

## 7 How do they do it?

Children are born into a world full of noises and sounds of all sorts (music, car engines, slamming doors, whistling, coughing, crying, conversation, and so on). Somehow, they have to take the part that is speech, break it down into its smaller parts (words, prefixes, suffixes, etc.), determine what they mean, and figure out how to reassemble them in new ways.

Doing this involves mastering a system of sounds, words, structure and meaning whose intricacy typically defeats even the most gifted adult learners. Yet children get the job done before they learn to tie their shoes. How do they do it?

There's still no real solution to this puzzle, although bits and pieces of the answer are starting to emerge. And as this happens, it's becoming clear that certain widely held ideas about how language learning works are probably dead-ends.

The job of this chapter is to try to sort out the difference between the ideas that make sense and those that don't. We'll start by looking at the popular idea that children learn language by imitating their parents.

### 1. Why it's not imitation

Ask the average person how a child learns language and you'll probably be told "by imitating adults." On the face of it, that makes a lot of sense. The adults in a child's life speak a particular language, and the child ends up speaking that language too.

Imitation of some sort probably is involved in certain aspects of language acquisition. Take words, for example. There's only one way for children to learn that the word for "cat" is *cat* or that the word for "light" is *light*. They have to notice what adults say and then try to do the same thing themselves – in other words, they have to imitate what they hear.<sup>1</sup> It is certainly no accident that humans, the only species with language, have a capacity for vocal imitation that

far exceeds anything in monkeys and apes – contrary to popular misconception.<sup>2</sup>

But the imitation explanation won't take us very far. That's because there are major parts of language that cannot be imitated. Sentences are the most obvious example.

Unlike words, which are memorized and stored in the brain, sentences are created as the need arises. You've probably never seen a single one of the sentences in the preceding two paragraphs before in your life, and you'll probably never see any of them again. Yet you understood them, and you could have produced them yourself if you'd been writing this book.

Apart from greetings and other formulaic expressions, many of the sentences we utter and hear every day are novel in this way. They simply don't involve the sort of remembering and repeating associated with imitation.

Two facts about language acquisition confirm that imitation is not the explanation for how children learn to produce sentences.

First, children aren't very good at imitating sentences containing unfamiliar words and structures. They typically repeat only what they can already say. If they've already learned definite articles, they'll repeat a definite article. If they've already learned plural endings, they'll repeat a plural ending. If they've already learned the verb *be*, they'll repeat it. Otherwise, they'll imitate *The dogs are hungry* as *Dog hungry*. Indeed, it is precisely for this reason that experimenters commonly use imitation tests as a way of assessing children's language development.<sup>3</sup>

Second, perhaps because they know they're not very good at it, children don't even try to imitate sentences very often. The proof of this is straightforward – simply take a typical conversation between a mother and her child and calculate how many of the child's utterances are imitations.

The following conversation took place when Adam was two years and eight months old. (The symbol # marks a pause.) You can count a sentence as an imitation if it includes the same "content" words (nouns, verbs, and adjectives) used in the same order as in the utterance just produced by an adult.

1. Mother: Do you know what this is?
2. Adam: What this is # car.
3. Mother: No # that's not a car.
4. Adam: Pin.
5. Mother: Pin?
6. Adam: Yeah # Mommy # pin.
7. Mother: What kind of pen?
8. Adam: Car.
9. Mother: Car?
10. Adam: Yeah.
11. Mother: What kind of car?
12. Adam: Red car.
13. Mother: Red car?
14. Adam: Yellow car.
15. Mother: Yellow car?
16. Mother: What do you do with it?
17. Adam: [inaudible] watch.
18. Adam: Where horses go?
19. Mother: Where what go?
20. Adam: Where horses?
21. Mother: Horse?
22. Adam: Horse # go yes Mommy.
23. Mother: Did he go to the corral?
24. Adam: Did he?
25. Adam: There he is # Mommy.
26. Adam: Corral corral.
27. Adam: Baby horses.
28. Adam: Horses.
29. Adam: Baby horses.
30. Adam: Ready me go?
31. Adam: Ready me.
32. Adam: Go down dere.
33. Adam: Go down right side.

How many times did Adam imitate what his mother had just said during this conversation? He seemed to try just once – in line 2, where he repeats the last part of his mother's sentence (*what this is*). Not a single one of Adam's other sentences contains the same set of content words as a preceding utterance by his mother. In fact, if anyone seems to be imitating, it's Adam's mother – on four occasions (lines 5, 9, 13, and 15) she repeats what HE has just said!

Children vary a great deal in terms of precisely how much they imitate their parents' speech. One study of the speech of six children who were just beginning to produce multi-word sentences found that the proportion of imitated utterances over several taping sessions ranged from around 5 percent in one child to around 40 percent in another.<sup>4</sup>

If anything, this study probably overestimated the extent of imitation in children's speech. That's because the researchers counted an utterance as an imitation even if it was missing a lot of the words that were in the corresponding adult sentence. Here's an example from the speech of twenty-one-month-old Peter, with "imitations" in boldface.

PETER: Open. Open. Open

ADULT: Did you open the tape recorder?

PETER: **Open it.**

ADULT: Did you open the tape recorder?

PETER: **Tape recorder**

It's probably unfair to refer to Peter's "Open it" as an imitation; it's most likely just the answer to the adult's question.

In sum, although children do sometimes repeat what they have just heard (as do adults), imitation does not seem to be a very large part of the picture, especially when it comes to figuring out how sentences work. The key to understanding how children learn language clearly lies elsewhere.

## 2. Why it's not teaching

If children don't learn language by imitation, then how do they do it? Could it be that parents somehow teach their children to speak by explaining things to them or by correcting them when they make a mistake? That too is unlikely.

Once we go beyond the most superficial things, there's not much that the average person (or even the above-average person) can say about how language works. That's because most of what we know about language is SUBCONSCIOUS: we know it, but we don't know that we know it – and we're therefore not able to explain it to anyone else.

Take the way we use definite and indefinite articles, for instance. Why do we say *I went to school* but not *I went to movie*? If the so-called "definite" article *the* indicates definiteness, then why can it be used in sentences like *The fox is a nocturnal animal* to mean "foxes in general"? Why do we say *the Pacific Ocean* but not *the Lake Michigan*? And why do we usually say *The ball hit him on the arm?* rather than *The ball hit him on an arm?*, even when we're not sure which arm it is?

You know that your mother didn't teach you these things, and you know that you're not going to teach them to your child either.

Then, what about the possibility that parents train their children in roughly the way that one trains a pet? That is, they correct their children when they make a mistake, but they don't try to explain why it was a mistake. There are two big problems with that idea.

For one thing, parents don't try to correct their children's language all that often. When Roger Brown and Camille Hanlon looked at this issue, they found that parents seemed in general to pay little attention to HOW their children said things, although they did seem to care about WHAT their children said.<sup>5</sup> They would respond "Uh huh" to linguistic atrocities like *Her curl my hair*, while correcting perfectly natural sentences like *There's an animal farmhouse* because it was actually a lighthouse.<sup>6</sup>

The other problem with the correction hypothesis is that children often don't respond very well to corrections. Here are a few examples that have been collected over the years.

#### Example 1<sup>7</sup>

Child: Nobody don't like me.  
 Mother: No, say "nobody likes me."  
 Child: Nobody don't like me.  
 [eight repetitions of this dialogue]  
 Mother: No, now listen carefully; say "nobody likes me."  
 Child: Oh! Nobody don't likes me.

#### Example 2<sup>8</sup>

Child: My teacher holded the baby rabbits and we patted them.  
 Adult: Did you say your teacher held the baby rabbits?  
 Child: Yes.

Adult: What did you say she did?  
 Child: She holded the baby rabbits and we patted them.  
 Adult: Did you say she held them tightly?  
 Child: No, she holded them loosely.

#### Example 3<sup>9</sup>

Child: Want other one spoon, daddy.  
 Father: You mean, you want the other spoon.  
 Child: Yes, I want other onc spoon, please Daddy.  
 Father: Can you say "the other spoon?"  
 Child: Other . . . one . . . spoon.  
 Father: Say "other."  
 Child: Other.  
 Father: Spoon.  
 Child: Spoon.  
 Father: Other spoon.  
 Child: Other . . . spoon. Now give me other one spoon?

In sum, instruction is neither frequent enough nor effective enough to have a major impact on language learning.

#### Setting a good example

A related hypothesis is a bit more promising. The key idea is that although parents usually don't make a deliberate effort to correct their children's speech, they often end up providing alternative sentences against which children can measure their own immature utterances.

It's easy to imagine situations in which this could happen: a child says "The dog runned really fast, Daddy" and, without really thinking about it, her father says "Yeah, he ran really fast, didn't he?"

Notice that the father said *ran* where the child said *runned*. He didn't actually try to correct his daughter – in fact, he was probably just trying to agree with her and keep the conversation going – but he did nonetheless set a good example for her.

Linguists call these sorts of responses *recasts*. Here are some additional examples, with the recasts in small capitals to make them easier to pick out.

Some recasts by Eve's mother when Eve was 18 to 27 months old<sup>10</sup>

Eve's utterance	Her mother's recast
It fall.	It FELL?
I don't read no books.	I know you're NOT going to read ANY books.
A butter.	You want SOME butter?
Have two cracker.	How many CRACKERS?
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.
That's why J. comed.	Yes, J. CAME yesterday, yesterday afternoon.
It doing dancing.	It 's dancing, yes.
That napkins.	Yeah, THEY'RE napkins.
Where's the pencils?	Where'RE the pencils?
Where is them?	THEY're at home.
What I do to it?	What DID you do to it?
Cold it.	I know IT'S COLD.

In order to get a sense of how recasts fit into an actual conversation, take a look at the following speech sample involving thirty-one-month-old Adam and his mother. I've used boldfaced type for the parts of the mother's recasts that might provide a model that Adam could use to evaluate his incomplete or incorrect utterances. (The # symbol marks a pause.)

1. Adam: I got a pant on.
2. Mother: You've got what on?
3. Adam: Shoes on # pant on too # shirt on too.
4. Mother: Shoes on # **pants** on # shirt on?
5. Adam: Yeah.
6. Mother: What else?
7. Adam: Shoelace.
8. Adam: Pant.
9. Adam: Shoes.
10. Adam: Shoelace.

11. Mother: What else?
12. Adam: Shoelace.
13. Mother: Shoelace.
14. Mother: What else?
15. Adam: Pant.
16. Adam: Sock.
17. Adam: Dat socks.
18. Adam: Sock.
19. Mother: What else?
20. Adam: Face.
21. Adam: What else?
22. Adam: Cromer face.
23. Mother: **Cromer's face?**
24. Adam: Ursula's face.
25. Adam: Adam face.
26. Mother: What else?
27. Adam: Mommy face.
28. Adam: Mommy has a sock on.
29. Mother: No # I haven't socks on.
30. Adam: Cromer has a sock on.
31. Adam: Ursula has a boot on.
32. Mother: Ursula has **boots** on.
33. Adam: Have shoes on.
34. Adam: Eyes.
35. Mother: Eyes?
36. Mother: How many eyes?
37. Adam: Four.
38. Mother: Four eyes.
39. Mother: How many ears?
40. Adam: Four.
41. Mother: Four ears.
42. Adam: How many nose?
43. Mother: Yes # how many **noses?**
44. Adam: Four.
45. Mother: Four.
46. Mother: How many mouths?
47. Adam: Mouth # Cathy # pop go weasel.

As you can see, Adam's mother adds a missing verb (line 2), a missing plural suffix (lines 4, 32, 43), and a missing possessive marker (line 23).

*How serious are parents about recasting?*

Although recasts LOOK helpful, mothers don't provide them all that consistently. (Fathers and even older siblings provide recasts too, but perhaps not as frequently as mothers do.<sup>11</sup>)

In one study of forty mothers of children aged two to five, it was found that only mothers of the two year olds actually recast children's "bad" utterances significantly more often than their "good" sentences. And, as the following table shows, even they provided recasts only about a quarter of the time (26.3 percent, to be exact).

*Recast rates for mothers of two-year-old children<sup>12</sup>*

	"bad" sentences	"good" sentences
% of times repeated in whole or in part	26.3	13.7
% of times not repeated	73.7	86.3

With numbers like these, it would be pretty hard for two-year-olds to RELY on their mother's recasts to learn language. In fact, it might even be misleading. Not only do mothers leave the vast majority of their children's bad sentences alone (73.7 percent in this sample), they sometimes partially repeat and change perfectly good utterances (13.7 percent).

You can see both of these things happening in the speech sample we just looked at. On the one hand, Adam's mother makes no attempt to recast a number of his incorrect utterances – *dat socks* in line 17 and *Adam face* in line 25, for example.

On the other hand, she recasts two utterances that were fine to begin with – Adam's *four* in lines 37 and 40 is perfectly okay as it stands. There is no need to add a noun like *eyes* or *cars* after the numeral in English (although some languages do require this).

To complicate matters still further, there are even times when mothers repeat their child's imperfect utterances, as if they approved of them. You can see an example of this in the following conversation, in which Adam's mother repeats his incomplete *read book* without

adding the missing *the* or *a*. (Adam was twenty-eight months old at the time.)

Adam: Book.

Adam: Read book.

Mother: Alright, you **read book**.

This type of thing is surprisingly common. One study reports that mothers may repeat as many as one third of their children's incorrect utterances without making any changes.<sup>13</sup>

*Do recasts help?*

In light of this, it's perhaps not surprising that recasts are not a magical elixir. They don't always have a discernible effect, at least not a reliable one.

In line 23 of our speech sample, for instance, Adam's mother provides a recast that models the possessive marker *'s*, which Adam then includes in his next utterance (line 24) but drops in the following one (line 25).

22. Adam: Cromer face.

23. Mother: Cromer's face?

24. Adam: Ursula's face.

25. Adam: Adam face.

The effectiveness of recasts is dubious in other cases as well. Take definite and indefinite articles (*the* and *a*), for example. Young children often drop these words, and parents sometimes respond with a recast that includes the missing element.

CHILD: Clown fall down.

PARENT: Yes, **the** clown fell down.

But does this make a difference?

One study focused on this question by examining the relationship between article use and recasts in the speech of three children.<sup>14</sup> The researchers found that the children's parents provided recasts for missing articles about 35 percent of the time. However, this seemed to have no immediate effect. The children didn't suddenly start using articles in response to their parent's recasts.

In addition, there was no link between the frequency of recasts and the rate at which children's use of articles increased over the longer term. No matter how many recasts children heard, it didn't seem to speed up their learning of articles.

On the other hand, we do know that recasts are sometimes effective. In one especially intriguing experiment,<sup>15</sup> four- and five-year-olds were taught "fake" verbs that referred to various funny actions (such as bopping someone with a beanbag attached to a string).

When the children first learned the verbs, they heard only the "-ing forms" ("This is called *PELLING*"), so they had no idea what the past tense forms should be. In fact, the verbs were supposed to be irregular, so that the past tense of *pell* was *pold*, not *pelled*. (The real verb *tell* works this way.)

Two strategies were used for teaching the past tense – one that allowed children to make a mistake and then hear a recast and the other that simply presented the correct form to begin with.

*Strategy 1: Children are allowed to make a mistake and then hear a recast*

ADULT: What happened?

CHILD: He pelled him.

ADULT: Yes, he POLD him

*Strategy 2: Children are presented with the correct form to begin with*

ADULT: Look what happened! He POLD him on the leg.

The results of this experiment were very clear. No new verb was ever used with the right past tense form by a child when it was presented using Strategy 2. However, Strategy 1 achieved a success rate of almost 30 percent after a single recast!

This suggests that children are sensitive to recasts, especially those that offer a *direct and immediate contrast* between the child's way of saying something and the adult way. (Notice that Strategy 1 presents the child with "pold" right after she says "pelled.")

A longer-term study, involving ten sessions over a five-week period, yielded even more impressive results.<sup>16</sup> By the end of the fifth week, children had a success rate of almost 100 percent when

exposed to recasts, compared to only about 40 percent when they did not receive this type of feedback.

#### *A question of timing*

Recasts may be more helpful at certain points in the learning process than at others. A detailed study of Eve showed that she was most sensitive to recasts at the point where she was already using the correct form about 50 percent of the time.<sup>17</sup> Prior to then, recasts didn't seem to make much difference. But from that point on, she was more likely to modify her speech in response to recasts.

It may be, then, that recasts are more useful for remembering to use the forms that have already been learned than for learning new forms. If this is right, it means that recasts don't help children *learn* language. They just help them get better at *using* what they've already managed to learn.

This seems reasonable. If recasts were the key to language learning, we'd expect some children to be more successful at language learning than others since some parents provide more recasts than others.<sup>18</sup>

But this just isn't so: children learn language successfully under a wide range of very different conditions. There even seem to be cultures in which children are not treated as conversational partners until they can produce sentences of their own – recasts for such children are probably a rare luxury at best, but they still learn their language without any noticeable difficulty or delay.<sup>19</sup>

So it looks like recasts are HELPFUL but that they are NOT NECESSARY. Children can learn language without them or any other sort of teaching.

### 3. So, what do children need?

What then do children need from their parents? If children don't try to imitate their parents (at least for sentences), and if they don't rely on them for teaching or even recasts, what's the point of having adults around at all?

It has been suggested that one of the ways in which parents contribute to language acquisition is by speaking to children in a