Introduction

This is a term paper on the assignment on the number system and I chose Turkana as the language I am working on. I am exploring the number system and working on translation of numbers to the number in turkana language and turkana language to numbers.

Turkana

The Turkana people are a Nilotic people native to the Turkana County in northwest Kenya. They are one of the largest ethnic groups in Kenya, with a large population. The Turkana people are known for their pastoralist lifestyle, and they are one of the most mobile populations in the world. They are also known for their distinctive body art, which includes scarification and lip plates.

The turkana language has different accents just as many languages in Kenya and the world do have. I have picked the accent with a pronunciation that would best fit the number system. It is noteworthy that only the numbers from one to five' and ten are exactly designated; all other numbers are derived from these. In fact, it is the only language in Kenya that counts up to five and the rest are combinations and derivations of this.

The Number System

The Turkana number system is a unique system that only counts up to 5. Numbers greater than 5 are formed by combining the words for 5 and the number of units that follow. For example, 6 is "ngakan-ka-apei", which literally means "five plus one".

This system is thought to have developed because the Turkana people traditionally lived in a harsh environment where it was not necessary to count large numbers. Large numbers then past the fingers on hand could not develop. It is interesting to note that only recently numbers >99 have had symbols and identifying by combining Kiswahili and Turkana. However, the system is still in use today, and it is a fascinating example of how language can adapt to the needs of its speakers.

Turkana Number System Properties:

The Turkana number system is a cumulative system. This means that numbers are formed by adding together the words for smaller numbers. i.e. 6 is 5 plus 1
**The Turkana number system is modular. This means that the words for numbers can be combined in different ways to form new numbers.

**The Turkana number system is regular. This means that there are a set of rules that govern how numbers are formed.

Regularity

The Turkana has a unique way about how numbers are formed. As earlier discussed we see that the number only counts up to 5' and ten. The rest is derivations, here we will discuss the formations.

From numbers 1-5 they are uniquely identified in the Turkana language. i.e. apei , ngarei ... ka means plus (+) in turkana which has the most basis in turkana numbers.

As Turkana is a cumulative system in regards to numbers, 'ka' is very crucial and important. Only numbers up to 5 and 10 do not use it. The numbers 6 through 9 are an addition i.e. 6 is 5 plus 1. The number 18 is an addition of unique 10 plus 5 plus 3. This explains the mystery up till the number 19.

The numbers 10 to 90 are described as tens i.e. 20 is described as 2 tens in Turkana *ngatomon-arei* and 50 as 5 tens. for numbers 60 to 90 and addition is added i.e. 60 is five tens plus one ten i.e. ngatomon kan-ka-apei and so forth. Forming 100 is also similar i.e. its ten tens and so as not to be similar one removes the prefix of ten in turkana. 10 tens are *ngatomon-tomon*. The numbers 200 to 900 are a bit complex in that 200 is identified as 10 tens times 2. and 600 as 10 tens (times)5 plus 1 ten

That is basically how numbers are formed in the Turkana language. I have attached some documents expounding on this as well as a python code for the number system.

CONCLUSION

This was a well engaging project that has had ups and downs. Some challenges I encounters with the Turkana language is that counting ends at 5 a 10. This has been rather challenging as it is difficult to translate large numbers.

Other than the challenges I've come across, this project has taught me the importance of theory of computation and its application and the importance of preservation of culture.

REFERENCES.

Online forums and communities