

Learning a first language

Milestones and patterns in development
Theoretical approaches to explaining first language learning



Early childhood bilingualism

- Simultaneous bilinguals
- Sequential bilinguals
- Subtractive bilingualism
- When simultaneous bilinguals are in contact with both languages in a variety of settings, they will progress in their development of both languages at a rate and in a manner which are not different from those of monolingual children.



Studying language development

- Longitudinal study
- Cross-sectional study



Infant speech perception

- Infants are born with the ability to discriminate the phonetic contrasts of any of the world languages.
- With exposure to their own language, they begin to focus on those contrasts that are relevant for that particular language and to lose the ability to perceive certain contrasts not found in their native language.



Infant speech perception 2

- 3-day-old infants can identify their own mothers' voices.
- 4-day-old infants can distinguish between utterances in their maternal language and those of another language.
- 4.5-month-old infants can recognize their names.



High amplitude sucking

- The infant is given a pacifier to suck on that is connected to a sound generating system. Each suck causes a noise to be generated.
- Infants suck less frequently after repetition of the same noise.
- They suck more in response to their interest in a new and different sound.



Production: the prelinguistic period

1. Reflexive vocalization (0~2 months)
2. Cooing and laughter (2~4 months)
3. Vocal play (4~6 months)
4. Canonical babbling (6 months~)
5. Jargon stage (10 months~)



Sounds of babbling

- 0~6 months: vowels, back consonants ([k],[g]), front consonants ([m], [b], [d])
- 6~12 months: sound repertoire expands, similar across languages
- Stops, nasals, glides > fricatives, affricates, liquids



Babbling and speech

- Children in the late stages of babble prefer to sound like the people around them.
- Children's phonological patterns in early meaningful speech are directly linked to the babbling patterns.
- Early speech usually coexists with babbling for several months.



Regularity in children's renditions of adult words

- Feature change
- Cluster reductions
- Suprasegmental-segmental interactions
- Assimilation



Voicing change

Child A

pot [bat] ("bot") **back** [bæk] (correct)
top [dap] ("dop") **day** [dej] (correct)
cat [gæt] ("gat") **game** [gejm] (correct)



Place change

Child B

pot [pat] (correct) **back** [bæt] ("bat")
top [tap] (correct) **day** [dej] (correct)
cat [tæt] ("tat") **game** [dejm] ("dame")



Cluster reduction

	1	2	3
bread	[bɛd] ("bed")	[bərəd] ("buh-RED")	[bwed] ("bwed")
blue	[bu] ("boo")	[bəlu] ("buh-LOO")	[bwu] ("bwoo")



Suprasemental-segmental interactions

tomato "mato"
 dessert "zert"
 supposed "posed"
 telephone "tefone"
 elephant "efent"



Assimilation 1

Set 1
 bump [bʌmp] (correct)
 down [dəwn] (correct)
 gone [gɔn] (correct)

- Initial unvoiced stop usually showed correct position but incorrect voicing.

Set 2
 pipe [bajp] ("bipe")
 toad [dɔwd] ("dode")
 car [gar] ("gar")



Assimilation 2

- Initial labial stops became [g] when the target word ended with a velar stop.

Set 3
 bug [gʌg] ("gug")
 big [giɡ] ("gig")
 book [gʊk] ("gook")
 bike [gajk] ("gike")
 pig [giɡ] ("gig")

- Initial alveolar stops and s + stop clusters also became [g] when the target word ended with a velar stop.

Set 4
 dog [gɔg] ("gawg")
 Doug [gʌg] ("gug")
 duck [gʌk] ("guck")
 stick [gʌk] ("gisk")



Assimilation 2

- Initial alveolar stops and s + stop clusters became [b] when the target word ended with a labial stop.

Set 5
 tub [bʌb] ("bub")
 top [bap] ("bop")
 step [bɛp] ("bep")
 stop [bap] ("bop")



Accuracy of perception

- Children who fail to pronounce particular sounds correctly may have failed to perceive them correctly.
- But, usually children with normal hearing are able to discriminate sounds. Child A might be able to point correctly to a coat and a goat even while calling them both "goat."



Rule origin

- They can not yet produce more accurate match to the adult target sound.
- They continue to apply the old rules.
- Imperfectly coordinated articulatory movements.
- Natural processes



Development after three years

- By three, most of children can pronounce all the vowels and nearly all the consonants.
- The sounds are pronounced correctly in at least a few words.
- In most cases, correct production of all sounds is achieved by around 7 years of age.



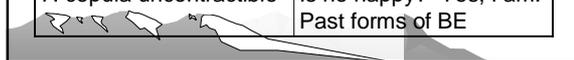
One word at a time

- Children usually utter their first words at around 12 months of age.
- Their utterances consist of single words till later half of the second year.
- They typically have acquired 14000 words by age 6, on average 8 words a day.



Acquisition of morphology

1. Present progressive	He is <u>singing</u> .
2. The preposition <i>in</i>	
3. The preposition <i>on</i>	
4. plural	Two <u>dogs</u> .
5 irregular past tense	broke, ate, saw, found
6. Possessive	John's <u>hat</u> .
7. copula uncontractible	Is he happy? Yes, I am. Past forms of BE



The 14 morphemes

8. articles	<u>the</u> table, <u>a</u> chair
9. regular past tense	walk <u>ed</u> , play <u>ed</u>
10. 3rd person present singular	He climb <u>s</u> . Mommy cook <u>s</u> .
11. 3rd person present irregular	John has three books.
12. auxiliary uncontractible	Do you like me?
13. copula contractible	I'm happy.
14. auxiliary contractible	Mommy's going



Major empirical findings

- Criterion for acquisition: 90% use in obligatory context
- Acquisition is not sudden.
- Children tend to acquire the morphemes in a reasonable stable general order.
- Individual differences exist to some degree.



Syntactic development

- Several weeks after the first word, children’s vocabulary grow rapidly as new words are learned every day.
- Young children use their words in a variety of contexts, but limit their messages by speaking one word at a time.
- At the latter half of the 2nd year, they begin putting words together.
- Syntactic development seems to take place unnoticed, with no explicit instruction.



Two-word utterances

- novel and unique
- dominated by content words
- telegraphic speech
- consistent word order
- semantic relations



Limited scope formula vs. semantic relation formula

- | | |
|------------|-----------------|
| • Child 1 | • Child 2 |
| • My dog | • Kendall chair |
| • My shoe | • Bill house |
| • My hat | • Bill book |
| • My hand | • Mommy hand |
| • My chair | • Lady hat |
| • My house | • My penny |
| • My book | • Our car |



Early grammar

- Limited scope formula
- While the children were able to combine the novel nouns with other words, they were not able to do so for novel verbs.
- At a slightly later stage, children are able to learn new transitive verbs, especially if they are presented in sentence frame include a noun actor.
- Children use semantics to provide the key bootstrap into the linguistic system.



Semantic categories of negation

- Nonexistence: “no cake”
- Rejection: “no wash hair”
- Denial: “that not Daddy.”
- These categories of negation appeared in children’s speech in the order given above.
- Some children use no + sentence to express rejection and internal-no to express denial, but not others.
- The development of negation reflects a complex interaction of syntactic, semantic, pragmatic and input factors.



Children’s production of negation

1. No go movies.
 - No sit down.
 - No Mommy do it.
2. I no like it.
 - Don’t go.
 - I no want book.
3. You can’t have this.
 - I don’t have money
 - I’m not sad now.



Questions

- Rising intonation on a declarative sentence
 - Yes/no question (stage III)
 - Wh-questions
 - Children's production
1. Omitting auxiliary
What that?
Where Daddy go?
 2. Include the auxiliary but do not consistently switch around with the subject
Where are you going?
What she is playing?

Complex *wh*-questions

- How did Jane think she could fix the shelf?
 - Using a hammer and nails
 - Because she took a course in woodworking.
 - How did Jane know she could fix the shelf?
- Q: How do children acquire these complex rules?

Invariant order of acquisition

- *What, where, who* before *when, how, why*
 - Reasons
1. The concepts that are required for encoding how, when and why questions, including manner, time and causality, are more abstract and developed later than concepts encoded in *what, where* and *who* questions.
 2. Linguistic complexity
What, where, who questions can be answered by a single word; *when, how, why* questions need whole sentences.

Approaches to language acquisition

- Behaviorism
- Innatism
- Interactionist approach

Behaviorim

- 1940s-1950s
- Language learning is the result of imitation, practice, feedback on success and habit formation.
- Analyzing children's speech (p.10-15)

Contrary evidence

- Shaping and reinforcement do not exist in children's natural home environment.
- Parents respond to the content rather than grammaticality of children's utterances.
- The failure of careful tutoring.

Innatism

- Language has a structure or grammar that is independent of language use.
- This independent rule system specifies the sentences that are grammatical or permissible in any particular language.
- Language is innate in humans.



LAD (UG)

- Language acquisition device bestows upon the child information about grammatical classes, structure, and possible transformations.
- The LAD is assumed to be a physiological part of the brain that is a specialized language processor.
- Early formulation: children are innately endowed with strong linguistic universals, which were necessary for the proper development of a grammar.
- Recent formulation: inherent constraints and biases to treat the language environment in special ways.



The biological basis for the innatist position

- The Critical Period Hypothesis
- Natural experiments
- Victor (p. 19)
- Genie (p. 20)
- Deaf signers (p.21)



Supporting Evidence

- All children successfully learn their native language at a time in life when they would not be expected to learn anything else so complicated.
- Children master the basic structure of their native language in a variety of conditions.
- Poverty of input
- Species specific
- No negative evidence



Connectionism

- Language acquisition does not require a separate module of mind, but can be explained in terms of learning in general.
- Computer simulations



Interactionist Approaches

Piaget's cognitive approach
Social interactionist approach



General assumptions

- Social, linguistic, maturational / biological factors affect language acquisition, and these factors are mutually dependent upon, interact with, and modify one another.



Piaget's cognitive approach

- similarities with the linguistic approach
- Emphasize internal structures as the ultimate determinants of behavior
- Language as a symbolic system for expressing intention or meaning
- Distinctions between competence and performance and between underlying and surface structure.



Social interactionist approach

- Agree with linguists who stress that language has a structure and follows certain rules that make it somewhat unique from other behaviors.
- Shares with the behaviorists an emphasis on the role of the environment in producing such structure.
- The structure of human language may have arisen out of the social-communicative functions language plays in human relations.



Social interactionism

- Vygotsky
- Language develops entirely from social interaction.
- In a supportive interactive environment, the child is able to advance to a higher level of knowledge and performance than he or she would be capable of independently.
- Zone of proximal development: what the child could do in interaction with another, but not alone.



Child-directed speech

- Baby talk = infant-directed speech (IDS)=child-directed speech (CDS)
- Prosodic features are more important than the words
- Higher speech, more variable pitch, and exaggerated stress
- Babies prefer baby-talk patterns.



Case study: Jim

- Hearing child of deaf parents

