Chapter 4

X′-Syntax (Part 2)

4.1 Introduction

- So far, we have developed a generalized approach to PS-rules, termed X′-syntax.

- The general approach is to

    i. posit a *Bar-level* feature for each node in the tree.

    ii. ensure that if a node has *Bar-level*:$[n]$, then it immediately dominates a node with the same category and *Bar-level*:$[n-1]$.

- The usual presentation:

(4.1)   a. Specifier rule: XP → X′, (YP)

          b. Adjunct rule: X′ → X′, (ZP)

          c. Complement rule: X′ → X, (WP)

- Let's apply the theory to more complicated phenomena: auxiliaries, negation, ellipsis.

4.2 Auxiliaries

- Your assignment asked you to look at English auxiliary verbs:

(4.2)   a. The dinosaurs ate chickens.

          b. Harvey will eat his breakfast.

          c. Her face could frighten the spots off a leopard.

          d. My monkey has made a mess of his cage.

          e. The dinosaurs may have subsisted on worms.

          f. The monkey has been being bad.

          g. *The dinosaurs are having eaten chickens.

          h. *My monkey is been bad.

          i. *Harvey has been shoulding eat his breakfast.

- Our first challenges:

    i. How many different *kinds* of auxiliary verbs are there? Can we classify them?

    ii. What are the constraints on ordering these kinds of verbs?

4.2.1   Auxiliaries and selection

- Here's a recap on the five forms of English verbs (NB: *be* has more than five).

- Treat each column as a *single lexical item* which differ in terms of features, e.g., $[\text{past}]$, $[\text{pres.part}]$, and so on.

(4.3)

BARE	*break*	*take*	*throw*	*put*	*pray*	*be*
PRES	*break*	*take*	*throw*	*put*	*pray*	*are/am*
3SG.PRES	*breaks*	*takes*	*throws*	*puts*	*prays*	*is*
PAST	*broke*	*took*	*threw*	*put*	*prayed*	*was/were*
PRES.PART	*breaking*	*taking*	*throwing*	*putting*	*praying*	*being*
PAST.PART	*broken*	*taken*	*thrown*	*put*	*prayed*	*been*

- Based on (4.2), what forms does each auxiliary select? NB: this is an enormous question, see Sag et al to appear for the kind of complexity involved in the English auxiliary system. Let's just focus on (4.2).

- First, what possible orders of verbs in what forms do we observe?

- Now propose PS-rules with *Select:* features which generate these observations.

- Does the system overgenerate at all? Any suggested solutions?

- How does this system impose an ordering on English auxiliaries?

- Draw trees for (d), (e), (f).

• Why not put auxiliaries as Specifiers of VP (as hypothesized in Assignment 1)?

4.2.2 Revisiting ellipsis

• Assignment 1 asked you to look at English VP-ellipsis. How are the following interpreted? NB: ignore 'too' below.

(4.4)   a. I can swim under water, and Sally can swim under water (too).

         b. I can swim under water, and Sally can (too).

(4.5)   a. I can swim under water, and Sally can make delicious pizza.

         b. I can swim under water, and Sally can.

• VP-ellipsis means that a VP-constituent is optionally omitted.

(4.6)   a. I never put a snake in my pocket, but I might.

         b. We thought the students had solved the problem, and a few of them had.

         c. Harvey is feeding the chickens or his brother is.

         d. We are hoping that Harvey has overcome his fear of ducks, and he may have.

         e. We expected that Harvey would win the election, and he did.

• Based on the above examples, which constituent (in which form) is being omitted?

• Why do these data argue against the hypothesis that auxiliaries are a specifier of VP?

• Corroborate those conclusions using the coordinate structure test for constituency.

- Let's propose a syntax for ellipsis consistent with our assumptions.

  – Many syntacticians propose a 'deletion rule'. But we don't really need to add any new machinery.

  – We can incorporate ellipsis simply by adding *one lexical item*. What is that lexical item and what are its features?

- Draw a tree for (4.4b), ignore *too*. *underwater* is a VP-adjunct.

4.3   Negation

- In English, sentences can be negated by *not*.

(4.7)   a. My beer is warm.

           b. My beer is not warm.

(4.8)   a. Harvey has wrestled alligators.

           b. Harvey has not wrestled alligators.

- Contrast sentential negation with the negation of NPs and PPs.

(4.9)   a. Not many cats will eat dog food.

           b. They found us not in the kitchen, but in the basement.

- In determining the syntax of sentential negation, the first task is to decide where *not* goes in the sentence structure.

(4.10)   a. The frog must not have eaten the grasshopper.

           b. The frog had not eaten the grasshopper.

           c. The frog was not eating the grasshopper.

           d. *The frog ate not the grasshopper.

           e. The frog did not eat the grasshopper.

           f. The frog had not been eating the grasshopper.

           g. *The frog not had been eating the grasshopper.

           h. *The frog had been eating not the grasshopper.

- Where exactly does the sentential negator *not* have to be with respect to the various other parts of the sentence? NB: note the similarity of negation and VP-ellipsis in terms of distribution.

- How do we modify the grammar so that the grammatical sentences are generated and the ungrammatical ones are not?

- What about *do* in (e)? What are its *Category* and *Select* features? What rules out the following?

(4.11)   a. *John must do be tall.

          b. *John did not be swindled.

- Draw a tree for (a) in (4.10):

- Question: does our current grammar generate *John does eat bananas*?

  – Is it a good or bad thing that this sentence is generated?

  – Should it only be generated under certain conditions?

- Let's assume *John dŏes eat bananas* (where x̆ means unstressed) is ungrammatical. Let's try to figure out why.

  – Remind us why **John eats not bananas* is ungrammatical.

  – What about **John not eats bananas*?

    – Why does the addition of *do*, making *John does not eat bananas*, create a grammatical structure?

    – Assuming speakers are faced with the choice between *eat* vs. *do eat*, state in prose the generalization which adjudicates this choice.

- Does this generalization extend to VP ellipsis (remind yourself of the featural specification of our ellipsis lexical item).

4.3.1   Negation and ellipsis

- Now we have a theory of both negation and ellipsis, let's explore their interaction.

- Can we extend our analysis to include the following? Take note of how the following are interpreted, and how they are *not* interpreted.

(4.12)   a. If Harvey isn't feeding the chickens, his brother is.

        b. Even if you haven't been feeding the chickens, I have.

        c. I haven't been investigated for fraud, and my cousin has.

- Assuming our analysis for negation (a VP-internal adjunct) is correct. How do these data adjudicate between:

    – Hypothesis A: VP-ellipsis is the deletion of a VP.

    – Hypothesis B: (our current analysis) VP-ellipsis involves a silent verb lexical item.

4.4   Complementizers

- Let's move outside the verb phrase, up to the S-level.

- The following judgements give some details about subordinate clauses, italicized in the examples below.

(4.13)   a. Everyone insisted *that the store would close on Thursdays*.

        b. They managed *for their children to be happy*.

        c. Sue wondered *whether the smoke would clear before daylight*.

- Some questions:

    – Are subordinate clauses constituents? (think about coordination, ellipsis, pronominalization)

    – How should we characterize *that*, *for*, and *whether*?

    – How can they be incorporated into our X' principles?

- In your answer consider the following data. Build answers for the following questions:

    – What do *that*, *for*, and *whether* select?

    – Which lexical items select which?

(4.14)   a. *Everyone insisted for the store to close on Thursdays.

           b. *Everyone insisted whether the store would close on Thursdays.

           c. *They managed that their children would be happy.

           d. *They managed whether their children would be happy.

           e. *Sue wondered for the smoke to clear before daylight.

           f. *Sue wondered that the smoke would clear before daylight.

           g. Most geologists aren't sure that these tremors are serious.

           h. *Most geologists aren't sure for these tremors to be serious.

           i. Most geologists aren't sure whether these tremors are serious.

           j. I would like that he leave.

           k. I would like for him to leave.

           l. *I would like whether he would leave.

- Let's assume that *the store closed on Thursdays* is S, and *the store to close on Thursdays* is also S, but with a different featural specification.

- What is the syntax of *to*? Think about negation, ellipsis, coordination, interaction with auxiliaries.

- Propose a new sentential rule which incorporates *to*.

- Propose new PS-rules for *that*, *for*, and *whether*.

- Draw a tree for (a) and (b) in (4.13)

4.5   Further readings

- Gazdar et al. 1982 is a classic on the topic of the English auxiliary system. Sag et al. to appear is an updated version which is full of empirical and theoretical insights.

- Chomsky 1957 offers an analysis of auxiliaries, negation, and *do*, termed "Affix Hopping", but the operations involved aren't widely adopted anymore. The most influential descendant of this analysis (applied to French and English) is Pollock 1989, to be discussed later. Kim and Sag 2002 provide an insightful, detailed response.

- The above references all contain accounts of English negation (especially Kim and Sag 2002). See Zeijlstra 2004 for a very influential analysis of negation in English. See Gribanova 2017 for an insightful analysis of negation in Russian.

- The conditions on *do*-insertion are famously hard to pin down and characterize, and are often cited as an argument for the usefulness of OT in describing syntax, see Grimshaw 1997 especially.

- There is an enormous literature on VP-ellipsis, starting with Hankamer and Sag 1976, Sag 1976, and Sag and Hankamer 1984. See Merchant 2013 for a comprehensive minimalist account, and Aelbrecht 2015 for a modern review article.

- See Bresnan 1970 for an early analysis of complement clauses. Alrenga 2005 provides a modern account.

4.6 Possible paper topics

- In earlier versions of English, the syntax of negation was quite different. It was able to attach to finite VP and not require the presence of *do*. Moreover, it appeared to the *right* of the finite verb (*forgive them Lord, they know not what they do* vs. *they don't know what they are doing*), rendering negation more similar to negation in French and German. How does the X'-account of negation presented here shed light on the history of negation in English?

- The phenomenon of *do*-insertion is a rather exceptional feature of English. Does its formal account, here or from some other source, explain its rarity? Are there other phenomena cross-linguistically resembling *do*-support?

- A phenomena hinted at here, but not explored is so-called 'polarity focus', e.g., *Sue DID eat the candy*. The phenomenon has received attention in the semantics literature (Han and Romero 2004, Gutzmann et al. 2017), but not much from syntax. How does polarity focus interact with negation, ellipsis, auxiliaries, and *do*-support?

- Something not predicted by the current account is how ellipsis interacts with coordination, e.g., ??*Sue can swim underwater, and Mary can and blow bubbles*. Is this ungrammatical, only under certain intonational patterns? Which theory predicts this pattern and how can it be accounted for?

- Pollock's 1989 account of negation is extremely influential, but it doesn't obviously extend to the most common type of sentential negation, e.g., *Subj Neg VP*, the pattern observed in, e.g., Spanish, Italian, Indonesian, and so on. Can Pollock's account be extended to account for this pattern? NB: this type of negation is no problem at all for the account proposed in this lecture, negation in such languages is simply able to adjoin to finite VPs.

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