**
 - ▶ Conversational hypothesis (Snow, 1977) - simplification determined by mothers' **expectations** of what child needs to know

Language acquisition device

Chomsky (1965) - language guided by “parameter setting”

- ▶ like a set of switches that constrain the shape of the grammars that child can acquire



Development = “parameter setting”

Why does it take so long to “set the switches”?

- ▶ Continuity hypothesis (Clahsen, 1992) – parameters all available **from birth**, but cannot be used until other difficulties are overcome
- ▶ Maturation hypothesis (Felix, 1992) – children do not have access to parameters initially, but eventually become available as child matures

Alternative view

Distributional information (Elman, 1999)

- ▶ children learn patterns from repeated exposure to language
- ▶ “statistical learning”

one of the first tasks facing a young child learning a language is segmenting the speech they hear into words. Put yourself in the place of a baby: all you can hear is a rapid stream of meaningless sounds. If you have difficulty doing this, you should try listening to a language with which you are completely unfamiliar.

Lexical and semantic development

So far, we have talked about how grammar/structure is developed.
How do we develop the words and their meanings?

Early words often emerge from situations where exemplar is present
in view of parent and child

- ▶ ostensive modeling (“look and name”)

Problems with ostensive modeling

“This is a dog”



- ▶ feet?
- ▶ color?
- ▶ smell?
- ▶ sound?

- ▶ this is called the **mapping problem**
- ▶ clearly children can solve it very quickly, so there must be some **constraints** on this type of learning

Constraints

1. Whole object assumption – ostensive definition = label for whole object
2. Taxonomic constraint – word refers to a category, not a specific thing
3. Mutual exclusivity assumption – each object can have only one label

The contrastive hypothesis

Meaning of “dog” is learned by figuring out the **contrast** between dogs and similar animals

- ▶ NOT by simply learning the features of “dog”



Summary

- ▶ Is language learned? **Probably not**
- ▶ Nature versus nurture debate (again)
 - ▶ Chomsky – poverty of the stimulus argument
 - ▶ Child directed speech is sufficient for learning grammar
 - ▶ Chomsky - acquisition = “parameter setting”
 - ▶ Elman - acquisition = “statistical learning”
- ▶ How do we learn words and their meaning?
 - ▶ Constraints allow children to solve “mapping problem”
 - ▶ e.g., whole object assumption, taxonomic constraint, mutual exclusivity
 - ▶ Meaning derived from learning “differences”, not similarities