How Young Children Learn Language

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The process of language acquisition

Language isn't acquired out of thin air:

- children need to hear it, analyze the units, and observe how it is used

Talking directly with young children is critical

Adults here are the 'experts' who show them how to use language to communicate and, in doing so, expose them to the language of the community

Conversation is where children *discover* forms in language

'The changes produced in sentences as they move between persons in discourse may be the richest data for the discovery of grammar'

[Roger Brown, 1968:288]

Conversation is where children find out how to *use* the forms of language:

'[W]hether human beings are lightly or heavily armored with innate capacities for lexicon-grammatical language, they still have to learn how to ***use*** language. ***That*** cannot be learned *in vitro*. The only way language use can be learned is by using it communicatively'

[Jerome Bruner, 1983:119]

Language is critical *for* and *in* all kinds of activity

—a method for social interaction,

—a tool for evaluating information,

—a means for expressing experience,

—a way to display and transmit knowledge,

—a major medium of instruction

In short, it's an essential *social* tool

Language builds on **perceptual** and **conceptual** development

- Children have to build up representations of objects, actions, and relations in the external world
- They then rely on these when trying to interpret what people are saying
- These conceptual categories inform their own actions and responses as they start to assign 'meanings' to linguistic units…..

Units in language

- Words (nouns, verbs, adjectives, adverbs, preposition)
  cat, table; run, throw; long, red; quickly; in, across
- Phrases (noun phrases, prepositional phrases)
  the cat; across the river; threw the ball
- Clauses
  before they arrived… where he lived… why it fell…

- Morphology
  tense, mood, aspect; singular-plural number;
  gender (m, f, n); case-marking (nom, acc, gen, dat, abl);
  person (1, 2, 3)
  agreement (noun-adj, noun-verb number & person, etc.)
- Word-formation
  constructing new words: derivation, compounding

To learn a first language, children need

- **Exposure** to the language
- **Feedback** on what they try out themselves
- **Practice** in understanding and speaking

The more exposure, feedback, and practice before age 3;0/3;6, the better children do in kindergarten and early school grades

— the effects of exposure are cumulative

Children learn to understand and to speak

by *interacting* with others in conversation,

and *participating* with others in different activities

In interaction, children can discover the *forms* in language as these 'move' from one speaker to the next

And they learn how to *use* those forms by observing and using language to communicate with others

How Much do Adults Talk with their Children?

	Utterances/hour	Words/hour
High SES	**487**	**2,153**
Midd/lower SES	**301**	**1,251**
Welfare	**178**	**616**

[Hart & Risley 1995]

Consistency over time (2 ½ yrs), **r = .84**

Children's cumulative experience of word uses,

—extrapolated to a 100-hr week, a year, three years:

	One week	One year	Three years
High SES	215,000	11 million	**33 million**
Midd/Lower	125,000	6 million	**18 million**
Welfare	62,000	3 million	**9 million**

[based on Hart & Risley, 1995]

Sheer frequency of specific words in adult speech to very young children can be very high, with 2000+ exposures to a word before a child produces a recognizable version, as in one child's progress from /gaga/ (age 1;0) → 'water' (age 1;6)

URL: www.ted.com/talks/deb_roy_the_birth_of_a_word

Stages in acquiring a first language:

- Infants discriminate differences in sounds from 1-3mths on
- 6-10mths, start babbling, and can identify recurring 'chunks' (words and phrases) at 8-12mths
- 12-16mths, first words (and parental vanity!) – *mama, dada*
- 18-24mths, identify familiar words, and get faster at this; gesture+vocalization, gesture+word, one-word utterances
- 18-24mths, start to produce 2-word utterances (±gestures)
- ~24mths, active vocabulary of 200-600 words (notice the normal range here)

- ~2;6, initiate up to 2/3 of adult-child exchanges …
- 2;6-3;6, can produce a variety of basic construction types
- 3;0 and up, intense practice in adult-child conversation, in pretend-play, in talk with siblings and peers, in telling stories, in reading…

- But at 12-14 yrs, children are still learning some complex constructions…
  e.g., *He gave the ball to Jan/ He gave Jan the ball*

Some conversational strategies that maximize

exposure, feedback, and ***practice***:

1. Establish mutual understanding in each exchange
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1 ◈ Establishing mutual understanding

(a) Adults often approve child contributions
even when they are not quite right…
then follow up with implicit corrections

They use **reformulations** to check on meanings
without disrupting the exchange

Eve's utterance	*Her mother's 'reformulations'*
it fall.	It fell?
a butter.	You want some butter?
man up there.	There's a man up there.
up wall.	On the wall, yeah.
papa buy some.	Papa bought some for us.
faster faster as me.	Fast as me?
well, what you go do?	What am I gonna do?
Cromer has he glasses on.	Oh, he does have his glasses on.
it doing dancing.	It's dancing, yes.
that napkins.	Yeah, they're napkins.
where's the pencils?	Where're the pencils?

(Eve aged 1;8 – 2;3)

Adults use reformulations often, after 40-60% of child errors, because —

- ☞ the child's pronunciation of a word is unclear,
- ☞ the morphological form of a word is wrong,
- ☞ the word chosen is wrong, or
- ☞ the syntax is wrong …

In one analysis of over 7000 child errors (from 1;6 to 3;6), adults relied on two types of reformulation in their turn immediately after the child error:

Side sequences	**70%**
Embedded corrections	**30%**

[Chouinard & Clark, 2003]

A *side-sequence* in an adult-adult exchange:

— Roger: now, – um do you and your husband have a j– car

|| Nina: have a car?

|| Roger: yeah

Nina: no –

[Svartvik & Quirk, 1980: 8.2a.335]

An *embedded correction* in an adult-adult exchange:

Customer in a hardware store looking for a piece of piping:

Customer: Mm, the **wales** are wider apart than that. A

Salesman: Okay, let me see if I can find one with wider threads. B
<looks through stock> How's this?

Customer: Nope, the **threads** are even wider than that. B

[Jefferson, 1982]

An adult reformulation in a side sequence:

Abe (2;6.4) : *Milk. Milk.*

|| Father: You want milk?

|| Abe: *Uh-huh.*

Father: Ok. Just a second and I'll get you some.

[Kuczaj corpus/CHILDES]

(Adult adds an interpretation for Abe's one-word utterance)

Side-sequence use in child-adult exchanges:

Child: [error of omission or commission]
|| Adult: [reformulation, as side sequence]
|| Child: [accept, or reject, interpretation offered]
Adult: [continue]

A reformulation as an embedded correction:

—D (2;4.29, being carried): *Don't fall me downstairs!* A

Father: Oh, I wouldn't **drop** you downstairs. B

D: *Don't **drop** me downstairs*. B

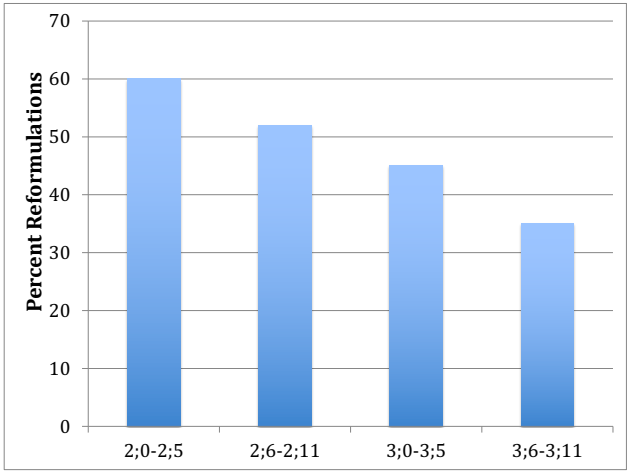
[Clark, diary]

(Adult corrects D's causative verb form)

Embedded correction use in child-adult exchanges:

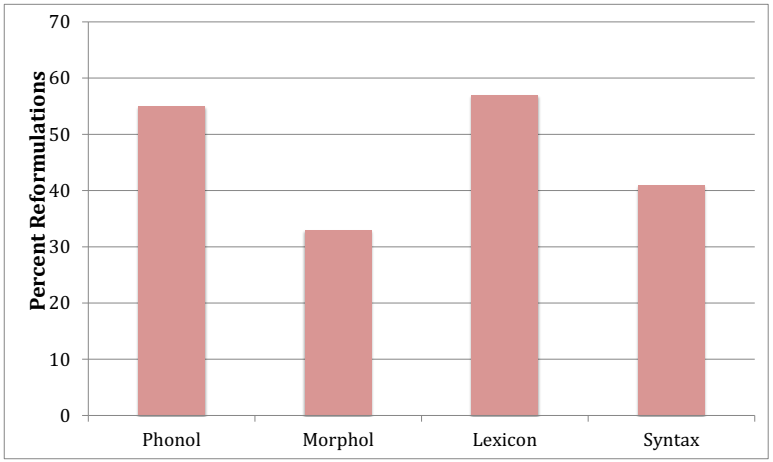
Child: [error of commission]
Adult: [reformulation, as embedded correction]
(Child: [accept, reject, repair offered])

% Adult Reformulations of Errors by Age

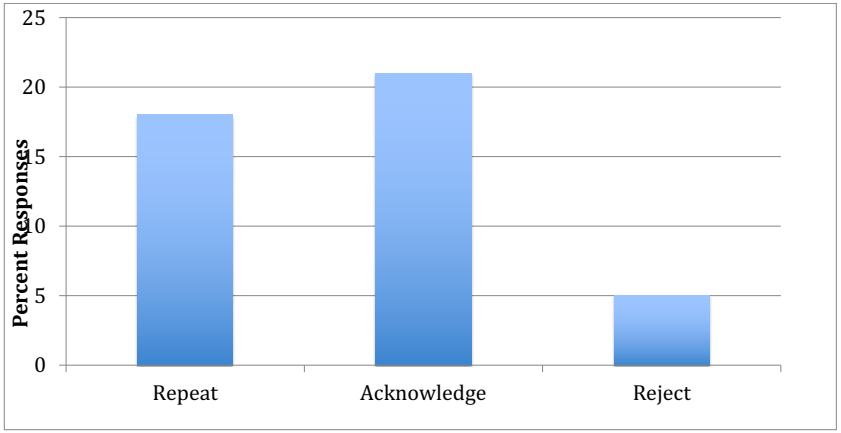


[Chouinard & Clark, 2003]

% Adult Reformulations by Error-type (no stat diffs)



Children respond explicitly to adult reformulations



[Chouinard & Clark, 2003]

(b) Common ground – adult speaker takes into account what the child knows when asking questions and in interpreting what the child says, whenever possible

This means keeping track of what is common ground for the adult and child, much as adults keep track of this for the other adults they interact with

Some conversational strategies that maximize ***exposure, feedback***, and ***practice***:

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2 ◈ Eliciting information from children

1. D (1;6.11, being encouraged to tell Father about episode where Philip (age 10) let out his budgerigar and it landed on D's head)

Mother: Did you see Philip's bird? Can you tell Herb?

D: *head . head . head .*

Mother: What landed on your head?

D: *bird .*

[Clark, diary data]

2a. An unsuccessful attempt at elicitation —

Meredith (1;6, in living-room with Observer; Mother in kitchen)

Meredith: *band-aid.*

Observer: Where's your band-aid?

Meredith: *band-aid.*

Observer: Do you have a band-aid?

Meredith: *band-aid.*

Observer: Did you fall down and hurt yourself?

2b. Then Meredith's mother comes back into the living-room:

Meredith: *band-aid.*

Mother: Who gave you the band-aid?

Meredith: *nurse.*

Mother: Where did she put it?

Meredith: *arm.*

[Snow, 1978]

By supplying **an appropriate framing** for an event, adults enable even very young children to supply 'new' information that contributes to the narrative

This framing presents their **common ground**

– what is known to both the adult and child –

that can then be re-invoked for the telling

When children repeat 'new' information from the other speaker (hence info that is now 'given' or known) they both *ratify* it and place it *in common ground* –

- Initially, children ratify new information by repeating it
- They provide new information themselves only when they propose new topics and when they answer questions
- By 2;6-3;0, children begin to add new information after an adult assertion as well

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3 ◈ Adults offer words for things, for actions…

(a) Offering a word for an object

Child (1;7.9, points at picture of a kangaroo)

Mother: Yeah. <laughs> It's called a kangaroo. Kangaroo.

Child: ***roo***.

[neweng corpus/CHILDES]

(b) Offering a word for an action

Abe (2;4, wanting to have an orange peeled): *Fix it.*

|| Mother: You want me to peel it? (side sequence)

||Abe: *Uhhuh.*

Peel *it.*

[Kuczaj corpus/CHILDES]

(c) Offering a word for a relation

Naomi (2;7.16): *One fell down on a tree.*

Father: He fell down from a tree. (embedded correction)

Naomi: *He fell down **from** a tree.*

[Sachs corpus/CHILDES]

How do children respond to such offers?

In a study of 701 offers to 2's and 3's

- ✧ Repeat target word in next turn **54%**
- ✧ Acknowledge it in next turn (*mh, yes, oh*) **9%**
- ✧ Move on, on same topic **37%**

Total = **100%**

[Clark, 2007]

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4 ◈ Offering words and information together

- Adults identify the words that are related to each other
- And what those relations are

–The case of ***owl***

Child (1;8.12, looking at picture of owls in new book): *duck. duck*.

Mother: Yeah, those are birds. <looks at picture>
They're called owls. <points at picture>
Owls, that's their name. Owls. <looks at child>

Child: ***birds***.

Mother: And you know what the owl says?
<points at the picture again> The owl goes "hoo". "hoo".

Child; ***owl***.

Mother: That's what the owl says.

Child: ***hoo***. <smiles>

Mother: that's right.

[neweng corpus/CHILDES]

(a) Mother:. Yeah, those are birds.

Category: bird
Includes DUCK and ???

>> Information about category membership
or class inclusion (= birds)

(b) Mother: They're called owls. <points at picture>
Owls, that's their name. Owls.

New word: OWL
Category: bird
Subtype: *owl*; differs from subtype *duck*

>> Information about the object subtype, *owl*
(member of the class *bird*)

(c) Mother: And you know what the owl says?
<points at the picture again> The owl goes "hoo". "hoo".

New word: OWL
Category: bird
Subtype: *owl*; differs from subtype *duck*
Property: says 'hoo'

>> Information about properties, a distinctive property
(= usual sound made by owls in English)

Adults frequently offer information about

- class membership (*x* is a kind of..)
- parts (e.g., *head, ears; wheel; handle*)
- properties (e.g., *striped, hard, square*)
- motion (how *x* moves, manner)
- function (what *x* is for, how *x* works)
- ontogenesis (where *x* comes from)
- habitat (where *x* lives)

[Clark & Wong, 2002; Clark & Estigarribia, 2011]

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5 ◈ Elaborating on topics children propose

Children initiate conversational exchanges from early on:

1. Brenda (1;7.16): *duck* .

   Mother: Hm?

   Brenda: *duck* . *swim* . *swim* . *swim* . *swim* . *duck* .

   Adult2: Can ducks swim?

   Brenda: *brenda* .

   Adult2: Brenda swims?

   Brenda: *mommy* . *swim* . *swim* .

   Adult2: Mommy swims too.

   Brenda: *charlotte* . [= sister]

   Adult2: Un hm. Charlotte swims too. [Scollon, 1976]

2. Abe (2;6.4): *I want paper.*

   Father: Are you going to draw a picture?

   Abe: *Uh-huh. Show me how to make animals.*

   Daddy, show me how to make animals.

   Father: Ok. Come here and I'll show you how.

   Abe: *That's a elephant.* [= cut-out shape in stencil sheet]

   Father: Uh-huh. That's an elephant. You draw one now, ok.

   Abe: *Show me how again, show me how.*

   Please show me how to work this.

   Father: Ok. Abe look. You put this on the paper then you keep the pencil against the edge of this and draw, see.

3. Abe (3;0.7, wanting a piece of string): *Don't – uh —I said 'don't take it all away'.*

Mother: There it is.

Abe: *Is it long?*

Mother: It looks pretty long to me.

Abe: *Ok.*

Father: How long is it?

Abe: *About long, it's about long, that about long.*

Mother: Is it long enough to rope a steer with?

Abe: *No, cow ok. It is for catch cows. I'm gon(t)a catch cows when I get high like my Daddy. The cows will come and I'll catch them with this, see.*

Eliciting elaborations

Adults ask children a lot of questions

• Questions as utterance-types in Child-Directed Speech amount to **32%** of adult utterances to their children

[Cameron-Faulkner et al. 2003]

• Longitudinal study of Adult Questions and Child Answers:

☞ *Yes/no* questions **80%**

☞ *Wh*-questions **20%**

[Casillas, Bobb, & Clark, 2016]

Children aged 1;6 to 3;6 are better at answering *yes/no* questions than at answering *wh*- questions

Why? — The answers are often 'given' in the *yes/no* question itself —

Adult: *D'you want a plum?*

—the child just has to choose 'yes' or 'no'

More complex: *D'you want a plum or an apple?*

Children take more time to acquire *wh*-question forms,

in both comprehension and production

—*what* and *where* come in first (= first adult *wh*- Qs)

• then *who* and *which* (2;0-3;0)

• then *why* (2;6-3;6)

• then *when* (around age 4;0)

[Ervin-Tripp, 1970]

In fact, children's answers to *wh*-questions they don't yet understand may be quite off the mark, as when they treat 'when' as 'where':

Adult: When did he jump the fence? [second of two events]
Child (3;6): *Right here!* [pointing]

[Clark, 1971]

Children also take several years to master

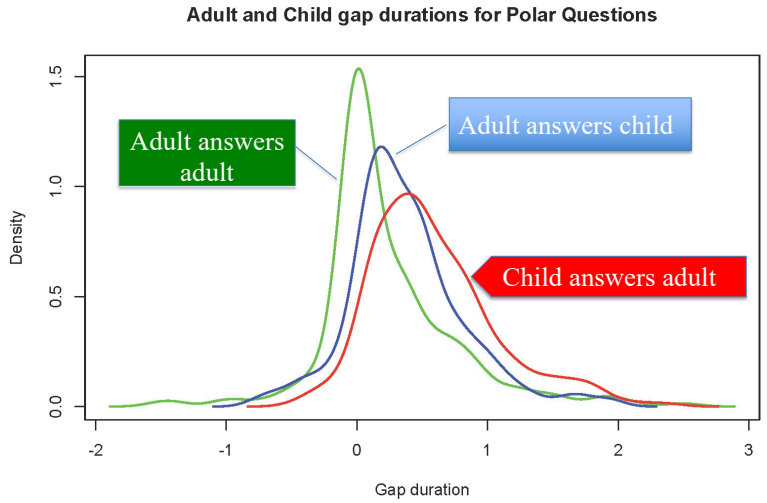
the timing of their turns in conversation

The problem?

— They 'come in' too slowly. They leave too long a gap between the end of the previous speaker's utterance and the start of their own

General practice in taking turns = no gaps, no overlaps

Answering polar *yes/no* questions [Casillas, Bobb, & Clark, 2016]



The outcome of early talk with children ?

The amount of language adults address to children directly, before age 3, is strongly related to how well children do in school, both in early grades and later on

It is related to their later comprehension and production of language, to reading, and to spelling, in K through G3

[Walker et al. 1994]

Two other consequences of extensive early exposure and practice with language:

(a) Children's speed in recognizing familiar words increases as their vocabulary becomes larger

(b) Children appear to take up new words more rapidly and so add to their vocabulary faster

[Fernald et al. 2006]

Comprehension is ahead of production

- Children store words in memory, based on forms they've heard from (more expert) adult speakers
- They monitor speech from others and use stored representations to identify words they hear
- They use the same representations as templates for their own productions
- If there's a mismatch, they make a repair

In conclusion

Learning to understand and use a language takes time
— 10,000 hours or even 10 years (Simon & Chase)
Interaction with more expert speakers helps children by providing

- Extended language use
- Feedback on errors (spontaneous and elicited repairs)
- Practice

Two brief adult-child exchanges to end with —

1 – at breakfast, Cory (2;4), stalling on eating

Mother: Come to the table, Cory.
Cory: *I not Cory. I Dan.* [Dan = brother, 3mths old]
Mother: Oh. Come to the table, Dan.
Cory: *I don't know how to walk.*

Notice the deliberate shift in perspective with the adoption of a 'new' role here

2 – at the dinner table, a month earlier, Cory (2;3), pensive:

Cory: I in Mommy's tummy.
Then I come out.
I baby.
I not know how to cook.
I not know how to pour.
I not know how to do puzzles.
I not know how to walk.
I not know how to stand.
I not know how to talk.
I not know how to crawl.
Then, I growed up.

Mother: What could you do when you grew up? [repair]

Cory: I could do puzzles!

In developing language, children are faced with

a very complex puzzle to solve,

and they solve it with a lot of adult help –

with **exposure**

with **feedback**

with **practice**

Now, how to translate this into a learning program…