

[CREAKING, CLICKING]

NORVIN
RICHARDS:

All right, so welcome to day two of morphology. Last time, I was trying to get you to believe that it's worth-- for trying to think about what you have in your mind, the representations you have in your mind of what you can do with your native language-- if we're trying to think about that, that it's useful to think, yeah, your mental list of elements of your basic elements of your language consists, maybe, of a list of morphemes, where morphemes are these units that can combine in various ways, as we've seen.

Each morpheme we're going to need to tag with information about its sound, how it's pronounced, its meaning, and then information like is it a bound morpheme or a free morpheme? That is, is it the kind of morpheme that needs to combine with another morpheme or not? So there are free morphemes like "cat," where, when we're listing its sound, will represent the fact that it's pronounced "cat," and when we're listing its meaning, will represent the fact that it refers to a certain type of small mammal.

And when we're listing whether it's bound or free, we'll say that it's free because "cat" is a word. You can say it by itself. As opposed to the S at the end of a word like "cats," we'll say that's a bound morpheme because it's not a word on its own.

And if we're talking about bound morphemes, we ran through bound morphemes from a bunch of different languages. We saw there are prefixes out there, there are suffixes, and there are other things we talked about-- infixes, various other kinds of things.

There are other kinds of morphemes to talk about. We eventually will. But first-- so what I said here was first, another kind of information we're going to have to list.

But actually, before that, is any of that unclear? Does that all make sense? Is everyone convinced of the existence of morphemes? Are you willing to at least assume that they exist?

OK. So you're used to looking words up in the dictionary, but in your mental dictionary, maybe what you have are not words but morphemes-- things that are at least sometimes smaller than words.

So another kind of information we're going to have to list. Think about the bound morpheme "-al" that shows up at the end of industrial, or national, or autumnal. That's limited in where it can go. So there aren't words like "assert-al" or "impress-al," or "industrializ-al," yeah?

Again, let me pause and make sure that I'm not saying things that are just false. I think I told you there's a danger when you're a linguist you gradually get out of touch with your native language. But I'm pretty sure this is true.

Is there a generalization about the kinds of things you can add -al to? What are they? Yeah?

AUDIENCE: Nouns.

NORVIN
RICHARDS: Nouns, Yeah. So "industry" and "nation" and "autumn" are all nouns, as opposed to "assert," and "impress," and "industrialize," which are not nouns. What are they?

AUDIENCE: Verbs.

NORVIN Verbs, Yep. And if anybody is listening to this and thinking, nouns, verbs? What the heck? Don't worry. We will
RICHARDS: talk more about this eventually.

Yep, OK, so we just said there is a word "industrial" because "-al"-- maybe I should write this on the board. Or I would if I thought there was chalk anywhere, anywhere at all. Here we go, I'll write it on the board right here.

That will be helpful. No, I won't. I'll put it over here. We've just said "-al" attaches to nouns and can't attach to verbs. That's what's going on in the first of the list there.

So we've got a noun can have "-al" on it. I'll write that again over there. This is surely not the most efficient way to use the blackboard. Is it necessary? Does it work? Can everybody see one or another of the things that I wrote? Is there anybody who can only see one of the things that I wrote? Yeah, OK, so it's worth it to write it twice.

OK, so "-al" attaches to nouns and doesn't attach to verbs. That's why you can say "industrial." It's why you can't say "industrializ-al," yeah? Why can you say, "industrializational"?

That's a word. It's kind of a long word. "Industrializational," I guess, means having to do with industrialization. Yes?

AUDIENCE: Because "industrialization" is a noun?

NORVIN "Industrialization" is a noun. So "-ation" is attaching to "industrialize," and it is apparently creating a noun. So at
RICHARDS: least for some kinds of morphemes, we're going to want to list the kinds of things they attach to, their input, and then their output. So "-ation" can attach to a verb like "industrialize," and it can create a noun.

Yeah, so "-ation" attaches to a verb, and then what you get is a noun. Say that again, if you take a verb and add "-ation," what you end up with is a noun. And that sort of-- we have intuitions about which things are nouns and which things aren't. We have the intuition that "industrialization" is a noun, but now we can check our intuition by asking ourselves, well, we know that "-al" attaches to nouns. Can we attach "-al" to "industrialization"? Yes. Yes, our intuition is right; that's a noun.

OK, cool, so there are at least some kinds of morphemes which convert words into other types of words, convert nouns into verbs or, in the case of "-al," verbs into adjectives-- sorry, nouns into adjectives. OK, so adding some things to the list I showed you before, the lexicon has morphemes in it, and morphemes all contain the information about sound and meaning, and whether it's bound or free, and if it's bound, what kind of bound morpheme it is-- a prefix, or a suffix, or a tone, or an infix, or whatever-- and also what kind of morpheme they can attach to. Do they attach to nouns, or verbs, or what? And, at least for some kinds of morphemes, what the result is-- whether you create a noun, or a verb, or an adjective, or whatever. Yeah, they both sound OK.

Actually, sometimes, we'll have to say more than that. So "sincere," "chaste," "scarce," "curious," "deep," "wide," and "warm"-- what are those? They're adjectives. And when you add "-ity" to "sincere," you get "sincerity." When you add "-ity" to "chaste," you get "chastity." And what are "sincerity" and "chastity"?

AUDIENCE: They're nouns.

NORVIN They're nouns. So "-ity" is attaching to an adjective, and it's making a noun. When you add "-th" to "deep," you get "depth." Now, when you add "-th" to "wide," you get "width." So "-th" is attaching to an adjective, and what is it creating?

AUDIENCE: Noun.

NORVIN A noun, yeah. So here we have two suffixes that both seem to do the same thing. They both attach to adjectives and create nouns.

RICHARDS: But we're going to have to say something else, because you cannot say "deepity," or "sincereth." Yeah, those are not words. So you can't add "-th" to the adjectives at the top, and you can't add "-ity" to the adjectives at the bottom.

So sometimes it's not enough to say, this attaches to adjectives. You have to say, it attaches to adjectives in this list, or we have to understand something more about the adjectives. Anybody have a guess about why there are two kinds of adjectives in English? Yes.

AUDIENCE: I was going to say that some are Latin-derived, and others are just from Old English or Germanic.

NORVIN I think you were going to be right, but did you convince yourself not to say that?

RICHARDS:

AUDIENCE: Because "scarce" does not come from Latin, so--

NORVIN Yeah, but it should have, yeah. Yeah, so the ones at the top, yes, look Latinate, you're absolutely right. And the ones at the bottom look Germanic. Yeah, that's right. So there are a few things like this where it's a result of English history-- that we have suffixes that we got from-- "-ity" is something that we got from French and "-th" is something we got from Germanic. And so yeah, these suffixes are maintaining their history to a certain extent. Yeah?

AUDIENCE: "-ity," I don't know if this is a real thing or just me thinking, but it reminds me of Spanish "-idad."

NORVIN It is related to that, yes, Yeah, score. Yeah, good point, yep.

RICHARDS:

OK, so I mean, you can be a native speaker of English and not know this. It's not like we are all remembering, oh, yeah, those are the Germanic adjectives, those are the Latinate adjectives. Be sure to add "-ity" to that one and "-th" to that one.

But on some level, we have to say, yeah, there are adjectives of class 1 and adjectives of class 2 or something. There are purple adjectives and green adjectives or something. We have to distinguish these from each other.

I'm giving you English examples, but this is a very common situation. Lots of languages have been in intense borrowing situations at some point in their history with weird results like this.

OK, now we've talked about this a little bit. So I said when you add the plural suffix to "cats" and "dogs," one of the first things I said to you, it's pronounced differently on "cats" than it is on "dogs." Yeah, and we talked about why, and we're going to talk more about why later. This is the kind of thing that happens sometimes when you add one morpheme to another morpheme-- one or another or both of the morphemes changes a little bit.

We'll talk a lot about this as we start talking about sound change, phonology, which is our next topic. But for now, we can just pause and notice, if you add "-al" to "electric," you get "electrical." But if you add "-ity" to "electric," you don't get "elec-trick-ity". You get "electricity."

It's not because "elec-trick-ity" would be hard to say. Yeah, it's just we have this idiosyncratic sound change-- which we inherited, again, from French-- that softens the K to an S there. Yeah?

AUDIENCE: [INAUDIBLE] idiosyncratic?

NORVIN I'm sorry, say it again?

RICHARDS:

AUDIENCE: What does "idiosyncratic" mean?

Oh, "idiosyncratic" means-- what does it mean? What do I mean when I say "idiosyncratic?" It means you sometimes have to say, this particular morpheme has two different forms depending on what it combines with. So you have to say more about that. So "idiosyncratic" means special, having something special to do with that.

So the suffix "-ic" at the end of "electric" will change to "-is" before "-ity." And there's more to say than that, but you have to say something that has that consequence. Similarly, the past tense, it's like the plural suffix, which can be either "z" or "s," like in "cats" and "dogs," has a bunch of different forms.

Sometimes, it can be more of a "d" sound like in "hummed." Sometimes it can be more of a "t" sound like in "leaped" [pronounced like "leapt"] And the verb itself can undergo changes when you add the suffix to it. So the past tense of "hum" is "hummed." That's all fairly peaceful. But the past tense of "leap" is not "leaped" [with "d" sound], it's "leaped" [with "t" sound]. The past tense "go" is not "goed," it's "went."

This is a case where we-- it's what's called suppletion. So English speakers at some point in the history of English, for mysterious reasons of their own, decided that the past tense of "go" should borrow-- that "go" should borrow its past tense from another verb. So for the past tense of "go," we use the past tense of another verb, "wend," as in "to wend your way." And so the result of the past tense go, it's no longer "go." It is now "went."

Languages do things like this. It'd be interesting to try to understand why. Or similarly, "sing" and "sang," past tense of "sing," there's no "d" or "t" or anything. You just change the vowel.

So there are cases where a morpheme will have different forms depending on what it's combining with. That's the quick and dirty way of describing everything that's on the screen here. The technical term for what's going on here, we say that when you have a morpheme that has two different forms, the two different forms-- or multiple different forms, sometimes it's more than two-- the different forms of a morpheme that it takes under different morphological circumstances, those things are called allomorphs.

So we say that, for example, the "d" and the "t" past tenses are two allomorphs of the past tense, or that "leap" and "leapt" [pronounced like "lep"] are the elements of the verb "leap," the word that means "jump." Yes?

AUDIENCE: For example, when we [INAUDIBLE].

NORVIN
RICHARDS: Oh, I'm just trying to call your attention to the fact that it's pronounced differently. Eventually, those brackets will mean something, but we haven't gotten far enough yet to get them to mean anything. So right now, all I'm doing is calling-- if I had said "leap, leaped," I would have spelled "leap" [pronounced like "lep"] the same way I'm spelling "leap." We would just pronounce it differently because English spelling is insane. And so I'm just putting the brackets there as a warning sign-- here's a place where the spelling is unreliable.

Good question. Eventually, we'll figure out how to talk about that. Yes?

AUDIENCE: [INAUDIBLE].

NORVIN
RICHARDS: Yeah.

AUDIENCE: So does that define [INAUDIBLE].

NORVIN
RICHARDS: Yeah, so right, so I called it "d" and "t" because "hummed," the past tense of "hum," although we spell it with an "e" before the "d," you say it, I think there's only one vowel in that word. It's "hummed," right? We're not saying "hummed-ed." That's not the past tense of "hummed."

AUDIENCE: [INAUDIBLE]

NORVIN
RICHARDS: Yeah, yeah, so I'm trying to just spell out sound, which is hard because we haven't done phonology yet. Yeah, but that's a really good question. This is one of many places where English spelling will get you in trouble because English is spelled according to rules that are designed to repel invaders, yeah.

Yeah? Any questions about any of this? These are really good questions you guys are asking. Yeah? OK.

OK, yeah. So sometimes-- so we will get a chance to talk more-- in fact, we'll talk more very soon-- about how exactly to talk about allomorphy, this property of morphemes of having more than one form, of having allomorphs. All we've said so far is, sometimes morphemes have allomorphs. So depending on what they combine with, they take different forms.

There's often what's called a default allomorph. That is, there's a morpheme that is the basic one that shows up most of the time. And when we're making our special statements about other forms, well, they're going to be about the other forms.

So there's going to be the form of the morpheme that you start off with. And then, you will do things to it to create the other allomorphs. So for example, the default assumption if I'm telling you about a verb, I've made up a verb. It's "fleep," "to fleep."

It's a special move in soccer in which you do a headstand and kick with your feet over your head. I just made that up. The past tense of "fleep," you're going to assume that it's "fleeped." Yeah, it could be "flept." Yeah, it could be like leap. But you're going to assume that it's "fleeped." That is the default. You assume that morphemes don't have allomorphs other than the one, in this case, that shows up in ordinary present tense circumstances when they're not combining.

OK? Is this any of this surprising or weird? Yes?

AUDIENCE: Does that particular example have anything to do with the fact that it looks like the word "leap"?

NORVIN
RICHARDS: I made it up that way to make you think that. So she asked, does that have anything to do with the fact that it looks like the verb "leap?" I guess the point I was making is we can't have a general rule that if you're making the past tense of a verb that ends in "-eap," that it's going to change to "-ep." When we're trying to figure out what's going on with "leap," that can't be what's going on.

I guess I could have made that point in other ways. We have verbs like "heap," like to heap up sand, and the past tense of "heap" is not "hept," right? It's "heaped." But similarly, if I make up a new verb, you're not going to apply what happens in "leap" to the new verb. Yes?

AUDIENCE: Are there any specific characteristics that would deter someone from going towards the default allomorph? Like if you made another made-up word, would there be any characteristics about that word that would have us moving towards [INAUDIBLE] the "t" at the end?

NORVIN
RICHARDS: Oh, I see. I don't think there's any way for me to induce you to do the "leap"/"lept" thing other than by telling you, oh, by the way, the past tense of "leap" is "lept." But it's interesting to think about. Sorry, Raquel, you were about to comment on that.

AUDIENCE: I was thinking like maybe if the word, you know it was in a specific discipline where the default one for that discipline is to do something that's viewed as a regular compared to the average thing-- like if you had an "ae" mean the plural, and you normally don't do that for all words, but you might do it for, I don't know, weird plants or something.

NORVIN
RICHARDS: Yeah.

AUDIENCE: You might default to weird plants.

NORVIN
RICHARDS: I see. I see what you mean. And there are languages, certainly, in which it might be easier to make a point like that.

I guess the other thing to say-- the point you're raising brings this up-- people sometimes claim anyway that these kinds of irregular allomorphy, these things you just have to memorize about how things combine, they'll go away if you-- they'll sometimes go away if you combine a morpheme with something else. So the classic example, for some reason, the plural of "leaf," the things on trees, is "leaves." And here, I'll put it over here, too.

But I've heard it claimed, anyway, that if you're talking about the athletic team, the Toronto Maple Leaf-- so the singular would be the "Toronto Maple Leaf"-- that the plural is the "Toronto Maple Leafs," and not the "Toronto Maple Leaves." I'm going to pause. I'm not enough of the sports fan to know whether this is true.

So I'm getting a thumbs up. Anybody here from Toronto, or is anybody a Maple Leafs fan? Anyone know whether this is true? Presumably, is the kind of thing you could find out by looking at their website-- what does it say on their T-shirts? But this is a claim that I've heard, anyway.

So there are some cases where this weird allomorphy goes away because you've made it part of this compound, or you've made it part of a name. So it isn't just about-- if we're talking about actual maple leaves, like leaves on a tree, then those are definitely "maple leaves," and something about them being the name of an athletic team. And somebody else had a hand that I ruthlessly ignored. Oh, Joseph?

AUDIENCE: [INAUDIBLE]

NORVIN Oh, they do? You checked. This is the kind of thing. [LAUGHS] I can tell sometimes that I was born in a different
RICHARDS: century, because there are all kinds of things where I raise interesting questions, and then in class, someone will be like, yes, and here is the answer. Like, oh, right, yeah, we have the ability to do that now. Anything else?

AUDIENCE: What do you think the past tense of "slingshot" is?

NORVIN Ooh!

RICHARDS:

AUDIENCE: So "slingshotted" and "slingshot" both feel wrong.

NORVIN OK.

RICHARDS:

[LAUGHTER]

"Slingshoots." So question was, what's the past tense of "slingshot"? Two possibilities-- "slingshotted" and "slingshot." And there was another possibility, which we will ignore for reasons of timing.

Who thinks the past tense of "slingshot" is "slingshotted"? Who thinks it's "slingshot"? OK, interesting.

There are some examples-- does anybody have another alternative?

AUDIENCE: "Slingshote."

NORVIN "Slingshote"? No! [LAUGHS] Shame, for shame.

RICHARDS:

AUDIENCE: [INAUDIBLE] "Slingshut."

NORVIN "Slung," "slung," "shoot"-- no. Also no.

RICHARDS:

There are some examples of verbs or morphemes that if you combine them--

AUDIENCE: [INAUDIBLE]

NORVIN Sorry, if you combine them with other morphemes that no one knows, this is kind of like "slingshot." So take the
RICHARDS: verb "to stride." So the past tense is "strode." And then, the participle was, he has--

AUDIENCE: [INAUDIBLE] "stride"--

NORVIN "Stridden."

RICHARDS:

AUDIENCE: [INAUDIBLE]

NORVIN "Strode," "strod." [LAUGHS] Who thinks it's--

RICHARDS:

AUDIENCE: [INAUDIBLE]

NORVIN Who thinks it's "stridden"? Who thinks it's "strode"? Who has something else they'd like it to be?

RICHARDS:

AUDIENCE: "Strud."

NORVIN "Strud?" Any votes for "strud"? No, you're all alone, I'm sorry.

RICHARDS:

So this is a classic example of a word where English speakers just are not sure what the participle of this is.

AUDIENCE: "Smite" as well.

NORVIN Sorry? "Smite" is another good example, yes. So that one--

RICHARDS:

AUDIENCE: [INAUDIBLE].

NORVIN That one, yeah, so for me, so "smitten" has this other use, right? You can be "smitten" with someone-- which I think is interfering. Yep, OK, so lots of fun things to think about allomorphy.

RICHARDS:

OK, so I'm going through all this partly-- so I want to go back to the stuff about morphemes combining with things and creating other things because so far, we have talked about various cases where morphemes combined with other morphemes, and we've also talked about cases where morphemes combined with more than one morpheme. And I kind want to talk about that a little bit carefully, because it's going to be something that's going to be useful as we go forward in the class.

So let's talk about these particular morphemes. Think about the suffix "-ment." What does "-ment" attach to, and what does it create? So you can say things like "government" and "treatment." You cannot say things like "bodyment" or "powerment."

What does "-ment" attach to? What are "govern" and "treat"?

Verbs.

Verbs, OK. So "-ment"-- erase some stuff here-- put "-ment," it attaches to a verb, and it creates what?

AUDIENCE: Noun.

NORVIN A noun, yeah. "Treatment" and "government" are both nouns. And I'll put that again over here. Do-do-do, "-

RICHARDS: ment" attaches to verbs and creates nouns. OK, cool. Now, how about the prefix "em-," as in "embody" and "empower." What does "em-" attach to, and what does it create?

AUDIENCE: [INAUDIBLE]

NORVIN Attaches to nouns and makes them into verbs, aha. I'll just say that again over here. [LAUGHS] There's got to be a better way to do this. Attaches to nouns and makes them into verbs. OK, cool.

All right, so we just said, we know why you can't say "bodiment" or "powerment." it's because "-ment" attaches to verbs, and "body" and "power" are not verbs. How come you can say "embodiment" and "empowerment"?

AUDIENCE: Because [INAUDIBLE].

NORVIN All of you are saying the right thing, sort of in chorus. As the semester goes along, eventually, you'll start saying these things in unison, so it would be really cool. Maybe with harmony.

So yeah, you can't attach "-ment" to "body" because "body" is a noun. But you can attach "-ment" to "embody." So "embody" is a verb. "Empower" is a verb. "Em-" attaches to the noun "body" or the noun "power" and makes it into a verb. And then, "-ment" attaches to the resulting verb and makes it into a noun again.

So it's useful to think of these morphemes, so words like "embodiment" and "empowerment," not just as consisting of three morphemes-- although they do, a prefix, a stem, and then a suffix-- but as consisting in three morphemes that are assembled in a particular order. You first attach the prefix, and then you attach the suffix. People see why I'm saying it that way? That make sense?

So here's a way of representing that fact, which is going to come in handy as we go forward. We're going to want to say, yeah, you start with "power," and you glom "power" together with this prefix. I've given it the label "aff," which is just supposed to stand for "affix." So the affix "em-," the prefix "em-," attaches to the noun "power" and creates a verb. That's what the lower left-hand side of that tree is meant to show you. Does that make sense?

And then, that verb is combined with this other affix, "-ment," and the result is a noun, "empowerment." That make sense? So this tree is just a way of representing what I just said, which is it's useful to think of this as not just a word consisting of three morphemes, but a word consisting of three morphemes which are attached in pairs. That is, you attach "em-" to "power," and then you attach "-ment" to "empower." Yeah?

AUDIENCE: Are the placements of the affixes on this tree because of whether they're prefixes or suffixes?

Yes, yeah. So you're asking, why did they put "em-" before "power," and why did they put "-ment" after "empower"? And yes, it's just whether they're prefixes or suffixes. That's all I was trying to do, right? So the tree is just a way of representing that kind of derivational history of this word. So what's the order of operations that you used to create this word? Yeah?

AUDIENCE: So they're ordered-- so it goes from the bottom up?

Yes, that's a way to talk about it. Yeah, OK. Yes?

What [INAUDIBLE]?

Oh, well, infixes would be where I would fail at what I'm trying to do. This was your point from just now. I'm trying to represent whether things are prefixes or suffixes by using the tree. If we were doing Tagalog, and I wanted to do the past tense of the verb "baba," which involves an infix "um" I'd probably put together, here's the affix, and this was a verb, and I'm going to put these two things together as a single thing.

And then, yes, somewhere else, I would have to say, oh, by the way, this is an infix. So try not to take too seriously which things are to the left and right of which other things. What I'm really trying to get across with these trees is the order in which you are putting things together. The fact that some things are prefixes, and others are suffixes, and others are infixes, or tones, or whatever all else, that's somebody else's job for today, OK? Right, OK.

There's a standard way of talking about trees like this. Trees like this are very popular. Try to get comfortable with them. We will spend lots of time looking at trees as the semester goes along.

There's a standard way of talking about them, which involves feminine kinship terms. So we'll say that the sister of "em-" is a noun because those two things are next to each other on the tree. They are two daughters of the same thing, that verb node that's above them both. Another way to say it is that that verb is the mother of both "em-" and "power." I think that's as far as people go with the feminine kinship terms. People don't talk about "aunts," or whatever. So it's "sisters," and "daughters," and "mothers." Nobody even talks about grandmothers. It's nuclear families. Yeah, so there's just a terminology for talking about this.

So "-ment" has a verb as its sister, and its mother is in N. When we say "-ment" has a verb as its sister and a noun as its mother, that's a way of saying things like what I have on the board here twice-- that "-ment" is something that takes a verb and converts it into a noun. That's how that kind of fact is represented in these trees.

OK, now there will be times-- big surprise, this is like day three. I've been looking at comparatively simple cases. There are going to be examples where we'll want to distinguish multiple affixes that are maybe similar to each other.

So think about the prefix "un-". The prefix "un-" shows up in words like "unwrap" and "untie," and also in words like "unlikely" and "unhappy."

yeah these two "un-"s arguably mean different things, and they're attaching to different things. So somebody help me be less vague. What's the first "un-" doing? What does it attach to?

AUDIENCE: Verbs.

NORVIN Verbs. OK, so there's an "un-" that attaches to verbs. What does the "un-" that attaches to verbs mean?

RICHARDS:

AUDIENCE: An undoing of that verb.

NORVIN Yeah, you undo-- wait, I just used-- yeah, you reverse. There we go. You take the result state of the verb, and you cause it to go back to the way it was before the verb was done, or something like that. Yeah, so if you unwrap something, you take something which is wrapped, and you cause it to not be wrapped anymore, or something like that. Same with "untie."

RICHARDS:

So there's an "un-" that attaches to verbs and means something like "reverse." Or, to put it another way, there's an "un-" that attaches to verbs and means something like "reverse." That's actually putting it the same way, but in a different place, yeah?

And then, there's another "un-" that attaches to what? What's the other "un-"? What does it attach to?

AUDIENCE: Adjectives.

NORVIN Adjectives, and what does it mean?
RICHARDS:

AUDIENCE: "Not."

NORVIN Yeah, like "not," or something like that. I guess we get into debates about whether "unhappy" and "sad" mean
RICHARDS: the same thing, or "unlikely" and whatever the opposite of "likely" is. What am I putting here? Adjectives, "not."
So two "un-"s. Yes?

AUDIENCE: If you a word like "unwrapping," is the "wrapping" a participle and "un-" a third "un-," or is it "unwrap," and it's "-
ing" modifying the "unwrap"?

NORVIN Really good question. What kind of tree should we draw? Should we draw a tree? So the question was for
RICHARDS: "unwrapping," are we going to attach "un-" to "wrap," giving a verb "unwrap," and add "-ing" to that? Or are we
going to add "-ing" to "wrap," giving you "wrapping," and then add "un-" to that, a third "un-? What do people
think? What should we do?

AUDIENCE: It depends on what you're using the word as, yeah.

NORVIN Yeah? Do you have--
RICHARDS:

AUDIENCE: If you're using the word as the verb, "I am unwrapping this thing," then you would do the first, where you attach
the "-ing" to "wrap" and you undo the wrapping.

NORVIN Yeah, so well, we have an "un"-- maybe this is a way to think about it. We have an "un-" that we can attach to
RICHARDS: verbs. And so in the case of "unwrapping," I guess we could hope that we can survive with just that "un-" until
something forces us to do something else. But you have an idea, too.

AUDIENCE: [INAUDIBLE] verb, like "unwrapping"?

NORVIN Yeah.
RICHARDS:

AUDIENCE: Then, then "unwrap" [INAUDIBLE] the "ing" part of it, [INAUDIBLE]?

NORVIN Yeah.
RICHARDS:

AUDIENCE: [INAUDIBLE] something [INAUDIBLE] of the work?

NORVIN Yes.
RICHARDS:

AUDIENCE: [INAUDIBLE] to now, and [INAUDIBLE]?

NORVIN

RICHARDS:

So I guess there are two words. Unwrapping, this was your point, too. There are two words, "unwrapping," that we should think about. One is, "He is unwrapping the presents," and the other is, "Unwrapping presents is fun," where "Unwrapping presents is fun," hopefully, "unwrapping" is some kind of noun. It's what people sometimes call a gerund, where you convert a verb into a noun that means the process of doing the verb, or something like that.

Maybe in both cases, we would hope, yeah, that you would first create the "un-" verb, and then you would add "-ing" to it, because "-ing" attaches to verbs and does other things with them sometimes. They're still verbs. Sometimes they're nouns now. That would be my first hope until somebody made me hope for something else.

Maybe one way to say this is, these are cases where we know that there have to be two "un-"s, both because these two "un-"s seem to mean slightly different things, and because, well, they're just-- they are attaching to things of different kinds, verbs and adjectives. Your example, where we're adding "un-" to-- so suppose we were thinking about the "unwrapping is fun" case, the gerund case. If you wanted to add "un-" after you added "ing," after you made it into a noun, you'd be invoking an "un-" that attaches to nouns.

And then the question, the next question people would ask you, would be, OK, so can you show me an example of "un" attaching to a noun where the noun isn't created from a verb with "ing," just a plain noun? That would be the strongest kind of evidence that we needed a third "un". Does that make any sense? Good question. Other questions?

OK, all right, so we need-- what does it [INAUDIBLE] to, what does it create? OK, cool, so we need two "un-"s. Here's another affix to think about: "-able." "Drinkable," "breakable," "watchable," what does "-able" attach to?

AUDIENCE:

Verbs.

NORVIN

Verbs, and what do you get?

RICHARDS:

AUDIENCE:

Adjectives.

NORVIN

Adjectives, yeah. So "-able," "-able" converts verbs into adjectives, and it also converts verbs into adjectives.

RICHARDS:

"Un-" doesn't convert the things that attaches to at all so far, yeah? So "un"-- we'll go back to "un-."

Sure, we will-- there we go. "Un-" attaches to verbs, and what you get is a verb. "Un-" attaches to adjectives, and what you get is an adjective. So it changes the meaning, but it doesn't change the category of the word. The thing is still the same.

Yeah, OK. OK so we have "un-"s, one that attaches to verbs and makes new verbs-- yes, thank you, I just said that-- and then another one that attaches to adjectives and makes new adjectives. And then we have an "-able" that attaches to verbs and makes adjectives, yeah? OK?

So now let's think about a case where we're adding "un-" and also "-able," a word like "unlockable." What should that be able to mean?

AUDIENCE:

[INAUDIBLE].

NORVIN Yes, it's the answer. So if we're going to start with "lock"-- let me find an eraser. So we'll do this over here first. If

RICHARDS: we're going to start with "lock," what shall we add first?

AUDIENCE: "Un-."

NORVIN "Un-," let's say, OK, so "lock" is a verb. We'll add "un-." We'll get-- so here's an affix. Put these two things

RICHARDS: together, what will the result of adding "un-" to "lock" be?

AUDIENCE: A verb.

NORVIN Another verb, yeah. And then we'll take "-able," which we know attaches to verbs and creates adjectives. Yeah,

RICHARDS: so we'll take that affix. We'll attach another verb. And what we'll get will be an adjective.

So we'll have an adjective which we created by first putting "un-" on "lock," and then putting "-able" on "unlock." I'm going to draw the other option over here. And where am I going to put it? Here.

So over there, we attached "un-" first, so this time, we're going to take the verb "lock", and we're going to add "-able" to it. What's the result going to be when we add the affix "-able" to the verb "lock"? An adjective. And we're going to add the affix "un-" to that adjective, and the result of that will be an adjective.

Both of these will be pronounced "unlockable." But what will they mean? What will that one mean?

AUDIENCE: Not able to be locked.

NORVIN It cannot be locked. Yeah, so this is a broken lock. Yeah, it is unlockable.

RICHARDS:

Yeah, right, because when you add "-able" to "lock," you get an adjective-- possible to lock this thing. And then, when you add "un" to it, you say not possible to lock this thing. How about that one, that "unlockable" over there, the one where we first added "un-" to "lock" and then we added "-able?" What does this one mean?

AUDIENCE: "Can be unlocked."

NORVIN "Can be unlocked." This is not a broken lock, a lock that's working properly. Yeah, and that's our intuition about

RICHARDS: the word "unlockable." It is ambiguous.

If you say, this door is unlockable, because I have the key, or this door is unlockable, somebody calls a locksmith. Does that sound right? It can be either of those things. Yes?

AUDIENCE: I [INAUDIBLE], I don't think there is a particular [INAUDIBLE] on [INAUDIBLE]. If we looked at "unsinkable," for instance--

NORVIN Yeah?

RICHARDS:

AUDIENCE: I don't tend to hear "unsinkable" as meaning "able to be unsunk."

NORVIN Right, do you think do you think there is a verb "unsink"?

RICHARDS:

AUDIENCE: I don't know.

NORVIN Yeah, so actually, you're raising-- oh, yes.

RICHARDS:

AUDIENCE: Does that have to do with the transitivity of the verb?

NORVIN Well, you can sink a ship, so the verb's transitive. And the ship can also sink, so it can be intransitive. You can

RICHARDS: lock a door, and a door can lock. So we have a bunch of verbs that can go back and forth between being transitive and intransitive.

And we'll talk more about transitivity later. But for people who are wondering what the heck we're talking about, verbs are said to be transitive if they have both a subject and an object. So if you sink a ship, "I sank the ship," then the verb is transitive. If you say, "the ship sank," then there's only a subject. There's no object. So the verb is intransitive.

English has a lot of verbs that can be either. And a lot of the groups that are up here can be either. Your question raises a really good point, though, which is, I just casually said, you can add "un-" to verbs, and it means undo the effect of the verb-- yeah, look, "unwrap," "untie," yeah.

But you can't unsink a ship. Even if you go down with divers, and find the ship, and bring it back to the surface, you're still not unsinking the ship, I don't think. It doesn't matter how good you are at this.

So we have to say some other things about that "un-." You're raising a good point. There are some verbs that cannot be reversed, and "sink" maybe is one of them. [INAUDIBLE], Joseph, yeah?

AUDIENCE: This might just be me, but I feel like because the word is ambiguous, at least in the context of that word, I feel like in my mind, my brain has decided that "unlockable" means something that generally this one, like it cannot [INAUDIBLE].

NORVIN The other one? Yeah, yeah. If your brain is like my brain, then it really likes that one, the one you can't see. It's not your fault. Yeah, it's over there under the slide, yep, yep.

AUDIENCE: It's like something that can be unlocked, yeah.

NORVIN Yeah, yeah, it's unlockable. The door is unlockable. Yeah.

RICHARDS:

AUDIENCE: It's unlockable?

NORVIN Yep.

RICHARDS:

AUDIENCE: So you can say the lock is broken.

NORVIN Yeah, yeah, I might be more likely to say that. I think you're right. I have that feeling too.

RICHARDS:

And actually, I cheated a second ago when I said "unlockable." It's ambiguous. You can say either one.

But for me, at least, if I want to mean that one-- the one that means it's broken, you can't lock it-- I kind have to say it's "un-lockable," like as opposed to this one, which you say, it's "unlockable." I kind have to put another stress on "un" or something like that. That's my feeling.

But maybe some of you are looking at me as though I've grown two heads, which is a kind of look that I get a lot just kind of walking around so, you know, I'm used to it. Does anybody else have that feeling? I don't think I pronounce these two verbs the same way, these two adjectives in the same way. Yes?

AUDIENCE: I think [INAUDIBLE] put a stress in the word [INAUDIBLE].

AUDIENCE: Yeah. [INAUDIBLE] not [INAUDIBLE]

NORVIN Yep.

RICHARDS:

AUDIENCE: [INAUDIBLE]

NORVIN Yes, now this is 24.900. We will surely not get to the bottom of this. But this is a really interesting sort of
RICHARDS: question. And maybe one of the things we're learning is that if we want to have a full understanding of how stress works, we need to be willing to think about these structures. These structures are apparently informing our intuitions about where stress goes and how it's treated, which is kind of interesting. You had a hand up a while ago, and I never got to you. I'm sorry.

AUDIENCE: In the sentence, you can't "unsink a ship,"

NORVIN Yeah?

RICHARDS:

AUDIENCE: Sink does sound correct.

NORVIN Oh.

RICHARDS:

AUDIENCE: That's the previous--

NORVIN You can't unsink a ship? Oh, boy. In general, you can't unsink a ship, but I think this ship might be unsinkable.

RICHARDS: Maybe, I don't know. You can't you unburn a letter. You can't unbreak a teapot.

Yeah. [LAUGHS] So maybe I was too fast to say there are verbs that can't be reversed. And to the extent that you can reverse them, I think you then get both of these adjectives. So--

AUDIENCE: [INAUDIBLE] certain affects.

NORVIN Yeah, yeah, yeah. Whoo, these are deep waters. Fortunately for me, other people are raising their hands. Let me
RICHARDS: see what they have to say. Yes?

AUDIENCE: I think it's like you're pointing out in the sentence, the fact that it's not the same.

NORVIN Oh, that's true.

RICHARDS:

AUDIENCE: You're pointing out in the sentence like, almost like that sounds ridiculous. You can't unsink a ship. That's not going to work.

NORVIN Yeah, yeah, yeah. "We have this crazy scientist at MIT. He's doing this weird diving research." He's spending all his time trying to unsink ships.

RICHARDS:

[LAUGHTER]

I don't know. Maybe it's just a matter of the number of times you say it, so that eventually--

[LAUGHTER]

It's just unlocking a door, this is the kind of thing that happens all the time, whereas unwrapping a present, whereas unsinking a ship, people generally don't. Yeah, maybe that's all that's happening. Did you have a question?

AUDIENCE: Well, it was I was essentially going to say that it might have to do with whether or not the reversion is temporary. If the reversion of the verb is a permanent thing, and you won't be able to restore it to the previous state, [INAUDIBLE]?

NORVIN Ah, so if you unlock a door, you can lock it again. Of course, if you can unsink ships, you can probably sink them again, right?

RICHARDS:

[LAUGHTER]

This is probably going to get expensive and wet. But yeah, so it's presumably something you can do. Raquel?

AUDIENCE: I have two thoughts. And the first thought is that "unlock" is an actual word, but I don't think "unsink" is an actual word. So maybe we think of "unlock" as its own specific word that we can add "able" to. And then, the second thought is that "unbearable", that breaks this, because we don't think "unbear."

NORVIN Oh, that's a very-- that's--

RICHARDS:

AUDIENCE: You can't unbear a bear. [LAUGHS]

NORVIN Well, yeah. So but OK, those are both really interesting thoughts. I mean, the first thought is what we're arguing about, is whether "unsink" is a word or not. And I guess the answer that's emerging is, sort of. It's just not something you do all the time. And so our intuitions about it are kind of fuzzy.

RICHARDS:

"Unbearable" is a really nice example. Basically, what that's telling us is that-- what the heck is it telling us?

AUDIENCE: It's unbear'd?

NORVIN So "bearable," right, the adjective "bearable," it has a couple of meanings. The meaning that you have in mind,
RICHARDS: the meaning that you have in mind-- let me remind my computer not to do that, sorry. The meaning that you have in mind is one where "bearable," it doesn't just mean "can be carried," right? It means something more emotional than that.

And no, but it can have that kind of emotional meaning when you're bearing-- you know. Yeah, what? "She bore the loss of her stock holdings well." Yeah, so I don't know. So maybe, OK.

So I guess what we're learning is that although you cannot unbear something-- maybe because there's no sense in which you can reverse the bearing of something-- there is an adjective "bearable," and you can add the other "un-" to that, the "un-" that attaches to "bearable," to adjectives, that means "not bearable."

There, yes. OK, good. I got distracted by emotions, as so often. But yeah that, just has to do with the fact that "un"-- we're now debating about whether you can unsink a ship, but you surely can't unbear a loss. I don't even know what that would mean. Yeah, yeah. Wow, lots of questions. Yes?

AUDIENCE: I think it's about the number of times [INAUDIBLE]. Like we used to say "follow," and now we can say "unfollow."

NORVIN Oh, yeah. Yeah, yeah, "follow" and "unfollow" is a really good example, actually. Yeah, so it used to not be
RICHARDS: possible to unfollow things. One crucial difference, I guess, is that if you wrap something or tie something, you change it so that it's different now as a result of what you've done.

So if you tie something, it used to be just a string, and now it's a knot. Or if you wrap something, it used to be a thing, and now it's a present. If you sink a ship, this is what we've all been talking about. It goes from being on top of the water to being underneath it.

As opposed to "follow," if you follow someone in real life, you don't do anything to them. They're still the same as they were. We kind of have this intuition.

The "follow" that you can unfollow someone is something that changes them from a person who has n number of followers to a person who has $n + 1$ number of followers. So there's something about whether the verb changes the state of the object.

I think that's got something to do with all this, which is why these examples about unthinking ships and breaking pots are kind of interesting to think about. Yes?

AUDIENCE: It turns out I just searched [INAUDIBLE] "unsink" on the Scrabble dictionary, and it says no.

NORVIN Well, Scrabble thinks it's not a word. So I mean, Scrabble, they have to have rules. They have to draw a line
RICHARDS: somewhere, yeah. Yes?

AUDIENCE: [INAUDIBLE] they make [INAUDIBLE].

NORVIN So Scrabble, we should have a Scrabble version of 24.900 where we try to figure out what's going on together.
RICHARDS: But Scrabble is not English, right? It's something related to English, but not the same. We're allowed to have our own intuitions about what things are words and what things aren't, Yeah?

AUDIENCE: Yeah, I'm not sure how to phrase this question, but it's like you started off the lecture by saying that meaning comes from morphology.

NORVIN Yes.

RICHARDS:

AUDIENCE: And now we're trying to, I guess, figure out what [INAUDIBLE] means, right?

NORVIN So one way to think about it would be to think, so this stuff about which verbs can you attach "un-" to, where I
RICHARDS: just said-- well, so we started by saying "un-" can attach to verbs. And it gives you a new verb that means, "take the thing that is in the state resulting from the action of the verb and put it back in the state that it was in before you did the verb." That's one way of defining what "un-" means, yeah?

And then, did that make sense? So if you untie something, what does that do? It takes something which is tied, which is in the state that you're in as a result of the verb "to tie," and converts it into something which is not tied anymore. That's what it is to "untie" something.

So if that's what "un-" means, then yes, you should be able to attach it to verbs. But you should only be able to attach it to verbs that change the state of their objects because it makes reference to this change of the state of the object. This is me making stuff up right here in front of all of you, but this seems reasonable to me. I think it might be something like that. Yes?

AUDIENCE: Wouldn't that make "unthink" valid?

NORVIN It should. Well, so it should be valid, yes.

RICHARDS:

AUDIENCE: When you think something, doesn't it change the state?

NORVIN It certainly does change the state, yes. Gosh, is that the time? Yeah.

RICHARDS:

[LAUGHTER]

So look, this is-- so for me, at least, this is what is cool and fun about linguistics. Here it is, day 3, and we are right on the edge. I'm a professional linguist, this is what I do for a living, and I'm not quite sure what the answer to this question is.

So you guys could be the ones who figure out what the heck is going on with "unsink," to which the answer could be, yeah, "unsink" is more or less OK. It's just not something people do all the time, and so we're not used to hearing it. Maybe that's the easy way of getting out of where I am.

Or maybe there's more to say about what exactly "un-" does to the meaning of the verb. But that's the kind of answer to your question that we would get-- that if we define everything about the meaning of "un-" that that will help us understand why it can attach to some verbs but not others, yeah. And as you can see, we're not quite there, maybe. Joseph?

AUDIENCE: So well, I guess if you put it together-- if you have the verb "help," could you help somebody--

NORVIN Yes?

RICHARDS:

AUDIENCE: [INAUDIBLE]

NORVIN Well, you can be unhelpful.

RICHARDS:

AUDIENCE: Unhelpful.

NORVIN Oh, god.

RICHARDS:

[LAUGHTER]

But there, you're adding it to an adjective, yeah. Yeah, yeah, so you cannot unhelp someone.

[INTERPOSING VOICES]

So I mean this is a good example of something somebody should have said to me when I first said, well, some verbs change the state of the object, and others don't. So if I burn something, it goes from being a thing to being a pile of carbon. And if I break something, it goes from being a thing to being-- if I sink a ship, it goes from being on top of the water to being under the water.

If I help someone, maybe they're the same as they were before, just in a better position? This is the place where you're entitled to ask, what do you mean by changing the state? What counts as the state? And we really must go on. Yes?

AUDIENCE: [INAUDIBLE] reversible change in state?

NORVIN I guess yeah, maybe that's--

RICHARDS:

AUDIENCE: So you can't exactly revert your help. Like you can hurt someone.

NORVIN Yeah.

RICHARDS:

AUDIENCE: Following that, but you can't exactly undo the help that you've already done.

NORVIN I don't know. I mean, look, suppose I write you a recommendation letter for a job, right? That's helpful to you. I

RICHARDS: helped him. And then, suppose I write another letter saying, you know what? I take it all back. In fact, it's the opposite of everything I just said.

AUDIENCE: [INAUDIBLE] person [INAUDIBLE].

[INTERPOSING VOICES]

NORVIN Hold on, guys. Yeah, yeah, yeah, no, I see what you mean. All right, so moving on, then, from this slide, which

RICHARDS: has generated so much cool discussion. This is great.

So trees. Yeah, there, why is "unlockable" ambiguous? Because it has two trees-- or to put it another way, there are these two morphemes you're adding to "lock," and you can add them in either order, with the result that the word is ambiguous in the way that we suspect, we expect.

So here's a model for how we're going to make words. We're going to take morphemes, pairs of morphemes, and we're going to glom them together. And we feel silly saying the word "glom" over and over again, so we've made up another word for that. We call it "merge."

So "merge" is this process that allows you to take two things and put them together and make a new thing. So you take "un-" and "lock," and you merge them together to make "unlock." Merge is recursive, which means only that it can reapply to its own output.

So you take "un-" and "lock" and merge them to make "unlock," and now you have a new thing, "unlock." And that can also undergo merge. So you can take "unlock" and merge it with "able" to get you "unlockable". That's what's going on in the tree on the left.

That's all linguists mean when we say that merge is recursive. You may sometimes hear people have arguments about what it means. That's what it means. So it means once you've merged two things to create a new thing, you can take that new thing and apply merge to it as well and make new things that way. Yeah, that's all it means.

OK, and then there are statements which we have to put somewhere, like "-able" needs to merge with a verb and the result is an adjective-- things like that. Yes?

AUDIENCE: Does the tree have to be binary?

NORVIN
RICHARDS: Ah, so I said we're going to take two things, and we're going to merge them and make a new thing. A really good question about which people have arguments, yeah? Actually, it seems to be the case that the trees are binary, which is interesting.

So to put it another way, there are lots of places where you can't tell whether the tree is binary, or ternary, or whatever. But in every place where you can tell, nobody has come up with a convincing example of a tree that is anything other than binary, which is itself kind of interesting. I want to try to understand why that is.

We're going to be doing lots of merging in morphology. And then, not so much in phonology. And then, when we get to syntax, there will be much merging, many merging of things-- words, putting them together to make phrases of various kinds. So try to get comfortable with the concept of merge. It should be easy. It's not a hard concept.

OK, this is great. I just want to talk-- ooh, I'm going to talk a little more systematically about allomorphs. So I mentioned before, you take morphemes, you merge them together, you create new things, and what often happens is that one or another or both of the morphemes will change its form.

So the past tense of "leap" is "leaped" [pronounced like "lept"]. The verb changes from "leap" to "leap" [pronounced like "lep"]. The past tense suffix can either be "t," or "d," or some other things. So I want to talk a little bit systematically about these allomorphs.

I'll start by saying that there are cases where there just isn't anything interesting, there isn't anything helpful to say. Past tense of "go" is "went," and it just is. If you want to learn English, you've got to learn that. There's nothing else to say.

But there are other places where there are general laws about which allomorph you're going to get under which circumstance. We alluded to that a little bit when we were talking about cats and dogs, that "s" and "z." Those allomorphs of the plural are conditioned by the sound that's before them. And we'll talk more about that.

So I'm going to give you an example where there's more to say about the allomorphs. This is an example from Polish. I should say I've spelled Polish here in a strange way. Anybody here speaks Polish, this isn't the way you're used to seeing Polish spelled. So I've spelled it in a way that makes it easier for people who don't speak Polish to see what the words-- how the words are pronounced, more or less.

So here are some Polish words. They mean "language," "pot," "juice," and "bow," and you've got some plurals there. So does anybody here speak Polish? Excellent, I can just make anything up that I want.

[LAUGHTER]

Believe me, this is how Polish works. It is, really. I'm not making things up.

Does anybody find any morphemes in here? I mean, there's morphemes that mean "language", "pot," "juice," and "bow." What's the plural morpheme? "Ee," yeah? So it's a suffix, it's spelled with the letter "l" it's pronounced "ee". No allomorphy here so far.

Here are some more words-- "bank of a river," "debt," and "lie," which have plurals. The idea of a plural of "lie" is a little strange, if you ask me, but nobody asked me. If you had the plural morpheme, plural morpheme there is "ee", and you get those plurals. Anybody seeing any allomorphs?

So the plural suffix is still the same, but "debt," for example, has two allomorphs. What are they? Somebody attempt to pronounce them.

It's OK, none of us speak Polish. Yeah?

AUDIENCE: "Duk" and "dug?"

AUDIENCE: Yeah, we've got "duk" and "dug", yeah. So "debt" has one allomorph that ends in a "k" and another allomorph that ends in a "g." What's the rule, do you think, that determines when you get "k" and when you get "g"? Yeah?

AUDIENCE: Would it have to do with the content that comes before the "l," where it [INAUDIBLE] like sound like [INAUDIBLE], so it's like "ch," "k"?

NORVIN
RICHARDS: Oh, I see. That's a neat idea. So maybe we could work out a way-- so all of you are realizing the problem. The problem is there are the words we started with, where we have all these words that end in "k," and when you make the plural, there's still a "k" before the "ee".

And then, we have these other words, where the word ends in "k," and then, when you add the plural, you get a "g." Yeah?

AUDIENCE: I feel like we need more information, because even if you look at the words for "bow" and "lye," they're the same word in the singular form.

NORVIN
RICHARDS: Very nice point. So this slide was carefully constructed to have what's called a minimal pair. Yeah, "bow" and "lie" are both pronounced "wuk" in the singular, but in plural, the plural of is "wuki" and the plural of lie is "wugi," yeah? This is meant to make us despair--

[LAUGHTER]

--about the option that you were raising right, which was maybe if we look at everything about the word, we'll be able to predict which "k"s become "g"s and which "k"s stay "k"s. No, give up. Despair, yeah? Cannot be done. We cannot, if we start with a "k," we cannot predict which "k"s will become "g"s and which ones will not. Yeah?

AUDIENCE: [INAUDIBLE] one of those examples [INAUDIBLE] not [INAUDIBLE] things [INAUDIBLE], but [INAUDIBLE].

NORVIN
RICHARDS: I think that's a neat idea. So can you say more about that?

AUDIENCE: I mean, my first guess might just be that if the end in "g-i", is it [INAUDIBLE] into a "k"?

NORVIN
RICHARDS: OK, yeah so I'll just say again what you just said, just to make sure everybody heard it. I framed the problem as, which "k"s change into "g"s, and which "k"s don't change into "g"s?

And then we convinced ourselves, thanks to your point, that problem is impossible. We will just have to list, well, sometimes "k" becomes "g." Sometimes "k" doesn't become "g." But that's because I phrased the problem as, which "k" becomes "k" and which one doesn't?

If we do, if we look at this problem in the other direction-- this is your suggestion-- if we start with the plural and think about the singular, then we can say to ourselves, OK, there are some nouns that end in "k" and some nouns that end in "g." In the singular, what's the rule? In the singular, do you get "k," or do you get "g"?

AUDIENCE: "k"

NORVIN
RICHARDS: "k," always. Yeah, so what we need for Polish is the willingness to say, yeah, there are nouns that end in "k" and nouns that end in "g." The plural suffix is this letter "i," this "ee." And there's a very general rule. If you have a "g" at the end of a word, turn it into a "k."

So if we're making the lexicon for Polish, what we want is for the word for "bow" to be in the lexicon "wuk," and for the word for "lye" to be in the lexicon "wug." Yeah, and then, the plural suffix is "ee," and there's a general rule, "g" at the end of a word becomes "k," right?

This means the lexicon is a little bit abstract. if you ask a Polish speaker, what's the word for "lye," they're going to say "wuok." And if you say, no, it's not, it's "wug," they're going to be like, who's the Polish speaker around here, you or me?

[LAUGHTER]

But in fact, you are right and the Polish speaker is wrong. You have the word for "lye" is "wug," and then there's this rule-- "g" becomes "k" at the ends of words. What that means is that the morpheme for "lye," if we want to know, what's the morpheme for "lye," well, it isn't what the speaker would say it is necessarily. It doesn't have to be a morpheme that you ever hear by itself. It only shows up in the plural, not in the singular. That's the most economical way of talking about Polish.

Because the fact is, I can tell you this from my vast knowledge of Polish, you will never, no matter how many Polish words you look at, find one that ends with a "g." They never do. Plenty that end in "k," but they never end with a "g." So this rule is one that we can rely on. Yes?

AUDIENCE: Does that make "wug" a bound morpheme?

[LAUGHTER]

NORVIN
RICHARDS: Well, this morpheme is a free morpheme because it doesn't need to combine with anything. It has an allomorph, "wuk," which is the result of this general sound change, that "g" becomes "k" at the ends of words. I guess that's the easiest way to say it. That's a good point, yeah. Yeah? OK.

So this is a place-- I told you, go has the past tense went, and give up on coming with sound up with sound changes that will get you that. That's just our ancestors being quite peculiar. Yeah, but Polish has this general rule that changes final "g" to "k." And so for Polish, we don't in the end need to list allomorphs.

"Lye" has allomorphs "wuk" and "wug." We can, if we want. We need a hobby. It'll keep us off the streets. But it's OK to just say, no, there's a word for "lye," "wug," and then there's this general sound change law that changes the "g" to a "k." Yes?

AUDIENCE: Is that just transliteration, or is it the actual "wug"?

NORVIN
RICHARDS: So this is not Polish orthography, yeah. So this is not an ordinary Polish spelling. I think I started by saying that. Yeah?

AUDIENCE: I was just [INAUDIBLE], I don't know Polish, but I know Ukrainian and Russian.

NORVIN
RICHARDS: Yeah.

AUDIENCE: So I [INAUDIBLE].

NORVIN
RICHARDS: Yes.

AUDIENCE: And like I was just checking the actual Polish word.

NORVIN
RICHARDS: Yes.

AUDIENCE: And [INAUDIBLE] that actual Polish word for "wuk," "wohg," actually "g" in there.

NORVIN
RICHARDS: Yes, yes.

AUDIENCE: [INAUDIBLE] check the one for "lye"? No, no, no--

NORVIN No, that's "lye," yeah.

RICHARDS:

AUDIENCE: [INAUDIBLE]

NORVIN Yes.

RICHARDS:

AUDIENCE: And if you check the one for "lye," that [INAUDIBLE].

NORVIN Yeah.

RICHARDS:

AUDIENCE: [INAUDIBLE]

NORVIN So I think I started this by saying, I'm going to spell these Polish words in an unusual way. And I tried to make it sound like that was for your benefit, so that you would know how the words were pronounced. But I was actually obscuring the fact-- which you were bringing up-- which is that Poles spell as though this rule had not happened.

RICHARDS:

So they pronounce the word for "lye" and the word for "bow" the same way. But you're right, they spell the word for "lye" ending with the "g." They also don't use the letter W. This is their barred L.

Yeah, yes?

AUDIENCE: So for language acquisition, I've been studying Polish? Because it would almost seem like speakers of Polish gain the plural form of the word before they can be singular.

NORVIN Oh, I see what you mean. There's a lot of work on the acquisition of morphological and phonological rules like this. I don't know, I can't swear that people have worked on this in Polish. My understanding is that children-- this is a very common kind of sound change. And we'll talk more about it as the class goes along.

RICHARDS:

And my understanding is that children who are learning languages that have this kind of sound change-- it's called final devoicing-- acquire it kind of immediately. It's not something that takes them a while. Other questions?

Children are very smart. This is one of the big results of language acquisition research. They know things before you would think they do.

OK, let's see where we are. Yeah, that's where we are. Yep, so we'll never be able to predict which "k"s change to "g" in the plural. So what we'll do is posit these underlying forms over there on the right, some ending in "k," others ending in "g," and then we'll have a rule, "g" becomes "k" at the end of a word.

And given, the time. I think this is a good place to stop. Are there any questions? Yes?

AUDIENCE: [INAUDIBLE] is there any [INAUDIBLE]? Or like [INAUDIBLE]?

NORVIN

You know what? Let's talk about that when we do phonology a little more carefully. Because yes, this change

RICHARDS:

from "g" to "k," you're right, it's part of a more general change. There are lots of things like this that happen. And it's a very common change. So we'll try to talk more about it as we get closer to that. Good question.

So again, problem set due today, interpreted generously. It's due by dawn. And I'll try to put up a new problem set before today is over.