

# The numerical system of Koring: An analysis

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## Abstract

Two categories of numerals have been identified:

- (i) basic numerals which include the numerals 'one' to 'ten', 'twenty' and 'forty',
- (ii) derivatives formed from basic numerals through either addition or multiplication or through a combination of both processes:

The glosses of the examples indicate the derivational history of (ii) above. These examples are here classified as secondary numerals.

- (iii) The basic numerals also function in two other capacities: as both distributive numerals and ordinal numbers.

## 1. Introduction

Essentially the numerical system of Koring can be classified into two types;

- (i) Basic numerals. They include 'one' to 'ten', 'twenty' and 'forty'. While one to ten are basic in several languages including English, 'twenty' and 'forty' are also considered as fundamental in Koring because they form the bases for the formation of other higher numerals of the language as shown in 2.1, 2.2 and 2.3 below.

- (ii) Secondary numerals are derived from the basic ones through addition, multiplication and through a combination of both processes

### 1.1 Basic numerals<sup>1</sup>

Twelve numerals have been classified as basic in Koring. They are

guń <sup>2</sup>	'1'	bùrephā	'7'
ephā	'2'	bùàsà	'8'
ekiàr	'3'	rèphèji	'9'
èna	'4'	zòbọ	'10'
kòbúò	'5'	lòlùbò	'20'
buranē	'6'	ògekī	'40'

Apart from the above, no numeral in the language occurs independently. In fact others are derived through permutations involving additions, or multiplications of the basic numbers or by a combination of both processes. It is for this reason that we set up a separate category described as secondary for non-basic numerals.

## 1.2 Secondary numerals

Membership of this category is potentially uncountable since it could run into millions and billions which the numerical system, as it is now, may not be able to handle easily.

Three types of secondary numerals are identifiable as suggested above

- (a) Those that are derived by addition of basic numerals
- (b) Those that are derived by multiplication
- (c) Those that are derived through both processes

### 2.1 Numerals derived through addition

The base for deriving a secondary numeral is either zɔ̀bɔ̀ (10) lólúbò (20) ogekī (40). The added numerals are usually any or a combination of the basic numerals.

Examples:

(1)	zɔ̀bɔ̀	e	guñ	=	11
	10	+	1		
(2)	zɔ̀bɔ̀	e	ephā	=	12
	10	+	2		
(3)	zɔ̀bɔ̀	e	ekiār	=	13
	10	+	3		
(4)	zɔ̀bɔ̀	e	ēna	=	14
	10	+	4		
(5)	zɔ̀bɔ̀	e	kòbùò	=	15
	10	+	5		
(6)	zɔ̀bɔ̀	e	buranē	=	16
	10	+	6		
(7)	zɔ̀bɔ̀	e	bùrephā	=	17
	10	+	7		
(8)	zɔ̀bɔ̀	e	bùàsà	=	18
	10	+	8		
(9)	zɔ̀bɔ̀	e	rèphèji	=	19
	10	+	9		
(10)	lólúbò	e	zɔ̀bɔ̀	=	30
	20	+	10		

Ògekī (40) is the highest basic numeral in Koring. From 'ogekī' the morpheme indicating addition changes from /e/ to /be/.

Examples

- |      |               |    |         |   |    |
|------|---------------|----|---------|---|----|
| (11) | ogekī<br>'40' | be | guñ     | = | 41 |
| (12) | ogekī<br>40   | be | ephā    | = | 42 |
| (13) | ogekī<br>40   | be | ekiā    | = | 43 |
| (14) | ogekī<br>40   | be | èna     | = | 44 |
| (15) | ogekī<br>40   | e  | kòbùò   | = | 45 |
| (16) | zòbọ          | be | buranē  | = | 46 |
| (17) | ogekī<br>40   | be | bùrephā | = | 47 |
| (18) | ogekī<br>40   | be | bùàsà   | = | 48 |
| (19) | ogekī<br>40   | be | rèphèji | = | 49 |
| (20) | ogekī<br>40   | be | zòbọ    | = | 50 |

## 2.2 Numerals derived through multiplication

From the numeral 'sixty' upwards, the computational technique changes. Multiplication becomes an obligatory feature in the derivation of secondary numerals. It is noteworthy that unlike the addition process where a morpheme /e/ or /be/ denotes addition, a zero morpheme marks multiplication.

Examples:

- |      |                |   |     |
|------|----------------|---|-----|
| (21) | lòlùbò ekiā    | = | 60  |
|      | 20 x 3         |   |     |
| (22) | ogekī ephā     | = | 80  |
|      | 40 x 2         |   |     |
| (23) | lòlùbò kòbùò   | = | 100 |
|      | 20 x 5         |   |     |
| (24) | lòlùbò buranē  | = | 120 |
|      | 20 x 6         |   |     |
| (25) | lòlùbò bùrephā | = | 140 |
|      | 20 x 7         |   |     |

The multiplicand sometimes remains constant while the multiplier increases in value in numerals leading up to high numbers as in (23) and (25) above and in the examples below:

- |      |               |   |     |
|------|---------------|---|-----|
| (26) | ogekī ena     |   |     |
|      | 40 x 4        | = | 160 |
| (27) | ogeki kòbùò   |   |     |
|      | 40 x 5        | = | 200 |
| (28) | ogeki bùrephā |   |     |
|      | 40 x 7        | = | 280 |
| (29) | ogekī zòḃḃ    |   |     |
|      | 40 x 10       | = | 400 |
| (30) | ogekī lólùbò  |   |     |
|      | 40 x 20       | = | 800 |

### 2.3 Numerals derived through multiplication and addition

Numerals belonging to the above category tend to be very polymorphemous, varying from four to even thirteen morphemes or more. Below an example of a numeral involving one addition and one multiplication is shown to have four morphemes while another involving four additions and two multipliers has a total of thirteen morphemes.

(31) ogekī zòḃe ephā be ḃ guñ  
 $40 \times 2 + 1 = 81$

(32) ogeki ephā be lólùbe ogeki ephā zòḃe guñ  
 $40 \times 10 + 2 + 20 + [40 \times 2] + 10 + 1 = 513$

Mathematical rules dictate that the multiplication should be effected before addition, the so called 'do me first' principle to arrive at the figure 513.

### 3. Distributive numerals<sup>3</sup>

The process involves full or partial reduplication of the basic numerals.

Examples:

- |      |                       |   |
|------|-----------------------|---|
| (33) | gùagùñ                | 'one each'                                  |
| (34) | epha epha             | 'two, two', 'in twos'                       |
| (35) | èkiār èkiār           | 'three, three', 'in threes'                 |
| (36) | zòḃe bē kògbùò        | 'fifteen each', 'in fifteen'                |
| (37) | ogekī - ogekī         | 'forty-forty', 'in forties'                 |
| (38) | ogekī zòḃḃ ogekī zòḃḃ | 'four hundred', 'in groups of four hundred' |

#### 4. Ordinal Numbers

These are made up of compound nouns each: first noun represents 'person who' while the second is a basic numeral. Examples:

(39)	òlè guń	'first person'
	oḡbā ephā	'second person'
	oḡbā èkiàr	'third person'
	oḡbā èna	'fourth person'
	oḡbā zòbò	'tenth person'
	oḡbā lòlùbò	'twentieth'
	oḡbā ogeki zòbò	'400 <sup>th</sup> '

#### 5. Other Terms of Quantity

kedu	'abundant'
peḡ	'small'
oduban	'big'

Such terms perform adjectival functions as shown in the following.

(40) Anyor èyàà oḡbilā kedu  
we have food abundant 'We have abundant food.'

(41) Oḡbilā anyor ude pee  
food our is small 'Our food is small in quantity.'

#### 6. Conclusion

There are problems associated with the above counting system, chief of which is that often, especially when quoting numerals involving multiplications and additions errors arise from mathematical miscalculations in the process of enumeration. However, the above method is purely traditional. It is hoped that with modernization, the language as well as the numeral system would undergo changes such as decimalization which could render the system less cumbersome.

#### Endnotes

1. This analysis is based on data contained in Enemuo Cecilia et al 2006, 'The Numerical System of Koring Language (A Case Study of One to One Thousand in Okpoto Dialect)' Department of Linguistics B.A Project, Nnamdi Azikiwe University, Awka.
2. Tonal convention: The high tone is left unmarked throughout, while low tone is marked with / ˘ / and the downstep is marked with / ˗ /.
3. Based on oral information from my informant, Mr. Goddy Okoro, of ESBS Abakaliki.

