

Fundamentals of language Acquisition

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Week 04

Lecture 016

Lec 16: Inflectional morphology

Hello and welcome back. We will start with Module 4 today. In Module 4, we will discuss morphology, specifically the acquisition of morphology by young learners, that is, young children, how morphological factors and components of language are first acquired and then produced by children, the theories regarding morphology, and the stages that children typically go through; all of that will be discussed in this module. So, this is some kind of road map. Lecture 1 will introduce the idea of morphology with respect to inflection. Inflectional morphology is what we will focus on.

In Lecture 2, we will start with the theoretical perspectives of nativist and constructivist theories of morphology acquisition. In Lecture 3, we will continue the discussion of the theories as well as look at some of the debates, for example, the past tense debate, blocking hypothesis, and so on. And lecture 4 will look at single-route, dual-route, and connectionist models. Lecture 5 will conclude the module with some examples of production, and so on.

This is a rough road map, as I always say, that this is a pointer; however, sometimes we might spill over the material from one lecture to another, and sometimes we will not be able to constrain the entire discussion within one lecture. So, sometimes it spills over, but this is roughly the way we will move forward. So, to start with the beginning, let us say we will talk about what inflection is, what the variations are, how they are typically marked in different languages of the world, and so on. So, when children are receiving input from the environment, when they are listening to words, or say sentences, they do not receive just a string of simple bare words. So, in a sentence, we have words; we have different kinds of grammatical markers.

So, there are all kinds of things beyond the bare words. So, you cannot simply say, like we have seen in telegraphic speech, that there will be just two words put together. Baby go something like that, but that is not how the input of the child will be. This is how the child might start to speak in the very first stage, but this is not how the input is. Input will have various kinds of markers.

So, many of the words would have what we call modulations to add extra meanings. So, for example, to go back to our "baby go," "baby go" can have various kinds of meanings, but in adult speech we need to specify whether the baby is going, the baby will go, the baby had gone, and so on and so forth. So, these are the extra meanings that make our sentences and our utterances meaningful in a given context. So, because languages are spoken in context, we need all of that extra information, and this is what we mean by modulation. So, we need that added information, not just the bare words.

So, often these modulations take the shape of what is grammatically known as inflection. So, inflections bear that extra information that is essential for carrying out a meaningful conversation. So, these inflections are added in various forms; they can be prefixes, they can be suffixes, infixes, you know, various kinds of things, various ways they might be added to the words, and the range of meanings might also be different. So, when we talk about prefixes and suffixes, we are talking about the position. So, in terms of position, they might have differences across languages, or even within a language, different kinds of inflections can take different kinds of positions; that is one, and secondly, these also have a range of meanings.

So, their job is to convey a range of meanings. For example, case markings point to the role of a noun in the action, and then number, person, and gender markers define the nouns with added extra information. So, for example, if you are using a pronoun and then you want to say whether you have eaten. So, 'mai ne khana khaya'; here the 'ne' marking is attached to the 'mai', which means that the subject, the agent of the action, is me, the first person singular number. So, that is what a marker that is a nominative marker is in this case.

So, this is what we mean by additional information. So, in this sentence, the person who has done the action takes the nominative marker, the object takes an accusative marker, and so on. Similarly, you can have number, person, and gender; we will look at them in detail, but these are the categories that we are talking about here. Verbs may also be modulated with information in terms of the time of action, aspect markers, and so on. So, when the action happens, the verb will take a grammatical component to refer to the time of the action.

So, whether the action has happened, is happening right now, or is going to happen. Typology refers to the cross-linguistic comparison of various kinds of grammatical properties. So, languages differ in terms of when we are talking about inflection; in terms of typology of inflection, languages differ in terms of what kind of modulations are added and what kind of grammatical features are grammaticalized. For example, not every kind of concept may be coded grammatically in every language. So, languages do differ.

Languages differ in terms of what is coded, what is not coded, and if it is coded, how it is coded. So, these are the differences among languages. So, that is why we bring in the typological perspective. So, based on the structures, language can be divided into classes, for example. We have analytic, synthetic, and agglutinative.

This is basically what we are discussing: typology only in terms of the inflections. So when we talk about inflections in the languages of the world, we are talking about these three types. So, in analytic languages, there will be very little inflectional morphology. A very negligible number of inflectional morphemes will be there, not much. Sometimes they hardly have any.

On the other hand, we have something called synthetic. Where you have extensive use of inflections to mark a number of features simultaneously. So, where you can have one particular marker that can take the place of a number of grammatical features. So, that is called synthetic. and then you have agglutinative, where highly regular inflections are noted and expected and each marking a separate feature.

So, in one sentence, they often look like one word. So, what appears as one word will be a full sentence with each grammatical category and each grammatical concept marked by a separate inflectional morpheme. So, that is what we mean by an agglutinative language. So, there are these three types in terms of the typology of inflection markers in the world's languages. Thus, the languages differ in terms of the category to which they belong, any of these three categories.

Similarly, it also depends on whether they mark them or not, whether they mark case, whether they mark tense, whether they mark person information, and so on. So, does the language mark cases? For example, in one case, how does it do that? Is the number marked as a suffix with a numeral classifier, or is it marked like in the English plural? So, you just add an s and then house becomes houses. So, s/es. So, houses, books, or cats like that. Or sometimes it might be, you know, two houses.

So, in some languages, there is a numeral classifier added to the numeral before the

noun. So, depending on whether it may let us say language x and y both mark number, x marks it with a numeral classifier, while y marks it with an inflectional morpheme after the noun. So, there are this kind of differences. So, this is the domain of inflectional morphology. Now, depending on various factors like semantics, formal complexity, regularity, frequency, and so on, children might learn them easily, or sometimes they may find it difficult to learn.

There are various theories proposed as to which inflections children will learn more easily as opposed to others. They typically tend to collate these features, whether it is complexity in terms of semantics or in terms of formal complexity, and frequency as well. So, there are many theories. We will take them one by one. Now, let us look at the structures first, as in what kind of inflections and what kind of marking those inflections can take, as in what kind of concepts are grammaticalized through inflections and how they are reflected in different languages.

So, first things first: morphemes, what are morphemes? Morphemes are the smallest meaningful units of language. So, they are smaller than the words. So, even a marker like S, for example, in the English language, this is a morpheme because it has a meaning; it signals the meaning of plurality in English and also conveys information about the third person, and so on. So, that is what it is; these are the units in the word 'books.' In the word 'books,' there are two meaningful units: 'book' and 'S.

' So, these are the two meaningful units within the word 'books.' So, the domain that deals with understanding and finding the structure of these morphemes across languages is called morphology. So, how do morphemes combine to create words, and how do they combine in terms of, let us say, subject-object agreement? All of these will be discussed within morphology. So, this primarily deals with two types of morphemes: inflectional and derivational morphemes. So, inflectional morphemes are the morphemes that are used to denote different grammatical features like tense, aspect, number, mood, etc.

The derivational morphology, on the other hand, is morphemes that are used for changing the word class. Out of these two, we will be focusing on inflectional morphology primarily because this is the domain that has raised a lot of curiosity within child language acquisition research, and this is why we will focus on inflectional morphology. So, inflectional morphology is used to express grammatical features of a language; we have already seen that in the English language, the past tense marker is /-ed/. So, this is when we want to denote that the action took place before the time of speaking. So, what is past and what is future basically are reference terms, references with respect to the time of speaking, the place of speaking, and the person who is speaking.

So, based on all of these, we have the tense marking, we have the spatial locative markers, and so on and so forth. So, in terms of the time, the event will be marked. So, if the event is happening as I am speaking, then it is present continuous tense. If the event I am talking about has already happened, then it is in the past tense like that. So, therefore, 'I walk in the park every day' becomes 'walked' with the help of this inflectional morpheme, and then we turn the sentence from a present habitual tense to a past tense just by adding the /-ed/ morpheme.

So, across the world's languages, inflections mark a host of different features and different grammatical features. Let us see some of the most common inflections and their grammatical roles. Person marker, let us start with the person marker. Many languages allow person marking on verbs. So, depending on the agent of the action, the verb can take different kinds of markers, such as first person, second person, and third person.

So, for example, in Hindi you have 'main kaam karta hun', 'tum kaam karte ho', 'wo kaam karta hai'. So, this is how the person information is marked in the verb of this language. So, this is the auxiliary verb, and this is the main verb. So, here you can see that the change is happening in both the main verb and the auxiliary. So, "mai karta hun, woh karte hain," you can also have "woh karta hai" depending on honorificity as well; that is another important feature in many Indian languages.

But at the root level, here we are talking about the person marker. So, the person marker is visible in this way in this language. Similarly, in Bangla, if you can talk, if you are talking about 'ami jai': I go, 'tumi jao': you go, so it becomes jao, jai, jao, and o jai. So, this is what we mean by a person marker. So, looking at the verb, you can, even if you are not using it, use the noun.

Hindi language, Hindi, or Bangla also offers the opportunity for dropping the subject. So, by just looking at the verb, you will know the person who is the agent here. So, that is person marking in some languages. Next is number marking. Number marking indicates the number of persons or objects under consideration.

So, this can be marked on the noun as well as on the verbs. Most languages around the world typically have two numbers: singular and plural. But there was another number, which is the dual number, that was present in some of the classical languages; Sanskrit had it, and some other languages also had the dual number. However, since they are not very common, we will stick only to singular and plural. So, in English, the plural is marked with "s," as in boy, boys, cat, cats, book, books; that is a plural marker.

Singular number does not require a marker in the English language. So, again, some English, Hindi, and Bangla examples: we have books, dogs, larka, larke, then boi; boi is book, and then boi gulo. So, there is a marker here that discusses the plural marker in Bangla. And in some languages, both person and number are marked on the grammatical subject.

So, like in English, I am, you are, he is. So, the pronoun tells you the person, and at the same time, the auxiliary also changes depending on which pronoun is used. So, that includes the first person, the second person, the third person, as well as the number. So, I am, and then we are. So, in this case, you are keeping the person intact, but the number is changing. So, first person singular versus first person plural, and then second person, third person like this.

So, both of them can be marked at the same time. This is called subject-verb agreement. In languages like Spanish and Hindi, etc. The verb encodes both the number and person information. And hence, when the grammatical subject is omitted, it does not create a hurdle for understanding.

So, that is what I am mentioning. So, even if you do not say who is going, you can just say 'ja raha hai'; you automatically know that this is a third person singular masculine noun that we are talking about here because this particular 'ja raha hai' marks everything that you need to know. So, it has the person marking, the number marking, and it also has the gender marking. So, this similar thing is possible for Spanish and many other languages because the verb encodes all of that information. So, these are all happening through this kind of grammatical marking. Next is gender marking; gender marking is another important inflectional category in many languages.

So, this can be marked on the verbs as well as on the nouns; as we have just seen on the verbs, it will be 'ja raha hai,' and if it is a feminine noun, it will be 'ja rahi hai.' In the previous example we have just seen that gender in Indian languages not only includes gender but also allows for changes in honorificity, so you can also use a nasalized version of it. So, gender and honorificity will often be tagged along together. So, in the feminine case in the previous example, 'woh ja rahi hai,' that is about the verb, but gender marking can also happen on the noun. Or let us say that the grammatical categories related to the nouns.

For example, determiners or sometimes adjectives, pronouns, will have gender marking, such as "he" and "she" in English, but "I" and "you" do not have any gender marking; only the third person in English takes the gender marker. Third person singular, that too. In other cases, it does not, but in some languages, for each person and each number, there

might be a gender marking for masculine and feminine, as well as some languages marking neuter as well. So, this is an example of Bengali adjectives.

So, you can have *sundari* and *sundor* depending on the noun. Similarly, he or she In German, due to the TV commercials, we are all familiar with *das Auto*. So, in German, there is a three-way distinction between *die*, *der*, and *das*. So, these are all gender markings; in this case, it is a determiner. Similarly, French also has this *le/la* distinction and so on. Some languages also allow for grammatical gender on inanimate nouns, as is the case in French as well as in Hindi.

So, inanimate objects will obligatorily take either masculine or feminine gender, and that is also, you know, grammaticalized in these languages. So, the same rules will apply to inanimate nouns with respect to determiners as well. So, depending on what it is considered, whether your washing machine is masculine or feminine, you have to choose the determiner in French and German. Case marking is yet another domain of use for our inflectional morphology, which is pretty common across the world's languages. Case marking reflects the grammatical roles of nouns and pronouns in a sentence.

So, are they in the subject position, are they in the object position, direct object, indirect object, is it the agent of the action, the recipient of the action, or whatever depending on that. Depending on the relationship between the verb and the subject, and the verb and the nouns, they will be marked for case. So, there are possibly some languages that mark a number of cases; for example, Indian languages have many more case markings as opposed to some other languages, let us say. So, for example, you can have nominative, accusative, dative, locative, instrumental, and all these different case markings. Nominative case marking will reflect the agent of the action, like when I give an example of "maine khana khaya," so who has eaten? I have eaten, so I am the agent of the action denoted by the verb "eating."

" So, what did I eat? *खाना खाया*। So, *khana* is the direct object here, which takes the accusative marker. So, this is the receiver of the action. So, nominative, accusative, and so on.

So, *Ram ne Sita ko pustak di*. So, this is the nominative marker. This is how we mark case marking in Indian languages. So, *Sita* is the receiver; that is the accusative case, and so on. Then there is another grammatical marker called the classifier. Now this is not very common in all languages, but many languages do use classifiers. Now, the classifier, as the name suggests, classifies the nouns, typically nouns, in a particular group.

So, it depends; this is very language-specific. Typically, there is not much universality

there. So, you can decide the language or it is up to the historically whatever has been the primitives of classifying objects into classes; based on that, there will be some sort of morpheme, some sort of inflection that is obligatorily used with the noun to denote which class it belongs to, right. So, these markers may denote a number of concepts like animacy, appearance of the object, usability, and N number of things can be done. In fact, the very famous book *Women, Fire, and Dangerous Things* does discuss this at length. So, for example, in the language called Dyirbal, an Australian indigenous language, they have classifiers like Bayi, Bala, Balam.

These are inflections that are obligatorily used with all nouns in the language. So, depending on which class these nouns they belong to, they will take one of these classifiers alongside the noun. So, that is one kind of classifier. Similarly, you can have numeral classifiers. Numeral classifiers are added with numerals in a language that qualifies the noun.

So, for example, if you want to say 'one book' in Bangla, it is 'akta boi'. So, similarly, one girl is 'ekti meye'. So, this part is the thing that we are talking about here. So, it comes with 'ek', which is one, then the 'ta' classifier followed by the noun 'boi', meaning book. So, these are the two main kinds of classifiers that also exist in terms of inflectional morphology; we also have this kind of grammatical concept.

So, these are some of them in one domain; now we have tense and aspects, which are primarily inflectional morphology with respect to the verb structure. So, tense marking, as we all know, refers to the time of the event. So, you place the time; you place the event on a time scale. So, right now I am here; if this is a time scale, I am here, so this is the present. But I am talking about something that happened here; then it becomes past tense like that.

So, this is how we divide it. However, it sounds like a given, but it is not always the case because, in some languages, tense is not marked on the verb at all. So, languages do differ in terms of tense and aspect marking, but whenever they do mark, there are many ways of defining them: past, present, and future; however, there are also other ways, but let us stick to the common ones. So, past, present, and future, this gives us three different kinds in English; /-ed/ is a past tense marker. In Hindi, past tense can be marked with an auxiliary 'tha'/'thi', so maine dekha tha, maine usko dekha tha; thus, I saw him or her.

Here, 'tha' is giving us the past tense marker, so this is another kind. Aspect, on the other hand, refers to the way an event is viewed within a time frame, such as whether an action is completed or ongoing. So, present progressive tense or past progressive tense: I was going, I am going, and so on. So, in English, /-ing/ marks continuity; 'has', V is for verb,

so 'has worked' marks the perfect aspect, and so on. So, I have worked; he has worked like that.

So, there are these different kinds of markings possible. And so, these are some of the more well-known inflectional morphemes in the world's languages. But then there are some others as well. So, for now we have number, person, gender, case, tense, and aspect categories that take an inflection in many languages. These are the most common grammatical features.

However, languages may have some other lesser-known features as well. Some languages do mark them; some languages may not. For example, you can talk about human, 'plus/minus human' as a category marker that can also be marked with inflection in some languages. The distance of the objects being spoken about can also be marked along with the objects themselves. Then the source of evidence: whether the action was witnessed or not.

So, let us say I just said that there is a conference going on in the campus. So, this particular sentence in English does not require me to make it clear whether I have seen the conference happening myself or heard it from somebody. But some languages do make it compulsory; their grammar requires us to incorporate that information as well. So, that is what we mean by the source of evidence and, of course, the classifier. Classifier is also not very common; it is one of the less common ones. So, the types of inflection markers we have are suffixes, prefixes, and infixes; as everybody knows, it is a common inflection in many languages and comes after the word, at the end of the word.

So, in English, /-s/ or /-ed/ follows the word, like walk, walked, book, books. Sometimes it will be prefixed, so a marker is added before the word. So, for example, in one particular instance that we have here in Sesotho, a South African language. So, this is the part that changes. So, for example, this means a woman. So, to make it plural, 'mo' changes to 'bo,' and that is what we mean by the inflectional grammatical information using prefixes.

So, the inflection here comes before the noun. Then there is another type called a circumfix marker wrapped around the word, like in German. So, this means to drive, but "driven" takes the main word in the middle, and then we have it surrounding the main word; the inflection is surrounding the main word. Then, infix the marker in this case is added in the middle of the word. For example, in this Native American language, this is the word for child, and this becomes.

So, here you have this infix in the middle, and then to make it into a plural noun. So,

from child to children, you need an infix of this particular component. Similarly, similar things happen in the Lepcha language. This means "die," and with the infix here, it means "kill.

" So, that is how the words can change. So, these are the different types. Some other types, for example, it is also possible to change the vowel in English woman/women. Sometimes, the form of the word itself changes entirely. So, go becoming went, and that is where many children make a lot of mistakes as well. So, go becoming went similarly to 'être' in French to become 'je suis'; this is 'to be'. In French, to be is 'être,' and when it becomes I am, it becomes 'je suis'; there is nothing, there is no similarity between these two.

Sometimes grammatical features are marked with an added word; for example, in English, auxiliaries are added to carry those markers of tense, aspect, and person, and so on. So, there can be either a single marker or multiple markers. So, in English, a single versus multiple marker refers to one morpheme standing for various kinds of meanings and various grammatical purposes. So, in English, S, as I mentioned at the beginning, marks both person number and tense in verbs. So, Ritu wants a cake; here, S stands for the person who is third person, singular, and in the present tense.

But in some other languages, which are agglutinative languages, each feature is marked with a separate marker. So, in this case, this is Kiche Mayan language. A single word, this looks like a single word, but it means 'you are hitting me'. So, each of these parts—the 'ka' part means this present tense and -in-stands for first person singular object; this is third person singular subject; then the main verb comes here, and then again present tense. So, that is what we mean by an agglutinating language, where each of the grammatical purposes is reflected through one morpheme.

So, then together they come to form a sentence that looks like one word. So, this is the kind of variation and the kind of complexity that are part of the world of inflectional morphology. Now, how do children get started? How do children start to learn and acquire the morphology of their own language? There are many theories, and there are stages as well. So, the initial domain for children acquiring morphology is, of course, at the word level.

They might start by identifying the word class. So, nouns, verbs, etc. Then through an understanding of our shared properties, they might arrive at the understanding that nouns refer to people and objects, while verbs refer to actions. So, this happens as they go through experiences and have context across situations when they see that certain kinds of words refer to certain kinds of things. And then, through an understanding of shared

properties around objects, they realize that objects have a name, which is typically the noun, and that verbs denote an action. So this probably happens, and after that, they go on adding the additional information to that.

But this may not be very easy. So, there are various theories about how they go about it. Semantic bootstrapping is one of the theories that have been proposed as a method for children to get started. And we will not discuss semantic bootstrapping here because it is discussed in detail in another module. But these are various methods. So, first they identify the words and what they denote, and then they go about finding the inflections and the grammatical properties.

So, they start using inflection through stages, of course, like everything else. At first, they may use just the bare words and bare forms. Then they may pick up only one inflected form for each word and use only that. So, they get one form, let us say "walks," and then they start using "walks" for everything, even though it should be "walked" and whatever. So, that can be one.

So, one of the very well-known older studies about the stages goes back all the way to 1968. He observed at least three stages through which children master irregular and regular verbs. So, in the stage one will have sporadic use of a few irregular past tense forms. Stage 2, they get the /-ed/ suffix on regular verbs and then in stage 3, /-ed/ on more regular verbs and also on irregular verbs; that is when they start to say words like brought, bought, and good, and so on. And this is when they start to generalize, they get the hang of the rule, and they apply it everywhere.

So, this is the stage of overgeneralization that they achieve. So, after this, they tend to take several years to learn the conventional past tense forms in English, as has been shown by Brown later. So, this is where we conclude in lecture 1. In Lecture 2, we will start looking at the various theories that have been proposed in order to understand these stages of acquisition of inflectional morphology among children. Thank you.