

L. DE VRIES

## **BODY PART TALLY COUNTING AND BIBLE TRANSLATION in Papua New Guinea and Irian Jaya**

**Dr Lourens de Vries** is a Translation Adviser with the United Bible Societies for projects in Indonesia. He is based in the Netherlands and holds the Chair of Bible Translation at the Free University, Amsterdam

In the traditional languages of Papua New Guinea and Irian Jaya a variety of counting or numeral systems are used. Among these systems one very common traditional way of counting is what can be called “the body part tally system”. Since they are a very natural part of their own languages, Bible translators generally try to make use of the body part tally systems in their translations. But at the same time, these systems create problems for Bible translators, for two main reasons: (1) the highest number that can be expressed in these systems is very often not higher than 29; (2) the systems often require speakers to point to the body parts involved as they say their names.

In this article I will first describe and illustrate the body part tally system. Then I will discuss some of the ways Bible translations can use and deal with body part tally numerals.

### **Body part tally systems**

In body part tally systems, the names of certain body parts also function as numerals. Counting starts on the little finger of the left hand (number 1) which the speaker touches or holds in some way with the fingers of the right hand. Moving past ring finger (2), middle finger (3), and index finger (4) the speaker reaches the thumb (5), after which he or she climbs the left arm, usually starting with the wrist (6), then the lower arm (7), the elbow (8), the upper arm (9), and the shoulder (10). After the points on the hand and the points on the arm, points on the head (for example neck, ear, eye, nose and crown of the head) are used.

The top of the head is generally the turning point of the system, and then counting continues down the opposite side of the body until the little finger of the right hand is reached. Many languages use a prefix meaning “other side” for the body parts as they are named after the turning point. Although people know the distinction between right and left, and have terms in their languages for “right” and “left”, these terms are not used in the counting system. In fact, the systems work just as well if the speaker starts on the right side; but since most people are right-handed, they normally begin counting on their left.

After the full number of body parts has been reached (once right round from the little finger of the left hand to the little finger of the right hand), some languages seem to extend the system by adding a word like “again” or “bring forth” (see the example below).

### **A typical body part tally system: the Korowai of Irian Jaya**

To illustrate this general outline of body part tally systems, I will describe the Korowai system in some detail. Korowai is spoken in the

area between the upper Becking and Eilanden rivers of south-east Irian Jaya, Indonesia. The Korowai body part number system starts as follows:

<i>Korowai numeral</i>	<i>corresponding body part</i>
1 <i>senan</i>	little finger
2 <i>senanafül</i>	ring finger
3 <i>pinggu(lu)p</i>	middle finger
4 <i>wayafül</i>	index finger
5 <i>wayo</i>	thumb
6 <i>gédun</i>	wrist
7 <i>lafol</i>	lower arm
8 <i>bonggup</i>	elbow
9 <i>labul</i>	upper arm
10 <i>main</i>	shoulder
11 <i>khomofekholol</i>	neck
12 <i>khotokhal</i>	ear
13 <i>khabéan</i>	head

When *khabéan* “head”/“thirteen” is reached, counting on the right hand side of the body begins, with the word *mén* “other side”:

14 <i>mén-khotokhal</i>	ear on the other side
15 <i>mén-khomofekholol</i>	neck on the other side
16 <i>mé-main</i>	the other shoulder
17 <i>mén-tabul</i>	the other upper arm
18 <i>mé-mbonggup</i>	the other elbow
19 <i>mén-tafol</i>	the other lower arm
20 <i>mé-nggédun</i>	the other wrist
21 <i>mé-wayo</i>	the other thumb
22 <i>mé-wayafül</i>	the other index finger
23 <i>mén-pinggu(lu)p</i>	the other middle finger
24 <i>mén-senanafül</i>	the other ring finger
25 <i>mén-senan</i>	the other little finger

Some Korowai informants have told me that when 25 is reached, the highest number after one round, a speaker can continue counting by adding the prefix *laifu* “produce” to the body part names and start again with the little finger of the left hand going up again to the turning point:

26 <i>laifu-senan</i>	produce-little finger
27 <i>laifu-senanafül</i>	produce-ring finger
...	
38 <i>laifu-khabéan</i>	produce-head

This would extend the body part system of Korowai to 38. However, I have never heard such extended numerals used outside discussion with informants.

The body part tally systems which I have studied, those of isolated societies like the Korowai, are used especially in two kinds of contexts:

(1) They are important in the context of traditional payments in shell-money and goods (such as bridal payments and compensation payments). Bridal payments and compensation payments for deaths are a topic for heated and prolonged negotiation between representatives of clans and families.

(2) They are also used in the context of sago grub and pig festivals that also have a market function. During the festivals anything of value can be purchased by barter or by paying cowrie shells. Since persons of different tribes meet each other during the festivals, magic formulas of other tribes in the area can often be bought at such a time. The prices for stone axes, magic formulas, nose and ear decorations, birds of paradise, and other valuable things can easily be handled within the limits of the body part counting systems.

Counting of cowrie shells, pig teeth, dog teeth, and valued objects such as stone axes in these contexts of festivals and bridal or compensation payments takes place with the objects to be counted positioned in between the parties involved in the exchange. The objects are picked up one by one and carefully inspected. Counting is by matching these visible objects with the body parts used as tallies.

Two points emerge from considering the place of counting in the Irian Jaya societies I studied. The first is that the shell-money prices of goods and services rarely exceed 30 shells. According to my informants, bridal payments (in a typical case 24 to 30 shells) and pigs (prices such as 19 shells) are the two most expensive things in a man's life. Thus the highest numbers in the body part systems of the area are easily high enough to satisfy the basic counting needs of these societies.

The second point is that counting in the great majority of cases involves concrete visible objects that are touched and matched with the body parts that are also touched. The conventional touching gestures are an integral, obligatory part of the use of body part names as numerals. The gestures are important for body part tally systems since they help speakers distinguish between the secondary, numeral meaning and the primary meaning of body part words. If speakers refer to their wrist, for example, they will never use the conventional touching gesture which accompanies the use of "wrist" in its numeral meaning "six".

When some of the isolated Korowai and Kombai clans in the north of Irian Jaya came into regular contact with the mission in 1980, their counting system came to be used in wholly new contexts. It was used, for example, to refer to the seven days of the week and the twelve months of the year, concepts introduced by missionaries and government personnel. The different clans actually used the same strategy to adapt their counting systems to the new needs. They formed compound nouns with the noun for "sun" or "day" as the modified noun and the body part number nouns from 1 to 6 as modifying nouns. Thus, Monday was "little finger day", Tuesday "ring finger day", and so on. For Sunday, they took the Indonesian word for worship *sembahyang*, and used it in a compound noun with the word for "day".

In Wambon the body part numerals are used in expressions for the months of the year. For example:

<i>sanov-o-wakhot</i>	little finger (connection)	moon	“January”
<i>sanopkuniv-o-wakhot</i>	ring finger (connection)	moon	“February”

It is interesting that when body part numerals are used in these expressions for the days of the week or the month of the year, the touching gestures always accompany the use of those expressions. Thus whenever the expression for “Saturday” is used, the speaker touches his or her left wrist.

### Body part tally systems and Bible translations

**Large numbers.** Whereas body part tally systems readily and easily adapt to use in some new contexts like the days of the week or the months of the year, the high and complex numbers found in the Bible present serious problems for speakers who use these systems. In order to express numbers which are higher than the highest number in their body part systems, there are basically two solutions that translators have used. The first is to use numerals borrowed from another language in combination with body part numbers. Body part tally systems offer a number of logical “break-off” points after which borrowed numerals can take over:

(1) the turning point, sometimes called the central point, that is the point on the head after which the counting starts to go down the other side of the body (in the Korowai system described above *khabeán* “head”, “thirteen” is the turning point after which counting on the right hand side of the body begins);

(2) the highest point, that is the number associated with the little finger of the right hand, after one “round” of the body part counting (in the Korowai system this is *mén-senan* “the other little finger”, “twenty-five”);

(3) the extended highest point after an extra round of counting with the addition of a word meaning “return” or “again” (in Korowai that would be *laifu-khabeán* “produce-head”, “thirty-eight”).

The South Yali Bible translation of Irian Jaya is an example of option (1). The South Yali translation uses borrowed Indonesian numerals for numbers higher than fourteen, the crown of the head, which is the turning point of the South Yali tally system. Kombai, also of Irian Jaya, is an example of option (2), introducing Indonesian borrowed numerals after the highest point, that is, after one round of counting, which in Kombai is 23. The following example is from the Kombai translation of the Mark 8.19:

*Nu roti ambalo-khu mofena lefa famo lima-ribu khof-o ri*  
 I bread thumb-(attr) that take cut five-thousand man-(conn) for  
 “... I took the five pieces of bread and cut bread for five thousand men ...”

For 5000, the Indonesian numeral *lima-ribu* is used whereas for 5 the Kombai body part expression *ambalo-khu* is used.

I have not (yet) seen translations using the “return” prefixes to extend the tally system after one round (see the Korowai example above) and then switching to borrowed numerals after one extra round, which is option (3) above.

There is a second solution used by some translators for expressing numbers higher than the highest number possible in their language's body part tally system. This is to extend the body part system beyond its natural limits by using round-about numeral expressions based on multiples of "rounds" plus traditional body part numbers.

As an example of this approach, Angguruk Yali has 27 as the highest number after one round of counting; and for higher numbers round-about numeral phrases are used in the Angguruk Yali Bible, based on the Yali word *teng* "round". For example, the number 30 is "one round (27) and ring finger (3)". A number like 70 is rendered as "three times *teng*"; but since that is not an exact equivalent (three times 27 not being 70), the Indonesian numeral is added in brackets and in italics. In 2 Samuel 6.2, for example, the Angguruk Yali translation has *teng teng ange (tiga puluh ribu)* literally "so many rounds (thirty thousand)"; in 2 Samuel 15.11 two hundred is "eight *teng (dua ratus)*", literally "eight times round (two hundred)". The idea is that mentioning "eight times round" helps the Yali readers to get a picture of the number involved, which is then given its exact value by the Indonesian loan number within brackets.

Since body part tally systems in most cases are rarely used for numbers higher than one round, it is questionable to what extent native speakers can picture in their minds the higher numbers expressed by round-about numeral phrases. It has often struck me that even the translators themselves make mistakes when translating the round-about expressions back into Indonesian – whereas they have no problem backtranslating the body part numerals that fall within the range of the first round up and down the arms. Stylistically, the round-about extensions of the body part tally system create quite heavy and marked numeral expressions, especially when a number in figures or an Indonesian number equivalent is added in brackets.

**Pointing to body parts.** Since Bible translations are primarily written texts, the gestures which always accompany the use of body part numerals in speech are absent. Of course, in written text the context will often give some help in finding out whether the body part words are used as numerals or not. In many languages there are also special suffixes which go with the use of body part numerals used in noun phrases, which help to identify the numeral use.

### Recommendations

If a speech community is in the process of borrowing numerals from a major language such as Indonesian or Tok Pisin, translators just starting the translation of the Bible are generally advised to use the body part tally system within its natural range (one round) and switch to borrowed numerals for the higher numbers. This avoids the stylistic problems of the round-about extensions. In most cases, the community will switch to borrowed numerals for the higher numbers sooner or later anyway, and it would be unnatural to use borrowed numerals in daily life but round-about numeral phrases in the translation of the Bible.

In revisions of earlier translations it would be a good idea to lower the "break-off" point for the use of borrowed numerals, if borrowed numerals

have become more generally used since the release of the translation. For example, it would be good to use body part tally numerals just for numbers lower than the turning point, as in the South Yali translation.

Whatever solution is chosen, all translations have to cope with the fact that higher numbers will become easy to understand only if and when such higher numbers play a role in the daily transactions and dealings of a people. When this is not the case, the complex higher numbers found in the Bible will remain difficult to grasp. When performing comprehension tests on Bible translations, poor results from the testing of higher numeral expressions should therefore not automatically lead to revisions of translations. If such revisions require added expressions to make the meaning clear, there may be stylistic losses without any gain in understanding.

One final piece of advice may be in order. Because the traditional gestures which are part of the spoken communication of body part numbers cannot be expressed in writing, Bible translators should try to make any context in which body part numbers are used as helpful as possible to the intended numeral sense. This may mean checking with other speakers about whether it would be natural (or at least all right) to use such numbers in a particular situation. It may simply be a matter of being aware of potential misunderstanding or ambiguity in a passage, and trying to make it very clear in any such passage that the body part terms are used as numerals.

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