Week 4. The Full Competence Hypothesis, and so forth…

Today’s plan

• Poeppel & Wexler 1993 on “the Full Competence Hypothesis”
• Stromswold 1996 on production studies
• Introduction to concepts useful for next week’s readings, including
  – Basics of the Minimalist Program
  – Basics of Optimality Theory

Poeppel & Wexler 1993

• Basic question:
  – Do children have functional categories from the beginning?

• Poeppel and Wexler’s answer:
  – Yes.

Full Competence Hypothesis

• The morphosyntactic properties associated with finiteness and attributable to the availability of functional categories (notably head movement) are in place.

• The best model of the data is the standard analysis of adult German (functional projections and all)

The one exception:

• Grammatical Infinitive Hypothesis:
  – Matrix sentences with (clause-final) infinitives are a legitimate structure in child German grammar.

Adult German

• Phrase structure consists of CP, IP, VP.
• German is SOV, V2
  – The finite verb (or auxiliary or modal) is the second constituent in main clauses, following some constituent (subject, object, or adverbial).
  – In embedded clauses, the finite verb is final.
  – V2 comes about by moving the finite verb to (head-initial) C.
The acquisition data

• Andreas (2;1, from CHILDES)
• Unique spontaneous utterances
  – omitting repetitions
  – omitting prompted responses
  – omitting second and later occurrences of the identical utterance (not necessarily adjacent).
  – omitting imperatives, questions
  – omitting one-word responses

In brief…

• Kids can choose a finite or a nonfinite verb.
  – A finite (matrix) verb shows up in 2nd position
  – A nonfinite verb appears clause-finally

ich mach das nich
I do that not

du das haben
you that have

Classification details

• Non-finite:
  – verb ends in -en (infinitival marker).

• Finite:
  – verb does not end in -en.

• V2 (excludes ambiguous cases where V2 is also a final V); V[-fin] (excludes cases where V is also second).

Results

• There is a strong contingency.
• Conclude: the finiteness distinction is made correctly at the earliest observable stage.

<table>
<thead>
<tr>
<th></th>
<th>+finite</th>
<th>-finite</th>
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<tbody>
<tr>
<td>V2, not final</td>
<td>197</td>
<td>6</td>
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<tr>
<td>V final, not V2</td>
<td>11</td>
<td>37</td>
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Agreement

• Do kids know agreement? (is it random?)
  – 1 and 3 sg co-occur with correct agreement
  – 2sg (you) subjects are rare (in statements); agreement is phonologically impoverished, but not unambiguously wrong
  – 7 of 11 plural subjects showed an error (typical: all animals lies there).
• So, yes. (no.)

Conditional probabilities…

• Clahsen (1986) looked at:
  When the subject is 3sg, how likely is a kid to produce (3sg) -t ? (he found: ~25%)

• But given that sometimes kids use root infinitives, a better question to ask is:
  When the kid produces (3sg) -t, how often is it right (i.e. with a 3sg subject)? ~100%.
Do kids learn “this is a second position verb” for certain verbs?

- (Are some verbs used as auxiliaries?)

- Andreas used 33 finite verbs and 37 nonfinite verbs, 8 of which were in both categories—
  - and those 8 were finite in V2 position and nonfinite in final position.

- Remaining verbs show no clear semantic core that one might attribute the distribution to.

Verb positioning = functional categories

- In adult German, V2 comes about because \( V \rightarrow I \rightarrow C \).

- If we can see non-subjects to the left of finite verbs, we know we have at least one functional projection (above the subject, in whose Spec the first position non-subject goes).

When the V is 2nd, what’s first?

- Usually subject, not a big surprise.

- But 19 objects before finite V2
  (of 197 cases, 180 with overt subjects)

- And 31 adverbs before finite V2

- Conclude: Kids basically seem to be acting like adults; their V2 is the same V2 that adults use.

Some alternatives…

- Root infinitives due to “modal drop”?
  - Idea: I want to eat pizza.
  - RI? I want to eat pizza.

- First question: why modals?

- Second, they don’t (always) seem to mean what they should if there is a null modal.
  20/37 seem to be clearly non-modal.
  - Thorsten Ball haben (T already has the ball)

Modal drop

- Adult modals are in position 2, regardless of what is in position 1.

- If kids are dropping modals, we should expect a certain proportion of the dropped modals to appear with a non-subject in position 1.

- But none occur—nonfinite verbs also seem to come with initial subjects.

Modal drop

- On the other hand, if nonfinite final V indicates failure to raise to I and C, we don’t expect CP to be available for “topicalization” (the assumption is that V2 involves both movement of V to C and movement of something else to SpecCP; but no need to move something to SpecCP unless V is in C).
Modal drop

• Just to be sure (since the numbers are small), P&W check to make sure they would have expected non-subjects in position 1 with nonfinite verbs if the modal drop hypothesis were true.
  – 17% of the verbs are infinitives
  – 20% of the (finite) time we had non-subject topicalization
  – So 3% of the time (20% of 17%) we would expect non-subject topicalization in nonfinite contexts.
  – Of 251 sentences, we would have expected 8.
  – We saw none.

CP

• The Full Competence Hypothesis says not only that functional categories exist, but that the child has access to the same functional categories that the adult does.
• In particular, CP should be there too.
• Predicts what we’ve seen:
  – finite verbs are in second position only (modulo topic drop leaving them in first position)
  – nonfinite verbs are in final position only
  – subjects, objects, adverbs may all precede a finite verb in second position.

P&W’s predictions met—how did the other guys fare?

• Radford and related approaches:
  No functional categories for the young.
• Well, we see V2 with finite verbs
  – finite verb is second
  – non-subjects can be first
  – and you can’t do this except to move V out of VP and something else to its left…
• You need at least one functional category.

P&W’s predictions met—how did the other guys fare?

• Radford and related approaches:
  No functional categories for the young.
• Andreas uses agreement correctly when he uses it—adults use IP for that.

P&W’s predictions met—how did the other guys fare?

• “No C hypothesis” (kids don’t use overt complementizers)

• Of course, kids don’t really use embedded clauses either (a chicken-egg problem?)
  – Purported cases of embedded clauses without a complementizer aren’t numerous or convincing.
• Absence of evidence ≠ evidence of absence.

P&W’s predictions met—how did the other guys fare?

• Can we get away with one functional category?
• The word order seems to be generable this way so long as F is to the left of VP.
  – subject can stay in SpecVP
  – V moves to F
  – non-subject could move to SpecFP.
• …though people tend to believe that IP in German is head-final (that is, German is head-final except for CP). How do kids learn to put I on the right once they develop CP?
P&W’s predictions met—how did the other guys fare?

• Can we get away with one functional category?
• Empirical argument:
  – *negation and adverbs are standardly supposed to mark the left edge of VP.
  – A subject in SpecVP (i.e. when a non-subject is topicalized) should occur to the right of such elements.
• 19 Object-initial sentences 31 adverb-initial sentences, 8 have an(other) adverb or negation, and all eight have the subject to the left of the adverb/negation.

The Full Competence Hypothesis

• The idea: Kids have full knowledge of the principles and processes and constraints of grammar.
• What’s different is that kids optionally allow infinitives as matrix verbs (which kids grow out of).

Some extended prep for next time…

• Papers to read (and suggested order):
  – Wexler 1998 (survey of state of the art)
  – Legendre et al. 2000 (optimality theory)
  – Hagstrom 2000 (Korean negation)
• Plan:
  – “Minimalism” as it pertains to Wexler 1998
  – “Optimality Theory” as it pertains to Legendre et al
  – Other comments concerning Hagstrom 2000

Relevant concepts from “Minimalism” for Wexler 1998

• Clause structure:

P&W’s predictions met—how did the other guys fare?

• Fine, can we get away with two functional projections (TP and AgrP but not CP)?
  – If you’re going to split INFL, NegP belongs between TP and AgrP, according to Pollock 1989. (*but not adverbs! P&W got this wrong)
  – So, those eight sentences are again relevant: even with non-subject topicalizations, the subject precedes both negation and adverbs.
  – *Sort of: the adverb ones aren’t relevant since adverbs are actually VP-adjoined. The negation ones are relevant if we assume that the subject cannot occupy SpecNegP overtly.
Distributed Morphology

• A basic idea of DM is that you pronounce the structure only after it is built—the morphology/phonology gets the tree from the syntax and pronounces it as best it can.
• It sees V+T (the verb having combined with tense in some way, say Affix Hopping, or \( V \rightarrow I \)), it needs to pronounce it.

[\( V+T \)]

• In English, we have the following rules for pronouncing this tense/agreement affix:

• (V+)T is pronounced like:
  /s/ if we have features [3, sg, present]
  /ed/ if we have the feature [past]
  \( \emptyset \) otherwise

EPP

• The EPP (SpecIP must be filled) updated…
• DPs have the feature [D], which is how we (and the syntactic systems) know they are Determiner-phrases. If you want to interpret a DP, you need to know it is a DP—the [D] is interpretable and must be present in the LF representation.
• Agr and T also each have a [D] feature, but this feature is not part of the interpretation of AgrP and TP—it must be deleted before reaching the LF representation. This [D] is uninterpretable.

[D] features

• Agr has an uninterpretable [D] feature—it must be deleted during the derivation.
• To delete a feature on head \( X \), you can move something which has the same feature into Spec\( X \). The system checks to see if the features match, and if so, the uninterpretable one is deleted. (“Feature checking”)

[D] features

• The subject DP moves into SpecTP first, eliminating T’s uninterpretable [D] feature (making it possible for the derivation to end up being interpretable at LF—to converge)
• The subject DP then moves into SpecAgrP, eliminating Agr’s uninterpretable [D] feature.
• Note that the subject DP has a [D] feature which is not eliminated—it is interpretable and therefore immune to deletion via “checking.”

Economy/Greed

• Things don’t move if they don’t have to.
• If there is no uninterpretable feature to check, threatening the derivation, then nothing will move.
Wexler’s proposal: The UCC

• Wexler (1998) proposes that what’s wrong with 2-year-olds is that they are subject to a constraint against using the [D] feature of DP twice to check uninterpretable features.
• In the case considered so far, that means the uninterpretable [D] feature can’t be erased both from T and from Agr.
• In response, a kid will sometimes leave out Agr (or T) in order to have a convergent derivation.

On to Legendre et al. (2000)

• Wexler: During OI stage, kids sometimes omit T, and sometimes omit Agr.
• Legendre et al.: Looking at development (of French), it appears that the choice of what to omit is systematic; we propose a system to account for (predict) the proportion of the time kids omit T, Agr, both, neither, in progressive stages of development.

Optimality Theory

• Legendre et al. (2000) is set in the Optimality Theory framework (often seen in phonology, less often seen applied to syntax).
• “Grammar is a system of ranked and violable constraints”

Optimality Theory

• Grammar involves constraints on the representations (e.g., SS, LF, PF, or perhaps a combined representation).
• The constraints exist in all languages.
• Where languages differ is in how important each constraint is with respect to each other constraint.

Optimality Theory

• In our analysis, one constraint is Parse-T, which says that tense must be realized in a clause. A structure without tense (where TP has been omitted, say) will violate this constraint.
• Another constraint is *F (“Don’t have a functional category”). A structure with TP will violate this constraint.

Optimality Theory

• Parse-T and *F are in conflict—it is impossible to satisfy both at the same time.
• When constraints conflict, the choice made (on a language-particular basis) of which constraint is considered to be “more important” (more highly ranked) determines which constraint is satisfied and which must be violated.
Optimality Theory

- So if *F >> Parse-T, TP will be omitted.
- and if Parse-T >> *F, TP will be included.

Optimality Theory—big picture

- Universal Grammar is the constraints that languages must obey.
- Languages differ only in how those constraints are ranked relative to one another. (So, “parameter” = “ranking”)
- The kid’s job is to re-rank constraints until they match the order which generated the input that s/he hears.

Floating constraints

- The innovation in Legendre et al. (2000) that gets us off the ground is the idea that as kids re-rank constraints, the position of the constraint in the hierarchy can get somewhat fuzzy, such that two positions can overlap.

- When the kid evaluates a form in the constraint system, the position of Parse-T is fixed somewhere in the range—and winds up sometimes outranking, and sometimes outranked by, *F.

Floating constraints

- (Under certain assumptions) this predicts that we would see TP in the structure 50% of the time, and see structures without TP the other 50% of the time.

French kid data

- Looked at 3 French kids from CHILDES
- Broke development into stages based on a modified MLU-type measure based on how long most of their utterances were (2 words, more than 2 words) and how many of the utterances contain verbs.
- Looked at tense and agreement in each of the three stages represented in the data.
French kid data

- Kids start out using 3sg agreement and present tense for practically everything (correct or not).
- We took this to be a “default”
  - (No agreement? Pronounce it as 3sg. No tense? pronounce it as present. Neither? Pronounce it as an infinitive.).

French kid data

- This means if a kid uses 3sg or present tense, we can’t tell if they are really using 3sg (they might be) or if they are not using agreement at all and just pronouncing the default.
- So, we looked at non-present tense forms and non-3sg forms only to avoid the question of the defaults.

French kids data

- We found that tense and agreement develop differently—specifically, in the first stage we looked at, kids were using tense fine, but then in the next stage, they got worse as the agreement improved.
- Middle stage: looks like competition between T and Agr for a single node.

Re: Wexler 1998

- The Legendre et al. system fits in fairly well with Wexler (1998) despite being set in different frameworks. This is essentially a reformulation of the UCC.
- One advantage Legendre et al.’s formulation have over Wexler’s formulation is that the UCC does not predict neither T nor Agr will ever occur—yet it seems to (assuming certain interpretations of the data; also assumed to be possible by Wexler 1998)

Hagstrom (2000)

- Extends Wexler (1998) somewhat beyond the verbal tense/agreement system.
- Looks at errors with negation made by children learning Korean at about the same age that, in other languages, kids are producing root infinitives.
- Fairly technical and minimalist, but if you survive Wexler 1998, you’re most of the way there.

The “Split VP” hypothesis

- “VP”

```
  vP
  /  
subject
  v
  VP
  /  
  V
  /  
  verb

AgrP in here?
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object
Hagstrom (2000)

- In the paper, I argue for a structure which does have AgrOP between vP and VP, and in fact which also has NegP in there as well.

\[
\{vP \{AgrNegP \{NegP \{AgrOP \{VP \ldots
\]

- My proposal is that in (one form of) Korean negation, the whole AgrOP moves into SpecNegP. (You’ll see why when you read it).

Feature “percolation”

- One concept that I make use of is “feature percolation”, which is (at least roughly) like this:

```
\[
\text{XP} \quad \text{YP}_{[\text{Ftr}]}
\]
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For next time:

- Write up a 2-3 page summary of Wexler (1998):
  - What are the most primary points?
  - What seemed most striking?
  - Did you find the evidence convincing (assuming it is accurately represented)?
    If not, why not?