

[SQUEAKING]

[RUSTLING]

[CLICKING]

NORVIN All right, why don't we start up? So we're continuing to do syntax. I think I promised you that I was going to have
RICHARDS: a look at the syllabus, and I sort of did. I think if-- I think we will probably finish syntax not today, but on Thursday. And then we will stop doing syntax. So if there's anyone who is tired of syntax, I'm sorry. Please bear with it for another week, and then there will be no more syntax for a while.

This is today's "XKCD." It's not true, as far as I know, or maybe I'm the only one who didn't get a word. That's-- I guess that's another possibility. We'll have to ask-- ask your TAs in the sessions tomorrow.

OK, so one topic that we keep coming back to is the fact-- seems to be a fact-- that although there are many kinds of languages in the world, there are not as many as you could imagine. So various types of languages, places where we've seen that languages make choices with respect to how they do this or that or the other syntactic thing. But you don't find all of the choices that are logically possible.

So for example, we've seen that there are languages that move their wh-phrases to the left periphery of the clause and there are languages that just leave their wh-phrases where they are, but there don't appear to be languages that move their wh-phrases anywhere else. There aren't languages that move them to the end of the clause or that put them in the exact middle of the clause or anything like that. So there's variation, but not as much variation as you could imagine.

I want to talk about another way, another case of that kind, a place where there's more than one way to build a language, but there aren't as many ways as there could be. So we're going to talk about the embedded clause of this sentence, "I thought that Mary ate sushi with chopsticks." And actually, let's-- just as a class exercise, let's diagram that embedded clause. So don't worry about the matrix clause.

So that-- what's her name? "Mary--" oh dear, I'm going to make it future-- "will eat sushi with chopsticks." So let's draw a tree for this. Maybe we could start by labeling everything. What's "chopsticks?" What type of word is that?

AUDIENCE: Noun.

NORVIN It's a noun. And "with?"

RICHARDS:

AUDIENCE: Preposition.

NORVIN Preposition. And "sushi?" Noun-- a particularly delicious noun. And "eat" is a verb. And "will" is a tense, and
RICHARDS: "Mary" is a noun-- one of my favorite nouns. And "that?" It's a complementizer, C, excellent. And if anybody is sitting there quietly thinking, "What? Where did all that come from?" ask your TAs, or we can talk about it now. Is there anything on here that people are like, wait, no. Why did you do that? No? OK.

All right, so now let's begin merging things. Somebody give me two nodes on this tree that I ought to merge. Faith?

AUDIENCE: "With" and "chopsticks"

NORVIN "With" and "chopsticks." And what label should the resulting thing have?

RICHARDS:

AUDIENCE: Preposition.

NORVIN Yeah, this is a prepositional phrase. And because this is the highest thing with the node N, I'll give it a P too, so

RICHARDS: that's now a noun phrase yeah? Joseph?

AUDIENCE: "Eat."

NORVIN "Eat" and "sushi." And what label should I give this?

RICHARDS:

AUDIENCE: Verb?

NORVIN Yeah, it's going to be a V bar in the end. I'll just call it a V for now. And now this is an NP because its label didn't

RICHARDS: project. Yeah? What else should I merge?

AUDIENCE: "That Mary?"

NORVIN "That Mary?" Well, I could, yeah. And what would I project there?

RICHARDS:

AUDIENCE: A complementizer phrase.

NORVIN This is going to be a complementizer phrase? OK, possibly. And then this would be a noun phrase. We did that, yeah. Any other nodes here that I ought to merge? Including nodes that we've made in the course of doing this. Yes?

AUDIENCE: "Eats sushi with chopsticks."

NORVIN Yeah, "eats sushi" and "with chopsticks." And what label will that have? That's a verb phrase. Cool. And so now this is a V bar. Joseph was right. Anything else I should merge? Yeah, sorry. Go ahead, Faith."

AUDIENCE: The two words that should be--

NORVIN I think we should merge these two things, yes. And we should give, as you just said, the whole thing the label T.

RICHARDS: Yeah, you're right. Is that what you were going to say? Yeah. What else should I merge? Yes?

AUDIENCE: Just a question.

NORVIN Yeah.

RICHARDS:

AUDIENCE: Could you quickly explain the bars again, versus the--

NORVIN Oh, so here we have three nodes. This is a nice example here. We have three nodes, all with the label V. P is just the name for the highest one, yeah. And the lowest one doesn't get a mark, or sometimes you'll see people put a raised zero just to mark the fact that it's the lowest form. I haven't been bothering with that. And then everything else is given the label bar. It's-- yeah. Yeah, yeah. Just higher than zero and lower than P. Syntactic math-- we count 0, bar, P. That's how we count.

What other things should I merge with each other? Does anybody remember the EPP? One of my favorite Ps. It says that TP must have a specifier. So it's responsible for the fact that you can't just say-- you can say things like "is obvious that syntax is fun." You put this "it" here and this "it" is what we were calling an expletive. It's a meaningless thing that you put there so that TP can have a specifier. If I were going to draw a tree for "it is obvious that syntax is fun," it would have a TP and "it" would be in the specifier of that. We'd have a verb phrase, "is obvious," blah de blah. So I'd have a tree sort of like that one. Joseph?

AUDIENCE: What does EPP stand for?

NORVIN Well, I encouraged you not to worry about the answer to that, but the answer is that it stands for "extended projection principle." And it is also a parameter-- sorry, let me see if I can spell "principle" correctly. It is also a parameter in that English has it-- and there are other languages that have it, like French-- but it's actually not all that common. There are plenty of languages out there that don't have this.

So there's a general principle that TP must have a specifier. That is, there must be a structure like this one where there's a TP that has, as its daughters, something-- it's usually a noun phrase-- and then a T bar. So we're not yet there. This TP doesn't have a specifier, so it needs one. Yes?

AUDIENCE: Can "that" be a specifier?

NORVIN So in a sentence where a CP is the subject of a clause-- so in a sentence like "that syntax is fun is obvious," where the subject of the predicate "is obvious" is this CP, "that syntax is fun," where "that" is its head, then yeah. So if this were a clause, then yeah, it could be the specifier of TP. Joseph?

AUDIENCE: Could "Mary" not merge with the T bar, and then T merges with--

NORVIN I think we might want to think about it that way, yeah. We might want to make "Mary" the specifier of TP, satisfying the EPP, yeah. And then all we've got left is a C, and we can make that C the sister of this TP, yeah. Is that a tree that people are not too unnerved by? All of you have all the nerves you had before you looked at it. Yeah? OK.

All right, so there is a tree for the embedded clause, the boldfaced embedded clause "that Mary ate sushi with chopsticks." And here is hopefully the same tree. Oh, I put it in a "could," yeah. So "that Mary could eat sushi with chopsticks," same deal. OK? All right.

Now let me call your attention to a fact about this tree, which some of you may already have noticed. A general rule when you're drawing a tree for English, that if you have a head and the head has a sister, the head goes before the sister. So we have prepositional phrases like "with chopsticks" and verb phrases that have-- if they have an object, you get the verb before the object, "eat sushi." And T, like "could" or "will," which we have on the board, precedes its complement, the verb phrase. And C, the "that" which is up there, precedes its complement, which is the TP.

We have all these blue arrows. On the tree, the blue arrows are just meant to-- you don't have to draw them if you're drawing an English tree. They're just there to dramatically represent the fact that here we have all these heads, and they're preceding their complements. Yeah.

What would English look like if heads followed their complements? Well, you'd get weird orders like that one-- "Mary chopsticks with sushi eat could that," which is not English. But it is Japanese. So in Japanese, the way you say "that Mary could eat sushi with chopsticks" is literally something like "Mary chopsticks with sushi eat good that." If any of you have studied Japanese or are thinking about studying Japanese, be aware that this is something you'll have to learn to cope with, saying your sentences in this different order. So you say, [SPEAKING JAPANESE].

And not just Japanese, but well, lots of other languages as well. So that's the basic word order for Tibetan and for Korean and for Navajo and Basque and Chaha and a zillion other languages out there. It's, cross linguistically, a very common word order. In fact, if you just count languages, it might be the most common word order. It's slightly more common than the English style word order.

OK, so here's a single switch that you can flick, right? Do your heads precede your complements or do they follow your complements? So in English, the heads precede the complements. In Japanese and lots of other languages, they follow the complements. There's one basic difference between languages.

Now it used to be that this was the point in the class where I would tell you that, and I would wait just long enough for you to be impressed by that, and then I would quickly change the subject and hope that none of you spoke German. Because there are languages out there, sadly, in which some heads are initial and other heads are final. That is, some heads precede their complements and others follow their complements. German is such a language.

So for example, languages with mixed headedness-- in German, here's German for "that Mary could eat sushi with chopsticks." And you can see the German complementizer precedes the clause. So the German compromiser for that is "dass," and it goes before the clause, just like in English. And German has prepositions, so "with chopsticks" is "mit Stäbchen." So "with" goes before "chopsticks." You know, German has prepositional phrases just like English. But German verbs and German tense, whatever we put in T, these kinds of auxiliaries, at least in this kind of clause-- we'll come back to this-- they come after their complements. So if you're saying in German, "I thought that Mary could eat sushi with chopsticks," the word order is literally going to be something like "I thought that Mary with chopsticks sushi eat could."

Mark Twain has a great essay called "The Awful German Language" in which he says many hilariously partially accurate things about German, one of them being that-- he says something like, when a German dives into a sentence, that is the last you will see of him until he emerges from the other side of the Atlantic with his verb in his mouth. Because he's making fun of the fact that German often has the verb at the end of the sentence, and goes on and on about how it's very easy to forget what exactly is being done to these things. They're just being named, and you find out the verb weeks later. So, yeah.

So in English, heads precede their complements; in Japanese, heads follow their complements And in other languages, some other languages like German, you get both. There are some heads that precede complements and others that follow their complements, OK? Yeah, Faith.

AUDIENCE: Is there any rule for which heads precede and which follow?

NORVIN
RICHARDS: Ah, good. Good question. That was the next question I was going to ask myself, rhetorically. Thank you for asking me non-rhetorically. You might wonder, OK, fine, so do we just have to say, for every head in every language, this head precedes, this head follows? Is there any rule? Do we get to say anything more interesting than that?

It turns out that there are kinds of systems that don't exist, which is kind of interesting. So let's concentrate on the heads T and V. So we're going to look at embedded clauses like this one, where you've got something in tense, an auxiliary of some kind, and you've got a verb, and there's also an object. And we're going to look at the ordering of those two heads, T with respect to the verb phrase, and the verb with respect to the object.

If you do that, here's what you find. You get languages, like English, in which "has" and "read" both precede their complements. You get languages like German, in which "read" and "has" both follow their complements. That's why they're both blue. You get languages like West Flemish, which is a language closely related to Dutch-- spoken, I assume, in West Flem--

[STUDENT SNEEZING]

--in which the auxiliary-- bless you-- the auxiliary precedes the verb phrase, and in which the verb follows the object. So in West Flemish, you say that "John wants a house to buy." I wasn't able to do-- I don't speak West Flemish, so I wasn't able to do "that John has read a book." I guess I should make all of these "John wants to buy a house." So OK, so you get languages like English, in which both of those precede their complements, both the T and the V precede their complements. You get languages like German, in which they both follow. You get languages like West Flemish, in which the auxiliary precedes and the verb follows.

But you never get the fourth imaginable kind of language-- not ever. People have looked quite hard. Where I, again, am using silly diacritics to emphasize the fact that this language doesn't exist. I'm making it up, yeah. So there are no languages in which you say "that John read the book has." That's not a possible human language, for some reason.

So we get English, where those heads both precede their complements. We get German, where they both follow their complements. We get West Flemish, where the lower head follows the complement, is head final. So the verb follows the object, but the higher head, T, precedes its complement. The T is head initial. You never get the mirror image of West Flemish. That doesn't happen.

It not only doesn't happen, but it sometimes fails to happen in kind of interesting ways. Here's a fact about Finnish-- Finnish word order is mostly sort of English-like. T and V both precede their complements. But just if you're asking wh-questions, for some reason, Finnish word order becomes quite random. So you can ask questions like "When would Jussi have written a novel?" in the English word order, where both of those heads are red because they're preceding their complements.

You can ask it in the German word order, where both of those heads are following their complements. So you're literally saying, "When Jussi a novel written would have?" You can say it in the West Flemish order, where the auxiliary precedes the verb phrase and the verb comes after the object. But you cannot say it in the cross linguistically unattested order. So it isn't just that there are no languages like that. Even in languages like Finnish, where there's a fair amount of freedom of order, that order is ruled out. Which is weird. It would be nice to have a theory of that. People have worked on theories of that.

There's something called the Final-over-Final Constraint that's been offered. It's called the FOFC by people who are into it. What the FOFC says is, at least for certain parts of the tree, if you have two heads, A and B, and A has, inside its complement, another head, B, then if A is head final--- if A follows its complement-- B also has to follow its complement.

It's as though, as you're building the tree-- we've been building trees sort of way we built this one, where you start-- you're doing repeated merge, right? You start at the bottom of the tree, and you keep adding things, and the tree gets larger and larger. It's as though, at the beginning, you decide whether your heads are going to proceed or follow their complements. And then you can switch to being head initial, but just once. After you've decided to be head initial, you have to be head initial from then on. You can't go back to being head final, something like that.

You can switch from being-- as you're building the tree from the bottom up, you can switch from being head final to being head initial. You can switch from having heads follow their complements to having heads precede their complements. That's what West Flemish does, where it has the verb after the object and then it has the auxiliary before the verb phrase. But you can't switch in the other direction. That's what this seems to say. For certain parts of the tree-- we may get a chance to talk more about that. Yeah?

AUDIENCE: What is head and complement?

NORVIN I'm sorry. By head and complement, I just mean-- so heads are things like this, nodes that just dominate a word
RICHARDS: and don't contain anything else. And the complement of the head is its sister. So here's a head and here's its complement. So this VP is the complement of this head, or this head has, as its complement, the "sushi," or this head has its complement this noun phrase, "the chopsticks." And the observation is that if you have-- you can have final heads lower down. Yeah, you can have heads that follow their complements lower down and heads that precede their complements higher up, but you can't have the opposite. Yeah?

AUDIENCE: So, in this example, we're saying that we have phonemes. We don't get to--

NORVIN Yup.

RICHARDS:

AUDIENCE: [INAUDIBLE]

NORVIN So yeah, what we're saying is, if we go back to these trees-- what we're saying is, in the tree on the far right,
RICHARDS: because the V precedes its complement, the higher T must also precede its complement. That's what the Final-over-Final Constraint is meant to say. If the lower head follows the complement, then it's OK for the higher head to precede or follow. But if the lower head precedes, then the higher head must also precede. It cannot follow. I hope I wrote it right. If A follows its complement, B must also-- wait a minute. Yeah, yeah, yeah. A follows its complement, B must also-- yes, yes, yes.

So in the trees-- in the even-numbered trees where the higher head follows its complement, what we're seeing-- where T follows its complement. So that's the A. What we're seeing is that in trees like that, the lower head must also follow its complement. It can't precede. So that's what the Final-over-Final constraint says. It's an unfortunately-named constraint. It's misleading, but that's what it-- that's what it does. OK? So we get that kind of mixed headedness, the West Flemish kind, but not the kind on the right.

Yeah, so-- oh, I mixed up my terminology here. I'm sorry. I'll fix this slide before I post it. So this is the FOFC violation. T-- I called it I, which I shouldn't have done. That's an older word for TP. T has V in its complement, and T follows VP, but V is not following NP. That's what makes that a Final-over-Final Concern violation. OK?

For certain parts of the tree. Now, for certain parts of the tree, there have to be restrictions on how this applies. So German, for example, we've just said that if the higher heads are final, the lower head also has to be final. So the fact that the T is final means that the V also has to be final. So far, so good.

But the P is head initial, so the people who do the FOFC have to talk about domains of the tree in which the FOFC applies. It applies to the relationship between T and the verb, but not to the relationship between, say, the verb and the prepositional phrase-- prepositional phrases. It's like they talk as though-- the FOFC kind of starts over at certain points. So you calculate it within the prepositional phrase, or you calculate it within the noun phrase, but then you start again.

There are other parts of the tree to which the FOFC applies, but not across those boundaries. Lots of work on trying to figure out why that would be. Lots of questions about the FOFC, like why is it true and which chunks of the tree is it true in? But I'm telling you about it because it looks like another case of a linguistic universal, so another place where, yes, there's more than one kind of language. There are head initial languages like English. There are head final languages like Japanese. There are languages like German, which have some initial heads, and other final heads.

But you don't get every logically possible combination of initial and final. That's the result of this. And the FOFC is meant to describe that. And then, of course, we want to know why the FOFC is true, if it turns out to be true. Yeah? OK.

Does it make sense? Do we have a question about this? FOFC? I'm sorry, I called you FOFC. Faith? I will stop calling you FOFC.

AUDIENCE: Just a question about linguistic universals. So is it always that something doesn't exist? Or are there any linguistic universals where we can say, like, oh, this is the case in every language?

NORVIN RICHARDS: Oh, oh, oh. I mean, sometimes this is just a matter of stating the universals in a particular way. So every language has the property that it obeys the FOFC. There. There are some other things sort of like that. So for example, it is true of every language in which the verb comes at the beginning of the clause that wh-movement happens overtly, at least optionally. So we said there are languages that do overt wh-movement. There are languages that have wh-in-situ. There are languages that have both options.

And there are verb initial languages that have both options, and there are verb initial languages that have overt movement. There are no verb initial languages with obligatory wh-in-situ. That never happens. And again, we want to understand why, but that's a fact.

These parts where I keep saying we want to understand why, that's because there is work on this. I have a book that tries to derive that fact I just told you about. But I feel-- I would feel bad teaching you theories that I have posited in a book because I could be wrong. I know, it's hard to believe, but I could be. I'm only trying to tell you things that are definitely true in this class. Good question. Are there other questions? OK.

All right, so that was it for German. Oh right, sorry. Back to German. OK, so here we are doing German. Now I said-- I think I said this accurately, that in this kind of clause, in German, the verb comes after the object, and tense comes after the verb phrase. And I think I saw people who know some German furrow their brows at me because that's not the word order in a German main clause. So I want to talk now about the word order in a German main clause.

Here's the word order in a German main clause. You say in German things like "Mary could with chopsticks sushi eat." So the verb is still after its object, but T is no longer at the end. It's now, well, earlier. It's right after "Mary." This is a property of German main clauses that the thing that's in T, if there is something that's in T, has to be preceded by exactly one phrase. So you can say, "Mary could with chopsticks sushi eat." You can say, "With chopsticks could Mary sushi eat." You can say "Sushi could Mary with chopsticks eat." You get to take some phrase and put it first. And then what's in T-- what would be in T, "could," that has to be second.

This is called verb second. These are examples where there's an auxiliary in second position. If there is no auxiliary, then the thing that goes in second position is the verb. So if you wanted to say "Mary eats sushi with chopsticks," so there's no auxiliary, you would take the verb "eat." You'd put it in a different form. It would be [GERMAN] and it would go in the place where "could" is going in these sentences. Something else would be in first position.

So this is a phenomenon called V2. It's called V2 because you must take exactly one phrase and put it first, and then T or the verb goes second. So you can say all of these things in German, but you cannot say, for example, "With chopsticks sushi could Mary eat," or anything like that. There can't be two phrases in the first position. There must be exactly one phrase in the first position.

So verb second-- German clauses, German main clauses-- actually, we'll refine that in just a second. They have to start with exactly one phrase followed by the "verb," where I've put "verb" in quotes. Because as you've seen, it doesn't have to be the verb. It's actually whatever tense is on. So if there's an auxiliary, then that's the thing that goes first. If there's no auxiliary, then tense is realized on the verb. The verb is pronounced with tense morphology, and that's what goes in second position.

Why am I telling you all this? Well, partly so that you can be more fully educated people. Now you know some things about the grammar of German. But actually-- oh, sorry, yes. That's the wrong rhetorical move to make. Sorry, more German. No, actually, let me finish the rhetorical move I was just making.

I'm telling you all this about German partly to show you some cool things about German. But what we're going to see shortly is that this is not just German. V2 is a cross linguistically common phenomenon. There are many languages out there that are V2. So learning this fact about-- these facts about German will do you some good when you are confronted with, for example, Kashmiri or Dinka or a number of other languages that are out there which are also V2.

OK, but first, I just said German main clauses, and then I waffled a little bit about whether I meant main clauses. It isn't actually just main clauses. What it is is clauses that don't have complementizers, don't have overt complementizers. So main clauses are V2, but also embedded clauses as long as they don't start with "dass."

So you can say there are what's called embedded V2, where you have an embedded clause like the one on the German example at the bottom of this slide, where you're doing the V2 phenomenon again. And I can't remember whether I proved that. Yeah, so I didn't. But you could put any phrase in the place of "Mary." All the shenanigans that we did with the main clause in the last slide, you can do with the embedded clause here. So he said, "Mary wanted with chopsticks sushi eat." You could have put "with chopsticks" or "sushi" in the place where "Mary" is, and then "Mary" would have to be after "wanted," right? So there's one phrase that goes before the auxiliary in that embedded clause, in case of embedded V2.

What's the difference between this type of embedded clause and the kinds that we looked at in the first German sentence when we were just talking about mixed headedness? Well, it has to do with whether there's a complementizer. So if your embedded clause starts with "dass," which is the German word for "that," the German complementizer for declarative clauses, then you don't get V2. And main clauses which don't have a complementizer, just like in English, also have V2.

So V2 happens whenever there isn't a complementizer being pronounced. A hypothesis that people have had about that goes like this. The tree for German is exactly the tree that I drew for you before. It's got a complementizer that precedes its complement. And then under that complementizer, everything is head final in the verbal part of the clause. So the auxiliary follows the verb phrase and the verb follows its object. And then, yes, German has prepositions ahead of postpositions because the FOFC resets itself across prepositional phrase boundaries.

So that's the tree that we drew before for German clauses. Complementizers go before the TP. And then what we're learning is that if nothing is pronounced in the complementizer-- if you don't have a "dass"-- then two things happen. First, some phrase-- you get to pick some phrase at random-- moves into the specifier of CP. So here I've chosen to move the "sushi" into the specifier of CP. And also, some head moves in to C. The consequence of these two movements is the pattern that we just saw.

First of all, the auxiliary, although we've seen that when there is a "dass," the auxiliary is head final. The auxiliary goes where the complementizer would be. It becomes head initial. So it goes almost at the beginning of the sentence, but not quite. There has to be exactly one phrase to its left. And the story is that's the phrase that's at the left edge of CP.

Raising many questions, like "Why, Germans? Why are you doing this?" But as I say, they do, and there are many languages out there that do this. There's a lot of interesting work on how you choose which phrase to randomly move into first position. It has consequences for the interpretation of the sentence which are pretty subtle and difficult to talk about. There are people who talk about them, try to figure them out. They have to do with which phrase you're trying to draw someone's attention to, or so on. It's very difficult stuff to talk about seriously.

But since we're not doing semantics yet, since we're doing syntax, we can just say this is a thing that happens. Some phrase goes into first position, and then whatever's in T goes into second position. So you are moving a phrase into the specifier of CP and you are moving a head-- in particular, the head T is moving into C. That's how you get the German V2 order. OK?

You're stunned by German. It's understandable. It's pretty stunning.

Now this is the part that I thought I was going to tell you before, but now I will. It's not just German. So there are languages, some of them completely unrelated to German, others only very distantly related to German, that have exactly this setup. So Kashmiri is an Indo-Aryan language spoken in Kashmir in which there must be some phrase in first position.

And so you say things like "Ram gave Sham a book." Some phrase has to go first, and when there's no auxiliary, the verb goes right after that first phrase. But when there is an auxiliary, like in the second example, the auxiliary goes in that second position. And the verb, in this case, goes at the end. And the thing that goes in first position doesn't have to be the subject. You can see that in the last example, where you've put an adverb in first position.

So Kashmiri is just a very, very odd dialect of German, basically, right? So the word order for-- the rules for word order for Kashmiri resemble the rules for word order for German to a surprising degree. I was making a joke when I said that it's a dialect of German. It's not. They're both Indo-European languages, so they're related, but extremely distantly. They don't have anything else in common, but they have this in common.

Vata, which is a Kru language of Ivory Coast, literally not related to German, also a V2 language. And a bunch of others-- Karitiana, which is a Tupian language spoken in Brazil. Ingush, which is a Nakh-Daghestanian language spoken in the Caucasus, Dinka, which is an Nilotic language spoken in South Sudan, V2 is a thing. It's not a hugely common thing, but it's a thing you find scattered all over the world. There are lots of V2 languages out there. That's one of the factory options for language word orders, being V2. Lots of languages out there.

So V2, the verb second, is all over the place. And in our system, what it consists of is head movement to head initial C and movement of some phrase, some randomly chosen phrase, to the specifier of CP. OK. now why am I making such a big deal about this? We know that complementizer can be final. So German complementizers are head initial. We know that by looking at them when they're overt. So German has this complementizer, "dass," which is their version of "that." It's actually related to the English word "that." We can see that it is head initial. And we can also see from German V2 that German V2 involves moving the auxiliary-- or if there is no auxiliary, the verb-- into C, which causes it to be in second position. So now it precedes the verb phrase, precedes the rest of the clause, and there's some phrase in its specifier.

We know that there can be languages in which C is head final. I showed you that earlier. There are languages like Japanese in which C goes at the end. Japanese has a word for that too. It's [JAPANESE]. It goes after the clause that it combines with.

So it wouldn't be hard to build the language that would be the mirror image of German, right? So this would be a language in which you'd have your clause, your TP, and it would have in it whatever it would have, and there would be a head final C. And you would move some phrase, XP, into a specifier of CP that would be over here. This wouldn't be hard, right? This is just German, except that in German, the C is over here and the complementizer that you're moving into is over here. So this is German. There is some phrase in TP which is moving into the specifier of CP, which is over here. C is over here, and this is V2. This is the V2 word order.

This is German and Kashmiri and Kru and Dinka and, and, and. There are lots of languages like that. So are there any languages like this? No. None. Lots of languages like this, no languages like that. That's not a thing. Raising lots of questions like, well, wait. Why is that? Because it's not-- right? It's not hard to describe that language on the left. But it doesn't-- sorry, that language on the right. The language on the left is quite common, cross linguistically well attested. Language on the right doesn't happen.

So could there be a language like this? No such language has ever been found. And although there are verb second languages, plenty of them-- and so forget about trees for a second. Suppose you thought-- all of these trees I've been showing you, put them out of your mind. We should really just be thinking about verbs and subjects and objects and things like that. We should forget about trees. It's a fact that there are verb second languages. Again, plenty of them, scattered all over the world, not related to each other, not the result of contact. Yeah, it's apparently one of the factory options for having a human language, is to have it V2.

So you might imagine that there could also be direct object second languages, or subject second language. Languages where the subject had to be the second thing and you could put anything you wanted to before the subject, right? Or languages where the direct object had to be the second thing, and you could put anything you wanted to before the direct object. I wouldn't know how to draw a tree for a language like that, but it's not any harder to describe it in words than it is to describe a verb second language.

Do people see what I mean? This is a reason to take trees seriously as a way of describing languages, because they make it easy to describe German-- we just did it-- but hard to describe these other imaginable languages, direct object second languages or subject second languages. And the fact is that those languages don't exist. So the German kind of language, the verb second kind of language, reasonably common in the world. But these other languages that are not too hard to imagine, they don't happen.

So we're at another one of these frustrating points in the class where I've shown you a mystery. There are verb second languages. There are no verb penultimate languages, mirror image of German. There are verb second languages, there are no direct object second languages. And when I showed you the FOFC, we were at a similar point. The FOFC, it seems to happen, yeah. So there are languages like English and Japanese and German and West Flemish. There's another logically possible kind of language where the verb phrase is head final and the TP - sorry, where the verb phrase is head initial and the TP is head final. That language doesn't exist. And in languages like Finnish and Basque-- actually, I didn't show you Basque-- where word order is fairly free under certain circumstances, that particular word order is ruled out.

And then I said, sure would be nice to know why. And if this were an intro to syntax class, this is where I would start trying to show you why, or showing you people's theories of why. But instead, this is 24.900, and we've already spent many days talking about syntax, and I really have to start teaching you other things soon. So I will just tell you, if you would like to know the answers to these questions, go take more linguistics classes. Yeah, these are the kinds of things linguists talk about and try to figure out.

So, moral of all this-- there are different kinds of languages in the world, but the languages that we find in the world differ in ways that are constrained. So we don't find every imaginable kind of language. There are gaps-- sort of interesting gaps. Sometimes, gaps that you can define the boundaries of, like with the FOFC, where you say, yeah, languages get to decide for particular heads whether they proceed or follow their sisters, but there are certain patterns that you don't find, and we want to have a theory of why.

Wh-movements-- there are languages that have wh-movement. There are languages that lack it. But if you have it, it goes to the left. It never goes to the right.

There are languages that have V2. There are languages that don't have V2. But there aren't languages that have V next to last, a mirror image of V2. There is variation among languages, but there are kinds of things that you don't ever find, certain peculiar patterns that resolutely fail to show up.

This is the kind of thing we're talking about when we talk about universal grammar. So that's a phrase you may hear people talk about. Sometimes you hear it used as a term of abuse. So there are people who think that it's a dumb idea, you know, that it's something that linguists care about for some reason, but nobody else should. But this is what we mean when we talk about it. We mean it looks as though part of being a human being is having the kind of mind that can build language in some ways, but not others. And that's what universal grammar is.

It's kind of a bad name for it, because it sounds like we all start out with the grammar of, I don't know, Basque, you know? And then we learn our native languages by manipulating the universal grammar that we all start with. That's not the idea. The idea is, we're constrained in the kinds of linguistic hypotheses that we can have. And so we come preloaded with some instructions about how to build language, and there are certain kinds of options that we know better than to even consider when we're learning our first language. That's what universal grammar is meant to claim.

Questions about any of that? Does any of this make sense? This is meant to inoculate you against-- so in popular science, you will sometimes read people claiming that universal grammar can't possibly be true or it's dead or it's been disproven or whatever. And this is all hooey. You should throw away any papers that seem to claim that. OK? All right.

So, yeah, in this particular case, no V-penultimate, no wh-movement to the right. It's as though maybe heads can either proceed or follow their sisters with certain restrictions, as we've seen in the FOFC, but specifiers maybe always proceed their sisters. And again, we'd want to know why. OK.

So we've now-- so here I am pivoting. You can tell because the font size is changing. We've now seen several different kinds of movement operations. So we've talked about the wh-movement, which is what makes questions like "What did you buy?" where "what"-- wh moves to the specifier of CP, which is on the left periphery of the clause. We've now talked about head movement. That was part of talking about German V2.

So in V2, which handily I still have a tree for, some phrase moves to the specifier of CP, and T moves into C. And that's why you get word orders like a prepositional phrase, "With chopsticks will she sushi eat," which is how you would say that in German. So you'd have some phrase in first position, and then whatever it is that bears tense-- so the highest auxiliary, if there's an auxiliary, or the verb, if there's no auxiliary-- ends up in C. And I just casually said, "Hey, look, this head is moving to this other head." That's called head movement. I do a lot of head movement as I'm teaching. Some of you may have noticed.

And then we've also talked about NP-movement. That was the case where you took a noun phrase and moved it into the specifier of TP. So three kinds of movement then. We've got "What did you buy?" where "what" is wh-moving. We've got German. So in German, "With chopsticks will she sushi eat," where we have reasons to think that auxiliaries start at the end of the clause and head move. So here's head movement.

And then the last one is NP-movement, and that was how we were going to deal with sentences like "The sushi was devoured," where we think that "devour" selects for an object, needs to have an object. But in this case, its object isn't there because it's moved over here. This is NP-movement. It's moved over here. Because of the EPP, TP needs to have a specifier, and the sushi has raised to become the specifier of TP.

So wh-movement movement and head movement and NP-movement, and I can see that I've used my own private abbreviation for movements, which is mvmt. Because if you're a syntactician, you have to write the word "movement" a lot. So that's my abbreviation for movement. Yeah, so three kinds of movement that we've talked about so far.

Are there any questions about any of that? Because we're about to talk about those movements and their properties in a little bit of detail. OK.

So "Mary will type novels." We've talked about head movements. We haven't talked about it in this case, but here's a place where we could talk about it. There's a way to ask questions, yes/no questions, where you take whatever's in T and you move it into C. So you start with "Mary will type novels." You move T into C, and so you have the word order "Will Mary type novels?" So the auxiliary now precedes the subject. So here's an instance of head movement-- in this case, in order to form yes/no questions in English.

Wh-questions, "What will Mary type?" Not only are you moving T into C-- so "will" is moving from the position after "Mary" to the position before "Mary"-- but you're doing the wh-movement that we've talked about before. The object is moving into the specifier of CP.

And then in NP-movement, "The cookies were devoured." We've taken the object of "devour" and moved it in the spec of TP, because TP needs to specify. Yeah?

We've seen that not all languages have all of these kinds of movement. So there are languages with wh-in-situ. This is the Chaha example. Chaha is a language spoken in Ethiopia. It's a Semitic language. It was actually-- I teach the graduate field methods class and Chaha was the first language that we worked on. That's the one-- I think I've told you this story. That's the one in which I tried to start the class by saying "The man cooked the meat," and the guy who we were working with said, "No, I cannot say that." And I said, "Why?" He said, "Men do not cook." It was like, oh, OK.

So, Chaha-- he also taught us an expression for "very quickly," which meant "in the time it takes spit to evaporate," which I thought was a cool expression to have. I wish I could remember how to say that in Chaha. I should go look it up.

So Chaha is a wh-in-situ language. It leaves the wh-phrase where objects normally go. It's also a head final language. It has the same word order as Japanese. It's a wh-in-situ language. So there are languages that leave wh in-situ. They don't move it. There are languages that don't go in for NP movement, at least as much as English does. So in English, I would have to say, "The cookies have been eaten." But in Italian, you can say something that literally means "Have been eaten the cookies." So the cookies can just stay in object position. The Italians don't have the EPP. They're very relaxed about whether TP has a specifier or not, so the cookies can just stay where. They are they don't have to go anywhere. So Chaha doesn't have to move its wh-phrases. Italian doesn't have to move its NPs.

There are also cross-linguistic differences with respect to where heads go. So here's an English sentence, "Mary often speaks French," where I've put an adverb. I've adjoined-- it's an adjunct. It's not selected by anything, that adverb phrase, "often." I've attached it to the verb phrase there. And then you've got a verb with its object, "speaks French." If any of you speak French-- does anybody speak French? So if any of you know any French-- a couple of you do, it looks like. Maybe you know. This isn't the right word order for French.

The right word order for French involves taking the word for "speaks" and putting it before "often." You can't, in French, say "Mary often speaks French." You must literally say, "Mary speaks often French," which in English, we cannot say. So this is another basic difference between languages. French requires the verb to raise to T. Sorry, I called it I again. I'll try to fix that. French requires the verb to raise to T when there's no auxiliary, so you say "Mary speaks often French." English doesn't require the verb to raise to T. So just like English requires the wh-phrase to move to the specifier of CP and Chaha doesn't-- Mandarin doesn't, Japanese doesn't-- French requires the verb to raise to T, to move to T. English doesn't.

Yes, so there are differences between languages along these lines, where one language will have one set of movements and another language will have another set of movements. That's a thing we find. It would be nice to know why and try to derive this from something else, but that's where the field is right now.

I haven't talked very much about why these movements happen, and I won't, mainly for reasons of time. It's a very interesting topic. There's a lot of work on it in trying to figure out what it is that drives these movements, causes them to happen. So the only one that I've really given you a motivation for is NP-movement, which I've said is driven by the EPP, the need for TP to have a specifier, which is a need that exists in some languages, but not others. So English has that, and Italian, for example, doesn't.

But I do want to talk some-- so I haven't talked about why these movements happen. But I want to talk some about some of the conditions on movement. Because what we're going to see is that movement can't always happen, and we're going to want to try to understand why.

So you can say things like "I ordered a hamburger and French fries," but it would be weird for me to ask you a question like, "What did you order a hamburger and?" Do people agree? That's a strange question to ask. So it's sometimes called the coordinate structure constraint. And it's one of many examples where people have found the wh-movement example is somehow blocked.

So all of the wh-movement examples I've shown you so far, it's always been possible to move the wh-phrase. There are times when it's not possible, and this is one example. So "What did you order a hamburger and?" No good. It's roughly if you have two things that are connected by "and," you can't wh-move one of them. You also can't say "What did you order and a hamburger," where you moved the first one instead of the second one. Also no good. Yeah? Yeah?

AUDIENCE: The second one sounded fine, actually.

NORVIN I'm sorry, say it again? The second one sounded fine?

RICHARDS:

AUDIENCE: I don't know. Like, "What did you order a hamburger and?" Like, I have to somehow think, oh, that is not grammatically correct.

NORVIN Yeah?

RICHARDS:

AUDIENCE: It's just on-- like, if someone just asked me that, I would just [INAUDIBLE]. It's somehow-- no, the first on.

NORVIN The first one. Yeah, this one. "What did you order a hamburger and?" You mean if somebody asked you that,

RICHARDS: you'd just be like, "French fries."

AUDIENCE: Huh?

NORVIN You'd just say "French fries."

RICHARDS:

AUDIENCE: Yeah. Like, now that I'm listening to it, it's grammatically incorrect. Now that I'm playing it back.

NORVIN Yeah.

RICHARDS:

AUDIENCE: But it just somehow doesn't sound weird.

NORVIN Hm. Oh, that's interesting. I mean, several other people are raising their hand, so maybe I'll just open this to

RICHARDS: general discussion. Joseph?

AUDIENCE: I feel like it would be natural to put a colon after "order." I don't know what that would do, like, syntactically, but "What did you order-- a hamburger and?"

NORVIN Yeah, so forget about "and" for a second. I think it's possible to say, OK, "you ordered--" and have that be a

RICHARDS: question, right? So it's your job to fill in the blank for me. And I think what you just did is a version of that where I say, "What did you order?" That's the wh-question. And now I'm going to ask you to help me finish the sentence for me. I think that's what's going on. Kateryna?

AUDIENCE: When you say you ordered dot, dot, dot, is that equivalent to not doing wh-movement and just not pronouncing the "what?"

NORVIN It's an interesting question. I don't know whether we want the syntax to handle that or not, or whether we want

RICHARDS: that to be like the kind of case I talked about before. So I-- because I think-- there's a restriction on that technique. For example, it has to be the end of the sentence. You have to stop talking before you get to the end. I can't say "you ordered and a hamburger," I don't think, right?

So I think what I'm doing is simulating forgetting how my sentence was going to end, right? So it's really as though I'm about to say "You ordered a hamburger" and I'm pretending that I can't remember how to end the sentence, and I'm asking you to help me. I have a feeling that's the kind of way we want to think about that kind of example, but yeah. Raequel?

AUDIENCE: When I hear, "What did you order?" at least as well, but if someone said, "What did you order a hamburger with?" I would be, like, that's fine.

NORVIN

RICHARDS:

Yeah, yeah. Yeah, so good point. And maybe that's got something to do with your reaction, that you are being maximally charitable to the person you're talking to. If somebody said, "What are you ordering a hamburger-- what did you order a hamburger and?" you do your best to pretend that they said something grammatical. It's clear what they meant. And so you're going to pretend that they said "with" instead of "and." Maybe there's something like that going on.

This is reminding me of a-- there's work on-- what's it called? I think it's called the Moses illusion, where people have observed that if you ask people how many animals of each kind did Moses take on the Ark, where if you're familiar with the Bible, you know that Moses did not take any animals on the Ark. The Ark was Noah, a different guy. Noah was the one who took animals on the Ark.

And so the real response to that is supposed to be, hold on, Moses didn't take any animals on the Ark. But that if you do a survey in which you walk up to people at random and say how many animals of each type did Moses take on the Ark, what they typically do, very often, is pretend that you said Noah. So they pretend that you asked the question in a way that makes sense, and they tell you-- they tell you two.

Which is actually not-- as I said, I've been reading the Bible lately because of this Wampanoag project. Noah-- I hadn't remembered this, but Noah took two of some kinds of animals, but more of other kinds. It had to do with whether they were edible or not, I think. So whether the laws for what you're allowed to eat allowed you to eat them. If it was OK to eat them, he took more, I guess so that there would be some to spare. Yes.

So I suspect that that's what's going on with you. But it's an interesting question. Actually, your point raises an interesting point, which is that these-- we're going to talk about several cases of this kind where a wh-phrase seems to be constrained from moving from a particular place, and the examples are always going to be examples, hopefully, where it's not that you can't figure out what the other person means. It's not that these are unthinkable. They're just unsayable. It's not the right way to say it.

Actually, the next example, I think, is particularly clear in that regard. So here are two sentences. We've talked a lot about embedded clauses. And I guess when we were talking about German, I touched on the fact that embedded clauses sometimes have it start with complementizers. Our English sentences have pretty reliably started with complementizers, but they don't have to, right? So you can say, "I think that Mary should win the election," where there's a "that." But you can also say, "I think Mary should win the election." There's no complementizer there.

And then linguists get very curious about whether, OK-- I got asked this question in class at one point. Does that mean that I should draw different trees for these? Or does it mean that the embedded clause should be a CP in both cases, and that C can either be pronounced "that" or [SMACKS LIPS]. Right? That C has a pronunciation where it's just not pronounced. And that's a debate that people have. We don't have to have it.

But let me call your attention to a fact which doesn't hold actually for all English speakers, but for some it does. In my English, it's OK to ask questions like, "Who do you think should win the election?" But questions like, "Who do you think that should win the election?" are no good for me. Am I the only person like that here? Is there anybody for whom these are both fine? Are you communicating with me in ASL or--

AUDIENCE:

I do not know what the asterisk--

NORVIN The asterisk means it's bad.

RICHARDS:

AUDIENCE: The first one feels fine. The second one feels not fine.

NORVIN OK, good. Yeah, so you're like me. I mean, interesting, yeah. It would be OK if that were not true, but yeah. There
RICHARDS: are people for whom both of these are fine. So occasionally, when I'm teaching this class, I'll do this slide, and I'll look out in the audience and there'll be one person who looks really alarmed, like they're hallucinating. And I'm like, you're from the Midwest, aren't you? And they're like, yes. So there's a part of America where they do this. It's something about living in big, flat areas with lots of agriculture, I guess, that it's OK to say these things.

There's a lot of interesting questions about why, or what it is that distinguishes some dialects of English from others. Because it's not as if you cover this in high school, or your mom and dad punish if you say, "Who do you think that should win the election," right? That's not what happens. But for most Native speakers of English, there's this contrast. It's called the that-trace effect. Never mind why. Well, because the idea is it's impossible to have a "that" immediately followed by the place the wh-phrase came from. If you imagine the wh-phrase when it moves, it leaves traces of itself behind, I guess, is the metaphor. Yeah.

This is specifically about-- I guess this came out in the way I just described it. It's specifically about extraction of subjects. So it's bad to say, "Who do you think that should win the election?" But it's OK to say things like, "Who do you think that we should vote for?" So the generalization is not you can't wh-move past a "that." It's OK to wh-move past a "that." It's just not OK to wh-move past "that" which is right next to you. And lots of interesting work on what the heck is going on, yeah. Again, let me just urge you, if you would like to know more about this, go take more linguistics classes. This is something linguists work on, trying to figure out what's going on.

Another example of movement not being possible. We actually had an example like this earlier. All of our CPs so far, or most of our CPs so far have been complements of verbs. So we've said things like, "I think that she should win the election," where "that she should win the election" is the complement of "think." Or "people believe that the moon is made of green cheese," where "believe" takes as its sister, its complement, a CP, "that the moon is made of green cheese."

It's also possible for CPs to be subjects, as in "That the moon is made of green cheese is widely believed." That's false, but grammatical. People agree? OK. It's not the most natural thing I've said today, but it's grammatical.

Now, so there's a tree for "That the moon is made of green cheese is widely believed." We've got a CP, which is sitting in the specifier of a TP. It's the subject of "is widely believed."

Now let's do some wh-movement. It's OK to ask questions like, "What do people believe that the moon is made of?" so we took that first sentence and we wh-moved. We turned "green cheese" into "what" and wh-moved it. "What do people believe that the moon is made of?" Fine.

But you can see where this is going. "What is that the moon is made of widely believed?" Ow, yeah? So, you know. "That the moon is made of green cheese is widely believed," OK, that's possibly a little awkward. Not something I'm likely to say in casual conversation. But the last example is just word salad, to use the technical term. Yeah. It's very unclear what the heck it's supposed to mean.

Do people agree? Again, I'm reporting my memory of judgments that I had when I was young and carefree, but I'm pretty sure this is true. You just can't say these things. Yeah? OK.

All right, so these kinds of examples are all just meant to show you there are some kinds of things that you can't wh-move out of. So if you coordinate two things, you can't move one of them. The that-trace effect is a condition on extraction of subjects specifically. You can't move those if there's a "that" right to their left. And if you have a clause which is a subject, like "that the moon is made of green cheese is widely believed," you can't wh-extract out of that.

There's a metaphor that's often used for these kinds of restrictions. The things that you can't move out of are called islands. So this last one I've identified for you is a subject island. So I guess the idea is supposed to be that if you're a wh-phrase and you're on an island, wh-phrases cannot swim. There is no boat, there is no bridge. If you're on an island, you're doomed. You cannot get out. You're stuck.

So there's a thriving literature in syntax in which people identify islands and try to figure out why the things are islands that are islands. We hope that this will teach us some things about the mechanics of extraction. Yeah.

I want to show you a particular class of island effects, or cases where movement is impossible, and show you a little bit of the work that people have done to try to make some progress on why these particular things block extraction. I think we have time to at least get started on this, and then we might have to finish it next time.

So there are a number of kinds of restrictions on movement that could be unified, and I'll show these to you in a second. They could be unified into a single condition, which we could call shortest move. It says if you have a choice between two different movement operations, you should pick the one that's shorter. And people are kind of excited by that, because it sounds like cognitively plausible. If you're trying to decide between movement operations, you should pick a short one over a long one.

I'm going to show you a definition of "short" in a second. Please don't go tattoo this on your arm or anything. There's no-- it's not all that important that we define it carefully for the purposes of what we're going to do in this class. In theoretical work on this topic, it is important to define it carefully, and there's work on trying to figure out exactly how to define it.

But here's one definition. You could say, take the path-- take a movement operation, and we'll consider-- let me show you a movement operation. So here's a movement operation where we took "with chopsticks" in this V2 example and we moved it out of the TP and into the C. And we'll talk about the path of a movement, and that'll be the set of nodes that dominate the original position, the position you moved out of, and don't dominate the landing site.

So in this particular case of movement, this CP dominates the landing site. But then there are a bunch of other nodes like this one and this one, and a bunch of other ones inside this TP, that dominate this XP here. And those are what we'll refer to as the path. And to claim that a move has to be as short as possible is to claim that you want the path to be, well, as small as possible. And there's some interesting work on trying to figure out what happens.

So in the cases I'm going to show you, the two paths are in a subset relation. One of them just contains a subset of the nodes that are in the other one. And there's an interesting question about what happens if they just overlap? Do you actually count nodes? People sort of hope not, and it looks like the answer might be no. We won't look at any of their relevant cases today. So movement A is going to be shorter than movement B if the path of A contains a smaller set of nodes than the path of B. I'll show you some trees that will hopefully make that clear.

So let me show you a case where shortest move is useful, something called the head movement constraint. It was invented by Lisa Travis, who's a syntactician who now teaches at McGill University up in Montreal. The head movement constraint says this. Here's a case of head movement-- I showed it to you before-- where we've taken what's in T and we've moved it into C. So "will Mary type novels," we've taken the auxiliary and we've moved it into C.

Suppose instead we were to take the verb and move it into C. Well, we would end up with "type Mary will novels," which is not the way you ask yes-no questions in English, no. And in fact, this generally seems to be true, that if you are going to do head movement-- so you're going to move some head into C-- the head that you move is the higher head. It's "will." It's not the lower head. It's not V.

The path-- so if we're talking about this in terms of paths, the path from I to C-- sorry, from T to C. I have to go through and get rid of these I's. This I, again, is an old name for T. The path from T, from "will," up into C consists of T bar and TP. Those are the nodes that dominate T and don't dominate C.

But the path from V to C consists of VP and T bar and TP. Do people see that? Should I draw that tree again down here, and I can circle nodes and we can look at them? So when we're talking about paths-- again, this is one way of measuring lengths of movement operations-- the path from V to C is the set of nodes that dominate V, that don't dominate C. So those nodes are the VP, which immediately dominates A, and the T bar, which dominates the VP, and the T which dominates the T bar, but not the CP, which also dominates the C. So we're looking just at the nodes which dominate the place the movement started and don't dominate the place that it lands. So that's the path from V to C.

And that path is a superset of the path for movement from T to C, because VP is in that path, but it's not in the path from T to C. Does everybody see that? Is that clear? OK.

We're mostly going to know short when we see it, right? So another way to say all of this would have been to say, hey, look, the arrow that connects T to C is shorter than the arrow that connects V to C. There, right? Or, hey, look, TC commands V. So every node that dominates T dominates V. That would have done it too. There are various ways to do it, but this talk in terms of paths, this is one way people do it sometimes.

So head movement constraint is one of the sub cases. So the head movement constraint was invented decades ago. It's one of the cases that was folded into this general notion of shortest move. When you have a choice between things you could move-- in this case, you're choosing between T and V-- you have to choose T. You can't choose V. It's what the head movement constraint says.

Another example. We talked a little bit about multiple-wh questions, questions like "Who bought what?" And speakers vary. Actually, I'd be interested to hear how you guys feel-- how you all feel. I prefer "Who bought what?" to "What did who buy?" or "What did you give to whom?" sounds better to me than "Who did you give what to?" Do people agree with me about that? Does that sound true? I saw some of you nodding encouragingly as I was doing this. Maybe you just wanted to be friendly. I appreciate that. Yeah?

AUDIENCE: I prefer the first options, but I don't think that the second options are ungrammatical.

NORVIN
RICHARDS: Yeah. So this is different from the head movement constraint in at least that regard. The head movement constraint-- if you violate the head movement constraint, you've done something very bad. It's no longer clear what you meant, yeah. Whereas if I say, "What did who buy?" people will look at me funny. But people look at me funny anyway. That's kind of what life is like, yeah?

Still, I also agree with Kateryna that the first examples are better than the second examples. This is sometimes called superiority, the phenomenon that if you have two wh-phrases and you're trying to pick which one to move, there's a preference. As Kateryna, I think, accurately says, it's not a hugely strong preference. But it's a preference for moving the higher one, the first one. And this is kind of like the head movement constraint, and people have subsumed it under shortest move. You've got a choice between two things to move. You ought to move the higher one, the one where for which the movement will be shorter. Yeah?

AUDIENCE: Could this be related in some way to what the most important part of the sentence is? Like, if you hear someone say something like "We're buying something," and they're buying this really crazy thing, you could say, "What did you buy?"

NORVIN
RICHARDS: Ah, yes. Yeah. Let's see now. Huh. I'm sorry, I'm going to do an old professor's trick and talk about something different from what you talked about, because what you said reminded me of something else. And then I'm going to talk about that thing hopefully long enough so that you'll forget your original point. That's the goal. So your job is to stop me from succeeding at this.

But what I thought you were going to say went like this. There is a kind of wh-question-- we've talked about it. It's called an echo question, where I just repeat what you said, except that I substitute in a wh-phrase which is in-situ. So if you say "Mary just bought a motorcycle," I can say, "Mary bought what?" And similarly, if you say, "Mary just bought a motorcycle," I can say, "Who bought a motorcycle?" And because that's at the beginning of the sentence, it's hard to know whether that's an echo question or not. But at least it's possible that it is.

And I can do that either because it's hard to believe-- there are various people I could believe bought a motorcycle, but not Mary, we all know Mary would never buy a motorcycle-- or I could do it because I didn't hear the first word of your sentence, like the phone connection is bad or we're talking on the T or whatever, and there was a loud noise right when you said "Mary," and so I didn't hear that part. And I can say, "Who bought a motorcycle?" Not because I'm astonished, but because I missed the first part of your sentence.

And "What did who buy?" that string, I think it's possible to have an echo question with wh-movement in it. So if you've just asked me, "What did Mary buy?" and I didn't hear you say "Mary" because the line was bad. So you said, "What did [IMITATING STATIC] buy?" I can say, "What did who buy?" Which resembles what you were talking about, but it's not quite the same.

You wanted-- so that's a place where my two wh-phrases have different goals. When I say, "What did who buy?" I'm really asking you the question "who," and my "what" is quoting you. What you said was "What did [IMITATING STATIC] buy?" right. That's not what you said, but that's what I heard. And so I'm doing an echo question about your wh-question. Yeah. My real question is about "who."

Your idea was that if I ask, "What did who buy?" "What did *who* buy?" No, your question was, "*What* did who buy?" What was your question?

AUDIENCE: Like, if you're more interested in the what than who.

NORVIN
RICHARDS: If I'm more interested in the what than the who. So this is related-- yeah. This is related to other things. Let me see, what's a good example of this? It's a thing about wh-answers to wh-questions. If I ask you a question like, "Who bought what?" I want a complete list of people. I want my answer organized as a complete list of people, together with the things that they bought. Whereas if I make myself ask you, "What did who buy?" what I want is a complete list of things organized by things together with the people who bought them.

And there's some debate about whether-- so under normal circumstances, wh-questions are supposed to be exhaustive. Answers are supposed to be exhaustive, that is. If I ask you, "What did you eat yesterday?" you're supposed to give me a more or less complete list. If you leave out all the desserts and I'm your doctor, then you are you're doing something wrong. You're supposed to tell me everything.

There are circumstances under which it clearly isn't supposed to be exhaustive. So if I ask you a question like, "Where can I buy a foreign newspaper around here?" you don't have to give me a complete list of the places I can buy a foreign newspaper around here. You just have to tell me a place where I can go. "Harvard Square," you can say. Maybe that's where I can go.

And with multiple wh-questions, there's some debate about whether the exhaustivity requirement, to the extent that it ever holds with wh-questions, maybe only holds of the one that you move and not of the one that you've left in situ. That's a position people have held anyway, that there's a difference between the two. And so your question about importance might be getting at that, right? It's like, I want this one completely exhausted, and then-- yes, I want every member of it connected to something in the other group, but you don't have to be exhaustive with the pairings.

That might be why-- I think this was Kateryna's comment earlier that the violations of this are not as strong as the violations of the head movement constraint. And it might have to do with things like this, that there are extraordinary circumstances under which these effects might be overwhelmed by your desire to have-- to prioritize one or the other. Whereas with head movement, there's nothing like that going on. It's just got to move ahead.

One of the cases that people talk about when they're talking about exhaustivity is cases where you know that there's only a single pair. So if I'm eating lunch with a colleague, if I've invited a colleague to have lunch with me and we go and have lunch, and then I try to pay the bill and my colleague is arguing with me about whether-- about who gets to pay, I might say, "Well, who invited who?" Right? I'm not going to say, "Who did who invite?"

And maybe it's-- I think. That's a case where the judgment is pretty clear. And I think that might be a case where there's no question of exhaustivity. There are only two people, right? It's either I invited you or you invited me. Those are the only possible answers. And so maybe that's why the judgment, I think, in that kind of case gets stronger. Yeah.

Sorry, did I ever manage to answer your question at any point of that? Yes, good. Yeah. This is all-- you're opening a can of worms, which I will now close. There's lots of interesting work on exactly this problem, yeah. And we are just about out of time. Yes, we're out of time, because this one will take too long. So we'll do more shortest move next time. We'll talk more about this. Cool. Thanks.