Appreciating Linguistics: A typological approach

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Lecture - 18
Lexical Typology: Generalization (Numerals)

Now, let us move to move to the next segment. By far, we have discussed body parts, kinship terms, and personal pronouns, and the related generalizations. And, we have seen the complexity and the simplicity that involves the semantic and the morphological domains for all the three things.

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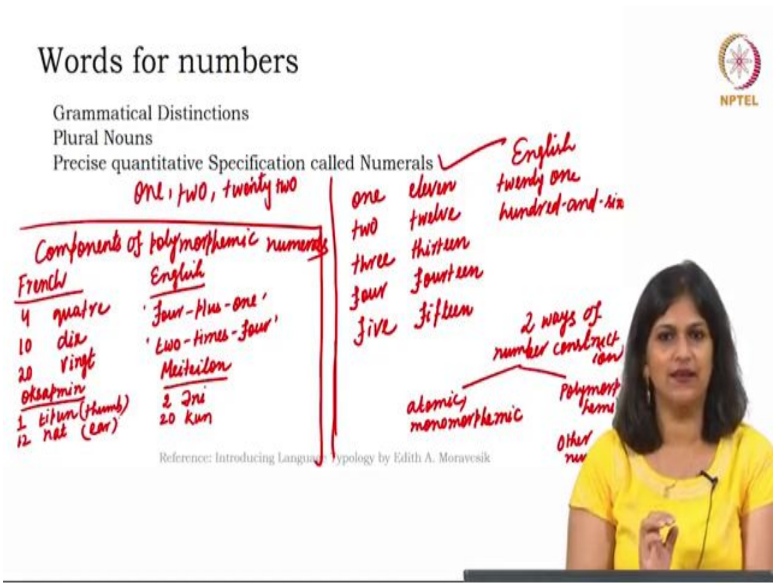

Now we are going to look for something quantitative. The idea here is that, how many words does a particular language have or how many morphemes would a particular word require to be considered as a word? Either of the ways. So now, we are going to figure out the grammatical number, the number distinction like 1 2 3 4. This kind of distinction does it really provide any kind of quantitative information about the entities or when we say singular versus plural, obviously, we are focusing on the quantitative entities.

So, what sort of typological generalization we can draw on the basis of the kind of words or on the basis of the kind of plural-singular distinction that we have. One thing you need to remember here, almost all languages have special words for more precise quantitative specification, that is called numerals. You need to remember this term. So, what is a numeral? Precise quantitative specification; so, one, two, let us say thirty three, thirty four. So, these are the precise quantitative specifications and we call them numerals. Five hundred, ten thousand all of these are examples of numerals.

Now we are going to take a look at how these words resemble and differ from each other. I will give you the examples of English first and we will see how we are going to relate or how we are going to talk about words from other languages. So, I am going to write a few things here, this is again English data that I am going to discuss. Let us say I will give you examples of one, two, three, then four and five; let us look at this list.

So, from one we can have eleven, from two we can have twelve, from three we can have thirteen, from four we can have fourteen and from five we can have fifteen. Then eleven with one we can have twenty one, something in relation with twenty one we can also have hundred and six for that matter. Let us look at the examples given over here. What does this list suggest? This list suggests, the numbers can be constructed in how many ways? 2 ways. There are 2 ways of number construction.

Look at this list one, two, three, four, five; eleven, twelve, thirteen, fourteen, fifteen; then the third list is twenty one, hundred and six, words like that. So, what are these two ways by which the numbers can be constructed? First, the number can have an atomic or monomorphemic name. First one is going to be atomic, atomic means that there cannot be any other division. Either you call it atomic or you call it monomorphemic. This is one way. Which column data can be substantiated by this? The first column one, two, three, four, five, you cannot divide it. So, this is atomic or monomorphemic.

The second one is what? Second one could be polymorphemic and they are constructed by other numerals. So, these are the two ways by which the lexicon of number system works. What are the atomic ones? The atomic ones are the first column depending on the other numeral. The polymorphemic ones are the second and the third column. So, thirteen, fourteen, nineteen are not clearly separable into morphemes, but they suggest their components are just three, four, nine, tent.

When you say two and twelve, twelve does not really consist of separate morphemes, but twelve does give us an idea that it might have some connection with the word two. Similarly, when we say thirteen, thirteen cannot be divided; you cannot call it a polymorphemic one. It is definitely monomorphemic, but it does have certain letters which give us an idea that this might have some connection with three. That is why it is three thirteen, two twelve, and one eleven.

But the other side of the story is that the third category when you say thirty two, a hundred and six, these are clearly polymorphemic. So, there are three different types you see over here: one is purely monomorphemic like one, two, three, four, five; one is purely polymorphemic like twenty one, a hundred and six. Then there is a third category which is in the middle, they are not clearly polymorphemic, you can see that they are monomorphemic, but they would give you some idea about the words that denote some other numerals. So, fourteen might have some connection with four, fifteen might have some connection with five. That is how lexically the number system can be categorized.

When I say lexical typology, then we need to find out what are the different lexical types that we have. As far as the number system is concerned, these are the three different types. One is purely polymorphemic, one is purely monomorphemic, the middle one is monomorphemic yet, it would give you some idea about how it has happened or what it has been derived from, in case there has been some abstract derivation. So, that is one way of finding out or one way of identifying the monomorphemic versus polymorphemic numerals. With this information, let us just see if there are polymorphemic numerals, what are the components? This is another thing that I want you to understand.

Here I will write these are components of polymorphemic numerals. Let us see how it goes. The polymorphemic numerals will have four plus one, so that is going to be forty one. I am going to write some French data here. I cannot read it well, my pronunciation is going to be weird, but then we can give you some data. So, for French we have, if we write four then the spelling should be, ok. This is 4, this is 10, this is 20. Let us have some English data also. In English data, it is going to be when we say forty one that is primarily four plus one, two times four.

Then there is a language called Meiteilon. So, this is the Meitei data. So, this one is 2 is uni, and 20 for Meiteilon is, let me write it here this is let us say Meiteilon, here 2 is uni, then 20 is kun. And then there is another language, Oksapmin. I told you this course is going to give you a few names as far as the world's languages are concerned. So, here is tipun, that will be thumb; that means, thumb that is one. This is an interesting language. 12 means nat; that means, your ear. Let us analyze this data. So, our question is what if there are words for numbers. How do we get such words for such numbers?

In English forty one is mainly known as four plus one. Instead of saying four plus one, we simply say forty one which is a polymorphemic word. Two times four, so two times four mainly forty four. Instead of saying two times four, we simply write forty four. That is one way of writing the numbers in English. In French there are absolutely monomorphemic words four, ten, twenty; they do not really depend on any other word and they are monomorphemic. In a language like Meiteilon, two is uni, twenty is kun. I do not see how there would be any relation.

However, an interesting language is Oksapmin. Look at this, they have a lot of numbers corresponding to the body parts. The number 1 or the numeral 1 stands for the thumb and that is tipun, and the number 12 or the numeral 12 stands for the ear. Each of your body parts will have a certain number. I am not sure if I have the picture over here. I do not think I have. If you check Moravcsik's book, there is an interesting picture where in Oksapmin, the speakers for each of the body parts they have a number. For an Oksapmin speaker, the number counting or the numeral system starts from the thumb.

So, thumb this is 1, this is 2, this is 3, this is 4, this is 5, this is 6, this is 7, this is 8, this is 9 and this is 10. So, from this part to this part, like each of the individual body parts would be represented with a number. So, that means, if you say 1, 1 means this, like the semantics or the meaning of number 1, the numeral 1 is same with the number of your thumb. So, 1 means tipun that is the thumb and 12 means nat, nat means the ear. So, these are the different ways or these are the different styles of getting the number system.

When we say what are the different ways of word formation rules as far as the numeral system of various world's languages are concerned. So, there are different ways and each language is different in that sense or each language might be kept in one category or one type and some languages might put in the same type. So, typologically different languages, they follow different approaches to talk about their number system.

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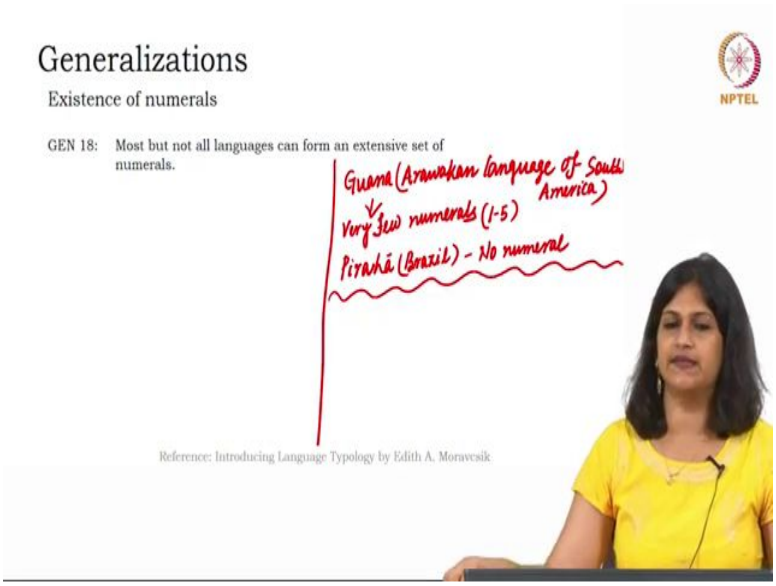

And then how do the operations happen, and their multiplication, subtraction, there are also different ways, different languages follow different styles. I do not think it is very important for us to know these things in detail. Those who are interested you can always refer to the book.

So, what I am going to do now, I am going to go back to the numerals. Since we are talking about the numerals here, we will find out what kind of generalizations we can draw or what kind of generalizations we can find out or we can design or we can talk about, as far as the existence of numerals or structure of numerals. Because I told you how many numerals are available or what is the existence of the number system in certain languages and what is the structure, how has it been created or how has the structure been as far as the numeral system of languages are concerned.

We will start with the generalization 18 here. The generalization number 18 says that most, but not all languages can form an extensive set of numerals. Not all languages have an extensive set of numerals. For example, Guana is a language which is an Arawakan language of South America.. This language does not have an extensive system. This has very few numerals. The numeral system varies from language to language. And what do you mean by very few? They have only five numerals 1 to 5, that is it.

Another language like Piraha, that is also an interesting language. Piraha is a language which is spoken in some parts of Brazil. This does not have any numeral, no numeral here. There is absolutely no number system. On the other hand, we have languages like English. The number system in English is quite wide. But at least you need to remember these two languages Piraha and Guana, these are the languages which are in Arawakan language in South America, very few numerals and Piraha does not have any.

Considering there is a wide set of variation as far as number system is concerned, we should not put all languages in one type or one category. Considering languages have both single morphemic and multi morphemic numerals, we need to generalize what sort of statements we can make as far as the existence of numerals is concerned. You need to remember most, but not all languages can form an extensive set of numerals. So, that is the 18th generalization.

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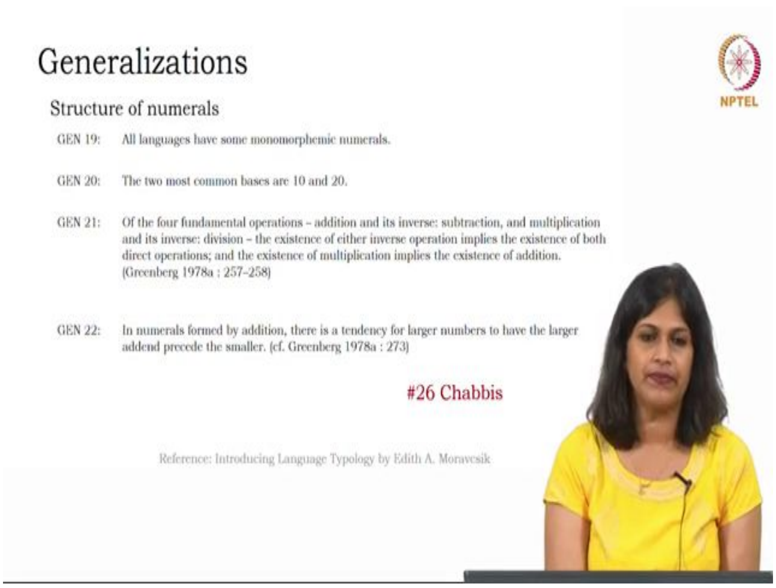

How about the 19th? From 19th to 22nd I believe these four they are based on the structure of numerals. 18th, the previous one, is based on the existence; that means, all languages may not have an extensive set of numerals. But if you move to the next generalization, we will get an idea of how the structure should look like. The existence of numerals is not the same across languages.

We will now move to the structure of the numerals and what are the generalizations associated with it. So, the 19th centralization would say that all languages have some monomorphemic numerals. So, 1 2 3 4 these are all monomorphemic ones. The concern here is that you would never find any language which does not have any monomorphemic numeral. Rather all languages will have something or the other as far as like one morphemic or monomorphemic numerals are concerned.

So, that is the structure. Remember, 19th generalization, all languages have some monomorphemic numerals. 20, the two most common basis in numeral system is 10 and 20. That is generalization 20. The most common ones 30, 40, 50 that would come later, but all the languages or most of the languages will have at least two common bases or two bases that is 10 and 20. So, that was about the 20th generalization.

What does the 21st generalization say? It says one of the four fundamental operations; what are the four fundamental operations in the numeral system? Addition, subtraction, multiplication and inverse, that is the inverse of multiplication is division; so, addition, subtraction, multiplication and division. Which one is the inverse of what? The inverse of addition is subtraction, the inverse of multiplication is division. So, let us see what does the next generalization say about these operations.

Of the four fundamental operations addition and its inverse subtraction, and multiplication and its inverse division, the existence of either inverse operation implies the existence of both direct operations and the existence of multiplication implies the existence of addition. So, these are related to the mathematical operations like how we studied in school.

So, the generalization says that if there is at least one inverse operation in any given language that would imply that the direct operations are also there. That means, if there is subtraction, there must be addition; if there is division, there must be multiplication. If the inverse operations are there, then the direct operations are also going to be there. The other way round may not hold true.

Some languages might have the case where they have addition, but no subtraction; they have multiplication, but no division, we are not sure about it. But at least what thing we are sure about? The presence of subtraction implies the presence of addition, the presence of division implies the presence of multiplication. The other thing is that the existence of multiplication implies the existence of addition.

Tthat means, if a certain language has a function called multiplication, then it will surely have the existence of addition. Without addition, multiplication is not possible. There could be some operation where there is addition, but no multiplication; but there is multiplication no addition that is not possible. So, that is what generalization 21 would say. Read it carefully you would understand. All of these generalizations are coming from Greenberg, 1978.

And what does this 22nd generalization say? It says if numerals are formed by addition, there is a tendency for large numbers to have the larger addend precede the smaller. So, let us say we are getting some numeral by addition. I would give you the Hindi example, there is something called [FL], [FL] means 26 in Hindi and [FL] means [FL] means 6, [FL] means 20.

So, if there is a language where a particular number has been formed by addition then what is the tendency? The tendency is that the larger number precedes the smaller. The smaller number would come first then comes the larger number. So, when it is [FL] or 26, so 20 and 6, so 20 is here and 6 is later. So, [FL] that means, [FL] is here [FL] is later. In most of the cases, it is not in all, in most of the cases, the larger addend precedes the smaller. Hindi is the best example for that.

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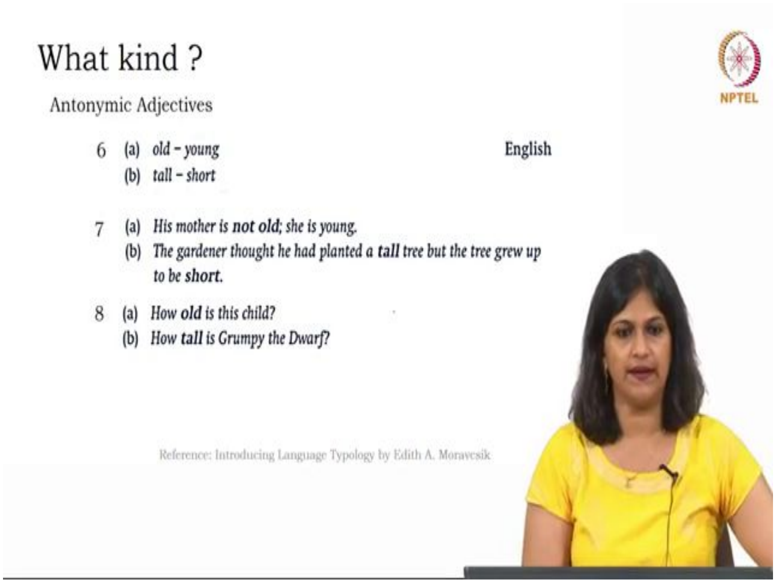

So, that was about the generalizations regarding the number system.