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Numeral Classifiers among the May River Iwam

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1. Introduction

There are several studies on the Iwam language which belongs to the Upper Sepik stock, Sepik-Rumu phylum, and has two dialects, Sepik Iwam and May River Iwam. A phonemic study of Sepik Iwam was conducted by Laszlo and Gehburg [1970]. Conrad has described the grammar of May River Iwam [1965, 1971] and discussed the pragmatics of the language. This paper is focused on the numeral classifier system of May River Iwam, partially based on Conrad's study.

There are many languages that have numeral classifiers, *i.e.*, Japanese, Chinese, Tibeto-Burman, Vietnamese, Thai, Austronesian, Mon-Khmer, Dravidian, and some languages of America. In Papua New Guinea, although the Kiriwina of the Trobriand Islands [MALINOWSKI 1920] and the Ponam of the Admiralty Islands [LANCY 1983: 108] have numeral classifiers, those languages are Austronesian. Papuan languages commonly have noun classification systems [WURM 1982: 36; FOLEY 1986: 78]. However languages which have numeral classifiers seem to be rare among the Papuan languages. Iwam is a case in point and Yabio (Leonhard-Shultze sub-phylum-level stock, Sepik-Ramu phylum) in Wogamush River also has numeral classifiers. My interest is not in numeral classifiers *per se*, but rather in the notion of categorization of objects, which is concealed behind the numeral classifiers.

2. The Counting System of the May River Iwam

2.1. Number System

Before discussing numeral classifiers, the counting system of the Iwam is described. Since counting systems are of great interest to New Guinean researchers, much work has already been produced. Wolfers [1972] has recognized three types of counting systems in his analysis of Papua New Guinea languages; (1) abstract and finger-counting system, (2) body-counting system, and (3) modulus system. However, Laycock [1975] has argued that the counting system should be divided into two; (1) number systems and (2) tally systems. The latter are not true numerals, a typical example of which is the body-counting system. He implied that both systems originated from the same root. Laycock discussed both number

Table 1 The Counting System of the May River Iwam

1 <i>haruak</i>	6 <i>ana kwut hot</i>	11 <i>onkwis hot</i>	16 <i>onkwis onkwut hot</i>
2 <i>hasuk</i>	7 <i>ana kwut hois</i>	12 <i>onkwis hois</i>	17 <i>onkwis onkwut hois</i>
3 <i>hasuruk</i>	8 <i>ana kwut hasit</i>	13 <i>onkwis hasit</i>	18 <i>onkwis onkwut hasit</i>
4 <i>haasai</i>	9 <i>ana kwut haasai</i>	14 <i>onkwis haasai</i>	19 <i>onkwis onkwut haasai</i>
5 <i>ana kwut</i>	10 <i>ana kwis</i>	15 <i>onkwis onkwut</i>	20 <i>onkwis onkwis/yankam nut</i>
21 <i>onkwis onkwis hot/yankam nut hot</i>			
25 <i>onkwis onkwis onkwut/yankam nut onkwut</i>			
30 <i>onkwis onkwis onkwis/yankam nut onkwis</i>			
40 <i>onkwis onkwis onkwis onkwis/yankam nusuk</i>			

systems and stated that the 5–20 system was widespread in New Guinea. Lancy [1983] compiled data from 225 languages and classified 4 types; (1) body-parts tally system, (2) tally system using sticks, (3) 5–20 or 5–10–20 system, and (4) 10-based system. The first type is associated with the Trans-Fly phylum and the last one with Austronesian.

When the Iwam people are asked to count, they start by turning down the little finger of the left hand and say *haruak* or *haruwa* which means ‘one’. They follow this procedure up to their thumb and clench their fist, saying *ana kwut* which means ‘five’. Then they continue this on the right hand. Table 1 shows their counting numerals.

The *ha-* of *haruak* is a numeral classifier and *-ruak* is a numeral stem. The numeral classifier is obligatory as shown above. ‘Three’ is a combination of ‘one’ and ‘two’ as *hasuk-ruak* (or *hasuk-haruk*) and *ana kwut* is ‘five’ which consists of ‘one’ (*kwut* ← *kwu-ot*; *kwu-* is a numeral classifier and *-ot* is the short form of ‘one’) and ‘fist’ (*ana*) which does not include any classifier that coincides with a referent.

The short form of numerals is ordinarily used for numerals larger than ‘six’ and combined with ‘five’ (*ana kwut*) and ‘ten’ (*ana kwis*, ‘two fists’, but *ana* becomes *on* in numbers larger than ‘eleven’ as in *onkwis hot*). Some people say they can use *yankam nut* (one person) instead of *onkwis onkwis* (twenty), because man has twenty fingers. Although they would be able to count endlessly through the repetition of *onkwis*, they usually count only to ‘ten’, more often to ‘five’ in their daily life.

The numerals of Iwam are summarized as Table 2. There are some different forms which are not shown in Table 2; /s/ → /ʃ/ for example *hois* → *hoish*, /t/ → /ɾ/, *ana kwut* → *ana kwur*, /k/ → /g/, *onkwis* → *ongish* and so on.

2.2. The Tally System

Only one old informant used the body part tally system which is presented in Table 3. This system reaches 35 and it is said that at one time the system was adopted for counting bride wealth. It is not used for any other purpose and most people do not know it. It is still a doubtful system.

Table 2 The Numerals of May River Iwam

	(Stem)	(Short Form)
1	-ruak	-ot
2	-suk	-ois
3	-su-(NC)*-ruk	-sit
4	-aasai	—
5	ana kwut	—

* NC is a numeral classifier infix.

Table 3 The Body Counting System of the May River Iwam

1	<i>tonik</i> : the little finger of the left hand
2	<i>tonik nakanokei</i> : the ring finger of the left hand
3	<i>neisumau nakanokei</i> : the middle finger of the left hand
4	<i>neisumau</i> : the forefinger of the left hand
5	<i>yepsumopae</i> : the thumb of the left hand
6	the same as above on the right hand
.	
.	
.	
10	<i>yepsumopae</i> : the thumb of the right hand
11	<i>tonik</i> : the little toe of left leg ...
.	
20	<i>yepsumopae</i> : the big toe of the right leg
21	<i>nu</i> : the left eye
22	<i>nu</i> : the right eye
23	<i>humos</i> : nose
24	<i>wun</i> : the left ear
25	<i>wun</i> : the right ear
26	<i>kowa ni yemi</i> : the upper lip
27	<i>nuwa ni yemi</i> : the lower lip
28	<i>kowa piman</i> : the upper teeth
29	<i>nowa piman</i> : the lower teeth
30	<i>mue</i> : the left breast
31	<i>mue</i> : the right breast
32	<i>puroui</i> : navel
33	<i>munap</i> : the left testis
34	<i>munap</i> : the right testis
35	<i>ma</i> : penis

It is natural that the counting starts from the little finger of the left hand, and goes on to the fingers of the right hand. However, it is a little strange that the toes of the left leg and right leg follow, and then the face. Moreover the counting continues to the lower part of the body, for example the testes and finishes with the

penis.

The peculiarity of this counting is the application of the lower part of the body. Most examples use only the upper parts of the body [LAYCOCK 1975]. It seems that the body part tally system was introduced from neighboring ethnic groups and modified by the Iwam. One of the neighboring groups, the Mianmin, has a body part tally system and the group further to the south, the Telefomin, also has such a system. According to Iwam oral history, they moved from the southern mountain area to the May River [YOSHIDA 1987]. Although it cannot be said from which ethnic group they derived the body part tally system, the probability of a loan from other ethnic groups is rather high. On the other hand, they utilize the toes when they count numbers larger than 'twenty', and this manner of counting have been adapted to the tally system if the system had already existed.

2.3. Counting Bride Wealth

Iwam bride wealth (*amat*) consists of body ornaments such as head bands, necklaces, breast ornaments, penis cases *etc.* These are valuables and are made from dog teeth, two kinds of cowry, pearl shells, pig tusks, bones of freshwater sharks *etc.* They are used as ornaments only at the time of initiation, and otherwise not only to take a bride but also to pay compensation, to make a present, and to exchange in rituals.

It usually takes a long time to agree on a bride price, often more than a year. The father of the bride or his relatives make a record board of the bride price (*asu*), as shown in Photo 1. Although the father of the bride may receive a proper amount of bride wealth, he cannot get all the items at once. The remainder is received afterwards from time to time. The amount of wealth received is marked on a board. However the record board is not set up as an aide-memoir of the amount of bride wealth received, because the Iwam never forget details of their borrowing and lending of bride wealth. Nor do they expect to avoid disputes over bride wealth by means of the record board. Disputes over bride wealth often occur even if a record board is kept. The most important function of the board is for use at the time of discussion of the bride price for a daughter. Her father will ask the same price from the bridegroom's side as shown on the board on which is also recorded how much he paid in order to get his present wife.

The father of a bride must return to the father of the bridegroom half of the bride wealth, not consisting of the same items received from the bride's side but which he himself owns. Therefore half of the bride wealth is actually exchanged between both the two sides.

In the past the amount of bride wealth was usually less than one hundred ornaments, but nowadays it has become greater and includes cash. When the people count bride wealth, they use *kina* and *toia*. One *kina* equals ten *toia*. Thus they can manipulate bride wealth by using numerals up to ten. Though *kina* and *toia* are the units of the present currency of Papua New Guinea, the terms had been accepted prior to the use of cash currency among them.

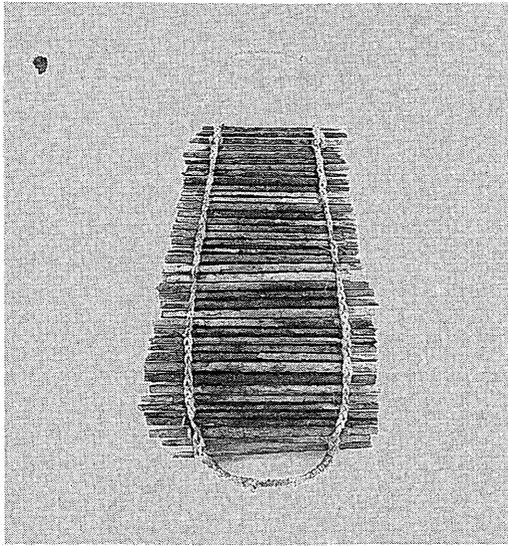


Photo 1 Record Board of Bride Price (*Asu*)

This is not true board and was newly made as a sample by a villager. The number of sticks on the board is too few in comparison with a true board because the maker begrudged wasting his time and labor.

2.4. Counting Days

The Iwam did not count time, days, months, and years through the number system, but had and have several terms which indicate a certain time. These are *eika* (dawn), *nokoko* (morning), *napmai* (midday), *nau* (evening), *nei* (night), *andnebu* (the middle of the night). Moreover, they have four temporal verbal suffixes; *-yuk* (in the morning), *-ok* (during the daytime), *-tep* (in the evening), and *-wae* (at night). An example is as follows;

Ani nei Burmai nam-wae. (I go to Burmai at night.)
 (I) (night) (name of village) (go-at the night)

The Iwam use terms such as 'today', 'tomorrow' and 'yesterday' instead of counting days by number. These are shown in Table 4. There are some differences from Conrad [1965, 1971], but the terms are mostly the same. It is interesting that their reckoning reaches only to four days in the past and future. This is nearly consistent with the usual counting system, which reaches 'five'.

When they promise a certain day for an assembly, they prepare two ropes or strings which have the same number of knots, which coinciding with the number of days till the assembly. This rope is called *kau* (Photo 2). Each person holds the

Table 4 Counting Days

today	<i>panok</i>	(<i>panok</i>)*	today	<i>panok</i>	(<i>panok</i>)
yesterday	<i>oi</i>	(<i>aoyi</i>)	tomorrow	<i>wak</i>	(<i>wak</i>)
2 days ago	<i>mansik</i>	(<i>peni</i>)	2 days later	<i>uk</i>	(<i>ouk</i>)
3 days ago	<i>hwi mansik</i>	(<i>mesi</i>)	3 days later	<i>mik</i>	(<i>mik</i>)
4 days ago	—	(<i>hwi mesi</i>)	4 days later	<i>okoe</i>	(<i>haokaoe</i>)
5 days ago	—	—	5 days later	—	—

* The terms within parenthesis are cited from Conrad [1971, 1965].

Table 5 Ordinal Numbers and Children' Birth Order Terms

<i>paya</i> : the first	<i>insem amunai</i> : the first child
<i>anmi</i> : the second	<i>insem anmi</i> : the second child
<i>pupuka</i> : the third	<i>insem pupukan</i> : the third child
<i>hani</i> : the fourth	<i>insem hani</i> : the fourth child
—	—
(none)	—
—	—
<i>anmien</i> : the second to last	<i>insem amien</i> : the second to last child
<i>anmimoso</i> : the last	<i>tikanai</i> : the last child

water', December to May) and fall (*ouk piyen*; 'dried river', June to October) of the May River. These seasons are consistent with the rainy and dry seasons in the upper mountain area. This cognition of the seasons is important for them because their activities depend deeply on the river. There are three signs of the seasons: one of them is *hopri* (a kind of tree, *Sapotaceae*), which has fruit when the risen river season starts. The second is *huru ouk* ('soaked wild sugar cane'), which indicates the highest flood. After wild sugar cane is soaked in the river, its flowers bloom simultaneously. This is very impressive and the flowers are the sign of the risen river season. The last is *huru ibi* ('dried flower of wild sugar cane'), which indicates the end of the risen river season. People sometimes count the flowerings of wild sugar cane to describe how long ago events happened. This example would indicate they have the notion of years, although this usage is very limited.

The Iwam have accepted Pidgin English and come to count time. *Dei* or *ei* (day), *wik* (week), *mun* or *buan* (moon), *yat* (year) and *kirismas* (Christmas) are employed as units of time, and *kwu-* is adopted as a numeral classifier.

2.5. Ordinal Numbers

The Iwam have ordinal numbers, but these are rarely used except for the order of the birth of children. Ordinal numbers are shown in Table 5. Here also the number is limited to four. There are special terms for counting children; the first and the last child. These terms are not applied to other items and are used only for children.

3. Numeral Classifiers

Conrad reported five numeral classifiers and the features of those are as follows; *nu-* is male, *hwu-* is long, *kwu-* is large, *ha-* is small, and *a-* is female [1965: 40]. However the Iwam language has one more numeral classifier, *i.e. ru-*. I will present the raw data with a short analysis as follows, and examine these features.

3.1. Human Beings

Terms for human beings change with age (Figure 1). A child (*insem*) becomes

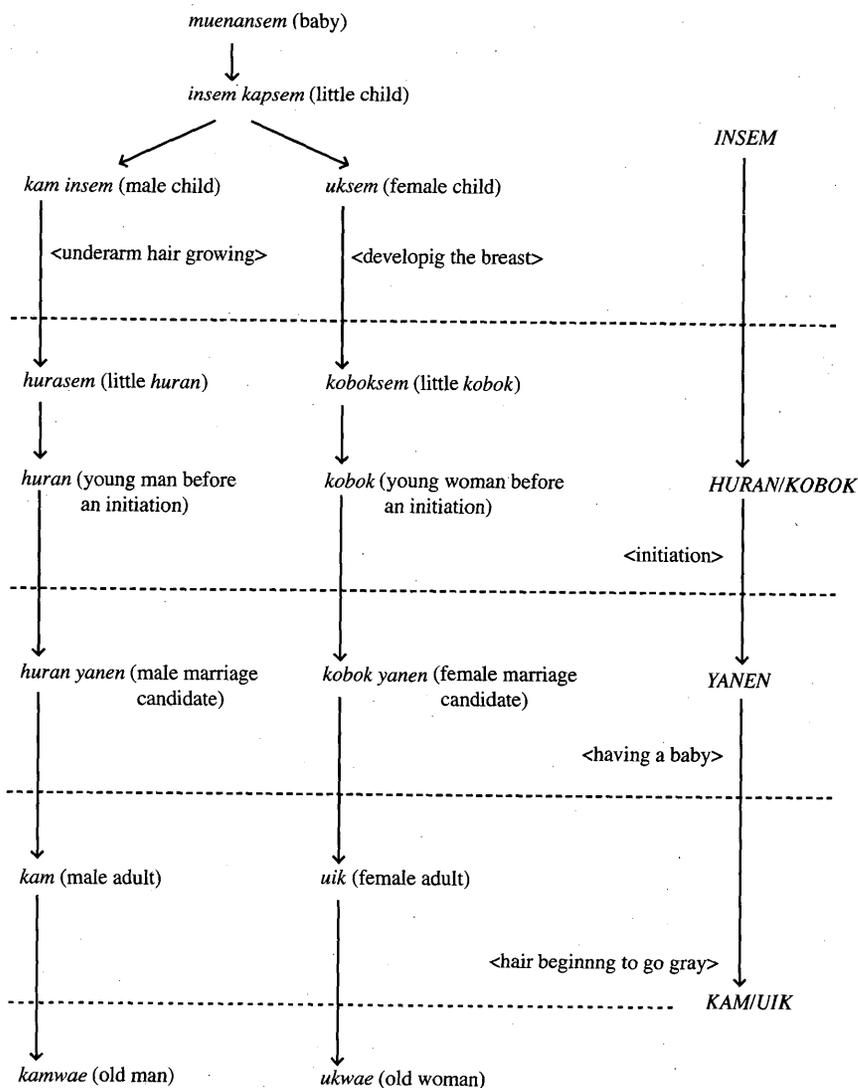


Figure 1 Transition of the Terms for Human Beings according to Growth Stages

a young person when underarm hair grows in the case of boys (*huran*) and breasts develop in the case of girls (*kobok*). Both sexes are called marriage candidates (*yanen*) after passing initiation. Then they are recognized as adult man (*kam*) or adult woman (*uik*) after having a baby. When the hair of the adult begins to gray, they are classified as old man (*kamwae*) or old woman (*ukwae*).

The numeral classifier *nu-* is applied to a man after he fathers a baby, *ru-* is applied to a young man before he fathers a baby but after underarm hair grows, and *a-* is applied to male children before underarm hair grows and to all women. The

Table 6 Numeral Classifiers for Human Beings

	nu-	ru-	a-
<i>yankam</i> (person)	<i>yankam</i> (man, person)		<i>insem</i> (child) <i>kam insem</i> (male child) <i>ukse</i> m (female child)
		<i>huran</i> (young man before initiation) <i>hurasem</i> (little <i>huran</i>) <i>yanen</i> (male marriage candidate) <i>huran yanen</i> (male marriage candidate)	<i>kobok</i> (young woman before initiation) <i>koboksem</i> (little <i>kobok</i>) <i>kobok yanen</i> (female marriage candidate)
	<i>kam</i> (man, male adult) <i>kamwae</i> (old man)		<i>uik</i> (woman, female adult) <i>ukwae</i> (old woman)

criterion of passing initiation is not adopted for numeral classifiers.

A man becomes a marriage candidate after passing initiation. The main motif of initiation seems to be death and rebirth in many cases, but one of the important components is to cause bleeding from the urethra by inserting a thorny branch. This would be parallel with a girl's first menstruation, after which she can get married. Although initiation was a big event among them, the main function was just that the participants became marriage candidates.

On the other hand, the other two criteria were more important in terms of changing one's life style. The boy whose underarm hair grew had to move to the men's house (*amukwua buri*; 'big house') from his mother's house, and could not visit his mother's house after moving. He always lived with other men and ate food which his sister or mother brought to the house. He had to avoid any contact with women. Moreover he had to participate in warfare. His life drastically changed when he became a young man.

When he got married, his life also changed. He had to build a house for his wife, to cultivate new gardens for her, and to make her a canoe. All this was strenuous work, although he could live independently (but usually had to stay in the men's house). The Iwam practice a strict division of labor between sexes, so that a man cannot live alone. A bachelor can get staple food through contributing to his mother's or his relative's livelihood, such as working in their garden, cutting sago palm for them or hunting animals. The Iwam considered that marriage had taken place once the girl became pregnant. There was no wedding ceremony, but there was a ritual when a baby was born. A married man's life also changed remarkably. However, the men's house has now disappeared, and several couples live together in the former men's house.

Table 7 Numeral Classifiers for the Human Body

	<i>hwu-</i>	<i>kwu-</i>	<i>ha-</i>	<i>a-</i>
Human Body	<i>mebu</i> (whole body) <i>kauku</i> (hair) <i>sebu</i> (trunk) <i>tap</i> (hand) <i>aiti</i> (leg) <i>humusini</i> (face) <i>humos</i> (nose) <i>ambu</i> (finger) <i>ma</i> (penis)	<i>wunsu</i> (ear) <i>ana</i> (fist) <i>ana popoik</i> (palm of hand)	<i>nu</i> (eye) <i>piman</i> (tooth) <i>puroui</i> (navel)	<i>mo</i> (head)

3.2. Human Body

Terms for parts of the human body are mostly the same as those of animals. By glancing at Table 7, we may gain the impression that *hwu-* is attached to something long, *kwu-* to something flat, *ha-* to something small, and *a-* to something round. If this is true, it is a little peculiar that 'face' belongs to something long, and 'fist' belongs to something flat. The latter could come from the image of the palm of the hand, even though a fist is made. The former could be due to their own interpretation.

3.3. Animals

Most animals belong to the *a-* class, the feature of which has been assumed to be roundness. However, the examples given are insufficient to allow a judgment. The feature of the *ha-* class is tentatively thought of as smallness. However, 'bee' and 'mayfly' do not belong to the *ha-* class but to the *a-* class, though these insects are very small. This problem will be discussed later. Fish belong to the *hwu-* class except for flat fishes, which belong to the *kwu-* class. The case of fish is not contradicted by the assumption, excepting 'freshwater shark,' which belongs to the *a-* class. The shark might belong to the animal class because of its largeness.

3.4. Plants

All living plants belong to the *hwu-* class. The parts of plants are classified according to their shapes; long things in the *hwu-* class, flat things in the *kwu-* class, comparatively small things in the *ha-* class and round things in the *a-* class. Fruit of the breadfruit belongs to the *a-* class, but the seed to the *ha-* class, even though both are round. This case will be discussed later. The tobacco leaf rolled with other leaves or paper is classified in the *kwu-* class. This is the same case as 'fist'. 'Tobacco leaf' is strongly imaged even though it is rolled. But the case of tobacco leaf stored in bamboo is different, because this bamboo tobacco is made for selling, and normally counted as bamboo.

Root crops seem strange because 'taro root' and 'sweet potato' are round, but

Table 8 Numeral Classifiers for Animals

	<i>hwu-</i>	<i>kwu-</i>	<i>a-</i>
Animal	<i>mabu</i> (snake) <i>usu</i> (fish with a long mouth) <i>ansu</i> (catfish) <i>kehin</i> (eel) <i>memaku</i> (long shrimp) <i>ousu</i> (long fish) <i>yopsu</i> (long fish) <i>apak</i> (long fish)	<i>mansu</i> (flat fish) <i>mokon</i> (flat fish) <i>siaun</i> (flat fish)	<i>hu</i> (pig) <i>hap</i> (cassowary) <i>ka</i> (lizard) <i>pau</i> (wallaby) <i>ha</i> (opossum) <i>punen</i> (rat or mouse) <i>hoik</i> (turtle) <i>aiyak</i> (frog) <i>tuau</i> (crown pigeon) <i>ae</i> (white cockatoo) <i>awui</i> (a kind of water-fowl) <i>ei</i> (crocodile) <i>nao</i> (freshwater shark) <i>hamsu</i> (little shrimp) <i>hamki</i> (big prawn) <i>saria</i> (mayfly) <i>mui</i> (bee)

classified in the *ha-* class. ‘Yam root’ is often long, or round but rarely flat, yet is classified in the *kwu-* class. ‘Yam’ has five varieties; *mami* has many round roots, *waimap* has a long root, *kaimaiti* has a short one, *okumi* has a round one, and *kounwou* has a flat one. *Kounwou* has two meanings; one is a general term for ‘yam’ and the other is a varietal name. If *waimap* is counted, it would belong to the *hwu-* class. The cases of ‘taro’ and ‘sweet potato’ are different from ‘yam’. They have many varieties, but the shape of the root is not adopted as a criterion of variety. The distinctive features consist mainly of the characteristics of leaf and stem. It is not clear why they are classified as belonging to the *ha-* class, but it could be related to the fact that they are popular foods.

A piece of sago trunk is actually not small, usually about 1.5 m × 0.8 m. Sago dumplings whether or not wrapped with leaves are classified as belonging to the *ha-* class. Although the meat of pig and cassowary are not described in the tables, these belong to the *ha-* class. It seems that ordinary food is classified in the *ha-* class. If that is so, it could be easily understood that ‘seed of breadfruit’, ‘taro root’ and ‘root of sweet potato’ are classified in the *ha-* class.

3.5. Artificial Materials

Most materials are classified according to their shape, and these applications are understandable except the samples of the *a-* class. ‘Axe’ and ‘adze’ have handles but only the point or blade is focused on. The point of the axe for cutting sago palm is long, while the blades of the other axes are flat. However it is not clear why the point of the sago scraper is classified in the *a-* class. A long stone is broken

Table 9 Numeral Classifiers for Cultivated Plants and Related Items

	<i>hwi-</i>	<i>kwu-</i>	<i>ha-</i>	<i>a-</i>
<i>yano</i> (banana)	<i>yano yakon</i> (plant)	<i>yannotias</i> (hand of fruit)	<i>yano</i> (single fruit)	
<i>am</i> (breadfruit)	<i>yano</i> (stalk of fruit)		<i>amaik</i> (seed)	<i>am</i> (fruit)
<i>of</i> (pandanus)	<i>am</i> (tree)		<i>orneik</i> (seed)	
<i>harbi</i> (tobacco)	<i>of</i> (tree, fruit)	<i>harbi popoik</i> (leaf)	<i>harbineik</i> (seed)	
	<i>harbi</i> (plant)	<i>harbi yakwuhun</i> (dried and powdered leaf rolled in leaf or paper)		
	<i>harbi keikok</i> (dried leaves stored in bamboo)			
<i>nan</i> (sago palm)	<i>nan</i> (plant)		<i>nan</i> (piece of trunk, leaf pack of sago dumpling)	
	<i>nambu hurgi</i> (cooked starch wrapped leaf)		<i>nanop</i> (sago dumpling)	
Root crops		<i>kounwou</i> (root of yam)	<i>nom</i> (root of taro)	
			<i>nunwou</i> (root of sweet potato)	
Others	<i>bue</i> (sugar cane)			<i>ae</i> (gourd)

Table 10 Numeral Classifiers for Artificial Materials

	<i>hwu-</i>	<i>kwi-</i>	<i>ha-</i>	<i>a-</i>
Fishery	<i>kom</i> (fish trap)	<i>hiyokwut</i> (paddle)		<i>i</i> (canoe) <i>nari</i> (fish net)
Weapons	<i>sau</i> (spear) <i>hapku</i> (bone knife) <i>heiku</i> (iron knife) <i>hien</i> (axe for sago palm)	<i>nao</i> (shield) <i>wu</i> (stone axe) <i>wanu</i> (iron axe) <i>maena</i> (stone adze) <i>osumaru</i> (iron adze) <i>arku</i> (jaws' harp)		<i>se</i> (sago scraper)
Musical Instruments	<i>awu</i> (wooden horn) <i>awukeik</i> (vertical flute) <i>amkeik</i> (flute)			<i>ei</i> (slit-gong) <i>muwai</i> (drum) <i>amukwua</i> (house)
Others	<i>mae</i> (string)	<i>houkwut</i> (roof shield made by palm leaf) <i>imap</i> (stool) <i>sap</i> (flat basket) <i>houk</i> (arm band) <i>amat</i> (ornament, bride wealth) <i>asu</i> (record board for bride price) <i>auisu</i> (broom made from rib of palm leaf) <i>hapis</i> (broom made from cassowary feather) <i>kaisu</i> (leather of lizard)	<i>naku</i> (bone of freshwater shark) <i>kukuru</i> (pendant-top made from shell) <i>saria uiku</i> (dried mayfly wrapped in leaves)	<i>tu</i> (container made from leaf sheath of palm) <i>au</i> (grass skirt)

into two by hitting with another stone, and one half is used for the point. It cannot be described as round, rather as relatively small.

Although canoe and slit-drum are thought of as 'long', they are not classified in the *hwu*- class, but in the *a*- class. The shape of the container made from the leaf sheath of the palm is rectangular, but it is classified in the *a*- class.

Dried mayfly wrapped in leaves belongs to the *ha*- class, although the shape is not round but triangular. It is an ordinary food, so that it should belong to the *ha*-class.

3.6. New Materials

It is helpful to discuss how numeral classifiers are applied to recently introduced materials. Most cases are easily understood. A box is cubic, but is classified in the *a*- class. The determining feature of the *a*- class is not simply roundness. Shirt and trousers are classified as in the *kwu*- class, but grass skirt (Table 10) is in the *a*- class. Grass skirt does not belong to the same category as shirt and trousers.

3.7. Landscape Component

The last case is the landscape component. Village belongs to the *hwu*- class, because houses are built along the river. *Sien* is the land along the concave part of the meandering river where narrow gardens are usually made. *Weimo* is the land on the opposite side of *sien*. The stream of the river is slow on this side so that mud is piled up and good large land areas for gardens are formed. It is understandable that *sien* belongs to the *hwu*- class and *weimo* to the *kwu*- class.

Land may count as long for the Iwam, because the only land used is along the river, while vast land areas away from the river are ignored. It is interesting that mountain belongs to the *kwu*- class (long) according to local interpretation.

3.8. Domains and Features of Numeral Classifiers

My conclusion is shown in Table 13. There is no doubt that *nu*- is attached to adult men having fathered a baby and *ru*- to young men between the time they grow underarm hair and father a baby. Application of these numeral classifiers is limited to these domains and does not extend to others.

The semantic domain of *hwu*- is living plants and probably fish. The feature of *hwu*- is 'long' and this feature is adopted for other domains. The domain of *kwu*- might be 'leaf' and *kwu*- is widely applied to the feature of 'flatness'.

The features of *ha*- and *a*- are slightly more complex. Small food items which can be potentially used as gifts are the main domain of the *ha*- class. The notion of gift could be expanded to other small gifts like shell pendant-tops (conical), cups (cylindrical), bottles and erasers (cubic). It could be extended also to the trunk of a sago palm cut short. On the other hand, eye, tooth, navel, stone and star are classified as *ha*- class because 'small' could be thought of as the feature of the *ha*-class. Remember that the Iwam adopt the *ha*- class for numbers when they simply

Table 11 Application for New Materials

	<i>hwu-</i>	<i>kwu-</i>	<i>ha-</i>	<i>a-</i>
New Materials	<i>pensil</i> (pencil) <i>harb</i> (cigarette)	<i>buk</i> (book) <i>not-buk</i> (note book) <i>pepa</i> (paper) <i>bouigi</i> (shirt) <i>trajas</i> (trousers) <i>bet-sit</i> (bed sheet)	<i>kumi</i> (eraser) <i>yukuit</i> (bottle) <i>kap</i> (cup)	<i>saka-boul</i> (soccer ball) <i>tep-rekoda</i> (tape recorder) <i>baket</i> (bucket) <i>hat</i> (hat) <i>bokisis</i> (box) <i>dramkan</i> (drum can) <i>lampu</i> (lamp) <i>sospan</i> (pot)

Table 12 Numeral Classifiers for Landscape Components

	<i>hwu-</i>	<i>kwu-</i>	<i>ha-</i>	<i>a-</i>
Landscape Components	<i>mau</i> (mountain) <i>yap</i> (river) <i>om</i> (village) <i>nu</i> (land) <i>sein</i> (the land along the concave side of a meandering river)	<i>siaburi</i> (rock, cliff) <i>weimo</i> (the land along the convex side of a meandering river) <i>wau</i> (cloud)	<i>sia</i> (stone) <i>nawan</i> (star)	<i>hwue</i> (pond)

Table 13 Domains and Features of Numeral Classifiers

	Semantic Domain	Feature
<i>nu-</i>	mature men (after fathering a baby)	—
<i>ru-</i>	immature men (between growth of underarm hair and fathering a baby)	—
<i>a-</i>	women, children, animals with legs, materials associated with women	'squat' 'round'
<i>hwu-</i>	living plants, fishes	'long'
<i>kwu-</i>	leaves	'flat'
<i>ha-</i>	small food items, small gifts	'small'

count numbers. Small food gifts are very popular and constitute an important means of communication, *i.e.*, their social solidarity is strengthened through frequent exchanges of small food gifts among them.

Women and children as human beings and animals with legs are the main semantic domain of the *a-* class. The posture of 'squat' would be a common feature in this domain and posture could be associated with 'squatness' and

'roundness'. If the features of *a-* are so postulated, it is easily understood that canoe, slit-drum, house and new items such as tape recorder, bucket, hat, box are classified as *a-* class.

Sago scraper still remains. I think sago scraper is strongly associated with women, so that it would be classified in the *a-* class. In the same way it could be understood that fish net, grass skirt and container are classified as *a-* class. This is an example of categories, which are structured by chaining [LAKOFF 1987: 95].

4. Discussion

The basis of the classification of objects varies according to culture, but there is a similarity among the classificatory concepts. A binary set of men vs. women is widespread throughout the world, but it is rather unique that the Iwam divide the category of men into two, mature and immature men. Although this distinction might be common in many cultures, the Iwam have produced the particular classifier, *i.e.*, the classifier for immature men, in order to distinguish them from mature men.

These two kinds of male domains are very restricted and these classifiers are not adopted for objects of other domains, in contrast to the other Iwam classifiers. These classifiers do not have features such as 'long' and 'flat', so that they cannot be applied to the items of other domains.

A binary set of men vs. women is one of the basic categorical sets and the essential domain of the *a-* class would be women. The feature of the *a-* class is 'squat'. Children and animals belong to the *a-* class because the Iwam think they are 'squat', *i.e.*, the domain of the *a-* class is extended to children and animals through the application of the feature 'squat'. Moreover 'squat' is extended to 'round'. The features of squatness and roundness are rather popular in Papua New Guinea. The feminine gender in Alambak is associated with squatness and roundness [BRUCE 1984: 97], and these features also play a role in Mianmin gender assignment [FOLEY 1986: 81].

The features 'squat' and 'round' are not sufficient to define the *a-* class, but something closely related to 'women' is required. In contrast to the domain of women, there is no such requirement in the domain of men. Although the bow and arrow is closely related to men, these materials do not belong to the *nu-* or *ru-* classes. The numeral classifiers of mature or immature men do not have features and are not extended to other domains. This could be related to the male dominated society of the Iwam.

The other important category is plants, which belong to the *hwu-* class. The essential image of plants is standing plants, namely living plants, for the Iwam. When plants are cut or the parts of a plant are picked, they belong to other domains. The feature of the *hwu-* class is 'long', and the domain of the *hwu-* class is extended to fishes through this feature.

The domain of the *ha-* class is originally small food gifts and was extended to

small gifts. The feature of the *ha-* class is 'small' and the application of this classifier is extended to other domains through this feature. The category of small food gifts is very important for the Iwam, so that *ha-* would be created and is frequently used among them.

Kwu- is slightly different from the other classifiers. Since a suffix *-kwu* is seen in such words as *pro-kwu* (*Abelmoschus manihot*), *bue-kwu* (sugar cane leaf), *nom-kwu* (taro leaf), and *ya-kwu* (banana leaf), *-kwu* is defined as 'leaf'. Therefore the *kwu-* as a numeral classifier seems to originate from 'leaf', and the feature of *kwu-* is 'flat'.

The sets of 'long' vs. 'round', and 'flat' vs. 'round' are good pairs, but 'small' has no good counterpart, though the counterpart is usually 'large'. One of reasons for this is that 'small' is closely related to small food gifts. For example, bee and mayfly are very small, but these are classified as 'squat' because they are not subjects for gift giving. However 'cooked and wrapped mayflies' are small food gifts and assigned to 'small gift' or 'small'. Small gifts are often counted but large gifts are rare, so that the numeral classifier for 'large' would not appear among them and large things are classified into 'long', 'round', 'flat', or 'squat'.

Although 'large' is not an important feature for numeral classifiers, it is an important feature for classificatory verbs. There are several nominal classification systems [ALLAN 1977], one of which is numeral classifiers. The classificatory verb system is another system in which nouns are placed into groups according to different verbs. Iwam has this system as shown in Table 14.

These verbs are used as follows:

- 1 *Kara heiku kini nenu.* (I give you a knife.)
I knife you give
- 2 *Kara muwai kini hau.* (I give you a drum.)
drum give
- 3 *Kara nan kini nenu.* (I give you sago dumplings.)
sago give
- 4 *Kara nan kini hwuku.* (I give you sago starch or sago dumplings placed in a net bag.)
give a net bag.)
- 5 *Kara nan kini kekanu.* (I give you sago palm lying on the ground.)
give
- 6 *Kara nan kini kemau.* (I give you sago palm floating on the water.)
give
- 7 *Kara nan kini nakmau.* (I give you standing sago palm.)
give

If a verb is different, the referent is also changed as in examples 3–7. However, this happens only with words of multiple meaning such as *nan* (living sago palm, sago trunk cut down, sago starch, and sago dumpling). In this case, 'largeness' is

Table 14 Six Verbs of 'Giving'

Verb (give)	Referent	Feature
<i>nenu</i>	<i>nom</i> (taro), <i>nunwou</i> (sweet potato), <i>am</i> (breadfruit), <i>yano</i> (single banana), <i>yanotias</i> (hand of bananas), <i>amat</i> (ornament, bride wealth), <i>heiku</i> (iron knife), <i>nesu</i> (fish)	small and able to be carried by hand
<i>hau</i>	<i>muwai</i> (drum), <i>aram</i> (bow), <i>nari</i> (fish net), <i>tu</i> (container), <i>hiyokwut</i> (paddle), <i>ot</i> (pandanus fruit), <i>kounwou</i> (yam), <i>yano</i> (stalk of banana fruit), <i>bue</i> (sugar cane)	big and carried on shoulder
<i>kwuku</i>	<i>awui</i> (net bag)	carried in a bag
<i>kekanu</i>	<i>i</i> (canoe), <i>nan</i> (sago trunk already cut down)	large and lying on the ground (dragged by hand)
<i>kemau</i>	<i>i</i> (canoe), <i>nan</i> (sago trunk already cut down)	large and lying in the water (propelled by hand)
<i>nakmau</i>	<i>amukua</i> (house), <i>nan</i> (sago palm), <i>sie</i> (coco palm), <i>wana</i> (areca palm), <i>nambat</i> (mango tree), <i>yano</i> (banana plant), <i>am</i> (breadfruit tree), <i>ot</i> (pandanus tree)	big and immovable (transferring ownership)

Table 15 Seven Existential Verbs of Enga

Verb	Typical Referent	Feature
<i>katenge</i>	<i>akali</i> (men), <i>anda</i> (house), <i>ita</i> (tree), <i>niki</i> (sun), <i>moko</i> (leg)	tall, large, strong, powerful (potentially harmful), standing or supporting
<i>pentage</i>	<i>enda</i> (woman), <i>saa</i> (opossum, game animal), <i>nene</i> (arthropoda, insects), <i>pete</i> (pond)	small, squat, horizontal, weak
<i>lyingi</i>	<i>ambulya</i> (wasp, bee), <i>kamalumbi</i> (moss), <i>liti</i> (mushroom), <i>dii</i> (fruit, seeds, flower)	hanging, or excreting outside another object
<i>palenge</i>	<i>imu</i> (worm), <i>mona</i> (heart), <i>pungi</i> (liver), <i>mapu</i> (sweet potato)	internal or subterranean
<i>epenge</i>	<i>endaki</i> (liver), <i>aiyuu</i> (rain), <i>iti</i> (hair, fur, feathers), <i>taikoyo</i> (blood), <i>kende</i> (vine used for rope)	intermittent, capable of growth, or liquid or gas
<i>singe</i>	<i>wapake</i> (eel), <i>kaita</i> (door, path), <i>yuu</i> (ground, land), <i>yati</i> (shovel, spade), <i>nengekaita</i> (mouth)	orifice, location, or motionless, crawling or aquatic
<i>mandenge</i>	<i>pongo</i> (penis), <i>kambake</i> (vagina), <i>ipi</i> (testicles)	reproductive

focused on and six classes are distinguished according to the means of carrying. This is a typical example of classificatory categories generated through motion or action.

A classificatory verb system is observed not only in Iwam but also in Enga [LANG 1975], as shown in Table 15.

Lang described more precise features in the form of a diagram, but general features are cited here [1977: 47–48]. These are used for constructions of existence, for location, for possession, and for constructions such as relative clauses and in modalities, as follows:

Liti dupa lyi-nge. (Mushrooms exist; there are mushrooms.)
 mushrooms the be-Habitual
Iti ayomba liksa kate-nge. (Hair is on heads.)
 hair head up be-Habitual

The categorization of Enga is quite different from that of Iwam because of different context and culture, but it is interesting that here also 'squat' is observed as the feature of women.

Waris [BROWN 1981] has classificatory prefixes with verbs. The prefixes are added to verbs to express the relevant semantic features of their object nouns.

mwan- soft pliable objects
li- oblong fruit objects, ear of corn or pandanus fruits

<i>vela-</i>	inside a container
<i>put-</i>	spherical objects, typically fruit
<i>ninge-</i>	food cooked and distributed in leaf wrappers
<i>vet-</i>	food removed from fire ready to eat, without wrapper
<i>le-</i>	leaf-like objects with soft or no stem
<i>pola-</i>	leaf-like objects with hard stem
<i>ih-</i>	grain materials
<i>tuvv-</i>	pieces cut from longer lengths
<i>kov-</i>	length of vine

An example is as follows:

Wonda ka-mu mwan-vra-ho-o. (Give me a net bag.)
 net bag I-DAT CLSF get BEN IMP

In this case, the context is similar, but categorization is very different from Iwam. The notion of carrying is focused on in Iwam, but the features of the object are focused on in Waris. In comparison with the features of Iwam numeral classifiers, the features of Waris prefixes are different but somewhat similar. Food is focused on in both cases and also shapes like oblong, spherical, leaf-like (flat), and length are used for categorization, though these latter categories are very common throughout the world. Small food items might be exchanged in daily life among the Waris, so that food would be focused upon too.

Among the applications of the Iwam numeral classifiers, their notion of mountain, land, and time would be different from ours. It is interesting that mountain and land are 'long' and time is 'flat' according to the Iwam sense. Can you imagine how time spreads out flatly or horizontally?

Appendix: Numeral Classifiers of Yabio

The Yabio language belongs to the Walio family, Leonhard-Schultze sub-phylum-level stock. The Yabio counting system is based on a binary system and fourteen numeral classifiers are recognized in Yabio.

They are as follows:

1) *-miwe*

Domain; male human beings.

Examples; *sautori* (adult man, married man), *teritefu* (brother), *tofuwe* (elder brother), *eitowe* (younger brother), *yarimau* (widower).

1; *sauroti miwe*, 2; *sautori teseai meri*, 3; *sautori sariawe saimo / sauroti saritesiai saiwe*.

2) *-mise*

Domain; female human being.

Examples; *eresautori* (adult woman, married woman), *teritane* (sister), *tofuse* (elder sister), *eitose* (younger sister), *waina* (widow).

1; *teriatane mise*, 2; *teriatane teseai meri*, 3; *teriatane sariawe saimo / teriatane saritesiai saise*.

These two suffixes have the function of gender marker which is attached to neuter nouns of human beings such as *emane* (child), *araito* (young person, unmarried person), *enato* (old person), and *ei* (spirit). The distinction of gender is clearly indicated in the singular form but not usually in numbers greater than two, although there are distinctive forms for three. These numeral classifiers are not extended to other domains.

3) -awe

Domain; bird, something flying.

Examples; *auma* (bird), *auma nemaya* (cockatoo), *aumesi* (cassowary), *auma wai* (flying fox), *wasaea* (mosquito), *autiami* (bee), *nauwaya* (butterfly), *seriefare* (star).

Derivative features;

1) something jumping; *ua* (grasshopper), *ememe* (frog), *aeua* (shrimp).

2) small; *awaipa'u anoano* (earth worm), *ramese* (rolled tobacco), *mairate* (kidney).

1; *aumesi awe*, 2; *aumesi teseai aru*, 3; *aumesi sa'aru sa'awe*.

The main domain of *-awe* seems to be birds and the feature of *-awe* is 'something flying'. A star sometimes becomes a meteor, so that star could belong to the *-awe* class. 'Flying' extends to 'jumping' as in the examples of grasshopper and frog. The feature of 'small' would appear by means of chain categorization of insects such as mosquito, bee, and butterfly.

4) -fo

Domain; tree, something standing up from the ground.

Examples; *yanu* (tree), *wansai* (breadfruit tree), *eri* (areca palm).

Derivative domains;

1) animals that live in trees; *awaruso* (climbing kangaroo), *aworai* (opossum).

2) leaf of tree; *nowai* (leaf of tree), *ami-yei* (leaf of pandanus), *wansai-yei* (leaf of breadfruit).

Derivative features;

1) something standing out from a surface; *yani(-fo)* (arrow), *temesi* (nose), *afe* (ear), *rau* (penis), *notru* (mountain), *tiwane* (excrement), *pakwei#* (bucket), *potol#* (bottle).

2) round; *tipa* (head), *weri* (gall bladder), *sauwafea* (urinary bladder), *sispen#* (saucepan).

(#: Indicates a loan word from Tok Pigin)

1; *yani fo*, 2; *yani teseai foru*, 3; *yani saforu safo*.

The main domain for *-fo* is 'tree' and the feature is 'something standing up from the ground'. Two derivative domains are born by means of the chaining categorization of 'tree'. 'Something standing up from the ground' extended to 'something standing out from a surface', and 'round' might be generated from the shape of the cross section of a tree.

5) *-mo*

Domain; animals, something squat.

Examples; *amiami* (pig), *ifao* (dog), *ami* (pandanus fruit), *omo* (sago palm, piece of sago trunk), *pefe* (taro), *wansai-pauie* (sweet potato), *to-imo* (human body), *tano* (mouth), *tai* (tongue), *tisinau* (hip), *tiau* (stomach), *tapia* (stone), *to'onawa* (garden), *wawai* (village).

Derivative domain;

1) time: *su* (day), *minite#* (minute), *kurismasu#* (Christmas, year)

Derivative feature;

1) something expelled; *enoru* (breath), *tiau wafu* (cough), *ariai* (storm), *utai* (thunder), *efe(-mo)* (road).

1; *tapia wei-mo* / *tapi ya-mo*, 2; *tapia teseai moru*, 3; *tapia saru sawo* / *tapia saru samo*.

Here also we see 'squat'. Animals such as pig and dog are identified as 'something squat'. However this feature is not applied to women and children as in the case of Iwam, but is applied to pandanus fruits, taro, the human body, stomach *etc.* in Yabio.

It seems that 'something expelled' is derived from the fact that animals breathe. Although it is not clear why time belongs to the *-mo* class, it is interesting that time belongs to 'squat' in Yabio in contrast to 'flat' in Iwam.

6) *-he*

Domain; reptiles, fish.

Examples; *ifare-wa* (snake), *ifare-fimau* (a kind of lizard), *ifare-fanau* (a kind of lizard), *aisinapi* (crocodile), *ae* (fish)

Derivative domain;

1) skin and hard skin; *efa* (skin, bark), *to-efa* (human skin), *tano-efa* (lip), *sapera* (*gulele*; a kind of skin disease), *yanise-ere* (finger nail), *aiware-ise* (coconut shell).

Derivative feature;

1) flat; *shaote#* (shirt), *torosis#* (trousers), *pepa#* (paper), *u (-he)* (water), *serise* (cloud).

1; *ae weie-he*, 2; *ae teseai heri*, 3; *ae saheri sahe/ae saheri teseai sahe*.

Reptiles and fishes are distinguished from animals such as pig and dog because they are covered with scales, and belong to the *-he* class. The focus of the *-he* class is skin, so that the domain of the *-he* class is extended to other skins such as human skin and coconut shell. The feature of the *-he* class is 'flat' and this could have been born from the skin of reptile.

7) *-fi*

Domain; hand, leg, something slender and growing from trunk.

Examples; *yani-fi* (hand), *ere* (leg), *yani-tiami* (thumb), *omo-fi* (sago leaf), *aiware-fi* (coco palm leaf), *wansai-fiai* (branch of breadfruit tree).

1; *yanifi weie-fi*, 2; *yanifi teresai feri*, 3; *yanifi saferi safi*.

The feature of the *-fi* class is 'something slender and growing from a trunk'. The feature does not need to be 'standing up'. Yabio numeral classifiers are often productive as in the case of *-fi*. For example, sago palm changes to sago palm leaf by means of attaching *-fi*.

8) *-ferawe*

Domain; flower, something spread out radially.

Examples; *sinene* (flower), *aiware* (coconut palm), *yanine* (fingers), *mene (-ferawe)* (liver), *feni (-ferawe)* (lung).

1; *aiware ferawe*, 2; *aiware teseai feraru*, 3; *aiware safararu safarawe*

The feature of the *-ferawe* class is 'something spreading out radially' and the main domain is flower.

9) *-meni*

Domain; fruit, seed.

Examples; *yanu-si* (fruit, seed), *yane* (single banana), *eri-si* (areca seed), *owarepe-si* (mango fruit).

1; *yanusi meni* / *yanusi weie-meni*, 2; *yanusi teseai menari*, 3; *yausi sanari sani* / *yanusi sanari teseai sani*.

The suffix *-si* indicates 'seed or fruit' but it is not a numeral classifier.

10) *-so*

Domain; pandanus, shoulder.

Examples; *ami* (pandanus tree), *ami-e* (red juice from pandanus fruit).

1; *ami ya-so*, 2; *ami teseai soru*, 3; *ami sasoru saso*.

The pandanus tree is special because its shape is similar to that of a human being, especially in having arm-like branches, and also the pandanus bears fruits from which red, fatty, and delicious juice can be taken, so that this restricted

numeral classifier would appear.

11) *-terawe*

Domain; something flowing.

Examples; *u(-terawe)* (river), *nemesi(-terawe)* (flowing blood).

1; *u terawe*, 2; *u teseai teraru*, 3; *u sateraru saterawe*.

12) *-tanu*

Domain; fire, light.

Examples; *tiami* (fire), *esere tiami* (bamboo torch), *lampu#* (lamp), *tose#* (electric torch), *masisi#* (match).

1; *tiami wei-tanu/tiami weie-tanu*, 2; *tiami teseai tanoru*, 3; *tiami satanoru satanu*.

13) *-sapu*

Domain; house, something that people go in and out of.

Examples; *o(-sapu)* (house), *imou* (bush house), *ma o(-sapu)* (menstruation hut), *pari-o* (house of hole; lavatory), *haus kuk#* (cooking house), *balus#* (airplane).

1; *o wei-sapu*, 2; *o teseai sapuru*, 3; *o sasapuru sasapu*.

Since airplane belongs to the *-sapu* class, the feature of *-sapu* seems to be 'something that people go in and out of'.

14) *-pi*

Domain; projectile weapon.

Example; *sane(-pi)* (bow), *yani sane(-pi)* (arrow and bow), *ipari sane(-pi)* (white man's weapon; rifle).

1; *sane pi*, 2; *sane teseai peri*, 3; *sane saperi sapi*.

The numeral classifiers from (10) to (14) are very restricted, *i.e.*, each classifier can be applied to only a few items.

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References

- ALLAN, Keith
1977 Classifiers. *Language* 53(2): 285-311.
- BROWN, R.
1981 Semantic Aspects of Waris Predication. In FRANKLIN, L. (ed.), *Syntax and Semantics in Papua New Guinea Languages*. Ukarumpa: Summer Institute of Linguistics. Pp. 93-124.
- BRUCE, Les
1984 *The Alamblak Language of Papua New Guinea (East Sepik)*. Pacific Linguistics C-81. Canberra: Department of Linguistics, Research School of Pacific and Asian Studies, Australian National University.
- CONRAD, Robert James
1965 *May River Iwam Grammar Sketch*. Unpublished Paper. Summer Institute of Linguistics.
1971 *Some Batteries of Transformations in Iwam*. Unpublished MA. Thesis (University of Pennsylvania).
1978 Some Notes on Attitudes toward Language and Language Choice in May River Iwam. Language Planning and Grammatical Typologies. *Working Papers in Papua New Guinea Languages* 24: 31-46. Ukarumpa: Summer Institute of Linguistics.
- FOLEY, William A.
1986 *The Papuan Languages of New Guinea*. Cambridge: Cambridge University Press.
- LANCY, David F.
1983 *Cross-cultural Studies in Cognition and Mathematics*. New York: Academic Press.
- LANG, Adrienne
1975 *The Semantics of Classificatory Verbs in Enga (and Other Papua New Guinea languages)*. Pacific Linguistics B-39. Canberra: Department of Linguistics, Research School of Pacific and Asian Studies, Australian National University.
- LASZLO, Marilyn and Judy REHBURG
1970 *Tentative Phonemic Statement, Sepik Iwam*. Unpublished Paper. Summer Institute of Linguistics.
- LAYCOCK, D.C.
1975 Observation on Number Systems and Semantics. In WURM (ed.), *Papuan Languages and the New Guinea Linguistic Scene*. Pacific Linguistics Series C-38. Canberra: Department of Linguistics, Research School of Pacific and Asian Studies, Australian National University. Pp. 219-233.
- LAKOFF, George
1987 *Women, Fire, and Dangerous Things*. Chicago: The University of Chicago Press.
- MALINOWSKI, Bronislaw
1920 Classificatory Particles in the Language of Kiriwina. *Bulletin of the School of Oriental Studies, London Institution* 1: 33-78.
- WOLFERS, Edward P.
1972 Counting and Numbers. In RYAN (ed.), *Encyclopaedia of Papua New Guinea*. Melbourne: Melbourne University Press.

WURM, Stephen A.

1982 *Papuan Languages of Oceania*. Tübingen: Gunter Narr Verlag.

YOSHIDA, Shuji

1987 Migration Routes of the Iwam, East Sepik Province, Papua New Guinea. *Man and Culture in Oceania* 3: 177-187.