



Conversational Repair and the Acquisition of Language

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ABSTRACT

In this article, I examine how repairs in adult-child conversations guide children's acquisition of language. Children make unprompted self-repairs to their utterances. They also respond to prompts for repair, whether open (*Hm?*, *What?*) or restricted (*You hid what?*), and to restricted offers (*Child: I falled, Adult: You fell?*). Children respond to clarification requests with self-repairs in the next turn, and make use of the feedback offered. The contrast between their utterance and the adult utterance identifies the locus of the error (negative feedback), while the adult's offer presents a conventional version of the child's utterance (positive feedback). I describe the use of restricted offers in conversations with children acquiring English and French, then present two case studies of how these inform children about homophonous French verb forms and early opaque Hebrew verb uses. These findings demonstrate the fundamental role of repair in the acquisition of a first language.



Introduction

Children learn language from the speakers around them, in the to-and-fro of conversational exchanges (Clark, 2018a), but they start out with minimal knowledge about how to do things with words, and so may display difficulty in producing the terms needed to convey their intentions in a comprehensible form to their addressees. One result is that they frequently need to repair their own speech. For example, Golinkoff (1986) found that about 50% of infant-initiated interactions (aged 1;0–1;5) involved other-initiated repairs.

They are also responsive to requests for repair from others. Both self-initiated and other-initiated repairs, I argue, play a basic role in the process of acquisition. In essence, they offer a way of giving children feedback – in particular, negative feedback when they have made an error, often combined with positive feedback when adults provide a conventional way to express a particular meaning. Repairs offer one resource for adults offering children feedback during acquisition, and adults do offer feedback, despite past claims to the contrary.¹

When adults encounter problems as they communicate, as Schegloff, Jefferson, and Sacks (1977) pointed out, they use repairs to address recurring problems in speaking, hearing, and understanding. This reliance on repair results in a skewing where self-repair predominates over other-repair, and so reflects an adult preference for self-repair. This preference, I show, also appears in small children. And for novice speakers in general, the same skewing noted by Schegloff and his colleagues consistently follows other-initiated requests for repair.

In conversation, speakers rely on repairs to fix a variety of misunderstandings and glitches that occur in the everyday course of conversation (Healey, de Ruiter, & Mills, 2018; Healey, Mills, Eshghi, & Howes, 2018; Purver, Hough, & Howes, 2018). This is especially clear in adult-child exchanges because

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children are novices, in the process of mastering a first language, and they know very little at first about the forms of language or how to use them. Consider the exchange in (1):

- (1) Child: *he fall.*
 Adult: What? [request for repair]
 Child: *he falling.* [the repair]

Here, the adult checks up after the child's initial utterance with the prompt *What?* to request clarification. In response, the child adjusts his original utterance, here adding *-ing* to the verb. This kind of interaction is pervasive in adult talk with children (see Corsaro, 1977; McTear, 1985).

Repairs are endemic to talk in conversation. They can be *unprompted*, self-initiated, or *prompted*, other-initiated. In both cases, the original speaker generally attempts to make a repair. Prompts appear to fall into three universal types of initiator for repair (Dingemanse et al., 2015):

- (2) a. Open requests (*huh?, hm?*)
 b. Restricted requests (*where?, who?*)
 c. Restricted offers (*he ran across the road?*)

Open requests are requests that do not indicate precisely what was wrong (and, hence, not understood) in the previous speaker's utterance. *Restricted requests*, however, specify which piece of information needs repair, as indicated by the particular *wh-* word chosen. And *restricted offers* specify the information that was unclear by asking for confirmation from the addressee that that was what was meant. Prompts like these are frequent in adult-adult conversation, where they occur as often as once every 1.4 minutes, regardless of the language involved.²

Both unprompted and prompted repairs emerge early in young children. Their attention to problems in their own speech production and their responses to requests for repair have been noted in a variety of observational studies that focussed on the kinds of repairs children make (e.g., Clark & Andersen, 1979; Corrin, 2010a; Comeau, Genesee, & Mendelson, 2007; Forrester, 2008; Forrester & Cherington, 2009; Karmiloff-Smith et al., 1993; Levy, 1999; Tomasello, Conti-Ramsden, & Ewert, 1990). Other studies have been experimental, eliciting repairs with open or specific requests, and looking at the strategies children rely on in responding to requests for repair (e.g., Anselmi, Tomasello, & Acunzo, 1986; Bosco, Bucciarelli, & Bara, 2006; Brinton, Fujiki, Frome Loeb, & Winkler, 1986; Corrin, 2010b; Gallagher, 1977, 1981; Karmiloff-Smith et al., 1993).

Children make spontaneous, unprompted repairs from a very young age. The effect is to make themselves better understood. For example, they persist nonverbally as well as verbally in trying to attain a goal, getting hold of a particular object, say, and therefore in trying to get attention, identifying what it is they want, or in trying to get help (see, e.g., Golinkoff, 1986; Marcos & Kornhaber-le-Chanu, 1992; also Fagan, 2008; Shatz & O'Reilly, 1990). And their ability to make spontaneous repairs to their own speech in trying to make themselves understood (e.g., Scollon, 1976) as well as to reflect on what they can and can't yet say properly (e.g., Clark, 1978; Levy, 1999; Smith, 1973) provides extensive evidence that even very young children actively monitor their own speech production against whatever representations they have already stored in memory for words identified from adult speech (see, e.g., Berko & Brown, 1960; Clark, 1982; Dodd, 1975; Smith, 1973).

Why do children respond to other-initiated requests for repair? Since children's early productions are often defective, more expert speakers (usually adults) at times have difficulty understanding what they are trying to say. But even novice speakers want to make themselves understood. They are in the process of learning language, seizing on words and phrases, storing them in memory for later recognition when they hear them again from other speakers on other occasions, and also storing them as targets to aim for when they try to produce them themselves (Levelt, 1989). When adults

don't understand something, they prompt with both open and restricted requests (e.g., *Hm?*; *He went where?*), and when children make errors, they may check explicitly on what children mean, using restricted offers in the form of side-sequences and embedded corrections (Jefferson, 1983; Schegloff, 1979, 2000). These restricted offers (which I have called reformulations³: Chouinard & Clark, 2003; Clark & Chouinard, 2000) serve children in two ways during acquisition:

- (a) They present children with a conventional version of what they seem to intend, and
- (b) They provide an added check on child productions against any forms children have stored in memory.

Finally, adults frequently also elaborate on what their children have said, pursuing and expanding whatever topic has been introduced. (e.g., Brown & Bellugi, 1964; Clark & Wong, 2002; McTear, 1985).

Self-repairs in children

Whether children are making unprompted or prompted repairs, they typically make the repair requested themselves. In unprompted instances, children monitor their own productions. When they detect a mismatch with a stored form, they try to fix it by producing that form again, and again (see Clark, 1982; McTear, 1985; Scollon, 1976). When prompted to make a repair, they respond differently to open requests for repair (*Hm?*, *What?*) compared to restricted requests for repair (*He's gone where?*, *You saw what?*) (e.g., Brown, 1968; Gallagher, 1977; Garvey, 1977; Laakso & Soininen, 2010; Morgenstern, Leroy-Collombel, & Caët, 2013; Salonen & Laakso, 2009; also Ginzburg & Kolliakou, 2018).⁴ That is, with open requests children may repeat a word or a phrase, repeat a word more loudly, or occasionally produce a different word instead. With restricted requests, children respond with the type of information requested: a name or term for an agent in response to *You saw who?*, for example, versus a term for a place in response to *He went where?*, and so on.

When adults make use of restricted offers after a child error, this may take one of two main forms: (a) use of a *side-sequence* containing a conventional form that corrects the error, as in (3). Such offers are often produced with rising intonation, as the adult checks on whether that was what the child had intended, or (b) use of an *embedded correction*, as in (4), with a lexical replacement by way of correction, the utterance usually produced with falling intonation to confirm understanding of what the child said otherwise.

- (3) Abe (2;5.7): *the plant didn't cried.*

|| Father: The plant cried?

|| Abe: *no.*

Father: oh, the plant didn't cry.

Abe: *uh-huh.*

- (4) D (2;4.29, as his father picked him up in his arms and swung him near

the top of the stairs): *Don't fall me down stairs!*

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

D: *Don't drop me downstairs.*

Notice that in the side sequence in (3) the child can confirm or reject the adult interpretation, and hence has an opportunity to try again, while the child's uptake in the case of an embedded correction, as in (4), is optional.

I first take up instances of unprompted repairs in young children's speech and then turn to prompted repairs of various kinds. In each case, the speaker's goal is to get the other person to understand. The speaker must therefore produce words that are recognizable. Any unprompted self-repairs will depend on the speaker's ability to monitor for mismatches between the adult-based forms in memory and the child versions of those forms being produced (Clark, 1982, 2016).

Unprompted repairs

Even very young speakers persist in making repairs when the addressee fails to understand. This is well illustrated by examples from a one-year-old observed by Scollon (1976). Consider the exchanges in (5) and (6):

(5) Brenda (1;7) talking with her mother

Brenda (1;7): /fei(n)/. (looking at electric fan) /fæ(n)/.

Mother: Hm ?

Brenda: /fæ(n)/.

Mother: Bathroom?

Brenda: /fæni(n)/, /fæi(n)/.

Mother: Fan! Yeah.

Brenda: /k^hu/.

Mother: Cool, yeah. Fan makes you cool.

Brenda's first two attempts were in fact followed up by her mother with an open request (*hm*), then after a third attempt, by a wrong identification of what the child was attempting (*bathroom*). After Brenda's next two attempts, the mother recognizes *fan* and repeats the word, and after Brenda says *cool*, the mother again confirms her understanding by saying *cool* herself, and then offering an expanded version of what Brenda had said.

(6) Brenda (1;8), again talking with her mother as she held up her mother's shoe and looked at it

Brenda: *mama. mama. mama. mama.*

sh. shi. sh. shiss. shoe. shoesh.

Mother: Shoes!

This time, it was only on Brenda's sixth attempt that her mother recognized the word she was trying to say, and indicated that she had understood, again by repeating the word *shoes*. With each attempt at the word *shoe*, Brenda slightly adjusted her production until her mother confirmed that she'd understood.⁵

In both these cases, Brenda managed to achieve her goal: making the other person understand what she was trying to convey. Here, it was to comment on her mother's shoes. But she was not always successful, as we see in (7) where Brenda made four attempts at the word *car*, then two at *go*, and then nine at *bus*, all without success:

(7) Brenda (1;8): $k^h a$. (as a car passes in street; adult doesn't hear it at the time)

$k^h a$, $k^h a$, $k^h a$.

Adult: What?

Brenda: $g\theta a$, $g\theta$.

Adult-2: (xxxx)

Brenda: $b\theta i f$, $b\theta i f$, $b\theta i f$, $b\theta i f$, $b\theta i f$, $b\theta i f$, $b\theta i f$, $b\theta i f$, $b\theta i f$.

Adult: What? Oh, bicycle? Is that what you said?

Brenda: $na?$

Adult: No?

Brenda: $na?$

Adult: No – I got it wrong. (laughs)

But on transcribing the tape of this exchange later, the adult (Scollon) could hear the sound of a car on the road outside, and at that point realized what it was that Brenda was trying to say.

Children begin to produce lexical repairs very early on, that is repairs to their choices of words. But there, they often have to repair a word until it becomes recognizable to the interlocutor. They therefore make many repairs early on in the phonology of words, the first part of the overall system they appear to work on in production. By the time they can produce a number of words in recognizable form, they have typically started to acquire morphology—adding inflections and function words. These also often need repairs. And later still, once past the two-word stage and the early morpheme additions, as children acquire more complex constructions, they advance to repairing syntax too. But, as shown in Table 1 for four types of spontaneous self-repair, children make lexical repairs from the start.

Unprompted self-initiated repairs to phonology are pervasive early on. Children add final consonants ($ca \rightarrow cat$, $be \rightarrow bed$). They adjust medial and final consonants, as in $babit \rightarrow bakit$ (for adult “basket”), $fis \rightarrow fish$, or $runk \rightarrow rug$. They adjust vowels, as in $they\ don't\ wear\ clothes\ to\ bee \rightarrow to\ bed$. And they add syllables, as in $dat's\ a\ flower\ bas \rightarrow basket$ (see Clark, 1982; Clark & Bowerman, 1986).

With morphology,⁶ children add verb inflections as they start to acquire them, as in $he\ come \rightarrow he\ coming\ out$ or $there\ isn't\ any \rightarrow there\ aren't\ any$. They fix verb forms, as in $I\ stucked\ it\ in \rightarrow I\ stuck\ it\ in$, and $you\ know\ what\ they\ ate\ of \rightarrow eat\ out\ of?$ And they mark pronoun gender and case, as in $it's \rightarrow it's$ → $he's\ too\ big$, and $she\ has\ a\ silly\ putty\ like\ me\ had \rightarrow like\ I \rightarrow like\ I\ did$ (Brandenburg, 1915; Jespersen, 1922; Slobin, 1971).

With syntax, they change the subject, as in $dat's \rightarrow he\ gave\ you\ dat\ meat$, or $he\ went\ into \rightarrow he\ put\ the\ fish\ into\ a\ flowerpot$. They change the word order, as in $all\ gone\ tail \rightarrow pony\ tail\ all\ gone$, or $down\ sand\ beach\ I\ been \rightarrow I\ been\ down\ sand\ beach$. And they add elements, as in $all\ gone \rightarrow frog\ all\ gone$, $stand\ up \rightarrow cat\ stand\ up \rightarrow cat\ stand\ up\ table$, or $Kristin \rightarrow Kristin\ sit\ chair$ (Bowerman, 1973; Clark, 1982).

Table 1. Types of unprompted repair (%) in three children (based on Clark, 1982; Clark & Andersen, 1979).

	Total # repairs	Repair category			
		% Phonology	% Morphology	% Syntax	% Lexicon
Sean 2;2–2;11	280	40	18	10	32
Kate 2;8–3;1	132	9	17	20	53
Zelda 2;11–3;8	151	7	18	24	51

Note: Numbers in boldface show main differences in age for repairs.

And virtually from the start, children make changes to their choices of words, as in the shift from *boat* to *canoe* in *might take paddle out boat* → *might take paddle out canoe*, or from *squeak* to *scrape* in *you have to squeak ... squeak* > *scrape it*. And they begin to produce explicit markers of repair like *I mean*, as in *and Jeffier's* → *I mean Antonia's blue*, or *dey have little* → *I mean big turtle hands*. They also add modifiers like demonstratives, quantifiers, and adjectives, as in *these animals are* → *all these animals are small*, or *we are gonna see at the zoo big houses and scary* → *the spookiest spooky house*. And they fill in for pronouns to make their reference clearer, as in *it got* → *the wheel got out* (meaning it came off), or *he* → *um* → *has splinters in him* → *that animal* (see Bowerman, 1973; Braine, 1971; Snyder, 1914). Overall, changes with age in what children repair can be seen in Table 2, where the repairs made are shown for the three children in Table 1 (from Clark, 1982).

Might it actually be easier for children to produce unprompted repairs than to respond to prompts for repair? In making unprompted repairs, children must monitor to hear whether the word forms they produce match the forms they have stored in memory for comprehension (Clark, 2016). And they must then make a repair whenever they detect a mismatch. But do they do this without regard to their interlocutor? Might it be easier to make unprompted repairs if the speaker can ignore facts about interaction? This seems unlikely since the (unprompted) repair results from the child's observation that the adult hasn't responded. Moreover the persistence observed in one-year-olds' gestural requests is essentially interactive (Golinkoff, 1986) and highly responsive to the adult's reaction to each request-gesture. At the same time, there is some evidence that nonhuman primates also display persistence in trying to communicate with humans, with what could be construed as unprompted repairs in the face of someone not understanding or not attending—for instance, looking away (see, e.g., Cartmill & Byrne, 2007; Leavens, Russell, & Hopkins, 2005).

Prompted repairs

Children also adjust their utterances in response to prompts that indicate that they have not been understood. These prompts include (a) open requests like *Huh?* or *Hm?*; (b) restricted requests like *The dog ran where?* or *The ball hit what?*; and (c) restricted offers, as in *The boy wanted the ball?* The exchanges in (8) and (9) illustrate open requests (Corrin, 2010a):

(8) Robin (1;9.3, positioning puzzle piece, is asking whether it fits): [ʔ'ʌsi] ?

(= Insy, as in *Insy Winsy Spider*)

(0.6)

Mother : Huh?

(0.5)

Robin (still positioning same piece of puzzle): [ʔ'ʌsi dɛ] ? (= Insy there)

(.)

Table 2. Changes with age in percent repairs by category (based on Clark, 1982).

Age	% Phonology	% Morphology	% Syntax	% Lexicon
2;0–2;4	32	21	3	44
2;5–2;8	42	19	14	25
2;9–3;0	18	15	19	52
3;1–3;4	2	17	28	53
3;5–3;8	6	25	23	52

Note: Numbers in boldface show trends with age.

Mother: Well no not quite like that. Pull it down.

In this exchange, Robin's mother makes an open request for clarification when he first mentions *Insy*, and then recognizes what he is saying when he expands his utterance to include [de] (meaning *there*). In (7), just a few minutes later, still working on the same puzzle, Robin makes a repair to his word choice to make his intention clearer:

(9) Robin (leaning over puzzle, positioning clock piece): ['(d)ɑ: didʌ] ?
(= there tick-tock)

(0.4)

Mother (looks across to R and puzzle): Hm? (.)

Robin (continues to position clock piece): ['dɑ: kwə kwə] ?
(= there clock, clock)

(0.4)

Mother: The clock goes there?

When his mother doesn't understand his *there tick-tock*, as evidenced by her *Hm?*, Robin substitutes the word *clock* for *tick-tock*, with a spontaneous repair to the first version of *clock*, [kwə], to produce [kwə], and his mother then checks up by reformulating his utterance, *The clock goes there?*

Overall, Robin responded to 78% of maternal initiations, with different types of request for repair. These included open requests to rerun the utterance ($n = 78$), with *Hm?*, *What?*, *Huh?*, *What's that?*; restricted requests ($n = 66$), as in the following exchanges:

(10) Child: *there doggie*.

Mother: doggie's where?

(11) Child: *s'a doggie*.

Mother: it's a what?

And restricted offers ($n = 74$), as in the following where the mother not only fills in a missing article and an auxiliary verb, but also uses rising intonation to check on whether this was what the child intended:

(12) Child: *doggie gone*.

Mother: the doggie's gone?

One last category of request was a retry initiator ($n = 38$), the least successful of the prompts used, as illustrated in (13) and (14):

(13) Mother: what's the boy carrying?

Child: *boy there*.

[child misunderstands]

Mother: what's he got in his hand?

(14) Mother: what's the boy carrying?

Child: *s'a stick*.

Mother: no (.) it's not a stick. ... [hint, with rising intonation]

Experimental studies, where researchers made periodic use of an open request, *Hm?* (not actually tied to any adult misunderstanding) consistently elicited repairs from children, either in the form of another attempt at the utterance (revise), or in the form of a louder repeat (Bosco et al., 2006; Gallagher, 1977, 1981). The percentages of these child repair types elicited in Gallagher (1977) are shown in Table 3.

Restricted requests rely on *wh*- words used to prompt children to fill in just that slot in their utterance (Brown, 1968). In their responses to such prompts, children may simply repeat their earlier utterance, or add a minor change, as in (15):

(15) a. Child: *I want milk*. Mother: What? Child: *I want milk*.

b. Child: *put milk glass*. Mother: What? Child: *put milk in glass*.

They may just repeat the relevant constituent, as in (16):

(16) a. Child: *I want milk*. Mother: You want what? Child: *milk*.

b. Child: *Put milk in glass*. Mother: Put milk where? Child: *in glass*.

They may fill in the antecedent for a pro-form such as a pronoun (*he, it*) or a locative (*there*) that they just produced, as in (17):

(17) a. Child: *I want it*. Mother: You want what? Child: *milk*.

b. Child: *put milk there*. Mother: Put the milk where? Child: *in cup*.

Or they may not respond at all (see further Brown, 1968).

In summary, children respond to other-initiated requests for clarification from an early age, and they respond to both open and restricted requests. They may repeat what they said more loudly, and they often revise their original utterances, for instance by adding grammatical morphemes, or changing the words and word order. In using these techniques for revising and repairing what they had said, children use the skills they have already demonstrated in self-repairs, with the difference that, in these interactions, such repairs follow an adult prompt.

Restricted offers

Restricted offers cover two further types of adult prompt: *side sequences* (Schegloff, 1979, 2000) and *embedded corrections* (Jefferson, 1983). Side sequences are offered with rising intonation – they check on whether the current formulation is the intended interpretation – and they supply elements that are

Table 3. Elicited child repair types after open requests for three age groups (based on Gallagher, 1977).

Age	% Revise	% Repeat	% No response
1;9	73	26	1
1;11	82	13	5
2;5	77	23	1

Note: Numbers in boldface show trends by age.

either missing or wrong in the child's utterance. Embedded corrections replace a specific word while repeating what the child said, usually with falling intonation, to confirm the adult's understanding.

Consider the typical side sequence in (18) as this Father reformulates his child's utterance:

(18) Abe (2;6.4) *milk. milk.*

|| Fa: **you want** milk? [adult reformulation]

|| Abe: **uh-huh.** [acknowledgement]

Father: ok, just a second and I'll get you some.

Notice that in his restricted offer the Father adds both a subject pronoun (*you*) and a verb (*want*) to Abe's initial one word utterance, and thereby offers him a conventional version of the request that Abe seems to have in mind. This version is delivered with rising intonation, as a check on what Abe intended, and Abe confirms that interpretation with his *uhuh* in the next turn in the side sequence. In (19), I present a typical embedded correction, with a lexical replacement and falling intonation. That is, the adult substitutes the appropriate causative verb form, *drop*, for the child's erroneous use of the intransitive *fall*.

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

Father: Oh, I wouldn't drop you downstairs. [lexical repair]

D: *Don't drop me downstairs.* [uptake of adult repair]

And the child, in the next turn, takes up the lexical correction, *drop*, and repeats it (see also Chapman, Leonard, & Mervis, 1986; Clark, 2007; Clark & Bernicot, 2008).

The general communicative goal of restricted offers (reformulations) is to check on the meaning intended by the child. That is, when the child makes an error, the adult in the next turn reformulates the child's utterance in conventional form, with rising intonation, to check on the child's intention ("is this what you meant?"), and so maintain the exchange. Parents, of course, may well have understood what the child intended, but their reformulations still offer a check on this, and simultaneously provide children with positive feedback about a conventional way to express this particular meaning. Then, in the third turn, the child can display uptake, as Abe did in (18) and D did in (19) (see also Farrar, 1990; Moerk, 1976, 1990; Saxton, 2000, 2005; Saxton, Houston-Price, & Dawson, 2005). When they respond to such offers, children often demonstrate uptake with a *repeat* of the corrected form(s), with an *acknowledgment* that the interpretation is correct (or they will occasionally reject it if it is not), or with a *continuation* that tacitly presupposes acceptance of the adult's offer (see Chouinard & Clark, 2003). They appear more likely to do this with reformulations that involve side sequences than those that involve embedded corrections.

Restricted offers or reformulations appear common in response to children's errors, but they decrease with age, presumably because children become more comprehensible as they get older and also make fewer errors. In one study of three children acquiring American English and two children acquiring French, Chouinard and Clark (2003) found that on average 60% of children's early errors, before age 2;6, were reformulated in the next turn, as shown in Figure 1.

When error types are considered, adults reformulated all kinds of errors equally from a statistical point of view – phonological, morphological, lexical, and syntactic, as shown in Figure 2.

Parents reformulate in response to phonological errors, as in (20):

(20) a. Child (2;2.10): *il a des neus le camion.* (= the truck has tires)

< says "neus" for "pneus" >

Mother: oui, il a des **pneus, pneus.** [offers pronunciation of noun]

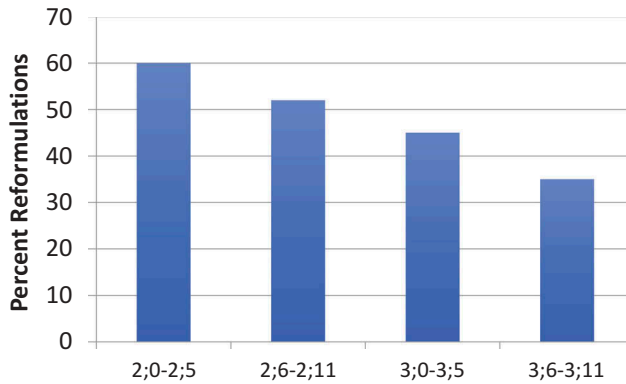


Figure 1. Average adult reformulations (%) of child errors by age (based on Chouinard & Clark, 2003).

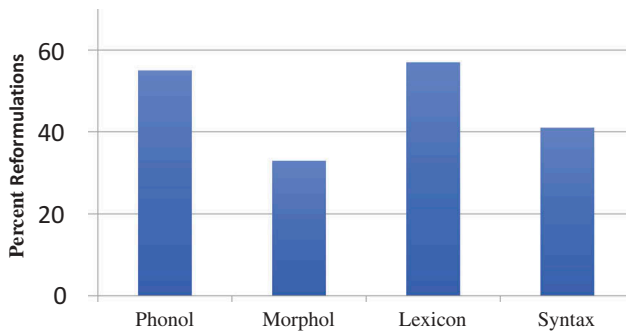


Figure 2. Adult reformulations (%) of child errors by type of error (based on Chouinard & Clark, 2003).

Child: *pneus*. [uptake of adult pronunciation]

b. Mother: Tu l'as vu? (= did you see it?)

Child (2;3): *Oui j'ai vu [ə] lapin*. (= yes I saw a rabbit)

Mother: Oui, tu as vu **un** lapin. [emphasizes article *un*]

They also reformulate errors of morphology, as in (21):

(21) a. Child (2;4.24): *he falled, he falled again*.

Father: ok he **fell**, but no, he's at the boat, ... [corrects past tense form]

b. Child (2;5.7): *baker!* (puts bowl on head) *baker! baker!*

Father: **You're a** baker? [adds pronoun, auxiliary, article]

c. Child (4;1): *It might get loosed down the plughole*.

Adult: **Lost** down the plughole? [corrects past tense form]

They reformulate errors of syntax, as in (22)

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

Adult: **il faut** les mettre dans le garage? [adds pronoun, modal verb]

Child: **faut** les mettre dans le garage. [uptake]

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

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

[adds conditional modal, pronouns, subjunctive]

And they reformulate to correct word choices, as in (23):

(23) D (2;8.14, with toothbrush in hand): *an' I going to tease.*

Mother (puzzled): Oh. Oh you mean you're going to **pretend** to do your teeth?

D: *yes.*

Father (coming into the room): Are you going to do your teeth?

D: *no, I was just **pretending.*** [uptake of Mother's offer]

Children make explicit responses to some 45% of the restricted offers or reformulations that they hear (Chouinard & Clark, 2003), as shown in Figure 3. These include restricted offers in both side sequences and embedded corrections. For the latter, uptake is optional, which may account in part for why children don't take up the repairs offered in reformulations more often.

Following an adult reformulation, children may repeat one or more of the adult repairs offered, as in (24) and (25), from the same child in the same context:

(24) Mo and Child watching a spinning top

Child (1;7.3): /tu/ (= tourne 'spin')

Mo: Tourne oui! Elle tourne la toupie. (= spinning yes. the top is spinning)

Child: /**tun**/

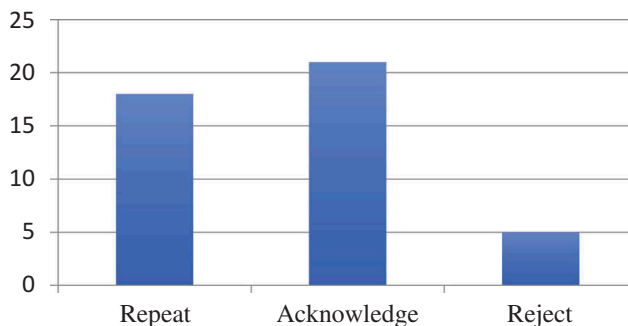


Figure 3. Children respond explicitly to 45% of adult reformulations of erroneous child utterances (based on Chouinard & Clark, 2003).

(25) Child (1;8.15, spinning top): /tun/

Mo: Elle tourne oui. T'as vu combien elle tourne la toupie?

(= it's spinning yes. d'you see how much the top spins?)

Child: /tu: **pi**/ (= tourne toupie 'spins top')

In (24), the child repeats the verb (*tourner* = spin, turn) and improves her own production after hearing the adult reformulation, while in (25) the same child, now over a month older, produces her version of the word for a top (*une toupie*) following the verb *tourne*, in her two-word utterance:/tu: pi/. In (26), a slightly older child acquiring English adjusts his production to add a preposition in place of an earlier schwa:

(26) Peter (2;0.10) *light there*. (pointing to lamp)

Adult: uh-huh # there's another light.

Peter: *light [ə] hall*. (pointing at overhead light)

Adult: light in the hall.

Peter: *light in [ə] hall*.

Adult: uh-huh # there's a light in the hall.

Children also offer various kinds of acknowledgment, usually to confirm the adult interpretation being offered, as in (27), but occasionally to contest it, as in (3), repeated here.

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

|| Mo: you want me to peel it?

|| Abe: *uh-huh*.

Abe: **peel** it.

(3) Abe (2;5.7): *the plant didn't cried*.

|| Fa: the plant cried?

|| Abe: *no*.

Fa: oh. the plant didn't cry.

Abe: *uh-huh*.

Most restricted offers from adults appear in side sequences, as in (27) and in (3) where the adult in both cases reformulated the child's utterance in conventional form in checking on the intended

Table 4. Percentage of adult repairs offered in side sequences to erroneous child utterances (based on Chouinard & Clark, 2003).

Language	Child	Utterances coded	Errors (<i>n</i>)	% Side sequences
English	Abe 2;4.24-3;11.25	6,276	2,911	57
	Sarah 2;3.7-3;11.29	5,029	2,194	70
	Naomi 2;0.-3;8.19	2,242	1,095	70
French	Philippe 2;1.19-3;3.12	2,421	1,363	73
	Grégoire 2;0.5-2;5.27	511	229	62

meaning. The percentage of side sequences used to each child's errors is summarized in Table 4. The remaining adult reformulations contained embedded corrections.

In summary, young children respond to restricted offers as prompts for repair by repeating the forms corrected by the adult, by acknowledging explicitly the interpretation offered, or by continuing on with the exchange and thereby giving tacit acknowledgment to the adult's interpretation.

Two case studies of restricted offers

In this section, I take up data from two recent case studies, the first of children's early verb uses in French, focusing on the homophonic forms of the infinitive and the past participle in class-1 verbs, those with an infinitive ending in *-er* (Clark & de Marneffe, 2012), and the second of children's early opaque verb uses in Hebrew (Lustigman & Clark, 2019).

Early verb uses in French

Children acquiring French produce many single word utterances containing a verb form that could be an infinitive or a past participle, as in the case of /done/. The target for this form could be *donner* 'to give', the infinitive form, or *donné* 'given', the past participle. At around 2;0 to 2;6, children acquiring French use some present tense verb forms, for ongoing events, and a number of homophonous verb forms that could be being used to refer to completed events, for adults the past participle, or to anticipated events, for adults the infinitive. The problem is that children at this stage don't yet produce any auxiliary verbs, used with past participles, or any modal verbs, used with infinitives. In the case of an event that is anticipated, one would use a modal+infinitive construction, as in (29a), and in the case of a completed action, an auxiliary+past participle, as in (29b).

- (29) a. *il peut tomber* 'he might/could fall' – anticipated action
 b. *il est tombé* 'he fell/has fallen' – completed action

Children this age produce clitic subject pronouns only with present tense verb forms (see Veneziano & Clark, 2016).

When adults reformulate children's utterances, they take into account the timing of the utterance relative to the event the child is most likely referring to in context. That is, they make restricted offers of constructions with modal verbs for anticipated events, events that have yet to occur, and with auxiliary verbs for completed events, events that have already happened.

When we examined the contexts of use for such verbs in videotaped corpora from two young children acquiring French, we found that adults deployed restricted offers that depended on the context of the action the child was focussing on. That is, adults generally produced modal+infinitive constructions for actions that were anticipated, or else used a present tense verb in such contexts, a permissible option in French. And they produced auxiliary+past participle constructions for actions that had been completed, as shown in Tables 5 and 6 (based on Clark & de Marneffe, 2012).

Table 5. Camille: Percentage of adult reformulations after verb uses for anticipated vs. completed events (based on Clark & de Marneffe, 2012).

Anticipatory	Completed	Adult construction produced
65	3	<i>veut donner</i> – modal+infinitive
35	0	<i>donne</i> – present tense
0	97	<i>a donné</i> – auxiliary+part participle

Note: Boldface numbers show preferred adult forms.

Table 6. Gaël: Percentage of adult reformulations after verb uses for anticipated vs. completed events (based on Clark & de Marneffe, 2012).

Anticipatory	Completed	Adult construction produced
56	13	<i>veut donner</i> – modal+infinitive
44	20	<i>donne</i> – present tense
0	67	<i>a donné</i> – auxiliary+part participle

Note: Boldface numbers show preferred adult forms.

In their restricted offers (reformulations) to children, adults provided both negative feedback as they repaired the children's omissions of modal and auxiliary verbs, and positive evidence for how to express those meanings. In doing this, of course, they showed the children that there were two homophones in play with such verbs. Note that verbs in class-3, often in *-re* and mostly irregular, have two different forms for the infinitive and the past participle. The same adults also reformulated these verbs with the relevant constructions: a modal+infinitive form for anticipated actions, and an auxiliary+past participle for completed ones (Clark & de Marneffe, 2012; Veneziano & Clark, 2016).

Early verb uses in Hebrew

Young children acquiring Hebrew start to produce their first verbs between 1;0 and 1;6. They produce a variety of verb forms, some of them transparent in that the adult target is identifiable though it may be mispronounced. But most of their early verb forms are opaque, and so generally unclear or ambiguous. This is because they lack affixes on singular masculine verb forms (e.g., *baxa* 'cried'); they appear in a truncated form based on the infinitive (e.g., *xol* from *le'exol* 'to eat'); or they are missing inflectional and derivational affixes, as in (30).

(30) Adult: *ma ata ose?* 'what (are) you doing?'

Child (1;9): *pes.* 'climb [t-p-s, P3]'

Adult: *metapes* al ha-šulxan? 'climbing-SG-Masc on the-table?'

Here, notice that *pes* is opaque because it could be based on *letapes* 'to-climb', *netapes* 'climbing 1PL', *yetapes* 'will-climb-SG-Masc', and so on.

One-year-olds also produce some unanalyzed verb forms that they then use for all instances of certain events regardless of tense, number, or gender, as in (31).

(31) a. Ro (1;11.25): *macat* 'found-2SG-Fem'

(when referring to herself, for adult *macáti* 'found-1SG')

b. Li (1;7.16): *boxa* 'is-crying-3SG-Fem'

(when referring to her baby brother, for *boxe* 'is-crying-3SG-Masc')

Adults frequently reformulate such child forms in the next turn, using the same verb lexeme in their restricted offers, as in (32).

(32) a. Ro (1;6.5): *tax* [p-t-x, p1]

Adult: *ma at osa, liftoax?* 'what (are) you doing? to-open-INF?'

b. Li (1;11): *axšav akum, ima.* 'now [k-w-m, P1], Mommy'

Table 7. Percentage of adult reformulations and elaborations of opaque child verb forms in Hebrew (based on Lustigman & Clark, 2019).

Child	Opaque verbs (n)	% Adult reformulations	% Adult elaborations (same lexeme)
Li 1;5.19–2;4.8	1,690	50	45
Sh 1;3.14–2;3.24	1,722	72	24
Ro 1;4.2–2;5.29	1,869	59	39
Le 1;9–2;4	1,579	57	38

Note: Boldface numbers highlight adult reformulations.

Adult: at roca lakum? ‘you want to-get-up-INF?’

And when adults don’t make a restricted offer in the next turn, they typically elaborate on what the child seems to intend instead, using the same verb or a semantically related one, again often in the infinitive.

The amount of adult reformulation and elaboration for children’s opaque verb forms is shown in Table 7 (based on Lustigman & Clark, 2019).

During the early months of children’s verb production, adult reformulations and elaborations are frequent, and, on average, followed 96% of children’s early verb uses. But as children added inflections for person, gender, number, and tense, adults used fewer infinitive forms in their restricted offers, and so reduced the number of other-initiated repairs they requested for verb forms. Again, the repairs here in adult reformulations provide both negative feedback, immediately after a child error, and positive evidence in the conventional forms offered for the meanings apparently intended (see, further, Lustigman & Clark, 2019).

Conclusions

Repairs in conversation, especially prompted repairs, are an important resource as children master the word forms and constructions of a first language. Examination of both unprompted and prompted repairs show that children monitor themselves and also monitor others in the course of conversational exchanges. In self-monitoring, children depend on representations in memory for adult words they have stored (Berko & Brown, 1960; Clark, 1982; Dodd, 1975). These representations allow for the recognition of familiar word forms, and, later on, for the retrieval of those forms for production. Children monitor their own speech from as early as the end of their first year and initiate repairs as needed (e.g., Scollon, 1976), with a preference for self-repair analogous to that observable in adult speakers. More critical to interactions in conversation, children also monitor others and are sensitive to requests for repair, often responding to those with a repair or an attempt at repair from early in their second year. This responsiveness to other-initiated requests for clarification emerges around the same time as their spontaneous unprompted repairs. With prompted repairs, I have focused largely on restricted offers, or reformulations, where adults offer a conventional way to express the meaning apparently intended by the child, and I have shown how children respond to these, often taking up the repair offered by repeating it or acknowledging it in the next turn. And when they don’t do this, like adults they typically continue on the chosen topic, thereby tacitly acknowledging the adult’s restricted offer.

Restricted offers or reformulations are particularly important because they simultaneously present children with *negative feedback* – they follow immediately after the child makes an error of some kind, in the next turn – and with *positive evidence* about how to express that meaning – in the form of the conventional utterance provided in the reformulation. Conversational repair, both self- and other-initiated, provides a pervasive resource for children acquiring language.

Children make repairs to phonology. These comprise most of their very early repairs as they try to produce words in a form recognizable to their interlocutors. They make repairs to morphology, adding inflections and function words. They make repairs to syntax, changing word order as they

add modifiers, adjusting their subject choice, and learning how to combine clauses as they begin to produce more complex constructions. And they make numerous repairs to their lexical choices from the start, as they correct their word choices to produce a more appropriate term. But building up a vocabulary takes time, and consistently producing the right word(s) on each occasion takes lexical knowledge (Clark, 1993, 2018b).

Repairs, whether unprompted or prompted, flag points of possible misunderstanding. Adults rely on open and restricted requests as well as restricted offers to smooth the course of conversational exchanges between adult-experts and child-novices. And children make use of the repairs presented in restricted offers, attending to them, and adjusting their own productions so they are more comprehensible to others. Restricted offers in particular play a role in children's discovery of the forms of their language, in how to do things with words, because, as Roger Brown conjectured some 50 years ago, "Changes produced in sentences as they move between persons in discourse may be the richest data for the discovery of grammar" (Brown, 1968, p. 288).

Notes

1. Chomsky and his students have long claimed that adults offer children no negative evidence in response to errors, and that the language they speak to young children is impoverished. These two claims have been used to bolster the view that language, in particular syntax, is innate. However, both claims are strongly contradicted by data from child acquisition and from child-directed speech (see, e.g., Chouinard & Clark, 2003; Clark & de Marneffe, 2012; Lustigman & Clark, 2019; Pullum & Scholz, 2002; Scholz & Pullum, 2006; Saxton, 2005).
2. Dingemans et al. (2015) analyzed conversational data from 12 languages drawn from eight different language families, namely Cha'palaa (Ecuador), Dutch (NL), English (UK), Icelandic, Italian, Lao (Laos), Argentine Sign Language, Mandarin (PRC), Murrinh-Patha (Northern Australia), Russian (Rusland), Siwu (Ghana), and Yéli Dnye (Island Melanesia).
3. Other researchers have used the term "recast" (see Conti-Ramsden, 1990; Saxton, 2005).
4. What we don't yet know is whether adults in all societies request repairs when they hear children make errors. In a number of speech communities, adults appear to monitor for the appropriateness of the child's utterance on that occasion, to a particular person, rather than for errors in the actual utterances the child produces (e.g., Brown & Gaskins, 2014; Schieffelin, 1990; see also Dingemans & Floyd, 2014; Heinrich, Heine, & Norenzayan, 2010).
5. One caveat: Transcriptions of audio recordings do not show whether the interlocutor indicated failure to understand to the child via facial expression, head tilt and pause, or some other indication of puzzlement, during such exchanges. In short, the adult may actually be using some form of nonverbal open request here.
6. The types of repair made will naturally differ somewhat with the type of language being acquired. In some cases, for example, it may not be possible to distinguish morphological and syntactic repairs.

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