Week 7.
Maturation and A-chains

Continuity or Maturation?

• Pretty well accepted that there is something “built-in” concerning the acquisition of language (UG).

• A limiting version of this is the Continuity Hypothesis (Pinker 1984) (or Rigidity) which says that what’s built in is there from the beginning and doesn’t change.

The situation

• Quite a bit of evidence shows that kids know a lot about the principles of UG from as early as they can be tested.

• Yet, languages do differ from one another—kids end up speaking different languages depending on the language in the environment, so they do learn something.

• So there are in principle two dimensions of development:
  – learning language-particular properties
  – development of the grammar itself

• Grammar development is what has been argued (poverty of the stimulus) not to be learnable by experience. Thus, it must be in some way genetically provided.

What if we don’t like maturation as an explanation?

• Two options:
  – Grammar doesn’t mature in a biological sense; it is learned. But we don’t believe that, because we have good reasons to think that it’s just not possible.
  – Grammar doesn’t mature in a biological sense; it is there from the outset in its totality. ("Continuity", "Rigidity")

• Neither option seems very good.

The situation

• Being genetically specified does not mean “present from the outset” however. Ample evidence from other biological systems of this.

• Pretty much the only conclusion available to deal with time delay of innately specified aspects of grammar is that parts of the grammar matures.
Rigidity is hard to justify

- Kids don’t seem to have identical linguistic properties as adults. How can we explain this without some difference in the system?
- Why do kids take so long to reach adult-like competence? If the data is available, why don’t kids use it immediately? If the learning mechanism changes, how does it change?
- How far back does Rigidity go? One would suspect that “fertilization of the egg” is too far…

It becomes interesting to know…

- What are the principles that kids know as early as we can test?
- What are the principles that are delayed, and until when are they delayed?
- Wexler (1997) suggests the terminology Continuous Development for this model (vs. Rigidity). (so, *tadpole ⇒ frog)

How different is a kid’s grammar?

- In principle, it could be quite different. Tadpoles do become frogs in the real, biological world.
- But it seems like what kids have is pretty close to what adults have, based on empirical studies—leading to the hypothesis that there is a close connection between kids grammars and adult grammars…

The way things seem to be

- We have evidence that kids do know quite a bit of UG and very early, often as early as we can test it.
- We have evidence that in certain areas kids’ grammars differ from adults. We also have in some of these cases evidence that the differences seem to go away around the same age across kids (& across languages).

Is maturation a cop-out?

- If a kid doesn’t behave according to Principle X of UG, we say that kid’s grammar needs to mature until it gets Principle X. Can’t we just say that about anything? Can we ever show that “it just matures” is false?
- Actually, yes—if it matures, if it is on a biological schedule, then it can’t really differ from language to language (at least to any greater extent than, say, malnutrition can delay puberty).

UG-constrained maturation

- Borer & Wexler (1992) introduced the hypothesis as UG-Constrained Maturation, which says that all child grammatical representations are representations that are available in UG.
- In other words, a kid’s syntactic tree is one that could exist in some adult language without violating principles of UG.
UG-constrained maturation

• This hypothesis only allows for certain kinds of “kid deficits”—a kid grammar can rule out a structures, which an adult (speaking some adult language) would consider grammatical, but it cannot allow a structure that no adult language would make grammatical.

Examples/connections

• “Development of Principle B”—we’re familiar with the facts (kids act like they are slow to start applying Principle B to pronouns) and the interpretation (that they know Principle B, but not Principle P that strongly encourages contraindexed arguments to be non-coreferent).

Optional infinitives

• Young, young kids show evidence of knowing how to inflect, move verbs, etc. They know the parameter settings for their language, even. Kids know a lot.
• But—kid allows nonfinite forms in contexts that adult requires finite forms in.
• How does this fit in to UGCM?

UG-constrained maturation

• For example, the A-chain deficit we’ll talk about later:

(Certain kinds of) A-chains are unavailable to kids with a “Proto-UG”.

• This rules out adult-acceptable structures, forcing kids to use some different adult-acceptable structure.

Principle P

• Thornton & Wexler propose that what’s going on is essentially that there is a difficulty coordinating the pragmatic system and the syntactic system (making an analogy to hand/eye coordination coming later than motor skills and visual abilities). The kid knows Principle P too, but can’t always correctly apply it (kids will say “yes” less frequently in the mismatch condition).

Optional infinitives

• Take the Wexler (1998) view that kids don’t know that D is interpretable. This can be seen as another kind of “coordination” issue—coordinating the syntactic system and the interpretation system.
• As long as the syntactic system doesn’t require T or Agr, this fits in with UGCM.
• That is, we take “Have T” and “Have Agr” as being principles outside the syntax—maybe tied to discourse. And now it looks a little like Princ. P.
And now on to A-chains…

- Early on, it seems like kids can produce adjectival passives (in fact somewhat overgeneralizing) but not verbal passives.
- Kids do better on passives involving actional verbs in English, which are also those which are ambiguous between verbal and adjective passives.
- Why?

Hebrew passives

- Hebrew seems to show the same property—adjectival passives come in much earlier than verbal passives.
- In Hebrew, adjectival passives are homophonous with the (verbal) passive participle in the present tense. So, the early adjectival passives cannot be due to being morphologically less complex.

Verbal vs. adjectival passives

- The crucial difference (on B&W’s analysis) between verbal and adjectival passives has to do with where the modification of the argument structure happens.

  - adjectival passive: in the lexicon
    (turns it into a real adjective)
  - verbal passive: in the syntax

Verbal vs. adjectival passives

- B&W observe that turning an internal θ-role into an external θ-role is not allowed by a well-behaved syntax (constrained by the Projection Principle), but it’s ok to do that in the lexicon.
- Adjectival passives lose the external θ-role, and verbal passives assign the external θ-role to the -en.

Verbal vs. adjectival passives

- The bottom line is

  verbal passives move their argument into the usual external argument position

  adjectival passives just start their argument in the usual external argument position

Kids

- What kids are bad at is “non-local assignment” of θ-roles.

- In a passive, the object moves to where the subject would be, but the θ-role can’t follow it (for kids), and so the θ-criterion would be violated.
Note on A-chains

- Although everybody pronounces the B&W87 hypothesis like “Kids have trouble with A-chains” this is almost certainly not strictly accurate. What kids have trouble with is the non-canonical θ-role assignment involved in passives and unaccusatives. They do not have trouble moving the subject from SpecVP to SpecIP.

Hebrew passives

- B&W87 spend some time arguing that verbal passives are still verbs in Hebrew, then observe that there are two options for passive sentences—the argument can either remain in object position (since movement for Case is not required in Hebrew—Case is available to an in situ postverbal NP), or it can move to preverbal subject position (like in English).

Kid passives

- Presumably the preverbal option in passives is like English adult passives—requires an A-chain, has a non-canonical θ-role in SpecIP.
- Predicts: Hebrew kids will produce passives, but they will produce only the postverbal kind. Right?
- Well, but… Hebrew kids don’t know how to assign Case to a VP-internal argument yet.
- Poor kids—they can’t come up with any kind of legitimate verbal passive. And so they don’t produce any.

To review that argument…

- The reason it was important to go into such detail about the Case assignment etc. in Hebrew:
- In (adult) English, verbal passives necessarily involve an A-chain/non-canonical θ-role assignment to SpecIP. Kids can’t do that, hence verbal passives are slow.
- In (adult) Hebrew, verbal passives don’t necessarily involve an A-chain—adults can leave the argument inside VP. Yet kids still produce no verbal passives. So, we needed to explore why.

Causatives

- In English, the morphological reflex of “causativization” (adding a causative argument) happens to be Ø, but what it does is add an external argument to the verb.
- You can’t play with θ-roles once you get into the syntax (Projection Principle), so causativization must happen pre-syntax, in the lexicon.

Causatives

- English causativization takes the “simplest” (most “unmarked”) form; it can add an external argument if there wasn’t already an external argument. So, it works nicely for unaccusatives (Mom’s favorite vase broke, Peter broke Mom’s favorite vase) and poorly for unergatives (The doll giggled, *Peter giggled the doll) and transitives (Peter kicked the ball, *I kicked Peter the ball ‘I made Peter kick the ball’).
Causatives

• The kids’ lack of A-chains basically means that arguments (which get θ-roles) have to stay where their θ-role is assigned.
• Kids hear things like the doll moved, the vase broke, the door opened in English.
• But the only possible structure the kids can assign is an unergative structure.

Causatives

• So kids hear the door opened and must analyze open as unergative.
• But the kids also hear Daddy opened the door, a causativization.
• The kids must conclude that the causative in English can “internalize” a previously external argument.
• Since kids treat unaccusatives and unergatives the same way at this point, we aren’t surprised to find that kids apply causativization to unergatives too (Daddy giggled the doll).

Hebrew causatives

• The basic point about Hebrew causativization (KaTaL ⇒ hiKTiL) is that in the adult language, it allows “internalization” of an external argument.
• Kids are forced to assume (in both Hebrew and English) that causativization can internalize an external argument.
• In English, that’s the wrong assumption for the adult language—kids have to re-evaluate things once A-chains become available.
• In Hebrew, that’s the right assumption for the adult language—no re-evaluation is necessary.

Ok, so where are we?

• The proposal is that kids can’t form A-chains (that is, an argument getting a θ-role can’t move around) until they hit a maturational point.
• We looked at what this means for passives (in English: kids will use adjectival passives, they will treat unaccusatives as unergatives, and hence overgeneralize causative formation; in Hebrew: kids will use adjectival passives [because of a separate deficit in postverbal Case assignment], kids will (*over)generalize causative formation)
• Predictions met.

Extending the story
Borer & Wexler (1992)

• Italian (adult): Past participle agrees with: a) unaccusative argument, b) direct object clitic.
  Luisa è uscita ‘L has gone out’
  Giovanni la ha aperta ‘G it has opened’

  The participle does not agree with a normal transitive object or with an unergative subject.
  Luisa ha aperto la porta. ‘L has opened the door.’
  Luisa ha dormito. ‘L has slept’

Borer & Wexler (1992)

• Italian kids (Antinucci and Miller 1976): Use passato prossimo pretty much from the beginning—but the participle agrees with the object pronominal or not. Kids are very consistent about this. (ends between 2;0 and 2;6)
Obligatory agreement stage

- Did the kids overgeneralize agreement?

- But they hear plenty of non-agreeing forms. Why didn’t they overgeneralize non-agreement? Plus, kids don’t even produce pronominalized objects at this stage—weird that they would base the generalization on the behavior of sentences with them.

Now, what are the kids doing?

- Suppose kids know that agreement arises in a Spec-head configuration—so the presence of participle agreement everywhere means that they’ve assumed that the direct object always sits in SpecParticipleP at some point. (Though this is not what adults do—only things which move past SpecParticipleP land in it for adults).

Now, what are kids doing?

- Adults:

  \[
  \begin{array}{c}
  V \quad \text{hai} \\
  \text{PartP} \\
  \text{Part'} \\
  \text{Part} \\
  \text{NP}
  \end{array}
  \]

- Kids:

  \[
  \begin{array}{c}
  V \quad \text{hai} \\
  \text{AdjP} \\
  \text{Adj'} \\
  \text{Adj} \\
  \text{NP}
  \end{array}
  \]

(re: rightward SPEC, cf. postverbal subjects)

...why are the kids doing that?

- There should be ample evidence for the adult construction (so it isn’t likely to be a “default setting” for a parameter, since kids seem to wait to use the ample available evidence to reset it to the correct setting).

- So, it is probably some principle which forbids the adult structure for the kid, forcing the alternative analysis.

What are the kids doing?

First—what are the adults doing?

- Adult agreement seems to be arising where the argument has to pass over the participle.

- Suppose it will (must) pass through SpecParticipleP on its way past, which induces agreement (cf. AgrOP).
Unique External Argument Proto-Principle

- **UEAPP:**
  - Every predicate is associated with a unique external argument.
  - Every external argument is associated with a unique predicate.

- UEAPP constrains the grammars of kids, but not of adults.

UEAPP

- Kids consider the participle constructions to have two predicates (the auxiliary *avere* and the participle itself).
- The sentence subject is the external argument for *avere*.
- The remaining argument must be the external argument for the participle.

UEAPP, *passato prossimo*, and unergatives

- *Gianni ha telefono*.
- That looks like one argument for two predicates (*avere* and *telefono*).
- What’s a kid to do?
- Turns out: What a kid does is not use such sentences. Basically no examples of this kind (unergatives in *passato prossimo*) at this stage.

What kind of thing is UEAPP?

- The general proposal B&W92 make is that kids start out with rigid “bi-unique relations” (predicate ⇔ unique subject) that get relaxed through maturation.
- “Relaxation” in this case would be in the form of narrowing the definition of “predicate.” E.g., perhaps the UEAPP is the precursor to the EPP? (“Predicate” = Infl)

Babyonyshev et al. (1998)

- Testing the idea from Borer & Wexler (1987) that unaccusatives are analyzed as if they are unergatives by kids in the pre-A-chain stage of life.
- Turns out that Russian provides a nice test of unaccusativity/unergativity with the “genitive of negation” so we can directly check to see how kids are analyzing their intransitives.

Russian genitive of negation

- In sentences with negation, an object (within the scope of negation) can be realized with (normal) accusative Case (if the object is definite/specific) or with genitive Case (if the object is indefinite/non-specific).
- So: ability to be marked with genitive a property of VP-internal indefinite objects.
Russian genitive of negation

- Arguments of unaccusatives and passives (pronounced in their postverbal, VP-internal base position) can be marked with GoN.

- A small class of verbs requires its arguments to be marked with GoN (regardless of definiteness); includes existential *be*.

Russian genitive of negation

- Base-generated objects (arguments of passives and unaccusatives) move “covertly” to subject position (after SS—like a silent version of what happens in English, where the object moves to SpecIP “overtly” before SS).

- We believe this based on the following facts about licensing of negative phrases.

Covert movement of genitive argument

- **Point 1**: When clausal negation co-occurs in the same clause with negative phrases, all is well.
  - \([\text{any} \ldots \text{neg}] , [\ldots \text{neg} \ldots \text{any}]\)

- **Point 2**: Negation in a lower clause can’t license a negative phrase in the upper clause.
  - \(*[\text{any} \ldots [\ldots \text{neg} \ldots ]]\)

Covert movement of genitive argument

- **Point 3**: A raised negative phrase subject has to raise to a clause with negation—not from a clause with negation.
  - \([\text{any}_i \ldots \text{neg} \ldots [t_i \ldots ]]\)
  - \(*[\text{any}_i \ldots [t_i \ldots ]]\)

Covert movement of genitive argument

- **Point 4**: A raising verb embedding a clause with an unaccusative and an genitive negative phrase needs to have negation *above it* and *not down with it*.
  - \([\ldots \text{neg} \ldots [\ldots \text{any-gen} \ldots ]]\)
  - \(*[\ldots [\ldots \text{neg} \ldots \text{any-gen} \ldots ]]\)

- GoN acts as if it moved into the upper clause, we just can’t see it (it’s covert).

Now, what do we expect pre-A-chain kids to do?

- In GoN constructions, the unaccusative argument is pronounced in its base-position—there can be no re-analysis as an unergative. Moreover, GoN is prohibited with unergatives.

- This is pretty much impossible to solve—the kid’s stuck, and we expect them just not to use GoN.
Testing the GoN

- GoN is allowed with *transitives* and these do not involve problematic A-chains.
- First order of business is to see if kids know how to use GoN in the unproblematic cases.
- Tested 30 kids in Moscow between 3;0 and 6;6.

- **First result:** Kids use genitive about 75% of the time where it should be used, around 4% of the time where it shouldn’t. Smart kids.

- **Second result:** Unaccusatives (both those that require GoN for everything and those which require it only for indefinite objects) are much more rarely marked with genitive (overall) than in transitives. Kids have trouble with unaccusatives.

- But this is over all kids (huge age range)…

Testing the GoN

- **Second result, split by age:** Verbs that require GoN showed significant difference by age: younger kids (4;0) used GoN 30% of the time, older kids (5;4) used it 60% of the time.

- This is still fairly course—it turns out that if we look at the individual subjects, we will find *all and only* the patterns the hypothesis predicts with respect to where kids accept GoN.

Testing the GoN

**Subject by subject use of GoN**

- Kids divided by their case response for
  - transitive non-specific (adult: gen)
  - transitive specific (adult: acc)
  - unaccusative (adult: gen)
  - bleached unaccusative (adult: gen)

- They fell into classes.
  - Kids who don’t know how to use GoN at all.
  - Kids who use GoN like adults (post-A-chain kids)
  - Kids use GoN right for transitives, not for unaccusatives.
  - *Kids use GoN right for unaccusatives not for transitives.*

Two possible interpretations

- **ACDH:** A-Chain Deficit Hypothesis (no A-chains)

- **EARH:** External Argument Requirement Hypothesis (external arguments required)

- Passives and unaccusatives both fail both. Transitives and unergatives both pass both.

Maybe maybe maybe maybe

- Snyder, Hyams, and Crisma (1994) found that French kids get auxiliary selection right from a young age—in particular with reflexive clitics.

- The structure of this is supposed to be a lot like an unaccusative (which is in fact taken to be the reason for selecting *be* as the auxiliary in both cases): The reflexive clitic is getting the subject’s θ-role, the object moves to subject position.

  - *Le chien* j  s’est  [  ti  mordu  tj  ]
If this analysis is right, then we have “object-to-subject” movement just like in passives and unaccusatives, yet kids can do this at a young age. What gives?

One difference between the reflexive cases and unaccusative/passive cases is that the reflexives still have their external $\theta$-role intact.

Hence: maybe the “pre-A-chain” kids are really “obligatory external argument” kids (EARH).

Despite appearances from certain angles, the “minimalist program” is really based on a particular way of looking at how the language faculty fits into the rest of the mind.

Let’s digress a moment about to talk about what it’s all about…

One of the basic ideas of MP is that language is a system which needs to mediate between a system for articulation and a system for interpretation.

Further, each system imposes certain requirements on the “interfaces”. The articulatory interface requires, for example, having things in a linear order; the interpretation interface requires having all and only interpretable aspects of the structure represented.

The driving hypothesis of the Minimalist Program is that that’s all there is to grammar—that $C_{HL}$ is an optimal solution to the requirements imposed by the interfaces to articulation and interpretation.

Properties of the interfaces are the ultimate motivation for the properties of the grammar.

To what extent is the maturation that we’ve been talking about a kind of “maturation at the interface”?

Read O’Grady, chs. 7-8, de Villiers (1995).

No class next week (spring break)

No summary due.

Experimental design due.