Why Interaction Promotes Language Acquisition

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Two problems children must solve:

a. How to communicate with others

b. How to understand others

Interaction promotes language acquisition

—As children learn to understand and to speak
with others, in conversation and as they participate
in a range of activities while talking

To succeed in acquisition, children need —

• **Exposure** to the language

• **Feedback** on what they attempt to say

• **Practice** in understanding and speaking

Interaction provides the setting for acquisition

• **How to *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]

• **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]

Adults talk with their children —

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

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

[Hart & Risley 1995]

Children's cumulative experience with language—
Number of word uses, extrapolated to
a 100-hr week, a year, four years:

	One week	One year	Four years
High SES	215,000	11 million	**44 million**
Midd/Lower	125,000	6 million	**24 million**
Welfare	62,000	3 million	**12 million**

[Hart & Risley, 1995]

The number of times children hear certain words
from adults can be very high, 2000 instances or more,
before a child produces a recognizable version
of the target word, say – "water" at 1;3

[Deb Roy, TED talk]

Adult interactional 'strategies' in conversation —

(1) Establish mutual understanding

(2) Offer children words for things, for actions…

(3) Offer children information about referents

(4) Elaborate on topics that children propose

(5) Elicit information from children

❖ **1. Adults try to establish mutual understanding**

1. Adults make use of joint attention,

   physical co-presence,

      and conversational co-presence

2. They accept and approve child contributions

3. They work to check on what their children intended

   when the children make errors (of omission or

   of commission)

This adult checking-up is done through reformulations

—When do adults reformulate child utterances? Often.

—And why ?

☞ the child's pronunciation of a word is unclear,

☞ the morphological form is wrong,

☞ the word chosen is wrong, or

☞ the syntactic construction is wrong …

❖ **Children's errors**   [Chouinard & Clark, 2003]

(a) All the errors of omission or commission from
   5 children aged 1;6/2;0 to about age 4;0
   (3 acquiring English, 2 acquiring French)

(b) The adult utterance that followed each child turn

(c) The child's next turn (the third turn)

Total errors analyzed = **7792**

❖ **Adults rely on two types of reformulation**

Side sequences   **70%**

Embedded corrections   **30%**

A *side-sequence* from adults:

— 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* from adults:

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

Customer: Mm, the <u>wales</u> are wider apart than that.   A

Salesman: Okay, let me see if I can find one with wider <u>threads</u>.   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)

Camille (1;8.15) : /eme/   [< *mettre* 'to put', imperative]

Adult : je la mets?   'I put it [down]'

Camille : *hein*.   'mm'

Adult : je la mets dedans?   'I put it inside?'

Camille : *hein*. <watches as adult reaches into box>

[Clark & de Marneffe, 2012]

(Adult adds clitic subject, *je*, and object, *la*, to C's verb)

Slide 19

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]

Slide 20

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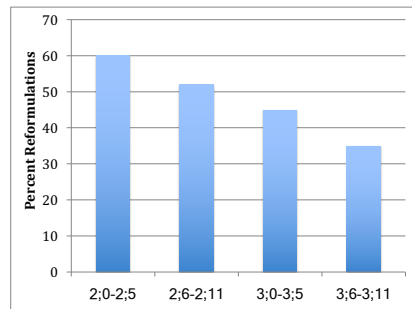> D: *Don't **drop** me downstairs.*   B

[Clark, diary]

(Adult corrects D's causative verb form)

Slide 21
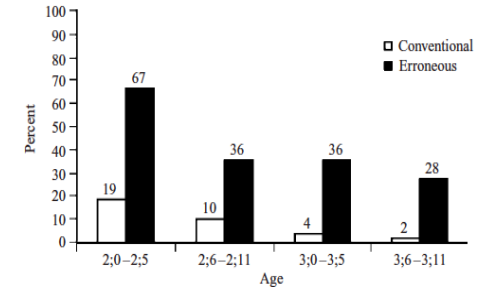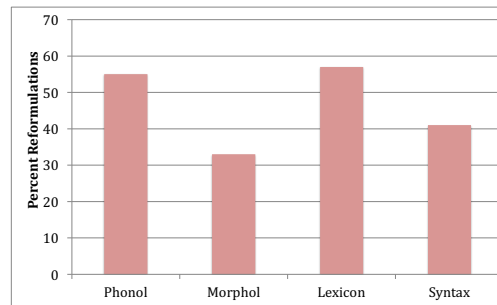
Embedded correction use in child-adult exchanges:

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

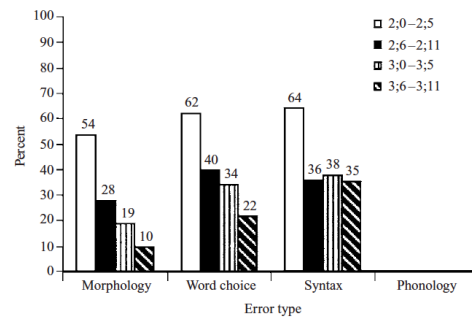## Slide 22

% Adult Reformulations of Child Errors by Age

[based on Chouinard & Clark, 2003]

Slide 23

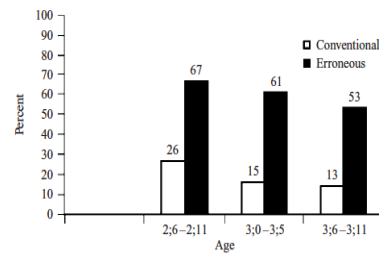% Adult Reformulations by Child Error-type
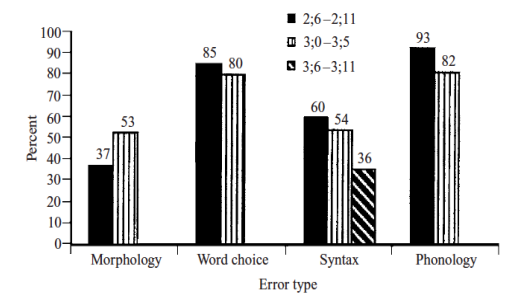
Slide 24

Reformulations of Abe's errors by age (English)
(Conventional replays = repeats w/o corrections)

Slide 25

Reformulations of Abe's errors x type (English)

Slide 26

Reformulations of Philippe's errors (French)
(Conventional replays = repeats w/o corrections)

Slide 27

Reformulations of Philippe's errors x type (French)

◈ **Reformulations : Some examples**

• Phonology:

—Child (2;2.10): *il a des neus le camion.*

<Il dit "neus" pour "pneus" >

Mother: oui, il a des pneus, pneus.

Child: ***pneus.***

—Mother: Tu l'as vu?

Child (2;3): *Oui j'ai vu [ə] lapin.*

Mother: Oui, tu as vu un lapin.

• Morphology (morphosyntax):

—Child (2 ;1.6): *une petit de lait.*

Mother: Une petite boîte de lait.

Child: ***petite boîte*** *de lait.*

• Lexicon:

—Child (4;0) *Moi, je mange, deux tartes.*

Deux grosses tartes comme ça. D'accord?

Mother: Des, des tartines?

Child: *Deux grosses* ***tartines*** *comme ça.*

Mother: D'accord.

• Syntax:

—Child (2;1.26): *les mettre dans le garage.*

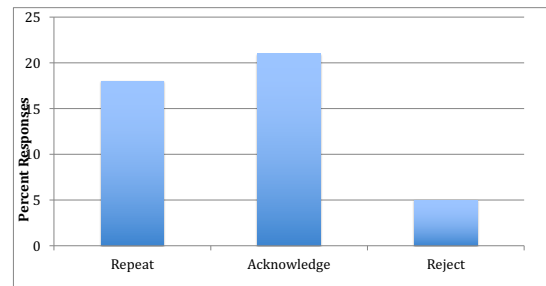Adult: il faut les mettre dans le garage?

Child : ***faut*** *les mettre dans le garage.*

—Child (3;8): *Crois qu'tu fais penser.*

Mother: Faudra qu' j' t'y fasse penser, d'accord.

◈ **Children respond explicitly to adult reformulations**

[Chouinard & Clark, 2003]

◈ **Reformulations of verb forms in French**

Homophonous forms in class-1 verbs (–*er*):

/done/ = *donner*-INF 'to give'

/done/ = *donné*-PP 'gave/given'

versus

Class-3 verbs where INF and PP are different

prendre-INF 'to take'

pris-PP 'took/taken'

Issue:

How do Francophone children come to understand

that there are at least two distinct meanings for class-1

verb forms like /done/, /truve/, and /sote/?

(the infinitival meaning and the past participle)

In effect,

Adults offer children critical information

about these meanings in their reformulations

of children's utterances

[Clark & de Marneffe, 2012]

The data –

☞ Two children, 1;6 to 2;4, videos every 2 weeks

☞ All exchanges initiated by the child containing a verb form

☞ Timing of child's verb use relative to the event (before, after)

☞ Any adult reformulations for each form

In their reformulations

• Francophone adults use different families of
constructions for anticipated vs. completed events

• They do this with both class-1 and class-3 verbs

When the actions are anticipated (so have not yet occurred),
adults use **modal verbs**:

POUVOIR: *Il **peut** sauter*
VOULOIR: *Tu **veux** pas enlever la couverture*
FALLOIR: *Il **faut** le laver*
ALLER (future): *Il **va** tomber*

With actions are completed, adults use **auxiliary verbs**:

AVOIR: *Il **a** sauté*
       *Tu **as** caché la toupie*

ETRE: *Il **est** tombé*
       *Tu **es** sorti*

% Adult Reformulations by Event-types

Adult verb-form + construction	Child utterance relative to time of action		
	anticipatory	ongoing	**completed**
Modal + Infinitive	**65**	6	3
Present tense	35	**86**	0
Auxiliary + PP	0	9	**97**

[Clark & de Marneffe, 2012]

The findings:

• Adults used modals in their reformulations
for anticipated events, and they used
auxiliary verbs for completed events

• They produced these reformulations for
class-1 *and* class-3 verbs

• So class-3 verbs may offer a further 'guide' to the meanings
of homophonous INF/ PP forms in class-1 verbs

Adult interactional 'strategies' in conversation —

(1) Establish mutual understanding

(2) Offer children words for things, for actions…

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❖ **2. Overt offers of words — objects, actions, relations**

(a) Offering a word for an object

Child (1;7.9, points at picture of a kangaroo)
  Mother: Yeah. <laughs> It's called a <u>kangaroo</u>. <u>Kangaroo</u>.
  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 <u>peel</u> 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 <u>from</u> a tree.
Naomi: *He fell down **from** a tree.*

[Sachs corpus/CHILDES]

Slide 46:

Do children take up these offers?

In a study of over 700 offers— %

✧ Repeat target word in next turn **54**

✧ Acknowledge it in next turn **9**
   (*mh, yes, oh*)

✧ Move on, on same topic **37**

Total = **100**

[Clark, 2007]

Slide 47:

Adult interactional 'strategies' in conversation —

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Slide 48:

❖ **3. Offers of words and information pertinent to word meanings and semantic domains**

• Which words are related to each other

• What those relations are

The case of the word ***owl***

Slide 49:

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]

Slide 50:

What does the child learn here?

(a) Mother: Yeah, those are birds.

> **Category**: bird
> Includes DUCK and ???

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

Slide 51:

(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*)

Slide 52:

(c) Mother: And you know what the owl says?
   <points at 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)

Slide 53:

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]

Slide 54:

❖ **Adults offer information about parts**

Adult (to child aged 2;6.5): You know what?
   This part of the sailboat is called a JIB.

[Clark, 2010]

→

Abe (2;10.3): *What's in there? What's in there, mom?*

Mother: It's a wick. You can't burn a candle

if you don't have a wick.

Abe: ***A wick** is a candle*.

Mother: Not exactly. A wick is part of a candle.

[Kuczaj corpus/CHILDES]

→

◆ **Adults offer information about actions and functions**

Naomi (1;6.16): *doggie*.

Mother: what's the doggie doing? is the doggie <u>smelling</u>?

Naomi: ***doggie***.

[Sachs corpus/CHILDES]

Adult: What's that owl doing? <picture of owl knitting >

Child (2;6.14): *He, that thing?* <points to sweater>

Adult: He's <u>KNITTING</u> a sweater.

[Clark, 2010]

Adults use gestures to highlight such information

When adults talk about:	Adult gesture type	
	Indicating (n = 136)	Demonstrating (n=169)
• parts & properties	**100**	0
• actions & functions	7	**94**

[Clark & Estigarribia, 2011]

Adult interactional 'strategies' in conversation —

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◆ **4. Adults follow up and elaborate on child topics**

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: Uh hm. Charlotte swims too.   [Scollon, 1976]

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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*.

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: *Okay*.

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.

Adult interactional 'strategies' in conversation —

(1) Establish mutual understanding

(2) Offer children words for things, for actions…

(3) Offer children information about referents

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(5) Elicit (new) information from children

Slide 64

◆ **Adults elicit (new) 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]

Slide 65

2a. An unsuccessful exchange (without common ground)

   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?

Slide 66

2b. Then Meredith's mother returns (now with common ground):

   Meredith: *band-aid .*
   Mother: Who gave you the band-aid?
   Meredith: *nurse .*
   Observer: Where did she put it?
   Meredith: *arm .*

   [Snow, 1978]

Slide 67

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

Effective **framing** depends on common ground
   – what is already known to the adult and child,
   information they can re-invoke for the telling

Slide 68

When children repeat 'new' information from another speaker,
   they **ratify** it and thereby place it **in common ground** –

   (a) Children generally ratify new information from others,
       by repeating it in their next turn
   (b) They only provide new information themselves
       when they answer questions or introduce new topics
   (c) By 2;6-3;0, children begin to add new information
       themselves in their next turn after an adult assertion

Slide 69

◆ **Children offer new information in answers**

1. C (1;5.23): *bébé.*   <puts the baby doll into a toy cradle>
   Mother: Oui, le bébé fait dodo.
   C: *bébé.*   /REPEATS HERSELF/

2. C (1;6.22): *chapeau* <taking doll's hat>
   Adult: C'est pour qui le chapeau?
   C picks up doll: *pée*   [= poupée]   /ADDS NEW INFO/
       <C starts to put the hat on the doll's head>

   [Veneziano et al., 1990]

Slide 70

3. Mother (pointing to letter **A** on truck in picture book):
       What's on the side of the milk-truck?
       David: *milk-truck **B**.*   /ADDS NEW INFO/

4. Mother (looking at picture book): What's in the street?

       David: ***FIRETRUCK** street.*   /ADDS NEW INFO/

Slide 71

**They sometimes add new information spontaneously
as young as 1;6 -2;6**

   1. Seth (playing, monologue): *Man. **BLUE** man.*

   2. Seth (playing, monologue): *Ball. **NICE** ball.*
                                   ***ORANGE** ball.*

   [Wieman, 1976]

Slide 72

By around 3;6, children add new information more
   consistently, and so advance the exchange:

   Mother (talking about seasons): Après t'as le printemps.
   > Zoë (3;2): *'temps et après l'été* /ADDS NEW INFO/

   [Clark & Bernicot, 2008]

By adding new information, children contribute

to any common ground already accumulated

One interactional device for eliciting new information

is the question: it demands an answer

◆ **Adults ask young children lots of questions**….

Questions as utterance-types in CDS = 32%

[Cameron-Faulkner et al. 2003]

Early on:

☞ *Yes/no* questions   **80%**

☞ *Wh*-questions   **20%**

[Casillas, Bobb, & Clark 2016]

(a) Children are better at answering polar *yes/no* questions
   than *wh-* questions

Why?
   — The answers are 'given' in the *yes/no* question:
      children just have to choose 'yes' or 'no'
      (to affirm or reject)

(b) Children take time to acquire *wh*-question forms,
   in both comprehension and production

   —*what* and *where* come in first,
   then *who, which*
   then *why*,
   then *when*

[Ervin-Tripp, 1970]

(c) Answers to *wh*-questions they don't yet understand
   are seldom appropriate:

e.g., treating *when* as 'where':

Adult: When did he jump the fence? [second of 2 events shown]

Child (3;6): *Right here!* [pointing]

[Clark, 1971]

☞ Finally, children take several years to master
   the **timing** of their turns

The problem?

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

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

Adult and Child gap durations for Polar Questions
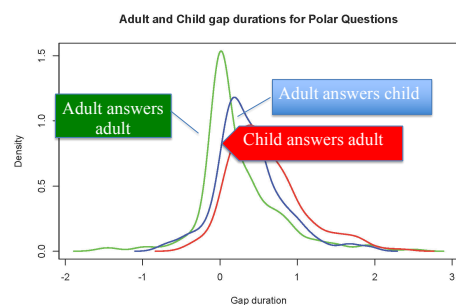
◆ **Adults encourage children to tell stories**

In telling stories, children have to track
   (a) what information is already given
   (b) add new information in successive utterances

In doing this, they gradually become less dependent
on adult support in the course of the narration

But it takes them years to manage to
   • keep events in order
   • keep track of all the characters
   • provide background information about states,
      moods, and beliefs….
   • learn conventional storytelling devices, and
      how to use anaphora, tense, other linguistic forms

[Berman & Slobin, 1994]

In conclusion

Learning to understand and use a language takes time.

But *in interaction with more expert speakers*,
children get help with

  ‣ Practice
  ‣ Feedback on errors
  ‣ Using language to communicate

❖ **Practice**: children get daily practice in

  ⊕ Making contributions

  ⊕ Adding to common ground –
      ratifying new information added by the adult;
      later adding new information themselves

  ⊕ Answering a variety of questions
      in ways that continue the exchange

  ⊕ Improving their timing (too slow, no turn)

❖ **Feedback**

  ⊕ When adults correct child errors

    —with side-sequences where the adult checks up
        on the child's intended interpretation
    —with embedded corrections, where the adult
        offers an alternative version

  ⊕ Children take up corrected forms in the next turn
      with *repeats* and *acknowledgements*,
      or appropriate *continuations*

    —They pay active attention to feedback

❖ **Children readily engage in communicative interactions**

  ⊕ They interact nonverbally from 2 months or so

  ⊕ By 2;0-2;6, children initiate up to **2/3** of exchanges

  ⊕ They take on the role of Speaker as well as Addressee,
      they work to make their intended meanings clear,
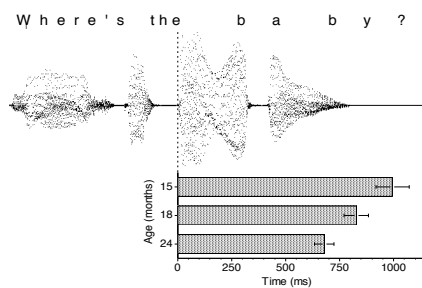   and to interpret the intended meanings of others

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  ⊕ The *amount of interaction* children engage in before
      age 3 plays a critical role in language acquisition

    —The more interaction with adult speakers,
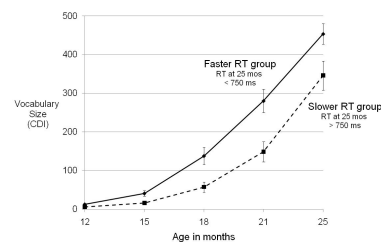   the larger their vocabulary by age 2
    —And the faster they process familiar words

Children recognize words faster : compare15-, 18- and 24-mths
(Fernald & Marchman, 2011)

—And they get faster at adding new words to their vocabulary
(Fernald & Marchman, 2011)

In conclusion, when young children interact with others,
    they must work to be understood –

  ☞ To establish common ground and build on it

  ☞ To use conventional forms and pronunciations….

  ☞ To make their references clear

Fortunately, it appears that it is conversation itself,
the actual interaction, that engages children
from the start —

Clov: What is there to keep me here?
Hamm: The dialogue.

Samuel Beckett, *Endgame*

THANK YOU