Chapter 12 First language acquisition
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"Delving Deeper"

Methodologies used to determine infants' knowledge of language

Over the past few decades linguists and psychologists have developed many innovative ways of testing babies and infants. Here is a summary of some of these methods.

- *Naturalistic approaches*. Children are recorded and/or videotaped while they are playing or participating in some activity. In ideal conditions the child's development can be followed over time. This method has been used since the beginning of L1 acquisition studies.

- *High Amplitude Sucking Procedure*. This methodology is used with newborns, up to about 3 months. The babies are placed in a quiet room with a pacifier that is connected to a computer. The computer controls the sounds the baby hears and links the production of stimuli to the strength of sucking. First, researchers determine a baseline of sucking when there are no stimuli. Then, stimuli are presented until the baby loses interest in the stimulus and sucking decreases, at which point new stimuli may be presented, leading to a renewal of sucking rate if and only if the baby can tell the difference between the first and second stimuli. For example, the researcher may want to determine whether the baby recognizes the difference between [p] and [p^h]. Recall from Chapter 3, Phonology, that in English these two sounds are not distinctive, while in languages such as Hindi they are. The High Amplitude Sucking Procedure shows three-day old infants who live in an English speaking environment do distinguish between these two sounds, unlike adults. The ability to distinguish between sounds present in human languages but not distinctive in the language the baby is learning disappears around 8 months.

- *Preferential Looking Paradigm*. The infant is seated on a parent's lap. The parent is blindfolded in order to avoid influencing the results. In front of the infant are two screens. For example, one may show an animal being tickled by another, while the reverse is represented in the second screen. A hidden speaker produces a stimulus, for example *The bear is tickling the dog*. The infant's preference is measured in the amount of time spent looking at each screen. If the child's gaze lingers on the screen that corresponds to the stimulus it is taken as evidence that the child is able to interpret the utterance correctly. This methodology has been used to show that young babies are able to use syntax to interpret utterances.

- *Event-related Potentials*. An electroencephalograph is used to measure electrical brain responses to particular stimuli. For example, the researcher may want to determine whether the child (or adult, as this method can be used throughout the lifespan) can discriminate between neutral sentences and those containing syntactic or semantic violations. Research has found different responses to syntactic and semantic violations.

- *Older children.* Testing older children is not as challenging as testing infants. Both production and comprehension can be tested using puppets, pictures, and toys.

Narrative development

Giving a verbal description of a past event is somewhat complicated for children at first. We refer to these descriptive dialogues as **narratives**. Although adults tell narratives that are ultimately long, complete stories in uninterrupted monologues, children tell narratives within conversations and require developmental assistance from adults.

At first, children may talk about past experiences only when being asked by an adult. But their answers may be as short as a one-word utterance, requiring the adult to provide **scaffolding**, or follow-up questions that elicit more information on the topic. Adults use scaffolding to prompt children to give more details in narrative form. Later, however, children rely less on scaffolding and seem to be able to introduce new information to the conversation without being asked.

As children's narratives develop, we notice several changes such as:

- telling about past events without being asked;
- increasing the length of narratives;
- increasing the structural complexity of narratives;
- increasing the remoteness of past events in narratives; and
- increasing the use of narrative devices of time and space.

Sociolinguistic and pragmatic development

How do children become socially competent in their L1? Previous research has studied several issues and we will focus on three here:

- using language appropriately according to the social situation;
- referential communication skills;
- making requests and being polite; and
- knowledge and use of linguistic registers.

Situationally appropriate language use

Imagine that a three-year-old child asked you to describe why babies cry. Probably the way you explain it to him/her would be quite different from how you would describe it to a twenty year old. Using language appropriately as the situation dictates is another area of L1 development to which research has payed attention closely. One characteristic of children's speech at this time is that they are not all that good at attending to the needs of their listeners.

For example, when it comes to referential pronouns like he, she, her, etc., children may fail to establish a reference before randomly bringing up an unknown person in the conversation. A child may say something like "*Daddy, she hit me*" to his/her father when the father has no clue to whom the child is referring.

Referential communication skills

Referential difficulties can also be seen in children's use of the articles *a* and *the*. As with referential pronouns, the use of articles can depend on context. Again, children have not fully acquired the pragmatic rules of reference for articles. For instance, a child may refer to a bear for the very first time in a conversation as *the bear* instead of *a bear.*

Making requests and being polite

Children must also learn how to make requests. This goes beyond simply forming a question, which they have been doing since two or three years old. Requests can be formed in several ways and research has shown that children begin using more than one request option depending on the situation. In fact, by three or four years old, children not only use question-form requests as in "*Would you open this*?" but they also have at their disposal other request forms like hints "*You could open this for me.*"

You probably have heard someone tell a child to "*be nice*", but have you thought about how they adjusted their speech when being 'nicer'? The development of politeness in L1 acquisition is widely studied. One of the main characteristics and being polite in language is to use indirect speech. For example, a child may say the more direct "*Give me a cookie*" or he may choose to say the more indirect version "*Do you have any cookies*?"

In a classic study by Bates (1976), the degree of politeness was studied among children ranging from 2 years 10 months to 4 years old. The children were introduced to an elderly grey-haired puppet who would give the children a piece of candy if they simply asked her for one. After the first request, the researcher pretended to confer with the puppet. Then children were told that the puppet had said that if they asked nicer, she would give them the candy. The results showed that all children were able to ask in a less-direct way on the second request. The study also found that older children produced a larger variety of requests the second time than younger children.

Child-directed speech and the development of linguistic registers

Another interesting phenomenon that has been studied in child L1 acquisition is children's use of child-directed speech. When adults speak to infants, they may unconsciously make adjustments in their speech, using what some have called **child-directed speech** or caregiver speech. This less complex way of speaking many times resembles the child's speech level. Child-directed speech has simplified and adjusted sounds, words, structures, and even conversational patterns (see Table 1).

Table 1. Examples of child-directed speech.

Domain	Example	Description
Phonological	• See…the…kiiiiiitty?	• Use of higher pitch, exaggerated pitch changes, elongated vowels, and long pauses between phonemes

Lexical	• horsey, dolly, potty • da-da, moo-moo, choo-choo	• Use of diminutive for horse, doll, and toilet • Use of duplication for dad, cow, and train
Grammatical	• You want train? • Beddy-bye	• Phrases and sentences sometimes lack functional words • Simplification of a sentence to a holophrase.
Communicative	• You like that candy, don't you? • Are you wearing your favorite shirt?	• Conversations with children are mostly about the present instead of the past or future • Topics that may interest children more include talking about members of the family, food, animals, parts of the body, and clothing.

Research has shown that, in naturalistic settings, children adjust their speech when speaking to someone younger than they are. When comparing adults' use of child-directed speech and children's child-directed speech, there are several differences. For instance, children address younger children in more directive ways, use more attention getting devices, and ask fewer questions. As children get older, their child-directed speech becomes closer to that of adults.

The fact that children are able to adjust their speech when speaking to younger children and adults' language suggests that they have developed some knowledge of registers. The linguistic **register** refers to the style that may be associated with particular social settings or listeners (Chaika, 1989). The acquisition of knowledge of registers shows that children have acquired some level of awareness of how people speak in different situations and among different social roles.

L1 acquisition and syntactic parameters

In this section you will read about some properties that differ from language to language and how these may play out in first language acquisition.

The Pro-drop or Null Subject parameter.

As we saw in Chapter 5 Syntax, some languages, such as English and German, generally require that subjects be pronounced. In contrast, certain languages such as Spanish, Italian, Chinese, and Arabic, allow subjects to remain unpronounced, though it is assumed they are present at some level.

For some time, it has been well-known that English speaking young children omit subject pronouns, producing sentences such as those in (1).

(1) a. Tickle me (meaning *she tickles me*).
b. Eat ice cream (meaning *I eat ice cream*).

Important work conducted by Hyams in the 1990s suggested infants always began by assuming they were learning a pro-drop language. However, research into languages that are pro-drop (Italian, Spanish, Hebrew, Greek) has shown that children learning pro-drop languages omit many more subjects. Studies of Spanish and Italian children between the ages of 1;6 to 2;6 have shown between 70 and 100% omission of subject pronouns, unlike English where omission rates are around 30%. It seems that very early on young children realize what type of language they are learning.

Question formation

Recall from Chapter 5 Syntax that to form a question in languages such as English, French and German, we need subject verb inversion (*Have you eaten?; Do you like cake?*). Furthermore, in all these languages, question words such as *what* or *who* must move to the specifier of C, preceding both the auxiliary and the subject (*What have you eaten? Who did you see?*). In other languages such as Chinese, however, neither of these movements is present. Do young children differentiate between languages early on?

From a very early age children know they must move the question word to the beginning of the sentence in languages that require it. Guasti (2000) found that between the ages of 1;6 and 5;1 children produce only about 1% questions in which the question word has not moved, and most of these were pragmatically appropriate.

Regarding movement of the verb, English constitutes a special case, because unlike in German or Italian, English speaking children produce sentences such as (2). However, note that the verb is not inflected, and there is no auxiliary. These findings differ from German and Italian, where the presence of a question word invariably involves movement of the verb (see Delving Deeper for Chapter 5 Syntax, for information regarding verb raising in these languages).

(2) Where daddy go?

Producing inflection: the special case of root infinitives.

Agreement between a subject and the verb is acquired relatively early, unlike in second language acquisition, both in production and comprehension. For example, using the preferential looking methodology, Nazzi et al. (2011) showed that children as young as 18 months distinguished between French sentences with correct and incorrect agreement, as illustrated in (3). However, in English, there is some delay in comprehension vs. production.

(3) a. Le garçon lit /*lisent
the boy reads/*read
'The boy reads.'

At the same time, however, children speaking a number of languages produce what are referred to as **root infinitives**, that is, forms that lack agreement. In English they use the base form (the present tense without the third person –s), but in languages such as French, German, and Dutch, they use

infinitives. In languages such as Spanish, Catalan and Italian, either the period during which root infinitives is produced is very short, or root infinitives are rare. We may assume root infinites do not occur in pro-drop languages.

What is interesting about root infinitives is that children only use them in certain syntactic contexts. For example, they do not appear in *wh*–questions or with auxiliaries, they are not used to describe states (*He like ice cream*), and, depending on the language being acquired, they can be interpreted as present or past. These facts, plus some syntactic constraints regarding word order, have led linguists to propose that root infinitives remain in the verb phrase and are not related to tense.

To summarize, children clearly do deviate from adult speech, as we all can attest to. Their deviations may tell us a great deal about what they know. Although we have a great deal of data from a small number of languages, particularly English, there are a great many languages whose acquisition by young children have not been examined.

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