Week 2. Early Syntactic Development

GrS LX 700
Language Acquisition and Linguistic Theory

Stages

- “One word stage”
  - At 12-18 months, kids start using identifiable words, but tend to produce only one at a time.

- “Two word stage”
  - Around 20 months more or less, kids start putting words together.
  - Do they put the words together like adults do?
  - What is the status of their linguistic (syntactic) knowledge?

MLU

- Kids’ linguistic development is often measured in terms of Mean Length of Utterance (MLU).
  - Can be measured in various ways (words, morphemes)
  - Gives an idea of kids’ normal utterance length
  - Seems to correlate reasonably well with other qualitative changes in kid productions

2-year olds

- Around 2 years old
- Around MLU 1.75
- Around 400 words in the vocabulary
- 1-3 word utterances
- Word order generally right
- Grammatical words (the, is) generally missing

2 1/2 year olds

- About 2 1/2 to 3 years
- About MLU 2.25
- About 900 words in the vocabulary
- Some grammatical devices (past tense -ed, verbal -ing).
- Over-regularization errors (He goed in the house), indicating they’ve grasped the rule of past tense formation.
- Single clause sentences

3 and 4 year olds

- About 3 to 3 1/2 years, MLU about 2.75, about 1200 words, beginning to use syntactic transformations (Is Daddy mad? Where is he going?)
- About 3 1/2 to 4 years, MLU about 3.5, about 1500 words, multi-clause sentences, still some over-regularization
4 and 5 year olds

- 4-5 years, MLU around 4, about 1900 words, using more conjunctions and temporal terms (before, after), gain some metalinguistic awareness.
- After 5, MLU stays about the same (no longer predictive), sentences get more complex, vocabulary increases (more slowly), over-regularization decreases...

Do kids at the one-word stage have/know syntactic structure?

- Early attempt to answer the question.
- Based on comprehension—kids clearly understand more than they can produce.
- de Villiers & de Villiers (1973), kids around MLU (mean length of utterance) 1 to 1.5 asked to act out the truck pushes the car, and got it right only about a third of the time.

How do we describe multi-word utterances?

- Syntactically, in the same terms as the adult grammar? (continuity)
- Or discontinuously? (For some reason, people seem to think this is simpler…)
  - Thematic (agent+action, action+theme, …)
  - Pivot (P₁ + O, O + P₂, O + O, O)
  - “Limited scope formulas” (here+X, want+X)

Syntactic approach

- Continuity: ✓

Why 2 words?

- Maybe they omit words they don’t know?
  - Well, but they do omit words they know.
    - A kid who’s used hurt before, documented as saying baby cheek to mean ‘baby hurt cheek.’
- Pinker (1984): Processing bottleneck
  - A 2-word utterance “filter”
  - Kids “grow out” of this constraint.
  - Still, kind of mysterious. What’s easier?
Arguments for syntax...

- Conceptually:
  - Kids *do* reach a point where they know N and V, and they don’t seem to make the kinds of mismatch errors you’d expect if they were switching from a thematically-based categorization to a grammatically-based categorization.

Arguments for syntax...

- Concretely:
  - Animacy is a salient and linguistically relevant feature of nouns. But kids seem class nouns together (for the purposes of syntax and word order) regardless of animacy.
  - Even though most subjects heard are animate, most objects heard are inanimate, kids will happily use inanimate subjects or animate objects.
  - Kids will also happily use modifier+noun combinations in both subject and object position.
  - Kids distinguish between *types* of nouns, *big one, big dog*, but not *"big he* (though *he big*).

Arguments for syntax...

- Semantic information probably comes into play *as well as*, but not *instead of* syntax.

  - Kaluli is an “ergative language”: subjects of transitives get ergative case-marking, other nouns are unmarked (“absolutive”).
  - Kaluli kids use ERG first only for subjects of transitives that are *highly agentive*.

Arguments for syntax...

- Semantic information probably comes into play *as well as*, but not *instead of* syntax.

  - Russian kid reportedly used accusative case marking *only for prototypical themes* (objects that changed location, for example).

Structure in meaning

- Recall also the Hirsh-Pasek & Golinkoff (1991), *preferential looking task*.
- Structure plays a crucial role in figuring out which screen to look at.

  - *Hey, she’s kissing the keys.*

The second green ball

- *Challenge to assumption that kids have structure?* Matthei (1982) 3;9–6;3 ‘get the second green ball.’

  - When faced with this:
    - Do they pick the *second and green* ball or the *second green* ball?
  - Kids did terribly—about half the time wrong.

  - *The second green ball*
...but the problem is the task

- However, why chance? Why not always “second and green”?
- This tends to suggest kids didn’t really “get” the task. In fact, they made the same mistake with this array and “pick the second ball”.
- So the problem is probably with ordinal numbers and manipulating subsets...

Additionally, the kids could see the array the whole time, so kids may well have decided on which object to pick by the time they heard “pick the second…”

Hamburger & Crain (1984) re-did the experiment, hiding the array until the request was complete—kids’ error rate dropped to 14%.

Intermediate moral

- It’s not easy to run a successful experiment—you have to be sure that what you’re testing for isn’t being obscured by other cognitive limitations.
  - Act out The truck pushes the car.
  - Pick the second green ball.

One-substitution

- Anecdotal evidence:
  - nice [yellow pen], nice one (1;11)
- Hamburger & Crain (1984): ‘Point to the first green ball. Ok. Now, point to the second one.’
  - Note: “Failure” wouldn’t tell us anything here, since one could also legitimately mean ball—but if kids take one to mean green ball, that’s evidence that kids do have the syntactic sophistication to replace N with one.
- Nevertheless, 42 / 50 kids interpreted it as green ball.

Some properties of kidspeak

- Kids’ language differs from adult language in somewhat predictable ways. These can serve as clues to kids’ grammatical knowledge. Up to around 3 or so…
  - Case errors for nouns
  - Some word order errors
  - Omitted subjects
  - Verbs not (always) fully inflected

Word order errors?

- Languages vary with respect to word order
  - SVO English, French, Mandarin, …
  - VSO Tagalog, Irish, …
  - SOV Japanese, Korean, Turkish, …
  - SOV+V2 German, …
- Clahsen (1986) reports that German kids don’t manage to put the verb in second position until the finite/nonfinite distinction is “mastered.”
- But at that point the change was immediate: Sentence-syntactic properties are stored separately from word’s category properties.
Word order errors?

- Surprisingly few—95% correct in English, DP-internal order (*black the dog) may be at 100%.
- Yet there are a number of things like: Doggy sew.
- It appears that in these cases, it is theme+V without an expressed agent. When agent is expressed, themes are in their place.
- Sounds like an unaccusative or a passive—perhaps they are treating the verb in these cases as unaccusatives? Though, a red flag: Young kids are bad at passives and unaccusatives.

The Bennish optative

- Anecdote about Ben, from Sadock (1982)
  - SVO normally, but in optative (wish) constructions, he uses a weird word order.
  - Intransitives (subject follows verb)
    - Fall down Daddy. ‘Daddy should fall down’
    - Eat Benny now. ‘Let Benny eat now.’
    - Sit down Maggie, Mommy. ‘Maggie should sit down, Mommy.’
  - Transitives (subject marked with for)
    - Pick up Benny for Daddy. ‘Daddy should pick Ben up.’
    - Read a story for Mommy. ‘Mommy should read a story.’

The Bennish optative

- He’s marking transitive subjects with for, but leaving intransitive subjects and objects unmarked.
- In the optative, Ben treats transitive subjects differently, and objects and intransitive subjects the same way.
- This pattern is reflected in a type of adult language as well. Ergative languages mark subjects of transitives differently from both objects and intransitive subjects.
- Accusative languages (like English) mark objects differently (I left, I bought cheese, Bill saw me).

The Bennish optative

- Perhaps Ben’s language is ergative in the optative mood. (An option for adult languages, though clearly not in his parents’ language)
- Further evidence:
  - Ergative case marker is often homophonous with marker for possessive (cf. Inuktitut-up used for both), and Ben uses for (his ERG marker) in possessive constructions as well.
  - That’s a nose for Maggie ‘That’s Maggie’s nose.’

Word order errors

- Occasionally, postverbal subjects occur—but these seem to occur with likely unaccusatives with postverbal subjects on occasion: going it, come car, fall pants. (cf. adult Mandarin, or Italian, which would allow that).
- Alternative approach to Doggy sew might be topicalization: Doggy, you sew—if kids actually can’t do passives and unaccusatives, then this might be the only explanation (short of pure performance error).

The Bennish optative

- Further evidence:
  - Ergative languages are almost invariably split often along semantic lines. Sadock takes the optative restriction to be of this type (cf. Georgian, nominative-accusative most of the time, except in the subjunctive and aorist, where it is ergative-absolutive)
  - Ben’s not really making word order errors, exactly—he just thinks he’s speaking Georgian. His errors come from among the options.
Pre-subject negation

- Kids will say things like:
  - No I see truck
  - Not Fraser read it
  - No lamb have a chair either.

- Anaphoric no? ‘No, I see the truck.’
- Often distinguishable from context, and they are not all anaphoric.

Déprez & Pierce 1993 looked at these, and proposed that not Fraser read it comes from a failure to raise the subject out of SpecVP to SpecIP. That is, here, Fraser is still in its VP-internal subject position.

Some believe this, some don’t, but it’s a well-known analysis. (See O’Grady for more discussion…)

Case errors

- English pronouns exhibit Case
  - Nom: I, he, she, they
  - Acc: me, him, her, them
  - Gen: my, his, her, their
- Kids seem to make errors until at least 2.
  - me got bean
  - her do that
  - me eye
- In general, it is often overgeneralization of Acc.

As kid learns Nom, it alternates with overgeneralized Acc in subject position.
- Aldridge (1989): finite verbs have Nom.
- Yet…?
  - I swinging.
  - He hiding.
- These cases have a “silent finite be”? I on this one, aren’t I?

Case errors

- Bellugi (1967) observed that nominative I appears for sentence-initial subjects, but me marks non-sentence-initial subjects.
  - I laughing.
  - I here.
  - When me want it?
  - Where me sleep?
- Vainikka (1993/4): no, me in wh-questions.

Another possibility: based on agentivity?
- Budwig (1990): I is for low agentivity, my is used for “prototypical agent” and acts to gain control.
  - I wear it (wearing microphone)
  - My wear it (wants to wear microphone)
- Languages do make case distinctions based on agentivity & control, so kids learning some languages will need to attend to this.
Overuse of accusative

- Topics? Cf., Her, I like… We think not.
  - Kids using Acc subjects don’t use “topic intonation”
  - Acc subjects appear where topicalization should be disallowed:
    - what me play with?
    - there her is.
  - Doesn’t say anything about me eye, me dad.

- Default case: Acc in adult English (Schütze 1997)
  - Me too.
  - What, me cheat?! Never!
  - Me, I like pizza.
  - It’s me.
  - —Who did this? —Me.
  - So, “overuse of accusative” may well be just using a default form for nouns which don’t have case.

Default Case

- Russian (Babyonyshev 1993): Default case appears to be Nom.
- Russian kids make basically no errors in subject case.
- …but they overuse Nom in other positions (e.g., Nom instead of Acc on an object).

German (Schütze 1995): Default case also appears to be Nom:
- Was? Ich dich betrügen? Nie!
  ‘What? I cheat on you? Never!’
- Der, den habe ich gesehen.
  ‘He, him I saw.’

- Object case errors are more common than subject case errors, and usually involve overgeneralization of Nom.

Determiners

- Kids will also often leave out determiners.
  - Hayley draw boat.
  - Turn page.
  - Reading book.
  - Want duck.
  - Wayne in garden
  - Daddy want golf ball.

Subject drop

- Even in languages which don’t allow null subjects, kids will often leave subjects out.
  - No turn.
  - Ate meat.
  - Touch milk.
- Dropping the subject is quite common—dropping other things (e.g., object) is quite rare.
Root infinitives

- English kids do this too, it turns out, but this wasn’t noticed for a long time.
  - It only write on the pad (Eve 2;0)
  - He bite me (Sarah 2;9)
  - Horse go (Adam 2;3)
- It looks like what’s happening is kids are leaving off the -s.
- Taking the crosslinguistic facts into account, we now think those are nonfinite forms (i.e. to write, to bite, to go).

Root infinitives

- However, children learning some languages seem to show very few root infinitives or none at all.
  - Italian, for example.
- Often these languages with very few root infinitives
  - Allow null subjects
  - Have fairly complex agreement morphology

Pulling it all together

- Kids sometimes use nonfinite verbs.
- Kids sometimes leave out the subject.
- Kids sometimes use the wrong Case on the subject (looks like a default Case).
- Kids sometimes get the word order wrong (specifically, with respect to negation and for V2).
- Kids generally leave out determiners.

Kid grammars

- A major research industry arose trying to explain how these properties of child speech come about (and how they relate to each other) in terms of the grammatical and/or performance abilities of children.
Let’s start with null subjects

- Until after around 2 years old, kids will often omit subjects:
  - Drop bean.
  - Fix Mommy shoe.
  - Helping Mommy.
  - Want go get it.

- Why?

The null subject parameter

- Adult languages differ in whether they require overt subjects or not.
- English does:
  - *Go to the movies tonight.
- Italian and Spanish do not:
  - Vado al cinema stasera. (Italian)
  - Voy al cine esta noche. (Spanish)
  - *(I) go to the movies tonight.*

S₀ = Italian?

- Hyams (1986) proposes that kids learning English go through a stage during which they are speaking Italian.
- The “null subject parameter” has an initial setting, that of Italian.
- Kids use that setting until they “reset it” to the English value.

Resetting the parameter

- Null subject languages do not have expletives like it or there.
- The English input will provide plenty of examples
  - No, it’s not raining.
  - It’s not cold outside.
  - There’s no more.

S₀ = Italian

- Hyams (1986) was an early attempt to explain the null subjects in child language by making use of the options available among adult languages.
- Suggests that kids can “mis-set” a parameter (or leave a parameter set in its default state) and then recover.

Resetting the parameter

- Null subject languages do not have unstressed pronouns.
- The English input (once the kids have figured out stress/focus) will still contain pronouns where they “should” be dropped if the language were a null subject language.
Nobody believes this anymore.

Distribution of null subjects in child English and Italian is just different.

English: no embedded null subjects (Italian kids do have them, Valian 1991’s 21 kids uttered 123 finite subordinate clauses and none had a null subject).

Other parameters seem to be set so fast that errors are never detectible (word order/V2/V-to-I). Parameters don’t seem to be mis-set.

Processing accounts…

Kids have severely limited processing power, and so they leave off subjects to ease the load. (Bloom 1990)

In favor:
- Length limitations even in imitations
- Kids omit things other than subjects
- Some kids don’t eliminate subjects, only reduce their frequency.

Contra? Hyams points out:
- Build house…Cathy build house
- Go nursery…Lucy go nursery
- Kathryn want build another house.

Bloom: So, no absolute limit on length, only a tendency to reduce length.

Bloom (1970) found:
- negated sentences tend to lack subjects more frequently then non-negated sentences.

Bloom (1990):
- Hypothesis: sentences without subjects will have longer VPs than sentences with subjects.
- Looked at past tense verbs and cognitive states (need) to avoid any confusion with imperatives.

Bloom (1990)

VP length (words from verb to the end) counted for sentences with and without subjects.

Results: Mean length of VP in sentences with subjects were (statistically) significantly shorter than those without.
- E.g., Adam 2.333 with, 2.604 without.

In fact, “long subjects” (lexical subjects), “short subjects” (pronouns), and null subjects correlated with an increase in VP length as well.
Bloom (1990)

- As for why subjects are dropped more frequently than objects by kids at this stage—why?
- Two possibilities?
  - Subjects tend to be given (old) information (low “informativeness”, more expendable)
  - Maybe processing “saves the heaviest load for last”

Hyams & Wexler (1993)

- Bloom’s (1990) approach (processing) can’t be right either.
- The difference between subjects and objects is big, and only rate of subject drop changes.
  - Adam & Eve both drop around 40-50% of their subjects in an early stage, and in a later stage are down to 15-30%—meanwhile their rate of object drop stays around 5-10%.

Hyams & Wexler (1993)

- “Informativeness”?
  - All else being equal, the ratio of missing subjects to specific subjects should be equal to the ratio of missing objects to specific objects.

- Turns out that kids drop specific subjects about twice as often (Adam 52%) as they drop specific objects (Adam 21%).

Hyams & Wexler (1993)

- Regardless of why the correlation holds, if it is a processing deficiency in kids, what is it for the Italian adults?

- Seems like kids act like they’re speaking a language where the null subject is a grammatical option. Note: might be slightly different from a “null subject language” though. Point: dropping subjects is grammatical for these kids, not an error.

Hyams & Wexler (1993)

- Considering Italian adults, we find exactly the same correlation Bloom reported for English kids: VP seems to be longer where there is null subject, shorter with a pronoun, and shorter still with a lexical subject.
We find:

- Adam goes from about 3:1 in favor of lexical subjects (during subject drop stage) to 1:2 (after subject drop stage).

- When he’s dropping subjects, they are coming out of the “pronoun” pile—the number of lexical subjects is staying about the same across development.

Ok, so maybe pronouns are more difficult than lexical nouns? (Doesn’t fit well with the length of VP result, but maybe…?)

Problem is: kids show a steady level of object pronouns throughout this time period—and output omission model doesn’t have anything to say about subject vs. object.

Basic conclusion:

- Null subjects don’t seem to arise in child language solely due to processing difficulty.
- Rather, they seem to be allowed in the child grammar.
  - This allows distinction between subject (high rate of omission) and object (low rate of omission)
  - Explains the tradeoff between null subjects and pronouns (and the VP length/subject correlation) if the principles governing availability of subject drop are similar to those at work in Italian.

Here’s where we start to tie in to other properties of that age.

Notice that in English (a non-null subject language) you can have a grammatical null subject in one context:

- I want [Ø to have a fire drill]
- [Ø to have a fire drill] would make my day.

Subjects of infinitives can be null.

Kids at the age where subjects are often missing often use infinitive verb forms.

Perhaps that’s the key: Since kids can use infinitives where adults can’t (main clause main verb), this allows them to use null subjects in those sentences as a side effect.
Null subjects and infinitives

- Perhaps we’re on to something here.
- So null subjects are (for the most part—not completely) allowed by virtue of having infinitives.
- What allows the infinitives in child language?

Several classes of theories

- No functional projections. (Radford) Kids don’t have any functional projections (TP, CP, and so forth). This comes later. No TP, no tense distinction.
- Structure building. (Vainikka, Guilfoyle & Noonan) Kids start with no functional projections and gradually increase their functional structure.

Several classes of theories

- Truncation. (Rizzi) Like structure building but without the time course—kids have access to all of the functional structure but they don’t realize that sentences need to be CP’s, so they sometimes stop early.
- “ATOM” (Full competence). (Wexler, …) Kids have access to all of the functional structure and have a very specific problem with tense and agreement that sometimes causes them to leave one out.

Radford (1995)

- A proposal about Early Child English.
- Kids’ syntax differs from adults’ syntax:
  - kids use only lexical (not functional) elements
  - structural sisters in kids’ trees always have a θ-relation between them.

adult syntax ≠ child syntax

- Adults: CP—IP—VP
- Kids: VP

- Evidence for absence of IP:
  - No modals (repeating, kids drop them)
  - No auxiliaries (Mommy doing dinner)
  - No productive use of tense & agreement (Baby ride truck, Mommy go, Daddy sleep)
Absence of CP

- No CP system:
  - no complementizers (*that, for, if*)
  - no preposed auxiliary (*car go?*)
  - no *wh*-movement (imitating *where does it go? yields go?*; spontaneous: *mouse doing?*)
  - kids bad at comprehending *wh*-object questions (out of canonical order). (*—What are you doing? —No.*)

Absence of DP

- No DP system:
  - no non-θ elements
    - no expletives (*raining, outside cold*)
    - no *of* before noun complements of nouns (*cup tea*)
  - kids tend not to use determiners (*Hayley draw boat, want duck, reading book*)
  - kids don’t use possessive *’s*, which may be a D.
  - kids don’t use pronouns, which are probably D.

So why does it happen this way?

Why VP before IP/CP?

- you have to know what the θ-grids of your verbs are before you can… (*AR: move the subject to SpecIP*)… even put the subject in the VP in the first place. *Not an argument for why IP follows VP—simultaneous should satisfy this as well.*
- Kids start with VP and their system matures, admitting IP and CP at a later point. See also Vainikka (1993/4).

The transition to IP

- Slightly older kids alternate between Nom subjects and Acc subjects, between finite verbs and nonfinite verbs.
  - *One view:* kids are “code-switching” between a VP grammar and an IP grammar.
  - If this is the case, we expect Nom subjects to occur in the IP grammar (with the finite verbs) and Acc subjects to occur in the VP grammar (with the nonfinite verbs).

So why does it happen this way?

Why VP before IP/CP?

- Language parameterization lies solely in features of functional heads (like I and C). Kids start with the non-parameterized part of grammar, and work their way up to the parameterized part. *But—kids don’t make word order errors; Japanese kids start talking SOV from the get-go, English kids SVO…*

The transition to IP

- Radford says *look, they don’t:*
  - “numerous” nonfinite clauses with nominative subjects: *I singing, I done it.*
  - “frequent” finite clauses with accusative subjects: *Me can make a hen, Me didn’t paint that.*

- But Schütze & Wexler (1996) show that the *percentages* are very skewed… So, it looks like predominantly, yes, Nom goes with the “IP grammar” (properly construed).
Finiteness vs. case errors

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<th>Nonfinite</th>
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<table>
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<td>120</td>
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<td>% non-Nom</td>
<td>5%</td>
<td>46%</td>
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The problem so far

- Look for numbers, see if you find any. Radford does not do a very good job of convincing us that what he’s telling us about is representative. He only tells us that it is attested.

- We’ll have more to say about case errors and finiteness.

The transition to CP

- Kids have C which isn’t specified either for verbal or for nonverbal.
- The rule about moving I to C doesn’t mention unspecified C, so I can move to unspecified C.
- But, if a wh-word moves into SpecCP, then Spec-head agreement with the nonverbal wh-word gives C a nonverbal feature, prohibiting I to C movement.

- The problem here is that there is no independent evidence.
- Plus, kids are supposed to be having trouble with subject agreement between I and SpecIP—at the same time that they seem to be perfectly able to effect agreement between C and SpecCP…?
For next time:

- Read Radford (1995)
- Write up a 1-2 page summary of Radford 1995:
  - What are his main points?
  - What is the evidence for each point?
  - Is this evidence convincing? If not, why not?