IGBOCHOLARS INTERNATIONAL JOURNAL of IGBO SCHOLARS FORUM, NIGERIA Volume 16 No 2, May, 2023 ISSN: 2476-843x

A Modern Numeral System for Yorùbá Translators

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Abstract

This paper demonstrates, with translators in mind, the advantages of choosing Awobuluyi's (2008) proposal of a new numeral system over the Yorùbá Traditional Numeral System (henceforth YTNS). The paper begins with an overview of the structure of the YTNS, then highlights its challenges. This is followed by a simple presentation of the proposed system and its merits. To show how easy the latter is, a sample translation of a Bible text is presented with both the traditional and the proposed modern systems. Finally, a modest list of numbers encoded in the new system is presented.

Introduction

The Yorùbá traditional numeral system has been an interesting area of research over centuries (see for instance, Mann, 1887; Zaslavsky, 1970; Bendor-Samule, 1976; Awobuluyi, 2008; Fábùnmi, 2010; Akinadé & Odejobi, 2014; Babarinde, 2014; Ajiboye, 2016; Agbeyangi, Eludiora & Popoola, 2016; Eludiora, 2017; Adeniyi & Jayeola, 2020). Investigations have been focused on its arithmetic organization, linguistic encoding and utility, all of which present various forms of challenges to modern speakers

(Awobuluyi, 2008). Mention has also been made about how its complexity hampers learning (Eludiora, 2017). Despite these challenges, YTNS is productively used by translators. Perhaps, it seems to be the only widely used numeral system by native speakers. This is not completely true among modern, mostly younger speakers. Perhaps, this group of speakers are repelled by the overly complicated computational processes involved in the traditional system and challenges conditioned by changes in the language itself overtime.

This paper begins with a modest discussion of the structures, mathematical devices and deficiencies of YTNS in a way slightly different from Awobuluyi (2008), Babarinde (2014) and Ajiboye (2016). Then, leans on Awobuluyi (2008) to argue for a modern system, which is believed to be more translator friendly. As copious example to validate the argument, two translations of Ezra 2:2-39 are presented, one as in the Yorùbá version of the *New World Translation of the Holy Scriptures* published by Jehovah's Witnesses using the YTNS, then followed by another translation using the proposed version of the numeral system.

The choice of translators is strategic. Of a fact, the numeral system is an area of the Yorùbá language that is seriously endangered. Though some Yorùbá journalists, musicians, linguists writing in the language and a few others still use the YTNS, translators are the ones mostly keeping these items active. Musicians, writers, and others can skillfully avoid using YTNS. They are often at liberty to code-mix English words or completely shift to the English language when in difficulty. Translators do not have this freedom, and are often in serious search for the most appropriate, easy to understand system. This paper is written to assist them. While one may

argue for the continued use of YTNS for language maintenance's sake, it is not a bad idea to add a new system that enhances communication in the language, especially following current trends in language change. The forces behind this change may strangulate the old system to extinction if there is no alternative. Therefore, what is presented below is in a way to enhance comprehension and help sustain the language while little can actually be done to save the old system.

The morpho-computational structure of YTNS

The structure of YTNS has been explained using different parameters (Bendor-Samule, 1976; Awobuluyi, 2008; Babarinde, 2014 and Ajiboye, 2016) dwelling on both cardinal and ordinal numbers. Therefore, attempt will be made here to simply scratch the morphological surface, using isolatable morphemes for grouping. This is for convenience. In so doing, here nine groups making up the complete structure of the traditional enumeration are identified. Apart from the first group which has the first ten numbers, others do possess distinctive morphemes with which they are classified. These morphemes mark and set each group apart from the others. To begin with, let us consider the first ten numbers. It should be noted that the explanation provided here relates only to cardinal numbers. Notes on ordinals are given where necessary but readers can consult Babarinde (2014) and Ajiboye (2016) on the ordinal system.

Group 1: First Ten numbers

oókan ‘1’

eéjì ‘2’

ẹ́ẹ́ta	'3'
eérin	'4'
aárùn-ún	'5'
ẹ́ẹ́fà	'6'
eéje	'7'
ẹ́ẹ́jọ	'8'
ẹ́ẹ́sàn-án	'9'
ẹ́ẹ́wàá	'10'

These numbers form the foundation upon which larger numbers are constructed and encoded in the Yorùbá language. The derived larger numbers have, as mentioned earlier, distinctive morphemes and specific calculation patterns that identify them. They are as presented below.

Group 2: {-lá} Group

The items in this group are four. They are so called because they share identical element word-finally. They are:

ọ̀kàn**lá**	'11' (10+1)	
	èjì**lá**	'12' (←10+2)
	ẹ̀tà**lá**	'13' (←10+3)
	ẹ̀rìn**lá**	'14' (←10+4)

As observed in the computation involved in this group, they are all formed with addition. Each of the first four-unit numbers is added to 10, encoded in the {-*la*} suffixed to the word for each.

Group 3: {-dín-} Group

The following are some of the examples of the items included in this group.

3. àrùn**dín**lógún	'15'	(←20-5)
ẹ̀rìn**dín**lógún	'16'	(←20-4)
ẹ̀tà**dín**lógún	'17'	(←20-3)
èjì**dín**lógún	'18'	(←20-2)
ọ̀kàn**dín**lógún	'19'	(←20-1)

4. àrùn**dín**ígba	'195'	(←200-5)
ẹ̀rìn**dín**ígba	'196'	(←200-4)
ètà**dín**ígba	'197'	(←200-3)
èjì**dín**ígba	'198'	(←200-2)
ọ̀kàn**dín**ígba	'199'	(←200-1)

The examples above are only two instances of inexhaustible list. The occurrence of the items in this group is predictable. They are always five and their place is constantly from the fifth to ninth towards a tenth terminal number on a progressive computation. For instance, the examples in (3) above occur from the fifth number towards (20) counting from (15). It is the same with the computation of those in (4), in which the terminal number is (200) counting from (195). This holds true also for computation towards (30), (40), (50), (100), (500), (1000) and so on. Observe for (30) in (5) below.

4. àrùn**dín**lọ́gbọ̀n	'25'	(←30-5)
ẹ̀rìn**dín**lọ́gbọ̀n	'26'	(←30-4)
ẹtà**dín**lọ́gbọ̀n	'27'	(←30-3)

èjì**dín**lọ́gbọ̀n	'28'	(←30-2)
ọ̀kàn**dín**lọ́gbọ̀n	'29'	(←30-1)

The computation involved in this group is subtraction, which is the meaning of their distinctive morpheme {-dín} 'minus'.

Group 4: {àádọ́-} Group

There are just eight items in this group. The mathematical process employed here is complex: multiplication and subtraction. (10) is constantly subtracted from a target last number of a continuum of (20) after multiplying (20) with any of the last seven-unit numbers, from (3) to (10). Consider them below.

àádọ́ta	'50' (←20x3-10)	
àádọ́rin	'70' (←20x4-10)	
àádọ́rùn-ún	'90' (←20x5-10)	
àádọ́fà	'110'(←20x6-10)	
àádóje	'130'(←20x7-10)	
àádọ́jọ	'150'(←20x8-10)	
àádọ́sàn-án	'170'(←20x9-10)	
àádọ́wàá	'190'(←20x10-10)	

The phonetic change in the occurrence of the word representing (130) with respect to the final vowel of the identifying morpheme 'ọ́' is motivated by vowel harmony. It is realized as 'ó' because the following vowel 'e' is a high vowel. Similar changes will be observed in some other examples below wherever there is need for harmony, either for retracted or advanced tongue root vowels. For additional

information on aspects of the phonology of YTNS, see Adeniyi and Jayeola (2020).

Group 5: {ọgọ́-} Group

There are eight items in this group also. They are derived by multiplying (20) by (2) to (9) of the first ten numbers. They are as given in (7) below:

ogójì	‘40’	(←20x2)
ọgọ́ta	‘60’	(←20x3)
ọgọ́rin	‘80’	(←20x4)
ọgọ́rùn-ún	‘100’	(←20x5)
ọgọ́fà	‘120’	(←20x6)
ogóje	‘140’	(←20x7)
ọgọ́jọ	‘160’	(←20x8)
ọgọ́sàn-án	‘180’	(←20x9)

Group 6: {ẹgbẹ̀-} Group

The items in this group are formed by multiplication. They are realized by multiplying any number by (200). The common ones are usually the nine shown below but they can be extended beyond these. See (8) below.

ẹgbẹ̀ta	‘600’	(←200x3)
ẹgbẹ̀rin	‘800’	(←200x4)
ẹgbẹ̀rún	‘1000’	(←200x5)
ẹgbẹ̀fà	‘1200’	(←200x6)
egbèje	‘1400’	(←200x7)
ẹgbẹ̀jọ	‘1600’	(←200x8)
ẹgbẹ̀sán	‘1800’	(←200x9)

ẹgbẹ̀wá	‘2000’	(←200x10)
egbèjìlá	‘2400’	(←200x12)

Group 7: {ẹ̀ẹ́ẹ́dẹ́gbẹ̀-} and {ẹ̀ẹ́ẹ́dẹ́gbàá-} Group

This group is divided into two, as shown in the shapes of their markers above. The first class, the {ẹ̀ẹ́ẹ́dẹ́gbẹ̀-} class, occurs between (400) and (4000) while the second, the {ẹ̀ẹ́ẹ́dẹ́gbàá-} class, is between (4000) and (20,000). As will be illustrated below, the two classes employ the same computational processes: multiplication and subtraction. The only difference between them is the elements used for the computation; while ‘200’ and ‘100’ are used in the first, ‘2000’ and ‘1000’ are found in the second. For the first therefore, the computation is (200) multiplied by any number minus (100). See some examples in (9) below.

6. ẹ̀ẹ́ẹ́dẹ́gbẹ̀ta	‘500’	(←200x3-100)
ẹ̀ẹ́ẹ́dẹ́gbẹ̀rin	‘700’	(←200x4-100)
ẹ̀ẹ́ẹ́dẹ́gbẹ̀rún	‘900’	(←200x5-100)
ẹ̀ẹ́ẹ́dẹ́gbẹ̀fà	‘1100’	(←200x6-100)
èédégbèje	‘1300’	(←200x7-100)
ẹ̀ẹ́ẹ́dẹ́gbẹ̀jọ	‘1500’	(←200x8-100)
ẹ̀ẹ́ẹ́dẹ́gbẹ̀sán	‘1700’	(←200x9-100)
ẹ̀ẹ́ẹ́dẹ́gbẹ̀wá	‘1900’	(←200x10-100)
ẹ̀ẹ́ẹ́dẹ́gbẹ̀jìlá	‘2300’	(←200x12-100)

For the second, the computation is (2000) multiplied by any number minus (1000) up to the last possibility before (20,000). All of the possible numbers in this group are given in (10) below.

7. ẹ̀ẹ́dẹ́gbàájì	‘3000’ (←2000x2-1000)
ẹ̀ẹ́dẹ́gbàáta	‘5000’ (←2000x3-1000)
ẹ̀ẹ́dẹ́gbàárin	7000’ (←2000x4-1000)
ẹ̀ẹ́dẹ́gbàárùn-ún	‘9000’ (←2000x5-1000)
ẹ̀ẹ́dẹ́gbàáfà	‘11000’ (←2000x6-1000)
ẹ̀ẹ́dẹ́gbàáje	‘13000’ (←2000x7-1000)
ẹ̀ẹ́dẹ́gbàájọ	‘15000’ (←2000x8-1000)
ẹ̀ẹ́dẹ́gbàásàn-án	‘17000’ (←2000x9-1000)
ẹ̀ẹ́dẹ́gbàáwá	‘19000’ (←2000x10-1000)

Group 8: {ẹgbàá-} Group

There are just nine items constituting this group. They are formed by one computation process, multiplication. These are the items:

6. ẹgbàájì	‘4000’ (←2000x2)	
ẹgbàáta	‘6000’ (←2000x3)	
ẹgbàárin	‘8000’ (←2000x4)	
ẹgbàárùn-ún	‘10000’(←2000x5)	
ẹgbàáfà	‘12000’(←2000x6)	
ẹgbàáje	‘14000’(←2000x7)	
ẹgbàájọ		‘16000’(←2000x8)
ẹgbàásàn-án	‘18000’(←2000x9)	
ẹgbàáwá	‘20000’ (←2000x10)	

Group 9: {ọ̀kẹ́} Group

Ọ̀kẹ́ is another word representing (20000). This group is very productive computationally as it allows larger numbers to be formed and represented through multiplication. The computation of these huge numbers is very complex; any

number can be multiplied by number for the derivation of desired target.

6. ọ̀kẹ́-mẹ́ta	‘60000’	(←20000x3)
ọ̀kẹ́-ẹgbàáfà	‘240,000000	(←20000x12000)

Exceptions

There are some items which do not belong to any of the groups discussed above. Among these, some serve as stems for the formation of almost all the ones discussed while others occur in isolation. These are given below.

6. ogún	‘20’
okòó	‘20’
ọgbọ̀n	‘30’
igba	‘200’
ọ̀ọ́dúnrún	‘300’
irínwó	‘400’

Challenges of YTNS to modern speakers

Effort has been made by many linguists and other lovers of Yorùbá to explain the traditional numeral system in a simplified manner in order to assist modern speakers of the language to use them with convenience (Alhikmah, & Edet, 2016; Eludiora, 2017; Banjo, 2019). These efforts have however witnessed huge failure. Instead of using the traditional counting system, modern speakers, especially those acquainted with English, code-mix English words representing numbers they do not know in their language or completely switch to English. YTNS is a sure source of

headache for most modern speakers, especially where very large numbers are involved.

The scene of the world is speedily changing. Tremendous advancements in science and technology expose present generation of Yorùbá speakers to new life demanding tedious computations. YTNS is no longer as convenient as desired. There are four premises for this inconvenience.

Inadequacy

Adequacy is the hallmark of a good numeral system. A counting system that is adequate has words to represent any possible number no matter how huge. YTNS is deficient in this respect. For instance, how would someone inform another person who speaks and understands only Yorùbá that the Nigerian government spent N39,555,339,000,000 on education in the year 2020? Figures like those above appear almost every day in national dailies and translators and news casters do fail to adequately inform their Yorùbá audience what they are in the language. It seems that when the items included in the traditional numerals were formed to represent numbers, figures as large as those found in billions and trillions were not in use then.

A table is shown below in which some amount of money written in Arabic numerals. Not less than 100 Yorùbá speakers of varied ages, social background, educational status and occupations were asked to encode the figures in Yorùbá. They all present different levels of failure. None gave adequate linguistic representation.

Table 1: Linguistic representation challenge

Figure	Traditional counting system
N80,000,000	
N39,785,183,000	
N279,000,000,025	
N491,888,798,102	
N700,000,149,012	
N900,000,000,000	
N7,000,200,759,000	
N23,491,888,798,102	
N195,000,000,000,000	
N221,221,000,000,109	

Overly Complex Computations

It was shown earlier that there are three mathematical processes employed in the traditional counting system. These are addition, subtraction and multiplication. Though, these computational devices make the combination of smaller numbers to larger ones possible, the manner of combining them is so difficult that it rather discourages modern speakers of Yorùbá, especially children and adolescent users. Addition process is simple and, in some cases, the only device needed for numeration, as in the case of numbers (11-14) in illustrated in (2) above. In some other instances, the subtraction is the only computation device used, as in

numbers (15-19) in example (3) above. There are also cases whereby the only process needed is the multiplication. This has been illustrated but repeated for convenience in 14 below.

7.ẹgbàájì	‘4000’ (←2000x2)
ẹgbàáta	‘6000’ (←2000x3)
ẹgbàárin	‘8000’ (←2000x4)
ẹgbàárùn-ún	‘10000’(←2000x5)
ẹgbàáfà	‘12000’(←2000x6)
ẹgbàáje	‘14000’(←2000x7)
ẹgbàájọ	‘16000’(←2000x8)
ẹgbàásàn-án	‘18000’(←2000x9)
ẹgbàáwá	‘20000’(←2000x10)

However, most often the three devices are so woven together for the formation of large numbers that the modern speakers, find them very difficult to use. Some older speakers who are versed in the language were requested to say the Yorùbá correspondences of ‘504’, ‘17,008’ and ‘380,000,040’. Most of the informants find the last two numbers difficult to represent indicating that even among the older generation, YTNS system is speedily fading. Someone finally helped. He wrote the following.

8.ẹ̀rìnlélẹ́ẹ̀ẹ̀dẹ́gbẹ̀ta	‘504’
ẹ̀jọ̀lélẹ́ẹ̀ẹ̀dẹ́gbaàsán	‘17,008’
ogójì ó le ọ̀ké-ẹ̀ẹ́dẹ́gbáàsàn-án	‘380,000,040’

When shown the above words and asked to right the figures they represent, all modern speakers consulted didn’t understand their meaning. Well, the reason for their failure is simple: the computation processes are very complex. See how they are derived below:

8. ẹ̀rìnlélẹ́ẹ̀ẹ́dẹ́gbẹ̀ta ‘504’ (←200x3-100+4)
ẹ̀jọ̀lélẹ́ẹ̀ẹ́dẹ́gbaàsán ‘17,008’ (←2000x9-1000+8)
ogójì ó le ọ̀ké-ẹ̀ẹ́dẹ́gbáàsàn-án ‘380,000,040’
(←20,000x2000x9-1000+40)

A numeral system that involves complex computation as the YTNS can never be popular among impatient technologically inclined generation as the 21st century speakers. Therefore, wherever difficult computation is involved, modern speakers simply switch to English which they find very simple.

Inconsistency and Unfamiliarity

In a consistent numeral system, a word represents one figure once and always. This is far from being the case in the Yorùbá traditional system. Consider these examples below:

6. ọgọ́wàá, igba and àpò	for	‘200’
7. ọ̀ọ́dùún, ọ̀ọ́dúnrún	for	‘300’
8. ẹ̀ẹ́dẹ́gbàájì, ẹ̀gbẹ̀dógún	for	‘5,000’
9. ẹgbàwá and ọ̀kẹ́	for	‘20,000’

Apart from inconsistency, some words are not familiar to modern speakers. Such words include *iŕnwó* (400)*, okòó* (20)*, ọ̀ọ́dúnrún* (300), among others.

Modern Counting System: Proposal for translators

Based on the complex nature and deficiencies of the traditional counting system discussed in the preceding sections, it is strongly suggested that translators consider adding or switching over to a new numeral system. This

system follows trends in the modern use of the Yorùbá language in which speakers borrow the pattern in English when doing computation. The modern numeral system has a simple structure and the computational devices and processes involved are not as difficult as the ones discussed earlier. Presented below is an overview of morpho-computational structure proposed system.

Structure of Modern Numeral System (MNS)

MNS has four components similar to what obtains in English and some other languages of the world. These are units, tens, hundreds and thousands. The unit numbers are the first nine and these are the foundation on which other components build. These are:

10. ìkan	'1'
èjì	'2'
ẹ̀ta	'3'
ẹ̀rin	'4'
àrún	'5'
ẹ̀fà	'6'
èje	'7'
ẹ̀jọ	'8'
ẹ̀sán	'9'

The ordinal counterparts for the numbers are as those of the traditional system, i.e., *ìkíní, ìkejì, ìkẹta*, etc, or *méjèèjì, mẹ́tẹ̀ẹ̀ta, mẹ́rẹ̀ẹ̀rin*, among others. Therefore, I will not further any discussion on ordinals. (See Babarinde, 2014; Ajiboye, 2016; Agbeyangi, Eludiora & Popoola, 2016)

The tens number begin from (10) and ends in (99). There are two computational processes used in deriving the tens number: addition and multiplication. And these are the only two mathematical devices employed in the modern counting system. Addition is used for progressive counting from one tenth number to a higher one while multiplication is used to indicate another tenth number on the ladder. Consider (22) below.

11. ẹ̀wá	**‘10’**
ẹ̀wálékan	‘11’ (←10+1)
ẹ̀wáléjì	‘12’ (←10+2)
ẹ̀wálẹ́ta	‘13’ (←10+3)
ẹ̀wálẹ́rin	‘14’ (←10+4)
ẹ̀wáláàrún	‘15’ (←10+5)
ẹ̀wálẹ́fà	‘16’ (←10+6)
ẹ̀wáléje	‘17’ (←10+7)
ẹ̀wálẹ́jọ	‘18’ (←10+8)
ẹ̀wálẹ́ẹ̀sán	’19’ (←10+9)
ẹ̀wáméjì	**‘20’ (←10x2)**
ẹ̀wáméjìlékan	‘21’ (←10x2+1)
ẹ̀wáméjìléjì	‘22’ (←10x2+2)
ẹ̀wáméjìlẹ́ta	‘23’ (←10x2+3)
ẹ̀wáméjìlẹ́rin	‘24’ (←10x2+4)
ẹ̀wáméjìláàrún	‘25’ (←10x2+5)
ẹ̀wáméjìlẹ́fà	‘26’ (←10x2+6)
ẹ̀wáméjìléje	‘27’ (←10x2+7)
ẹ̀wáméjìlẹ́jọ	‘28’ (←10x2+8)
ẹ̀wáméjìlẹ́ẹ̀sán	‘29’ (←10x2+9)
ẹ̀wámẹ́ta	**‘30’ (←10x3)**

This continues to (40), (50), (60), (70), (80), (90) then to (99) as given below.

12. ẹ̀wámẹ́rin	'40' (←10x4)
ẹ̀wámáàrún	'50' (←10x5)
ẹ̀wámẹ́fà	'60' (←10x6)
ẹ̀wáméje	'70' (←10x7)
ẹ̀wámẹ́jọ	'80' (←10x8)
ẹ̀wámẹ́ẹ̀sán	'90' (←10x9)

Between these tenth numbers derived from multiplying (10) by the respective unit numbers are the progressive addition of the unit numbers as shown earlier. This eliminates the complex structure of the traditional system which subtracts after adding. These also destroys the inconsistency between (30) *ọgbọ̀n* and all the members of the *àádọ́* groups such as (50) *àádọ́ta*, (70) *àádọ́rin* and (90) *àádọ́rùn-ún.*

The next component on the progressive chain is the hundreds which is built from the units and the tens. The word for the hundred in traditional system is, *ọgọ́ọ̀rún*, maintained for familiarity and convenience' sake. One would observe that the spelling of the words for (5) and (100) is slightly different. Instead of *àárùn-ún* and *ọgọ́rùn-ún*, *àrún* and *ọgọ́ọ̀rún* are used. This is harmless. It allows for convenience of combination where these words are involved in forming larger, sometimes very large numbers. The glide that motivates the final '*-ún*' is moved to preceding syllable thereby eliminating the burden of constantly writing additional '*-ún*' wherever any of the words are to be used. Now consider the examples for hundredth component below.

13. ọgọ́ọ̀rún	**‘100’**
ọgọ́ọ̀rúnmẹ́jì	‘200’ (←100x2)
ọgọ́ọ̀rúnmẹ́ta	‘300’ (←100x3)
ọgọ́ọ̀rúnmẹ́rin	‘400’ (←100x4)
ọgọ́ọ̀rúnmáàrún	‘500’ (←100x5)
ọgọ́ọ̀rúmẹ́fà	‘600’ (←100x6)
ọgọ́ọ̀rúnméje	‘700’ (←100x7)
ọgọ́ọ̀rúnmẹ́jọ	‘800’ (←100x8)
ọgọ́ọ̀rúnmẹ́ẹ̀sán	‘900’ (←100x9)

Similar to what obtains in the case of the *èwá* group, from one end to another in the hundred’s continuum, both the units and the tens components build the progressive connection. See some examples in (25 & 26).

14. ọgọ́ọ̀rúnlékan	‘101’ (←100+1)
ọgọ́ọ̀rúnléjì	‘102’ (←100+2)
ọgọ́ọ̀rúnlẹ́ta	‘103’ (←100+3)
ọgọ́ọ̀rúnlẹ́rin	‘104’ (←100+4)
ọgọ́ọ̀rúnláàrún	‘105’ (←100+5)
Ọgọ́ọ̀rúnlẹ́fà	‘106’ (←100+6)
ọgọ́ọ̀rúnléje	‘107’ (←100+7)
ọgọ́ọ̀rúnlẹ́jọ	‘108’ (←100+8)
ọgọ́ọ̀rúnlẹ́ẹ̀sán	‘109’ (←100+9)
ọgọ́ọ̀rúnlẹ́ẹ̀wá	‘110’ (←100+10)

ọgọ́ọ̀rún àti ẹ̀wálékan	‘111’ (←100+10+1)
ọgọ́ọ̀rún àti ẹ̀wámẹ́jì	‘120’ (←100+10x2)
ọgọ́ọ̀rún àti ẹ̀wámẹ́jìlékan	‘121’ (←100+10x2+1)
ọgọ́ọ̀rúnmẹ́jì	‘200’ (←100x2)

The progression continues to (300), to (900), then the final component, thousand.

Thousand is represented maintaining the word for it in the traditional system, *ẹgbẹ̀rún.* This component works in like manner with the smaller previous components. Two computational mechanisms are employed here too: addition and multiplication. See the illustrations (27n& 28) below.

16.ẹgbẹ̀rún	**'1000'**
ẹgbẹ̀rúnlékan	'1001' (←1000+1)
ẹgbẹ̀rún àti ẹ̀wálékan	'1011' (←1000+10+1)
ẹgbẹ̀rún àti ẹ̀wáméjì	'1020' (←1000+10x2)
ẹgbẹ̀rún àti ẹ̀wáméjìlékan	'1021' (←1000+10x2+1)
ẹgbẹ̀rún àti ọgọ́ọ̀rún	'1100' (←1000+100)
ẹgbẹ̀rún àti ọgọ́ọ̀rúnlékan	'1101' (←1000+100+1)
ẹgbẹ̀rún, ọgọ́ọ̀rún àti ẹ̀wálékan	'1111' (←1000+100+10+1)
ẹgbẹ̀rún, ọgọ́ọ̀rún àti ẹ̀wáméjì	'1120' (←1000+100+10X2)
ẹgbẹ̀rún àti ọgọ́ọ̀rúnméjì	'1200' (←1000+100x2)
ẹgbẹ̀rúnméjì	'2000' (←1000x2)
ẹgbẹ̀rún-ẹ̀wáméjì	'20,000' (←1000x20)
ẹgbẹ̀rún-ẹ̀wáméjì àti ẹ̀wámẹ́ta	'20,030' (←1000x20+10x3)
ẹgbẹ̀rún-ẹ̀wáméjì àti ọgọ́ọ̀rúnméjì	'20,200'(←1000x20+100x2
ẹgbẹ̀rún-ọgọ́ọ̀rúnmẹ́ta	'300,000' (←1000x300)
ẹgbẹ̀rún-ọgọ́ọ̀rúnmẹ́ẹ̀sán	'900,000' (←1000x900)

The *ẹgbẹ̀rún* group or component is the last that the traditional Yorùbá word can be used for and still be intelligible to modern speakers of the language. From this point onward, it is suggested that translators borrow English words for such huge numbers as millions, billions, trillions. The motivation

for this suggestion is on the principle of familiarity. These are actually what speakers use in daily conversation. There are no words for them in the modern Yorùbá language, and there is no crime in borrowing from English. Well, the words *million, billion, trillion,* etc. originated from such languages as French and Latin before being used for what they mean today in English. Even where one, *million,* can be traced to Old English, it was derived from *mile* before it gradually became the word for (1000) from which millennium came and then the modern use from French and Latin (Ayto, 2005). For a language to keep growing and healthily living, it must borrow from other languages; English is one example. If a word is not found in traditional Yorùbá, what are people saying in town for the concept or object the word is meant for? For a fact, modern speakers of Yorùbá are really saying *mílíọ́nù, bílíọ́nù, tírílíọ́nù* for the numbers they respectively represent. It saves us lot of stress representing the language faculty of the people instead of trying to impose old words with unknown meaning on them.

Therefore, consider the examples below:

17.mílíọ́nù	**'1,000000'**
mílíọ́nùlékan	'1,000001'
mílíọ́nù àti èwáléjì	'1,000,012'
mílíọ́nù, ọgọ́ọ̀rúnmẹ́rìn àti ẹ̀wáméjìlẹ́ẹ̀sán	'1,000,429'
mílíọ́nù, ẹgbẹ̀rúnmáàrún léni ọgọ́ọ̀rúnmẹ́jọ àti ẹ̀wámẹ́talẹ́rin	'1,005,834'
mílíọ́nùméjì	'2,000,000'
mílíọ́nù-ọgọ́ọ̀rúnméje	'700,000,000'
17. bílíọ́nù	**'1,000,000,000'**
bílíọ́nù-èwálékan	'11,000,000,000'

bílíọ́nù ọgọ̀rúnmáàrún ‘500,000,000,000’
17. tírílíọ́nùkan **‘1,000,000,000,000’**

A Practical Application: Translation of Ezra 2:2-39

There are three scripts of Ezra 2:2-39 provided below. The first is English, the second is the current translation from the Yorùbá version of the *New World Translation of the Holy Scriptures* while the third is how it looks if translated with the suggested modern numeral system. Following these is a table isolating the numbers and comparing the two translations.

English Script: New World Translation of the Holy Scripture

2those who came with Ze·rub′ba·bel, Jesh′u·a, Ne·he·mi′ah, Se·rai′ah, Re·el·ai′ah, Mor′de·cai, Bil′shan, Mis′par, Big′vai, Re′hum, and Ba′a·nah.

The number of the Israelite men included: 3 the sons of Pa′rosh, 2,172; 4 the sons of Sheph·a·ti′ah, 372; 5 the sons of A′rah, 775; 6 the sons of Pa′hath-mo′ab, of the sons of Jesh′u·a and Jo′ab, 2,812; 7 the sons of E′lam, 1,254; 8 the sons of Zat′tu, 945; 9 the sons of Zac′cai, 760; 10 the sons of Ba′ni, 642; 11 the sons of Be′bai, 623; 12 the sons of Az′gad, 1,222; 13 the sons of Ad·o·ni′kam, 666; 14 the sons of Big′vai, 2,056; 15 the sons of A′din, 454; 16 the sons of A′ter, of Hez·e·ki′ah, 98; 17 the sons of Be′zai, 323; 18 the sons of Jo′rah, 112; 19 the sons of Ha′shum, 223; 20 the sons of Gib′bar, 95; 21 the sons of Beth′le·hem, 123; 22 the men of Ne·to′phah, 56; 23 the men of An′a·thoth, 128; 24 the sons of Az′ma·veth, 42; 25 the sons of Kir′i·ath-je′a·rim, Che·phi′rah, and Be·er′oth, 743; 26 the sons of Ra′mah and Ge′ba, 621; 27 the men of Mich′mas, 122; 28 the men of Beth′el and A′i, 223; 29 the sons of Ne′bo, 52; 30 the

sons of Mag′bish, 156; [31] the sons of the other E′lam, 1,254; [32] the sons of Ha′rim, 320; [33] the sons of Lod, Ha′did, and O′no, 725; [34] the sons of Jer′i·cho, 345; [35] the sons of Se·na′ah, 3,630.

[36] The priests: the sons of Je·da′iah of the house of Jesh′u·a, 973; [37] the sons of Im′mer, 1,052; [38] the sons of Pash′hur, 1,247; [39] the sons of Ha′rim, 1,017

Script with Traditional Numeral System

[2] àwọn tí wọ́n bá Serubábélì wá ni, Jéṣúà, Nehemáyà, Seráyà, Reeláyà, Módékáì, Bílíṣánì, Mísípárì, Bígífáì, Réhúmù, Báánáhì.

Iye àwọn ọkùnrin nínú àwọn ènìyàn Ísírẹ́lì: [3] Àwọn ọmọkùnrin Páróṣì, ẹgbọ̀kànlá ó dín méjìdínlọ́gbọ̀n; [4] àwọn ọmọkùnrin Ṣẹfatáyà, òjì-dín-nírínwó ó lé méjìlá; [5] àwọn ọmọkùnrin Áráhì, ẹgbẹ̀rin ó dín mẹ́ẹ̀ẹ́dọ́gbọ̀n; [6] àwọn ọmọkùnrin Pahati-móábù, ti àwọn ọmọ Jéṣúà àti Jóábù, ẹgbẹ̀rìnlá ó lé méjìlá; [7] àwọn ọmọkùnrin Élámù, ọ̀tà-lé-lẹ́gbẹ̀fà ó dín mẹ́fà; [8] àwọn ọmọkùnrin Sátù, òjì-lé-lẹ́ẹ̀ẹ́dẹ́gbẹ̀rún ó lé márùn-ún; [9] àwọn ọmọkùnrin Sákáì, òjì-dín-lẹ́gbẹ̀rin; [10] àwọn ọmọkùnrin Bánì, òjì-lé-lẹ́gbẹ̀ta ó lé méjì; [11] àwọn ọmọkùnrin Bébáì, ẹgbẹ̀ta ó lé mẹ́tàlélógún; [12] àwọn ọmọkùnrin Ásígádì, ẹgbẹ̀fà ó lé méjìlélógún; [13] àwọn ọmọkùnrin Ádóníkámù, ọ̀tà-lé-lẹ́gbẹ̀ta ó lé mẹ́fà; [14] àwọn ọmọkùnrin Bígífáì, ẹgbàá ó lé mẹ́rìndínlọ́gọ́ta; [15] àwọn ọmọkùnrin Ádínì, àádọ́ta-lé-nírínwó ó lé mẹ́rin; [16] àwọn ọmọkùnrin Átérì, ti Hesekáyà, méjì-dín-lọ́gọ́rùn-ún; [17] àwọn ọmọkùnrin Bísáì, ọ̀ọ́dúnrún ó lé mẹ́tàlélógún; [18] àwọn ọmọkùnrin Jórà, méjì-lé-láàádọ́fà; [19] àwọn ọmọkùnrin Háṣúmù, okòó-lérúgba ó lé mẹ́ta; [20] àwọn ọmọkùnrin Gíbárì, márùn-dín-lọ́gọ́rùn-ún; [21] àwọn ọmọkùnrin Bẹ́tílẹ́hẹ́mù, mẹ́tàlélọ́gọ́fà; [22] àwọn ọkùnrin Nétófà,

mẹ́rìndínlọ́gọ́ta; [23] àwọn ọkùnrin Ánátótì, méjì-dín-láàádóje; [24] àwọn ọmọkùnrin Ásímáfẹ́tì, méjìlélógójì; [25] àwọn ọmọkùnrin Kiriati-jéárímù, Kéfírà àti Béérótì, òjì-lé-lẹ́ẹ́ẹ́dẹ́gbẹ̀rin ó lé mẹ́ta; [26] àwọn ọmọkùnrin Rámà àti Gébà, ẹgbẹ̀ta ó lé mọ́kànlélógún; [27] àwọn ọkùnrin Míkímásì, méjìlélọ́gọ́fà; [28] àwọn ọkùnrin Bẹ́tẹ́lì àti Áì, okòó-lérúgba ó lé mẹ́ta; [29] àwọn ọmọkùnrin Nébò, méjì-lé-láàádọ́ta; [30] àwọn ọmọkùnrin Mágíbíṣì, mẹ́rìndínlọ́gọ́jọ; [31] àwọn ọmọkùnrin Élámù kejì, ọ̀tà-lé-lẹ́gbẹ̀fà ó dín mẹ́fà; [32] àwọn ọmọkùnrin Hárímù, okòó-lé-lọ́ọ̀ọ́dúnrún; [33] àwọn ọmọkùnrin Lódì, Hádídì àti Ónò, ẹ̀ẹ́dẹ́gbẹ̀rin ó lé márùndínlọ́gbọ̀n; [34] àwọn ọmọkùnrin Jẹ́ríkò, òjì-lé-lọ́ọ̀ọ́dúnrún ó lé márùn-ún; [35] àwọn ọmọkùnrin Sénáà, egbèjìdínlógún ó lé ogbọ̀n.

[36] Àwọn àlùfáà: Àwọn ọmọkùnrin Jedáyà ti ilé Jẹ́súà, ẹgbẹ̀rún ó dín mẹ́tàdínlọ́gbọ̀n; [37] àwọn ọmọkùnrin Ímérì, àádọ́ta-lé-lẹ́gbẹ̀rún ó lé méjì; [38] àwọn ọmọkùnrin Páṣúrì, ẹgbẹ̀fà ó lé mẹ́tà-dín-láàádọ́ta; [39] àwọn ọmọkùnrin Hárímù, ẹgbẹ̀rún ó lé mẹ́tàdínlógún.

Script with Modern Numeral System

[2] àwọn tí wọ́n bá Serubábélì wá ni, Jẹ́súà, Nehemáyà, Seráyà, Reeláyà, Módékáì, Bílíṣánì, Mísípárì, Bígífáì, Réhúmù, Báánáhì.

Iye àwọn ọkùnrin nínú àwọn ènìyàn Ísírẹ́lì: [3] Àwọn ọmọkùnrin Páróṣì, ẹgbẹ̀rúnméjì, ọgọ́ọ̀rún àti ẹ̀wáméjeléjì; [4] àwọn ọmọkùnrin Ṣẹfatáyà, ọgọ́ọ̀rúnmẹ́ta àti ẹ̀wáméjeléjì; [5] àwọn ọmọkùnrin Áráhì, ọgọ́ọ̀rúnméje àti ẹ̀wáméjeláàrún; [6] àwọn ọmọkùnrin Pahati-móábù, ti àwọn ọmọ Jẹ́súà àti Jóábù, ẹgbẹ̀rúnméjì, ọgọ́ọ̀rúnmẹ́jọ àti ẹ̀wáléjì; [7] àwọn ọmọkùnrin Élámù, ẹgbẹ̀rún, ọgọ́ọ̀rúnméjì àti ẹ̀wámáàrúnlẹ́rin; [8] àwọn ọmọkùnrin Sátù, ọgọ́ọ̀rúnmẹ́ẹ̀sán àti ẹ̀wámẹ́rinláàrún; [9] àwọn

ọmọkùnrin Sákáì, ọgọ̀ọ̀rúnméje àti ẹ̀wámẹ́fà; [10] àwọn ọmọkùnrin Bánì, ọgọ̀ọ̀rúnmẹ́fà àti ẹ̀wámẹ́rinlélógún; [11] àwọn ọmọkùnrin Bébáì, ọgọ̀ọ̀rúnmẹ́fà àti ẹ̀wáméjìlẹ́ta; [12] àwọn ọmọkùnrin Ásígádì, ẹgbẹ̀rún, ọgọ̀ọ̀rúnméjì àti ẹ̀wáméjìlélógún; [13] àwọn ọmọkùnrin Ádóníkámù, ọgọ̀ọ̀rúnmẹ́fà àti ẹ̀wámẹ́fàlẹ́fà; [14] àwọn ọmọkùnrin Bígífáì, ẹgbẹ̀rúnméjì àti ẹ̀wámáàrúnlẹ́fà; [15] àwọn ọmọkùnrin Ádínì, ọgọ̀ọ̀rúnmẹ́rin àti ẹ̀wámáàrúnlẹ́rin; [16] àwọn ọmọkùnrin Átérì, ti Hesekáyà, ẹ̀wámẹ́ẹ̀sánlẹ́ọ; [17] àwọn ọmọkùnrin Bísáì, ọgọ̀ọ̀rúnmẹ́ta àti ẹ̀wáméjìlẹ́ta; [18] àwọn ọmọkùnrin Jórà, ọgọ̀ọ̀rún àti ẹ̀wáléjì; [19] àwọn ọmọkùnrin Háṣúmù, ọgọ̀ọ̀rúnméjì àti ẹ̀wáméjìlẹ́ta; [20] àwọn ọmọkùnrin Gíbárì, ẹ̀wámẹ́ẹ̀sánláàrún; [21] àwọn ọmọkùnrin Bẹ́tíléhémù, ọgọ̀ọ̀rún àti ẹ̀wáméjìlẹ́ta; [22] àwọn ọkùnrin Nétófà, ẹ̀wámáàrúnlẹ́fà; [23] àwọn ọkùnrin Ánátótì, ọgọ̀ọ̀rún àti ẹ̀wáméjìlẹ́ọ; [24] àwọn ọmọkùnrin Ásímáfẹ́tì, ẹ̀wámẹ́rinléjì; [25] àwọn ọmọkùnrin Kiriati-jéárímù, Kéfírà àti Bééróti, ọgọ̀ọ̀rúnméje àti ẹ̀wámẹ́rinlẹ́ta; [26] àwọn ọmọkùnrin Rámà àti Gébà, ọgọ̀ọ̀rúnmẹ́fà àti ẹ̀wáméjìlékan; [27] àwọn ọkùnrin Míkímásì, ọgọ̀ọ̀rún àti ẹ̀wáméjìléjì; [28] àwọn ọkùnrin Bẹ́tẹ́lì àti Á, ọgọ̀ọ̀rúnméjì àti ẹ̀wáméjìlẹ́ta; [29] àwọn ọmọkùnrin Nébò, ẹ̀wámáàrúnléjì; [30] àwọn ọmọkùnrin Mágíbíṣì, ọgọ̀ọ̀rún àti ẹ̀wámáàrúnlẹ́fà; [31] àwọn ọmọkùnrin Élámù kejì, ẹgbẹ̀rún, ọgọ̀ọ̀rúnméjì àti ẹ̀wámáàrúnlẹ́rin; [32] àwọn ọmọkùnrin Hárímù, ọgọ̀ọ̀rúnmẹ́ta àti ẹ̀wáméjì; [33] àwọn ọmọkùnrin Lódì, Hádídì àti Ónò, ọgọ̀ọ̀rúnméje àti ẹ̀wáméjìláàrún; [34] àwọn ọmọkùnrin Jẹ́ríkò, ọgọ̀ọ̀rúnmẹ́ta àti ẹ̀wámẹ́rinláàrún; [35] àwọn ọmọkùnrin Sénáà, ẹgbẹ̀rúnmẹ́ta, ọgọ̀ọ̀rúnmẹ́fà àti ẹ̀wámẹ́ta.

[36] Àwọn àlùfáà: Àwọn ọmọkùnrin Jedáyà ti ilé Jéṣúà, ọgọ̀ọ̀rúnmẹ́ẹ̀sán àti ẹ̀wámẹ́jẹlẹ́ta; [37] àwọn ọmọkùnrin Ímérì, ẹgbẹ̀rún àti ẹ̀wámáàrúnléjì; [38] àwọn ọmọkùnrin Páṣúrì, ẹgbẹ̀rún, ọgọ̀ọ̀rúnméjì àti ẹ̀wámẹ́rinléje; [39] àwọn ọmọkùnrin Hárímù, ẹgbẹ̀rún àti ẹ̀wáléje.

Table 2: Comparison of traditional and modern numeral systems

Figure	Traditional Numerals	Modern Numerals
42	Méjìlélógójì	Ẹ̀wámẹ́rinléjì
52	méjì-lé-láàádọ́ta	Ẹ̀wámáàrúnléjì
56	Mẹ́rìndínlọ́gọ́ta	Ẹ̀wámáàrúnlẹ́fà
95	márùn-dín-lọ́gọ́rùn-ún	èwámẹ́ẹ̀sánláàrún
98	méjì-dín-lọ́gọ́rùn-ún	Èwámẹ́ẹ̀sánlẹ́jọ
112	méjì-lé-láàádọ́fà	ọgọ̀ọ́rún àti ẹ̀wáléjì
122	Méjìlélọ́gọ́fà	ọgọ̀ọ́rún àti ẹ̀wámẹ́jìléjì
123	Mẹ́tàlélọ́gọ́fà	ọgọ̀ọ́rún àti ẹ̀wámẹ́jìlẹ́ta
128	méjì-dín-láàádóje	ọgọ̀ọ́rún àti ẹ̀wámẹ́jìlẹ́jọ
156	mẹ́rìndínlọ́gójọ	ọgọ̀ọ́rún àti ẹ̀wámáàrúnlẹ́fà
223	okòó-lérúgba ó lé mẹ́ta	ọgọ̀ọ́rúnméjì àti ẹ̀wámẹ́jìlẹ́ta
223	okòó-lérúgba ó lé mẹ́ta	ọgọ̀ọ́rúnméjì àti ẹ̀wámẹ́jìlẹ́ta
320	okòó-lé-lọ́ọ̀ọ́dúnrún	ọgọ̀ọ́rúnmẹ́ta àti ẹ̀wámẹ́jì
323	ọ̀ọ́dúnrún ó lé mẹ́tàlélógún	ọgọ̀ọ́rúnmẹ́ta àti ẹ̀wámẹ́jìlẹ́ta
345	ọ̀jì-lé-lọ́ọ̀ọ́dúnrún ó lé márùn-ún	ọgọ̀ọ́rúnmẹ́ta àti ẹ̀wámẹ́rinláàrún
372	ọ̀jì-dín-nírínwó ó lé méjìlá	ọgọ̀ọ́rúnmẹ́ta àti ẹ̀wámẹ́jeléjì
454	àádọ́ta-lé-nírínwó ó lé mẹ́rin	ọgọ̀ọ́rúnmẹ́rin àti ẹ̀wámáàrúnlẹ́rin
621	ẹgbẹ̀ta ó lé mọ́kànlélógún	ọgọ̀ọ́rúnmẹ́fà àti ẹ̀wámẹ́jìlékan
623	ẹgbẹ̀ta ó lé mẹ́tàlélógún	ọgọ̀ọ́rúnmẹ́fà àti ẹ̀wámẹ́jìlẹ́ta

642	òjì-lé-lẹ́gbèta ó lé méjì	ọgọ̀ọ́rúnmẹ́fà àti ẹ̀wámẹ́rinlélógún
666	ọ̀tà-lé-lẹ́gbẹ̀ta ó lé mẹ́fà	ọgọ̀ọ́rúnmẹ́fà àti ẹ̀wámẹ́fàlẹ́fà
725	ẹ̀ẹ́dẹ́gbẹ̀rin ó lé márùndínlọ́gbọ̀n	ọgọ̀ọ́rúnméje àti ẹ̀wáméjìláàrún
743	òjì-lé-lẹ́ẹ̀ẹ́dẹ́gbèrin ó lé méta	ọgọ̀ọ́rúnméje àti ẹ̀wámẹ́rinlẹ́ta
760	òjì-dín-lẹ́gbèrin	ọgọ̀ọ́rúnméje àti ẹ̀wámẹ́fà
775	ẹgbẹ̀rin ó dín mẹ́ẹ̀ẹ́dọ́gbọ̀n	ọgọ̀ọ́rúnméje àti ẹ̀wáméjeláàrún
945	òjì-lé-lẹ́ẹ̀ẹ́dẹ́gbèrún ó lé márùn-ún	ọgọ̀ọ́rúnmẹ́ẹ̀sán àti ẹ̀wámẹ́rinláàrún
973	ẹgbẹ̀rún ó dín métàdínlọ́gbọ̀n	ọgọ̀ọ́rúnmẹ́ẹ̀sán àti ẹ̀wáméjelẹ́ta
1,017	ẹgbẹ̀rún ó lé métàdínlógún	ẹgbẹ̀rún àti ẹ̀wáléje
1,052	àádọ́ta-lé-lẹ́gbẹ̀rún ó lé méjì	ẹgbẹ̀rún àti ẹ̀wámáàrúnlélógún
1,222	ẹgbẹ̀fà ó lé méjìlélógún	ẹgbẹ̀rún, ọgọ̀ọ́rúnméjì àti ẹ̀wáméjìléjì
1,247	ẹgbẹ̀fà ó lé métà-dín-láàádọ́ta	ẹgbẹ̀rún, ọgọ̀ọ́rúnméjì àti ẹ̀wámẹ́rinléje
1,254	ọ̀tà-lé-lẹ́gbẹ̀fà ó dín mẹ́fà	ẹgbẹ̀rún, ọgọ̀ọ́rúnméjì àti ẹ̀wámáàrúnlẹ́rin
1,254	ọ̀tà-lé-lẹ́gbẹ̀fà ó dín méfà	ẹgbẹ̀rún, ọgọ̀ọ́rúnméjì àti ẹ̀wámáàrúnlẹ́rin
2,056	ẹgbàá ó lé mẹ́rìndínlọ́gọ́ta	ẹgbẹ̀rúnméjì àti ẹ̀wámáàrúnlẹ́fà
2,172	ẹgbọ̀kànlá ó dín méjìdínlọ́gbọ̀n	ẹgbẹ̀rúnméjì, ọgọ̀ọ́rún àti ẹ̀wáméjeléjì
2,812	ẹgbẹ̀rìnlá ó lé méjìlá	ẹgbẹ̀rúnméjì, ọgọ̀ọ́rúnmẹ́jọ àti

		ẹ̀wáléjì
3,630.	egbèjìdínlógún ó lé ọgbọ̀n	ẹgbẹ̀rúnmẹ́ta, ọgọ́ọ̀rúnmẹ́fà àti ẹ̀wámẹ́ta

Conclusion

It is believed that it is possible to save a language by encouraging productive use of integral elements such as those that encode the numeral system. One way of doing this is to be flexible in following changing trends in the language. The forces that project these changes are also powerful enough to kill the language if experts insist on swimming against the tides. The Yorùbá language has words for numerals that are either dead or endangered. There is little linguists and lovers of the language can do to reverse the unfortunate eventualities. However, if users are allowed to flow with the currents of change, much can be done to vitalize the language, especially by describing, encouraging and enhancing the new systems. Translators can help enhance new trends in the numeral system of Yorùbá by adopting a modern system in addition to or in place of a fading system, as the one demonstrated in this paper.

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