In order to attain adult-like competence in a native language, a child must master his or her target language in terms of its:
- phonology
- morphology
- syntax
- semantics
- pragmatics

Concurrent development of all of these abilities is the norm, with very rapid progression of knowledge before the age of four. This progression of knowledge is exceptionally rapid when compared with the time it takes children to master certain non-linguistic skills such as tying their shoelaces or counting.

**Stages in first language acquisition**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Age</th>
<th>Characteristic linguistic behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-linguistic</td>
<td>Birth to 1;0</td>
<td>Vocal play; babbling.</td>
</tr>
<tr>
<td>One-word</td>
<td>1;0 to 1;6</td>
<td>Use of expressive (bye bye) and referential words (juice). Use of intonation to convey meaning differences. Child understands use of words as symbols.</td>
</tr>
<tr>
<td>Two-word</td>
<td>1;6 to 2;0</td>
<td>(aka Brown’s stage I, MLU 1.75) Telegraphic speech (see train). Utterances express a number of different functions (naming, requesting, desiring).</td>
</tr>
</tbody>
</table>

**Mean length of utterance (MLU):**
Calculated on the basis of a speech sample consisting of 100 utterances. Each utterance is counted for the number of morphemes (i.e. meaningful units) it contains and the total is divided by 100.
It is typically more informative to compare two children with similar MLUs than to compare two children of similar age. This is because variation is observed in the rate at which individual children pass through the different stages (Carroll 1999:270).

<table>
<thead>
<tr>
<th>Stage</th>
<th>Age</th>
<th>Characteristic linguistic behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown’s stage II, MLU 2.25</td>
<td>2;0 to 3;0</td>
<td>Appearance of some grammatical elements, e.g. inflectional endings, determiners, pronouns. Use of negation (No go there). Range of expressive capability increased.</td>
</tr>
<tr>
<td>III</td>
<td>MLU 2.75</td>
<td>3;0 to 3;5</td>
</tr>
<tr>
<td>IV</td>
<td>MLU 3.5</td>
<td>3;5 to 4;0</td>
</tr>
</tbody>
</table>

Acquisition of phonology

**The goal:**
- Identify the phonemes of the language.
- Identify the phonotactic rules of the language, which specify which phonemic sequences are licit and which are not.
- Learn to combine sound segments into suprasegmental units.

**Very early acquisition of phonology**

See Lust (2006), Appendix 2b, for a review.

**Some highlights:**
- Infants one to four-months old can distinguish /b/ from /p/ (Eimas et al. 1971).
- Two-month-old African infants can distinguish between +V (voiced) and -V (voiceless) phones, a contrast that is phonemic in English but not in their native language, Kikuyu (Aslin et al. 1981; Streeter 1976).

- American six-month olds distinguish English and Norwegian words (which differ in their prosodic characteristics), listening longer to the English words. (Jusczyk, Friederici et al. 1993)
- Nine-month olds acquiring English distinguish English from Dutch words. (Jusczyk, Luce and Luce 1994)

**Some cross-linguistic regularities**

a) Nasal and oral stops are relatively early = /m, n, p, b, k/

b) Early voiceless stops tend to be unaspirated.

c) Labial consonants /p, b, f, m, w/ will often be mastered earlier than those at other places of articulation.

d) Certain phones, including /l, r, ð, ð/ of English, are relatively late acquired.
Common errors

- Substitution
  /rækt/ → /rækt/ (gliding)
  /æpl/ → /æpl/ (vocalization)

- Assimilation
  ‘pet’ /pet/ → /bet/ (consonant voicing)
  ‘nipple’ /nɪp/ → /nɪpl/ (consonant harmony)

- Syllable structure
  ‘snow’ /ˈsnəʊ/ → /ˈnoʊ/ (CCV→CV)
  ‘water’ /ˈwɔtər/ → /ˈwɔtər/ (reduplication)

(Pecccei 2005)

Acquisition of semantics

The goal:

- Learn the meanings of hundreds of thousands of words.
- Form semantic categories.
- Learn the meaning of larger semantic units (e.g. predicates, arguments) and logical operators (e.g. and/or)
- Recognize ambiguous words and sentences.
- Link conceptual knowledge to language.

Early ontological categories (Clark 1993)

- OBJECTS - ACTIONS
- EVENTS - RELATIONS
- STATES - PROPERTIES

These are assumed to be universally-realized across languages but the means by which a particular language chooses to lexicate these categories can and does vary.

Common errors

Overextension:

bébé = reflection of self, photo of self, all photos, all books with pictures, all books.
fly = fly, specks of dirt, dust, all small insects, own toes, crumbs of bread, toad.

Underextension:

Duck = birds that swim; bird = birds that fly; chicken = birds that don't fly.

Lexical innovation

pony-kid = a kid who rides ponies
monster-building = a building that has a lot of monsters in it.
to sword = cut something to pieces with a sword

(Clark 1993; Pan & Berko-Gleason 1993)

Acquisition of morphology

It has been observed that, in general, children observe a fixed order of acquisition of the following grammatical morphemes in English

(Brown 1973; de Villiers & de Villiers 1978)
Table reproduced from Carroll 1999:284

<table>
<thead>
<tr>
<th>Order</th>
<th>Morpheme</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>present progressive</td>
<td>I driving</td>
</tr>
<tr>
<td>2-3</td>
<td>prepositions</td>
<td>in, on</td>
</tr>
<tr>
<td>4</td>
<td>plural</td>
<td>balls</td>
</tr>
<tr>
<td>5</td>
<td>irregular past tense</td>
<td>broke, fell, threw</td>
</tr>
<tr>
<td>6</td>
<td>possessive</td>
<td>Daddy’s chair</td>
</tr>
<tr>
<td>7</td>
<td>uncontractible copula</td>
<td>This is hot.</td>
</tr>
<tr>
<td>8</td>
<td>articles</td>
<td>a, the</td>
</tr>
<tr>
<td>9</td>
<td>regular past tense</td>
<td>She walked</td>
</tr>
<tr>
<td>10</td>
<td>3rd person, present tense, regular</td>
<td>He works</td>
</tr>
<tr>
<td>11</td>
<td>3rd person, present tense, irregular</td>
<td>She does</td>
</tr>
<tr>
<td>12</td>
<td>uncontractible auxiliary</td>
<td>The horse is winning</td>
</tr>
<tr>
<td>13</td>
<td>contractible copula</td>
<td>He’s a clown</td>
</tr>
<tr>
<td>14</td>
<td>contractible auxiliary</td>
<td>She’s drinking</td>
</tr>
</tbody>
</table>

It is important to recognize, however, that the above represent strong tendencies only, as some individual variation has been observed in the order in which these elements are acquired.

Four factors which appear to influence the order of acquisition of grammatical morphemes (and the course of language acquisition more generally) (O’Grady 2005:95)

✓ regularity
✓ frequency
✓ phonetic ‘visibility’ (i.e. salience)
✓ semantic transparency

And, conversely, four factors which can impede the acquisition of linguistic forms:

- irregularity
- infrequent occurrence
- hard to perceive
- subtle or unclear meaning

Acquisition of syntax

The goal: Learning how to combine words to form sentences.

When the process is complete, the child will have knowledge of:

✓ recursion (see next slide)
✓ displacement
✓ (syntactic) constituency
✓ hierarchical relations
When tweetle beetles fight, it’s called a tweetle beetle battle.
And when they battle in a puddle, it’s a tweetle beetle puddle battle.
AND when tweetle beetles battle with paddles in a puddle, they call it a tweetle beetle puddle paddle battle...

(Dr. Seuss 1965, cited in Lust 2006:16-17)

Determining syntactic competence:
At the time the child produces the utterance
Ride horsie
does she have adult-like or non-adult-like understanding (i.e. comprehension) of its syntactic structure?
Possible target: The girl is riding a horsie.

Note that the following elements are missing from the child’s utterance:
1) a subject argument (girl);
2) a definite article or determiner (the) preceding the subject noun;
3) an auxiliary verb inflected for present tense (is);
4) a verbal suffix marking progressive aspect (ing);
5) a definite article or determiner (a) that precedes the object noun horsie.

In the adult sentence, then, we have morphological evidence of grammatical elements (e.g. tense inflection, aspectual marking, and a determiner), while in the child’s utterance there are only lexical elements (i.e. verb ride and noun horsie).

Is there any reason to believe that the child’s syntactic knowledge outstrips what is reflected in her simple two-word utterance?
If not, then at what point does she come to recognize that semantic notions such as agent and attribute correspond to the syntactic categories of noun and adjective, or that nouns in English take the grammatical roles of subject and object, or that typical English predicates are verbs?

What is at issue here is the tremendous leap in grammatical development that is typically manifested in child speech between the ages of 2 and 3, when the child enters Brown’s Stage II and then, later, Stage III. Recall that this is the period during which grammatical or function elements first appear in the child’s speech and begin to be used with some consistency.

(See Appendix I for an illustration of the dramatic nature of this change.)
**Topics to be discussed next week:**

- Language acquisition in abnormal circumstances (e.g. feral children)
- Critical period
- Generative vs. non-generative theories of first language acquisition.

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2:10: Look at that train Ursula brought. You don’t have paper. Do you want a little bit, Cromer?

2:11: Do want some pie on your face? Why you mixing baby chocolate? I said why not you coming in? We going turn light on so you can’t see.

3:0: I going come in fourteen minutes. I going wear that to wedding. Those are not strong mens. You dress me up like a baby elephant.

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**Reading recommendations**

Lust, B. 2006. *Child Language: Acquisition and Growth*. CUP.


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**Appendix I: ‘Two to three years’**

(Pinker 1995:144)


2:5: Now put boots on. Where wrench go? What that paper clip doing?

2:6: Write a piece of paper. What that egg doing? No, I don’t want to sit seat.

2:7: Where piece a paper go? Dropped a rubber band. Rintintin don’t fly, Mommy.

2:8: Let me get down with the boots on. How tiger be so healthy and fly like kite? Joshua throw like a penguin.

---

3:1: I like to play with something else. You know how to put it back together. I gon’ make it like a rocket to blast off with. You want to give me carrots and some beans? Press the button and catch it, sir. Why you put pacifier in his mouth?

3:2: So it can’t be cleaned? I broke my racing car. Do you know the lights went off? When it’s got a flat tire it’s need a go to the station. I’m going to mail this so the letter can’t come off. I want to have some espresso. Can I put my head in the mailbox so the mailman can know where I are and put me in the mailbox? Can I keep the screwdriver just like a carpenter keep the screwdriver?

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**Internet resources**

Location of sound files of child speech (3 to 36 months):

- [http://childes.psy.cmu.edu/topics/](http://childes.psy.cmu.edu/topics/)

(Brain diagrams illustrating child language acquisition; demonstration of Motherese)