

DAILY ACTIVITIES AND SOCIAL ASSOCIATION OF THE BONGANDO IN CENTRAL ZAIRE

Daiji KIMURA

*Associé de Recherche du C. R. S. N., République du Zaïre
Faculty of Education, Fukui University*

ABSTRACT Daily activities and association patterns of the Bongando, a Bantu speaking people in central Zaïre, were studied, using a systematic "self-focal sampling" method.

The time spent on the subsistence activities was unexpectedly short, whereas leisure time was abundant. The Bongando are engaged more frequently in non-agricultural activities such as hunting, fishing, and gathering than in agriculture. So they can be described as a "multi-subsistence people" rather than just "farmers." Men tended to concentrate their work on one activity at a time, and women tended to perform two or more activities simultaneously.

In the social associations, men and women rarely associated with each other. Men associated infrequently but evenly with many persons, while women associated more frequently but with only a few specific persons. Although the Bongando have a patrilineal lineage system, they do not clearly segregate the members of their own lineage from the non-members in the association behavior. In daily life, they do not need to rely on the lineage coalition, probably because their subsistence activities tend to be conducted individually.

Key Words: Self-focal sampling; Time allocation; Association pattern; Bongando; Bantu farmer.

INTRODUCTION

This study describes the ecological and social life of the Bongando, a Bantu speaking people living in central Zaïre.

In the research, I used both the systematic sampling methods and interviews with the informants, because actual daily informant activities and social behavior usually differed from their own explanations. For example, when I asked them what they did on a certain day, they tended to refer to major subsistence activities such as hunting, cutting trees, and cooking, but omitted such unobtrusive activities as chatting, sitting, and walking.⁽¹⁾ Also, from the informants, I could only discern the superficial principles of the lineage system or the marriage pattern, and effects of these principles on the daily social interaction remained uncertain.

Through systematic sampling, I obtained two kinds of information. One was on the time allocation pattern, i. e. when and how much time individuals spent on each activity. The other was on the social association structure, i. e. with whom the individuals associated, and how frequently they did so.

For this study, I designed a new sampling method, "self-focal sampling," which enabled me to record time allocation and association patterns without significant

observation bias.

STUDY AREA AND PEOPLE

I. The Bongando

The Bongando⁽²⁾ inhabit the eastern part of the Région d'Equateur and the western part of the Région du Haut-Zaïre of the République du Zaïre. Murdock (1959) classified them as a branch of the Mongo cluster (Fig. 1). In the legends of the Bongando, their common ancestor "Bongando" is a son of "Mongo."

Since recent population statistics for the Bongando is not available, I estimate it as follows. The population of 200,000 reported by Kerken (1944), and 250,000 by Murdock (1959) are used as the initial values. Subsequent population growth rates in some rural areas in the Région d'Equateur can be calculated from three statistical reports (Conceil de Gouvernememt, 1957; Cabinet du Ministre d'Etat, 1970; Departement du Plan, 1984), which comes to an approximate mean rate of 2% per year. Using these values, a current population of 450,000–500,000 can be estimated. The population pyramid of the study village is shown in Fig. 2.

According to the Bongando informants, their ancestors crossed the Ubangi

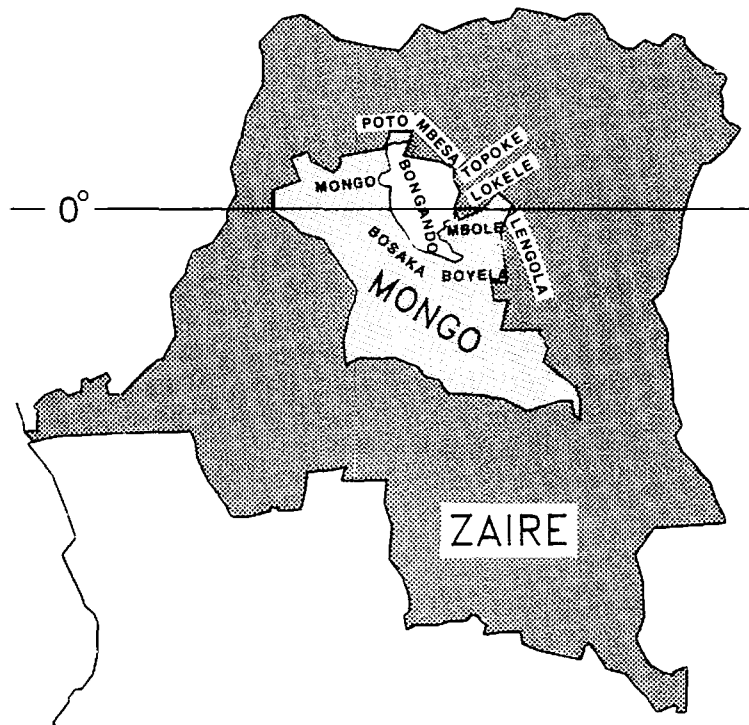


Fig. 1. Distribution of the Bongando and the adjacent ethnic groups.

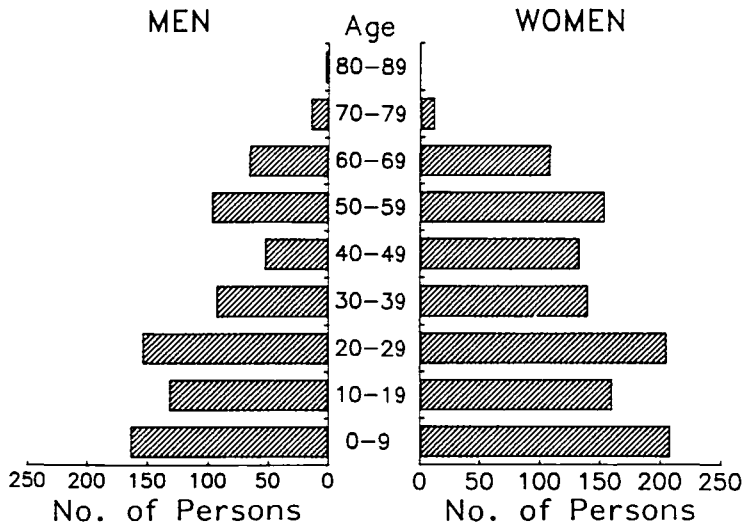


Fig. 2. Population pyramid of groupement d'Iyondje.

It is based on the name lists of the localité members, kept by the localité chiefs. As several women who have married outside the groupement are still recorded in the lists, women's numbers are overcounted.

River north of Kisangani. Kerken (1944) assumed that it was about 200 years ago. Since then they passed near Kisangani, proceeded to the west, and finally came to the place where they now live.

The Bongando mother tongue is Longando,⁽³⁾ which resembles Lomongo, the major language of the Mongo people (Hulstaert, 1957). A Longando speaker and a Lomongo speaker can communicate with each other. Those over six years old also can speak Lingala, one of the four main lingua-franca of Zaïre. Almost all men can write and read Lingala, but only a few women can.

II. Study Area

The Bongando live in the flat tropical rain forest (300–400 m above sea level) in the Zaïre Basin. The daily maximum and minimum temperatures are each about 30°C and 20°C throughout the year. The annual rainfall is about 2,000 mm. Rainfall is more frequent from September to November, about 200 mm per month, and relatively sparse from December to February, less than 100 mm per month (Vuanza & Crabbe, 1975).

The vegetation of the Bongando land has been described by Kano & Mulavwa (1984). The secondary forest is classified into three categories: "aged secondary forest" (dominant plants are of the Marantaceae family, such as *Sarcophrynium macrostachyum* and *Haumania liebrechtsiana*); "young secondary forest" (*Musanga smithii*, *Albizia gummifera*, *Croton haumanianus*, and *Macaranga* spp.); and "secondary shrub" (*Aframomum* spp.). The primary forest is composed of many species, and no clearly dominant species is found. The trees reach 50 m in height. The vegetation near the river forms a swamp forest with a low density of

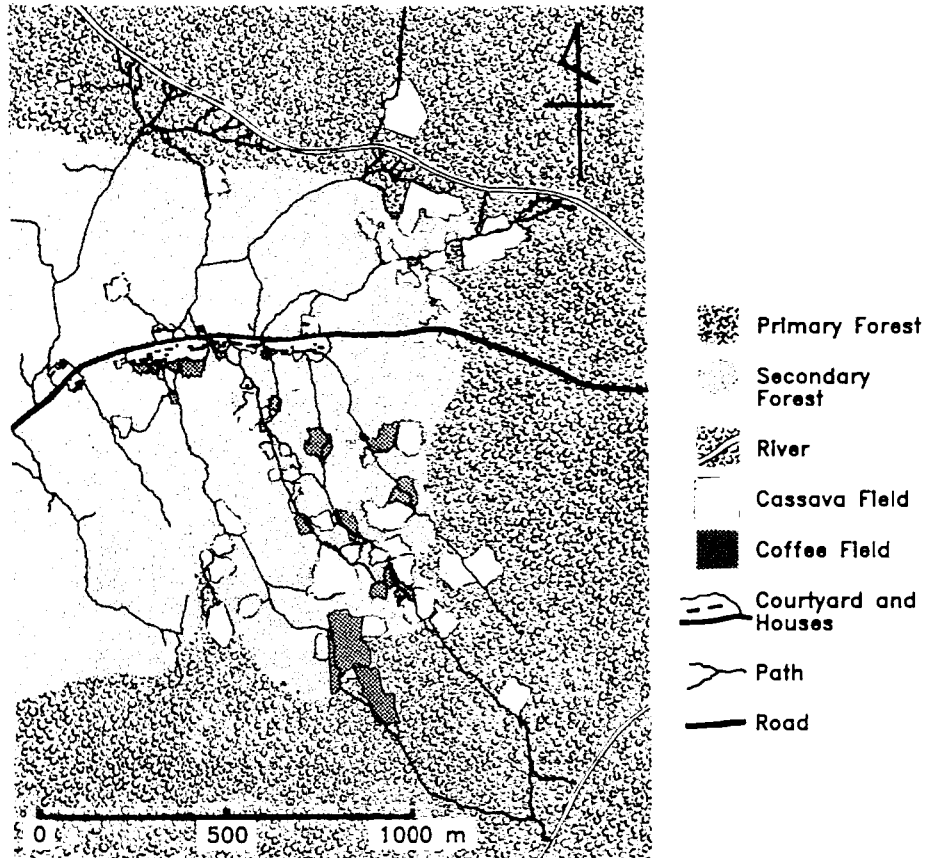


Fig. 3. Vegetation around the study village.

tall trees.

The Bongando settlements extend along the road (Fig. 3)⁽⁴⁾ constructed during the Belgian colonial era. The road is at least 3 m wide, and is passable to trucks. The houses are built in a cluster to form courtyards (*läänjá/mbánjá*) 10–30 m wide. In a cluster of houses, the distance between any two houses usually is shorter than 20 m (Fig. 4). Behind the *läänjá*, there is a secondary forest with cassava and coffee fields. Further behind the secondary forest, there is a vast primary forest with many rivers and small streams. Small villages called *behetsiá/behetsiá*, consisting of one to several families, are also constructed in the primary forest.

METHODS

Field research was conducted in October–December 1986, June 1987–February 1988, and June 1988–February 1989, in the Groupement d'Iyondje, Zone de Djolu, Sous-Région de Tshuapa, Région d'Equateur. This Groupement is adja-

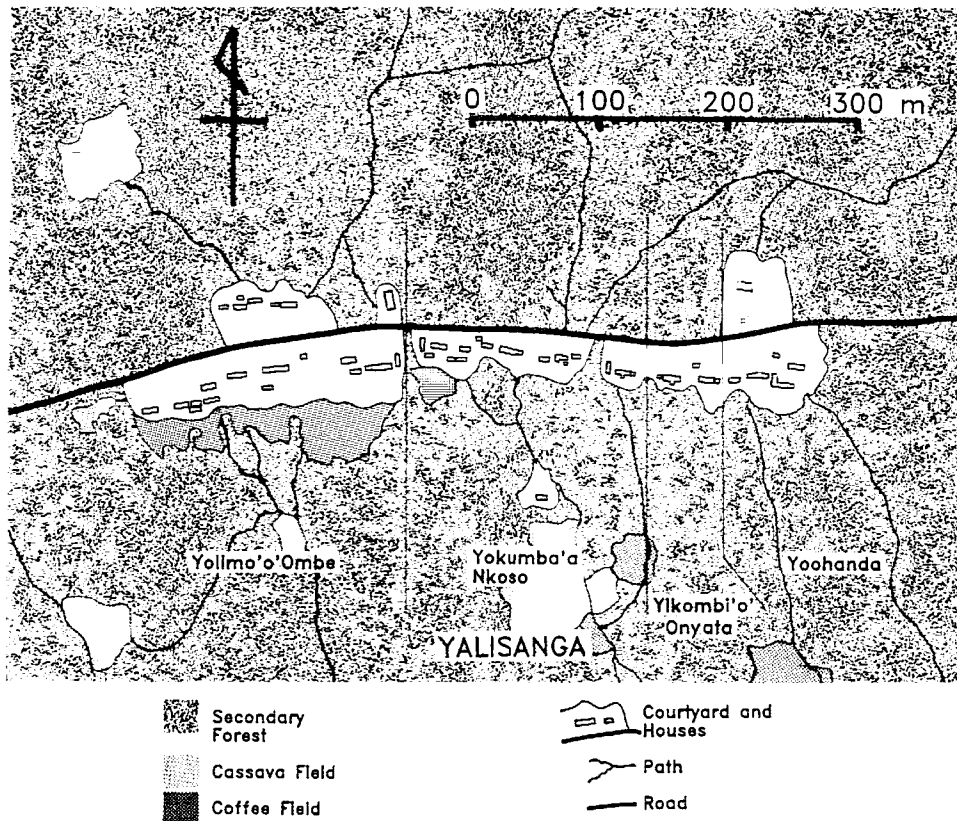


Fig. 4. Lineage segmentation of the study village Yalisanga. Vertical lines show the boundaries of four small lineages.

cent to Groupement de Wamba, where Japanese scientists have studied pygmy chimpanzees (*Pan paniscus*) since 1973 (Kano, 1980).

I. Self-Focal Sampling

Systematic sampling methods are indispensable for the accurate measurement of daily activities (Gross, 1984). However, focal sampling (Martin & Bateson, 1986) was difficult to use in this study, because the presence of the observer greatly disturbed the focal individual's behavior. Also, the random visit sampling method (Johnson, 1975; Tripp, 1982) was not practical, because the Bongando people frequently went far into the forest, where I could not visit several times a day.

In this study, a modified focal sampling method I named the "self-focal sampling (SFS)" was employed. Three adult men (M1, M2, M3) and three adult women (F1, F2, F3) were chosen as informants (Table 1). All of them could write Lingala, although it was quite difficult to find female informants who could do so. To examine age variation, informants were chosen from different age grades. Each infor-

mant carried a field notebook and a digital watch, which beeped on the hour. When the watch beeped, the informant recorded the time, place, his or her activity, and the persons whom he or she was associating with (hereafter I call these persons "association partners").⁽⁵⁾ During sleep, recording was not conducted.⁽⁶⁾ Informants came to my house and reported every 1–3 days. The data were put into a portable computer immediately. The place and activity were grouped according to the informants' own classification. I inquired the details if the reports were obscure. Activities that were held back by the informants seemed to be few, except sexual activities.

The sampling was conducted June–December 1988, and 17,029 sampling units were recorded (Table 1). Before that, I carried out a preliminary SFS from 14 December 1987 to 18 January 1988, to test the accuracy of this method. Since total sampling units (1,804 units) are considerably scarce, the result of this sampling will be presented only when the seasonal bias toward activities comes into question.

Informants' reports could be deemed reliable on the whole, because the reports coincided closely with the actual behavior I observed. Informant accuracy (Bernard et al., 1984) was raised by the following ways. (1) I requested the informants to record *in situ*, not retrospectively. (2) While some activities might have been recorded afterwards, the beeping watches reminded the informants' each sampling instance to facilitate their remembering the activity then.

To illustrate the analysis of the data, I use an informant's activities recorded at 7:00. It can be assumed that these activities were randomly chosen from the parametric population in the period of 6:30–7:30, because the Bongondo people usually did not conduct specific activities at specific times. If the informant record showed that he was eating at 7:00, 25 times during 173 days, the probability of eating during 6:30–7:30 was $25/173 = 0.145$, and so he ate $60 \text{ min.} \times 0.145 = 8.7 \text{ min.}$ in that period. In this case, the 90% and 99% confidence intervals were each 6.1–11.3 min. and 4.6–12.8 min.

This method has its own advantages and shortcomings. Since SFS is a kind of "instantaneous sampling" (Martin & Bateson, 1986), even short activities, or activities which were considered as idleness, could be sampled correctly. On the other hand, if the samples are few, the estimation of time length becomes uncertain.

II. Line Sampling on the Association of People

To obtain the data on the people's association patterns in the village, another in-

Table 1. Profiles of the informants of self-focal sampling.

Informant	Sex	Age	Families	Sampling period	No. of sampling units
M1	♂	23	Married, Child 1	'88 6/7–12/12	2962
M2	♂	26	Married, Child 1	'88 6/7–12/10	3027
M3	♂	36	Married, Child 0	'88 6/7–12/10	2896
F1	♀	17	Unmarried, Child 1	'88 6/7–12/10	2711
F2	♀	24	Married, Children 2	'88 7/1–12/11	2587
F3	♀	45	Married, Children 2	'88 6/7–12/10	2846

formant NL, a man of 36 years old, walked about the area of the Yalisanga lineage (Fig. 4) several times a day. Whenever he saw persons, he recorded the time, place, and their names.⁽⁵⁾ Because he walked in the *láánjá*, he mainly recorded people outside the house. Sampling was conducted October 1987–February 1988, and June–December 1988, and 1,752 samples were recorded.

III. Data Processing

1. Profiles of the Persons

The profile data of the persons who appeared in the above two samplings were collected. The persons' names were sorted alphabetically by a portable computer. Wrong data such as (1) input error, (2) different names recorded for one person, (3) different persons recorded by a single name, were corrected. Information on these persons' sex, age, kinship relation to the informant, birth place, and resident place were later obtained from the informants.

2. Classification of Activity

After the first-hand input of activity data, I re-classified their categories. It was difficult to classify the activity, when the informant conducted two or more activities at one time. For example, a female informant cooked and also suckled her child at one sampling instance. However, in most cases I could estimate the dominant activity being recorded. In the above case, she probably recorded her activity as "cooking." Such cases will be explained in the results section, as necessary.

3. Classification of Place

For the simple classification of the Bongando's resident place, I defined a "social axis" and an "ecological axis" (Table 2).

The village is constructed along a road. The social axis extends parallel to the road, while the ecological axis extends perpendicular to it. When a person walks along the road from their house, he or she crosses the space arranged according to

Table 2. Classification of places along the social axis and the ecological axis.

Ecological Axis	Social Axis
House (including kitchen)	Area of one's house
Village (including <i>láánjá</i> , and <i>losombo</i> hut)	Own house
Road	Own kitchen
Field	Adjacent area of one's house
Cassava field	Own <i>láánjá</i>
Coffee field	Own <i>losombo</i> hut
Other person's field	Own field
Secondary forest	Area of one's localité
River and riverside	Other's house or <i>láánjá</i> in one's localité
Primary forest	Other <i>losombo</i> huts in one's localité
	Forest behind one's localité
	Outside of one's localité
	Natal localité (for married women)
	Hunting/fishing camp

kinship relations, and when walking perpendicular to the road, he or she crosses the ecological zones of the *láníjá*, the secondary forest, the cultivated fields, the primary forest, and the river.

The advantages of this classification will be examined in the Results section.

RESULTS

I. Daily Activities

1. Description of Activities and Time Allocation

In this section, I will describe the Bongando's activity categories,⁽⁷⁾ and analyze the time allocation pattern for each activity.

Table 3 shows the total duration of each activity, and the mean number of "association partners." Table 4 presents the data on the daily activities, in order of the time length of each activity. Because no conspicuous individual variation is found in these data, the mean for the three male informants and that for the three female informants are shown in the Tables.

(1) Social intercourse, leisure, and idleness

Activities such as sitting,⁽⁸⁾ chatting,⁽⁹⁾ drinking, drinking coffee, smoking, etc. are classified as social intercourse, leisure, and idling.

The Bongando spend quite a long time on these activities. The time allocated was 432 minutes per day (hereafter I denote this unit "min./day") for men, and 164 min/day for women. For chatting, the number of association partners was 2.46 for men, and 1.95 for women. Women spent less time on these activities than men do, probably because they tended to engage in such activities as well as some other (e. g., cooking) at the same time.

(2) Agricultural labor

The Bongando slash and burn both secondary and primary forests to prepare the field. Such work is conducted mainly in the dry season called *elanga/bilanga* of January–March. First, small shrubs and vines are cut (this work is called *leengi/mbengi*), and then large trees are felled (*bolemo/belemo*). After drying, shrubs and trees are burnt. The work is done only by men. Women are responsible for planting, weeding, and harvesting. The number of association partners are 0.05 for men and 0.28 for women in the work in cassava fields. It means that men rarely work cooperatively.

The new field is usually opened in the area behind the house by a man. Any two paths to the fields from two different houses usually do not cross each other (Fig. 3). An extended family has priority to clear the new fields in parts of the secondary forest, which once belonged to that family.

The main crop is cassava, and coffee was introduced in the 1960's as a cash crop. These two crops occupy most of the fields (Fig. 3). Also planted are bananas, yams, maize, rice, sugar cane, and some vegetables such as red peppers, onions, tomatoes, *lísíngo/básíngo* (*Phytolacca dodecandra*), *losólo/nsólo* (*Solanum melongena*), and *losíyo/nsíyo* (*Cucurbita* sp.). Avocado, papaya, orange, and oil palm are seen around the village in a semi-cultivated condition.

Table 3. Time allocation for daily activities and the "mean number of association partners" (MNAP) for each activity.

Activity	Men		Women	
	min./day	MNAP	min./day	MNAP
Social Intercourse, Leisure, and Idleness				
Sitting	202	.93	71	1.51
Chatting	72	2.46	18	1.95
Drinking	36	1.79	8	1.20
Drinking coffee	24	.68	5	1.24
Smoking	53	.80	0	.00
Seeing others	10	1.26	32	1.05
Styling hair	2	.74	12	1.34
Dancing	1	.14	1	1.00
Singing a song	3	2.30	1	.67
Beating a drum	1	.07	0	.00
Playing	4	1.93	1	1.00
Writing a letter	1	.44	0	.00
Reading a book	4	.04	0	.00
Worshiping	7	.78	4	.15
Reporting the SFS's data	8	.93	9	1.47
Forced labor	3	1.65	2	.81
Other activities	1	.33	0	.33
Agricultural Labor				
Labor in coffee field	16	.18	5	.99
Labor in cassava field	1	.05	1	.28
Cutting tree to open field	2	.00	0	.00
Gathering cassava	0	.00	7	.89
Hunting and Fishing				
Hunting (except trapping)	17	.83	0	.00
Trapping	15	.20	0	.33
Fishing	28	.29	7	1.43
Gathering and Other Foraging Activities				
Gathering	19	.44	36	.90
Making palm wine	10	.23	0	.00
Buying and selling	4	1.04	9	.98
Livestock Care				
Livestock care	1	.25	5	.42
Tool Making				
Cutting material wood	18	.46	2	1.35
Making tool	31	.78	21	.63
Constructing a house	13	.63	4	.83
Food Preparation				
Soaking cassava	0	.00	10	1.03
Cutting firewood	1	.06	12	.71
Making fire	4	.00	5	.54
Cooking	11	.56	148	.70
Drawing water	0	.33	9	.83
Washing tableware	0	.00	10	.48

(Table 3. Cont.)

Eating				
Eating	139	.76	140	1.45
Drinking water	1	.22	4	.51
Hygienic Activities				
Washing body	37	.62	26	.87
Removing lice and sand fleas	1	.56	6	1.35
Excreting	8	.00	4	.10
Laundry	3	.11	10	.69
Sewing clothes	1	.06	5	.65
Wearing clothes	1	.11	0	.25
Going to the hospital	0	2.00	5	1.25
Making and drinking traditional medicine	1	.11	4	.27
Giving an enema to oneself or somebody	0	.00	3	.31
Sweeping <i>láánjá</i>	12	.08	33	.70
Child Care				
Suckling	0	.00	11	.84
Washing a child	0	.67	17	1.37
Other activities	1	.33	7	1.32
Walking				
Walking	78	.71	115	1.33

Table 4. Daily activities in order of time length.

Men's activities	min./day	Women's activities	min./day
1 Sitting	202	1 Cooking	148
2 Eating	139	2 Eating	141
3 Walking	78	3 Walking	115
4 Chatting	72	4 Sitting	71
5 Smoking	53	5 Gathering	36
6 Washing body	37	6 Sweeping <i>láánjá</i>	33
7 Drinking	36	7 Seeing others	32
8 Making tool	31	8 Washing body	26
9 Fishing	28	9 Making tool	21
10 Drinking coffee	24	10 Chatting	18
11 Gathering	19	11 Washing a child	17
12 Cutting material wood	18	12 Cutting firewood	13
13 Hunting	17	13 Styling hair	12
14 Working in coffee field	16	14 Suckling	11
15 Trapping	15	15 Washing tableware	10
16 Making a house	13	16 Soaking cassava	10
17 Sweeping <i>láánjá</i>	12	17 Reporting SFS's data	9
18 Cooking	11	18 Drawing water	9
19 Seeing others	10	19 Buying and selling goods	9
20 Making palm wine	10	20 Drinking	8

For agricultural activities, men and women each spend only 18 and 6 min/day. These data may be biased by the sampling period (June–December) in which men do not clear the new fields. In fact, the preliminary SFS shows that at the beginning of dry season (14 December–18 January), agricultural labor time is longer (men 38 min/day, women 40 min/day). Even so, men's cutting work is unlikely to exceed one hour per day on average in the dry season.

(3) Hunting, fishing, and gathering

Hunting, fishing, and gathering are also important subsistence activities. According to Takeda (1990), the Bongando people eat at least 37 species of mammals, 10 of birds, 29 of fish, 12 of reptiles, 21 of insects, and 22 of wild gathered plants.

Men and women each spend 32 and 0 min/day on hunting (including trapping), 28 and 7 min/day in fishing, and 19 and 36 min/day in gathering.

Hunting includes collective hunting with nets (*botái/betái*), with bow and arrow (*bakímáno/bakímáno* or *bakulá/bakulá*), and individual hunting with a shotgun. Trapping consists mainly of spring trapping with a nylon string (*niló/niló*), steel wire (*nzéki/nzéki*), or a small sack-shaped net (*ikonongo/tokonongo*). Usually these traps are set individually. Recently collective hunting has become rare. Men were with 0.83 and 0.20 association partners in hunting and trapping respectively.

Fishing is mainly done with nylon nets or with fishhooks by men, and fish bailing (*mpóha nse/mpóha nse*)⁽¹⁰⁾ by women. Fish poison (*boíta/beíta*) is also used both by men and women. Since men usually fish individually, the men's association partners were 0.29, whereas women fished with 1.43 association partners, because sometimes *mpóha nse* is conducted cooperatively.

Gathering includes gathering wild plants and edible caterpillars. Caterpillars are found in July–September. Men and women each were with 0.44 and 0.90 association partners.

(4) Livestock care

The Bongando keep goats, pigs, chickens, and ducks. The number of each livestock kept by a family was mostly 0–5, and usually did not exceed 10. They also keep dogs for hunting.

These animals are used as bridewealth, and are rarely eaten. Milk of goats is not used, and eggs of chickens and ducks are seldom eaten. Male goats and pigs are not castrated.

They do not spend much time for livestock care. The animals are left untended, and walk about in the small home range around the owners' houses. The only chore for these animals is to drive chickens to the small huts in the *láánjá* in the evening. This is mainly women's work, and is allocated 5 min/day.

(5) Tool making

The Bongando people make many kinds of tools, using abundant plant materials. Men spend more time (62 min./day) than women do (27 min./day). They make traps for animals and fish, hunting nets, bows and arrows, gourd vessels, baskets, chairs, beds, canoes, houses, etc. Most of them are thrown away, immediately after use. Mortars and pestles, drums, knives, arrowheads, spearheads, pots, desks, wood doors, etc., are made by the specialists, and are used for a long time. Machetes, plastic vessels, tablewares, nails, hinges, clothes, nylon rope for trapping, nylon nets for fishing, fishhooks, bicycles, radios, tor-

ches, etc., are purchased with cash at the market.

(6) Food preparation

Women spend much time on food preparation (201 min./day), mainly in cooking (148 min./day), with 0.70 association partners. However, in many cases, they are engaged in cooking while performing other activities such as chatting, eating, or suckling. They can do this because most of cooking time consists of activities such as watching over the fire, on which they need not concentrate. In contrast, men spend only 16 min./day on food preparation with 0.56 association partners.

(7) Eating

Men and women spend almost the same duration (139 and 140 min./day) on eating, with 0.76 and 1.45 association partners. Men usually eat alone, or with several male family and children in their own houses, while women do so with their children (and co-wives, if they exist) in the kitchen. Men and women usually do not eat together, even if they are husband and wife.

(8) Hygienic activities

The Bongando frequently wash their body (men 37 min./day, women 26 min./day). When they cannot wash their whole body in the stream, they at least wash their legs in the village. They prefer using soap.

The Bongando also frequently sweep the *lǎánjá* (men 12 min./day, women 33 min./day). Although they leave rubbish in the *lǎánjá* during many daily activities, the *lǎánjá* is kept clean by the sweeping.

(9) Child care

Women mainly care for the children (35 min./day), whereas men seldom do so (1 min./day). Child care tended to be conducted in conjunction with other activities, and was recorded in SFS as other activities. Actual time spent may be longer than the recorded time.

(10) Walking

This category includes walking to the field, to the forest, or to the other village. When a female informant returned with children from the river carrying gourds of water and soaked cassava, she probably recorded that she was walking. Men and women each spent 78 and 115 min./day, with 0.71 and 1.33 association partners respectively.

(11) Sleeping

Although sleeping did not appear in SFS, the time allocation for other than the above activities is considered to be for sleeping. The Bongando people rarely take a midday nap. This is probably because it is not too hot to conduct activities other than sleeping in the daytime.

2. Hourly Variation in Activity

Hourly change in the frequency of the seven main activities is shown in Fig. 5.

There were two peaks in eating, one in the morning (7:00–8:00) and another in the evening (18:00–19:00). However, these peaks were not sharp, and even near noon, they ate 10% of the time.

The frequency of women's cooking was generally high all day, with a small peak in the morning (6:00–7:00) and a large peak in the afternoon (14:00–17:00). These peaks seemed to precede the peaks for eating.

Chatting had a sharp peak in the evening (around 19:00). The peak for men was higher than that for women. Drinking coffee also had a peak in the morning (6:00–7:00). As chatting was mostly associated with eating, drinking coffee, and cooking, it can be concluded that the Bongando's chatting was most frequent in the morning and evening.⁽⁹⁾

3. Ecological Axis and Social Axis

Using the ecological and social axes, the Bongando's resident place can be easily classified, because these two axes are considered to be "independent" of each other.

Degree of independence is examined as follows. The social axis is roughly divided into three categories: inside the village,⁽¹¹⁾ outside the village, and the hunting/fishing camp. The time allocation ratio of each category of ecological axis was calculated (Fig. 6). The time allocation ratio of three categories coincided on the whole, i. e. when a person visited another village (moves along the social axis), time allocation along the ecological axis was almost same as that in his home village. Hence time lengths related to the ecological axis could be totaled and analyzed regardless of the social axis (and vice versa).

However, slight differences in the ratios are observed, which shows an association between these two axes. 1) Time allocation to "road" is high outside the village. 2) Allocations to the "river and riverside," and "primary forest" were high in hunting/fishing camp. 3) Allocations to the "river and riverside," and "primary

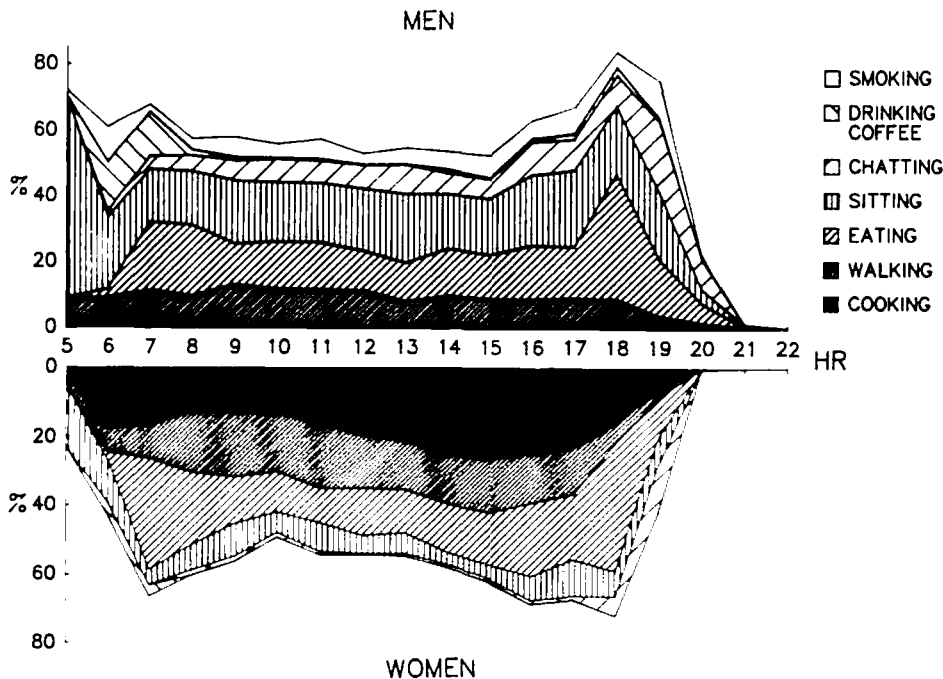


Fig. 5. Hourly changes in the frequency of the main activities.

forest” were low outside the village.

Table 5 shows time allocation along the ecological axis. Both men and women spent more time in the forest than in the fields, and the men’s time allocation in the forest is longer than women’s. This tendency agrees with that of the time allocation of activities.

Fig. 7 shows hourly change of time allocation along the ecological axis. Frequency of staying in the field and forest increases in the morning, reaches a peak at noon, and decreases in the afternoon. From the viewpoint of daily rhythm, Bongondo subsistence activity can be classified as diurnal, probably because, in the daytime, the forest is not too hot to conduct subsistence activities. This contrasts with the activities of the people living in the savanna or the semi-desert, who frequently rest or take naps in the hot daytime. On the other hand, interactional activity which is mainly conducted in the village area tends to be at dawn-and-dusk.

II. Social Association

1. Description of Lineage, Kinship, and Marriage

Before analyzing social association, I will briefly describe the lineage, kinship, and marriage among the Bongondo.

(1) Lineage structure

The Bongondo have a patrilineal lineage system. It is stratified into six levels. Usually members of the same lineage live close by, i. e. the residence pattern roughly corresponds to the lineage hierarchy.

All lineage levels are called *liyótsi/baótsi* or *eótsi/biótsi*. These can be translated as “lineage,” because they are derived from the verb *mb-ótwa*,⁽¹²⁾ to be born, and means “the people who have descended from the same ancestor.” The lineage name is composed as follows. For example, descendants of a man named “Bohanda” are called “*eótsi ya Bohanda* (lineage of Bohanda).” But usually

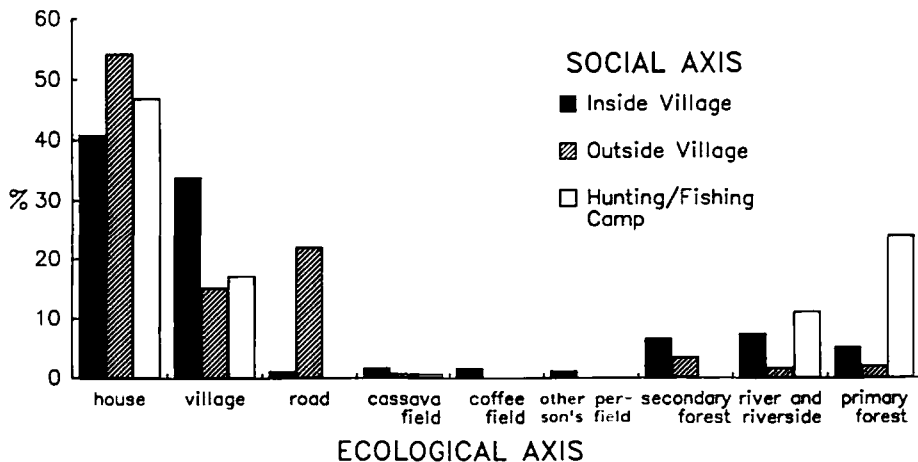


Fig. 6. Time allocation ratio of each category of the social axis, calculated for each category of the ecological axis.

Table 5. Time allocation along the ecological axis, excluding the sleeping hours.

Place	Time (min)	
	Men	Women
House	331	480
Village	349	211
Road	36	61
Cassava field	2	26
Coffee field	18	7
Other person's field	9	9
Secondary forest	73	39
River and riverside	75	45
Primary forest	57	32

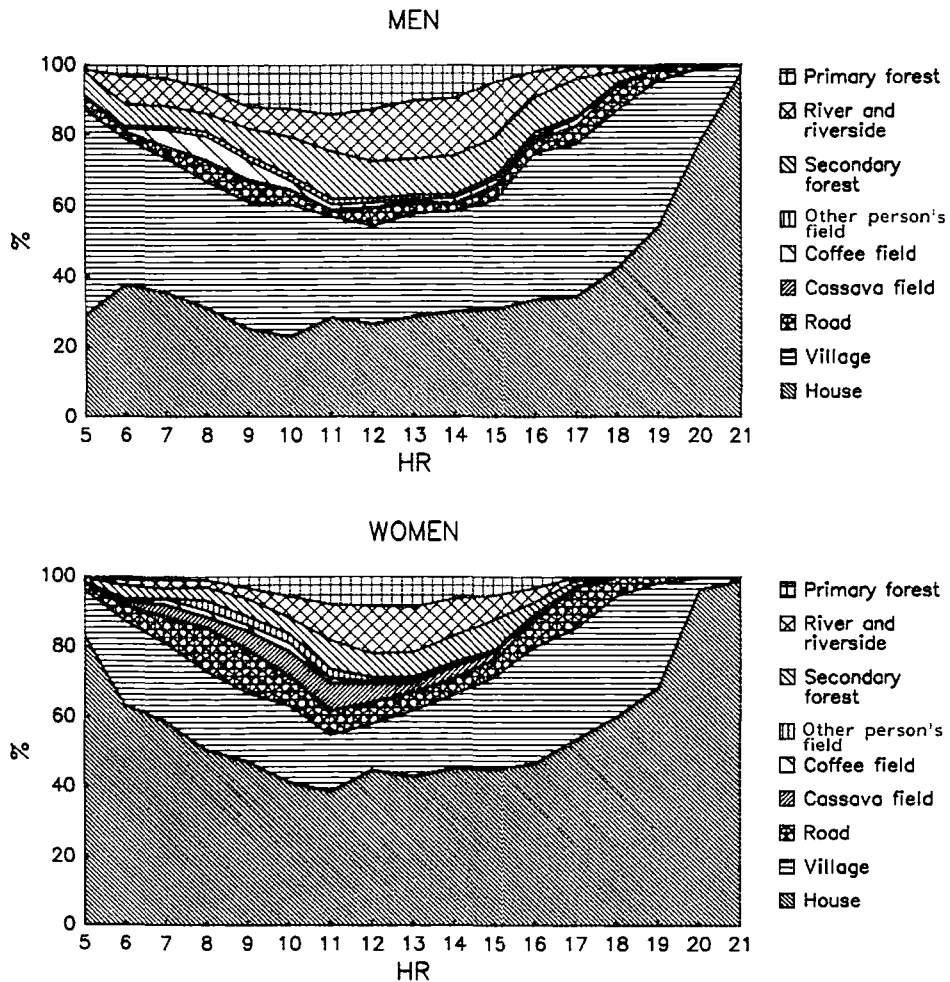


Fig. 7. Hourly changes in time allocation along the ecological axis.

"*eótsi*" is omitted, and remaining the "*ya Bohanda*" is contracted to "Yo'ohanda."

When the chief of a lineage dies, the eldest of his male siblings becomes the new chief. When all the brothers are dead, the eldest brother's eldest son succeeds the chiefship (Fig. 8).

Each lineage level is as follows.

(a) The lowest lineage level is the extended family (*elombo/bilombo*) of 2–20 persons.

(b) Several *elombos* make up a lower lineage level called *losombo/nsombo* of 10–100 persons. In a *losombo*'s area, a small hut which is also called a *losombo* is constructed. In this report I call it the "*losombo* hut." Men of the *losombo* frequently gather in this hut to chat, while women usually do not enter it. The chief is called *bokana/bakana*.

(c) Several *losombos* compose an upper lineage level of 50–500 persons.⁽¹³⁾⁽¹⁴⁾ This lineage level has no Longondo name. However, it loosely corresponds to the "localité," an administrative unit in Zaïre, because the lineage members tend to live in the same place. I will use the term "localité" in this report. Localité is the unit of exogamy.⁽¹⁵⁾ The chief is called *nsómí/nsómí*. He wears a fur hat and a tooth necklace of leopard (*nkóy/nkóy*) in ritual ceremonies. The members of a localité express their alliance by saying, "We hold one *nkóy* together."

(d) Several localités make up a lineage level of 500–2,000 persons. This level also has no Longondo name. I will again use the administrative term "groupement." Usually the traditional chief holds the post of administrative chief of the groupement.

(e) Groupements are grouped into four major lineages named Lalia-Buuma, Lalia-Iyondo, Lalia-Ngolu, and Lalia-Boyela. These lineages occupy the north-eastern, northwestern, central, and southern areas of the Bongondo land. The regional boundaries of this lineage level is not clear, and they have no chiefs. Groupement d'Iyondje, in which I conducted research, belongs to the Lalia-Ngolu.

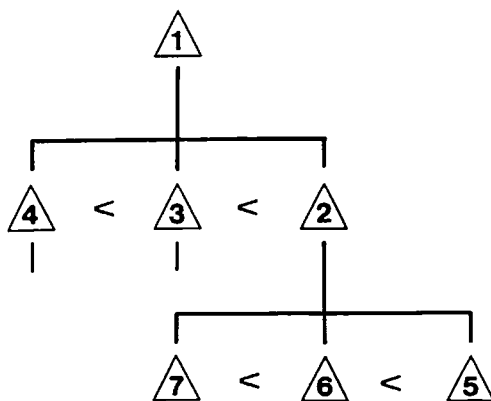


Fig. 8. Schematic representation of the inheritance of chiefship. Numbers in the triangles indicate the priority of inheritance of the chiefship. The sign of inequality shows the order of age.

(f) These four large lineages compose the Bongando ethnic group.

An example of the hierarchical structure and population size of each lineage level is shown in Table 6.

(2) Kinship and marriage

The marital residence of the Bongando is virilocal, and polygyny is not prohibited. A woman does not change her lineage after marriage. When she dies, the body is sent back to her natal lineage to be buried.

At the time of marriage, no ceremony is held. Some gifts are exchanged between the husband's and wife's lineages (usually at the *elombo* level) after marriage. A husband's lineage (*bakiló'a ngando*: affines of *ngando*) gives gifts (*ngando/ngando*) such as ornamental spears (*likongá/bakongá*), large copper rings (*baango/baango*), knives (*lokulá/nkulá*), goats, money, etc. In return, a wife's lineage (*bakiló'a lisongo*: affines of *lisongo*) gives gifts (*lisongo/basongo*) such as hunting nets (*botái/betái*), distilled spirits (*baana/baana*), chickens, ducks, etc. (Fig. 9).

Goods are required endlessly as long as the marital stage continues. *Bakiló'a lisongo* have the initiative in this exchange, because they have the right to bring the wife back, if *ngando* is not paid. In fact, such cases frequently occur. In consequence, the wife retains a strong tie with her natal lineage.

Through this channel, goods and money circulate in the society. This system seems to work as a leveling mechanism. When a lineage obtains a large amount of goods, *bakiló'a lisongo* come after a little while and demand *ngando*. Actually my informant, to whom I paid salary, were always worried that the *bakilo'a lisongo* would visit and demand for money.

Divorce is common. Children of the divorced couple usually belong to the husband's lineage, except when *ngando* is not paid sufficiently. A marriage

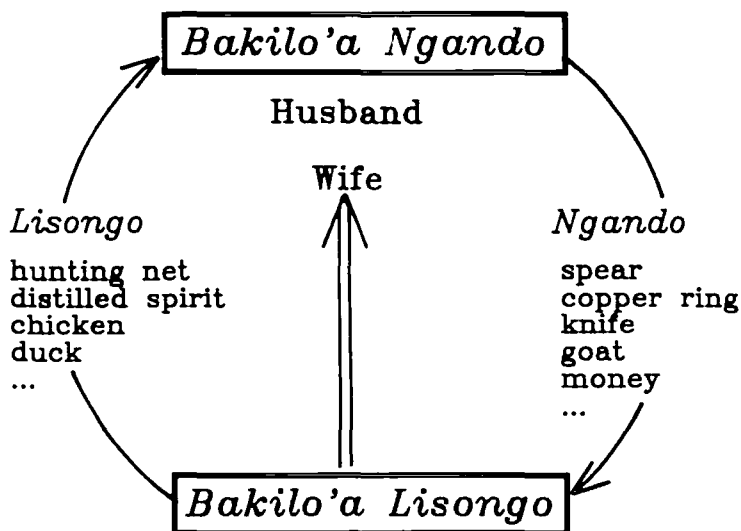


Fig. 9. Schematic representation of exchange of goods between the two lineages related by marriage.

Table 6. Stratified lineage structure and each lineage's population.

Iyondje	1921	Yilome'e'Elango	35
<i>Yokali</i>	133	Yokongo'a'Ato	
Yokumbe	39	Yohaso'a'Ato	
Yambomba	37	Yikoka yo'Oluvu	
Yomboli'a Ngole	21	Yampotsi'o'Otsili	97
Yakisi'Ilengo	36	Yikumbo'o'Osambi	
<i>Yohala</i>	190	Yoko	
Yingoli'o'Ohala	38	Yambonjo'a Mpotsi	
Yambonjo'o'Ohe	19	Yohenda	
Yalokake	19	Yalotsika'a Nyongo	49
Yondonga'a Mbonjo	94	Yelalya	
Yolunvu'o'Ohala	39	Yokumba'a Ndala	
Yongolo	39	Yambonjo'a Ndala	
<i>Yangonde</i>	417	<i>Bolingo</i>	86
Yaye	98	Yondonga	41
Yolonga	59	Yamputsu	27
Yambonjo'o'Olonga	14	Yohenya	18
Yelengo	26	<i>Yalohili</i>	279
Yaliyeke'o'Oombo	19	Yolota	129
Yambonjo'a Mpete	39	Yotsili'o'Olota	
Yambonjo'e'Etee	144	Yotsili'a Ausu	
Yalolombo	101	Yotsili'a Nkose	
Yoseli'e'Etee	43	Yakengola	
Yakanga	73	Yomangi'i'Isandu	
Yakaa'a Nkolo	38	Yambombe/Yapete	150
Yeya'a Mbonjo	35	Yampaka	
Yisenge yo'Olinga	22	Yongila	
Yokonji	80	Yondonga'a Lokumo	
Yambonjo'o'Okonji	53	<i>Bisandu</i>	156
Yokuto'o'Oombo	27	Yalaha	32
<i>Yohe</i>	94	Yokumba'a Nsongo	37
Yosai'o'Ooke	19	Yaye'a Mbonjo	87
Yangolu	10	<i>Yalisanga</i>	192
Yokumbe'e'Esanga	65	Yolimo'o'Oombe	107
<i>Yolalya</i>	79	Yakoso'o'Onyata	72
Yosai'i'Itsulu	58	Yokumba'a Nkoso	54
Yohenya'a Mputsu	14	Yohanda	18
Yanganga'a nyongo	7	Yikombi'o'Onyata	13
<i>Yotole</i>	286		
Yalongongo	105		
Yotsili'o'Oluvu			
Yambeli			

An example of Groupement d'Iyondje is shown. Indentation shows the level of lineages; e. g., Iyondje consists of Yokali, Yohala, Yangonde, etc., and Yokali consists of Yokumba, Yambomba, etc. Lineages in italics are the unit of exogamy, which roughly corresponds to the administrative unit "localité." All small lineages under the localité level are called "losombo." Some large losombos include small losombos. Population of each lineage is shown right of the lineage name. These data are based on the name lists which the localité chiefs keep. Some small lineage's populations were not censused.

without enough *ngando* is regarded to be informal. In such a case, the child is considered to belong to the mother's father, and the mother and child are regarded as siblings.

There is no clear age grade system among the Bongando. Circumcision is performed only for men, several months after birth. An age set called *inongo* is seen in the western area of the study site,⁽¹⁶⁾ such as Groupement de Wamba. But in the study site (Groupement d'Iyondje), it does not exist.

Bongando kinship terminology and joking/avoidance relationships are shown in Appendix.

2. Analysis along the Social Axis

Fig. 10 shows time allocation along the social axis. Where men visited had no peak along the axis. In contrast, where women visited was bimodal, i. e. they mainly visited near the house and outside the localit , but seldom went to the *losombo* hut or to other people's houses. Outside the localit , women mainly visited their natal *losombo*.

3. Analysis by the FN Graph

Fig. 11 and Fig. 12 are the graphs showing how the Bongando's association patterns are affected by the social relations. Horizontal and vertical axes each repre-

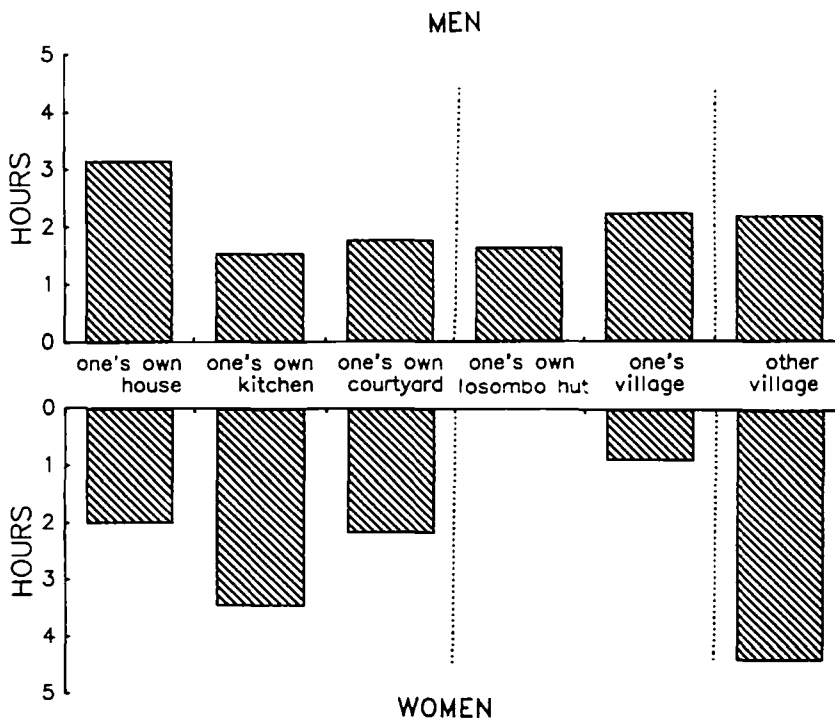


Fig. 10. Time allocation along the social axis. Average time span length in a day of where informants stayed is shown for each place.

sent the "Familiarity index" and the "Number of association partners," and I call it the FN graph. The data for the three male informants and those for the three female informants are combined, because no conspicuous individual variation was observed.

Fig. 11 shows general tendencies in association patterns. The number of partners who often associated with the female informants (familiarity index 0–1.0) were greater than that for the male informants, while this tendency reversed in the range of 1.0–3.5, where partners are rarely associated. In other words, women associate frequently with only a few specific people, while men associate infrequently and evenly with many people.

Fig. 12 shows the association patterns with partners divided by age-sex, kinship, and residence.

In Fig. 12a, association partners are classified as adult men, adult women, and children under 15 years old. For women, the partners most frequently associated with (index 0–1.5) were mainly children. Both male and female informants associated more frequently with partners of the same sex. In other words, men and women tended to maintain separate social associations.

In Fig. 12b, association partners are classified according to kinship. The "kinship index" between two persons is defined as [degree of consanguinity] + [number of conjugal linkages]. The index between non-kin is infinite. Three groups, of kinship index 0–3, 4–7, and over 8, are distinguished. Even men's close kin (kinship index 0–3) appeared in the range of familiarity index 0.5–1.0, most of the association partners of familiarity index 1.0–3.5 were distant or non-kin (kinship index over 8). Compared to men, women's association partners tended to be

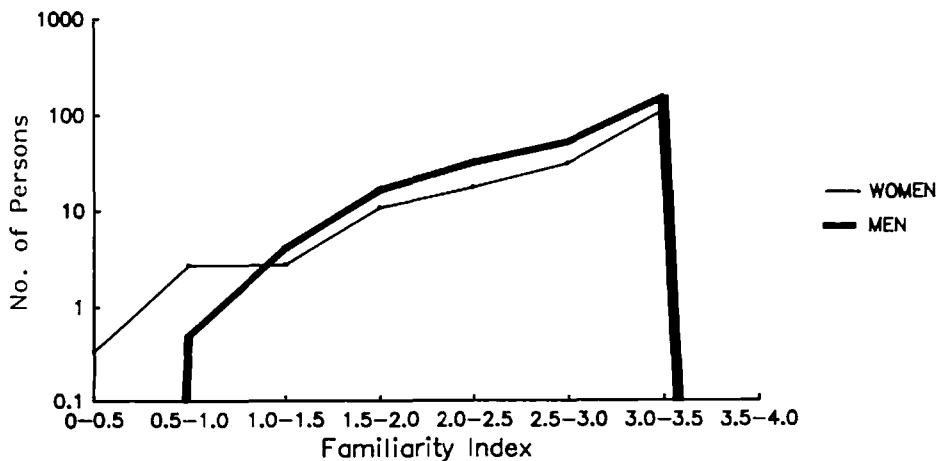


Fig. 11. General tendency in association patterns.

"Familiarity index" between the informant and other persons is calculated as

$$\text{Index}(P) = -\log_{10} (N(P)/Nt),$$

where $N(P)$ is the number of observation units, in which association partner P were with the informant, and Nt is the total unit number of the informant's data. For example, if the index is 2, the informant was with the association partner $10^{-2}=1\%$ of waking time. Note that high index indicates low familiarity. The vertical axis has a logarithmic scale.

close kin.

Residence of association partners is classified by (1) informant's localité, (2) informant's groupement excepting informants localité, and (3) outside informant's groupement (Fig. 12c). Men tended to associate more frequently with partners who resided near by. In the range of familiarity index 0–2.0, women mostly associated with partners of their resident localité. In the range of index 2.0–3.5, women associated more frequently with partners outside the resident groupement than those within the groupement. The association partners in this area tended to belong to the women's natal localités.

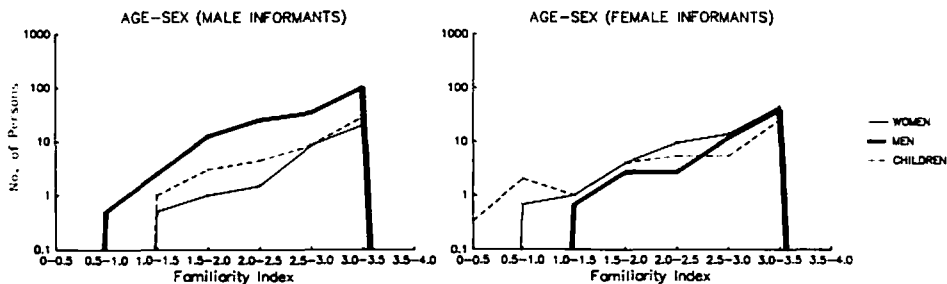


Fig. 12a. Association patterns with persons divided by age-sex.

Graphs are drawn in the same way as Fig. 11.

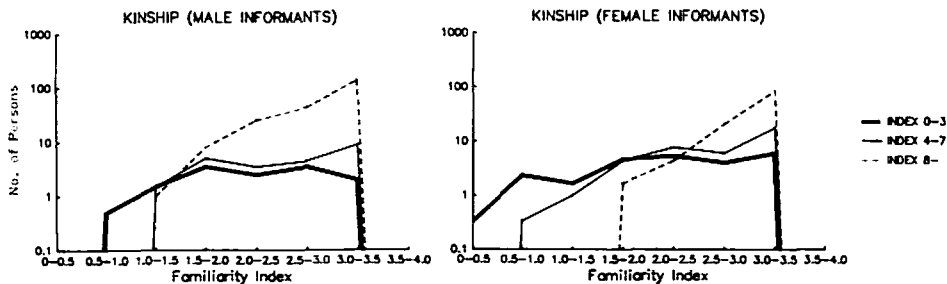


Fig. 12b. Association patterns with persons divided by kinship.

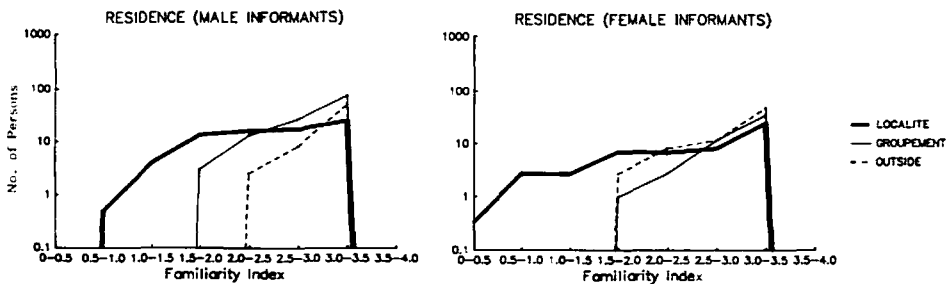


Fig. 12c. Association patterns with persons divided by residence.

4. Dendrogram Analysis

A dendrogram showing the association patterns of the members of localit  Yalisanga is drawn from the line sampling data (Fig. 13).

This localit  contains four lineages of the *losombo* level. Adult women who appear in the dendrogram are classified into two categories: those who were born in the lineage (*bos k /bes k *), and those who married into the lineage (*b li'o'osongo/ba li'o'osongo*: literally, "wife of marriage"). Informant NL, who belongs to lineage I, did not appear in the result, because he was the person who conducted the sampling. Intimate relations, even husband and wife, were not clearly detected, because the Bongando men and women avoid associating with each other openly.

Membership tendencies of eight clusters (1-8) detected in the dendrogram are explained briefly.

- 1: Children of NL, and visitors to lineage I.
- 2: *Bos k s*, *b li'o'osongos*, and children of lineages I and II.
- 3: *Bos k s*, *b li'o'osongos*, and a child of lineage I related to NL.
- 4: *Bos k s*, *b li'o'osongos*, and children of lineage III, related to LO (an adult man of lineage III).
- 5: Adult men, *Bos k s*, *b li'o'osongos*, and children of lineage III.
- 6: Adult men of lineages II and III.
- 7: Adult men of lineage IV.
- 8: *Bos k s*, *b li'o'osongos*, and children of lineage IV.

The clustering pattern corresponded to the lineage segmentation, with the exceptions of clusters 2 and 6. The women of lineages I and II were grouped together in cluster 2, and men of lineages II and III were grouped together in cluster 6. By contrast, segmentation between lineages I, II, III and lineage IV was clear. This suggests the existence of social confrontation between these lineages.

The association pattern of an old man in cluster 7 (marked by a star) was peculiar. He was the oldest man among lineages I, II, and III, and was the *bokana* (chief) of lineage I. He appeared in cluster 7 because old men of lineage IV frequently visited his house.

In the clustering, men and women were divided clearly, except in cluster 5. They scarcely associated, even though they lived in the same house. Children were seen in the clusters including women, and were not seen in the clusters of men. This finding agrees with the tendency apparent from the analysis of SFS.

DISCUSSION

I. Daily Activities

1. Time Allocation of Subsistence Activities

(1) Agriculture

SFS shows that the Bongando men and women each spend only 19 and 13 minutes per day on agriculture.⁽¹⁷⁾ These time lengths are very short, compared to other agricultural peoples.

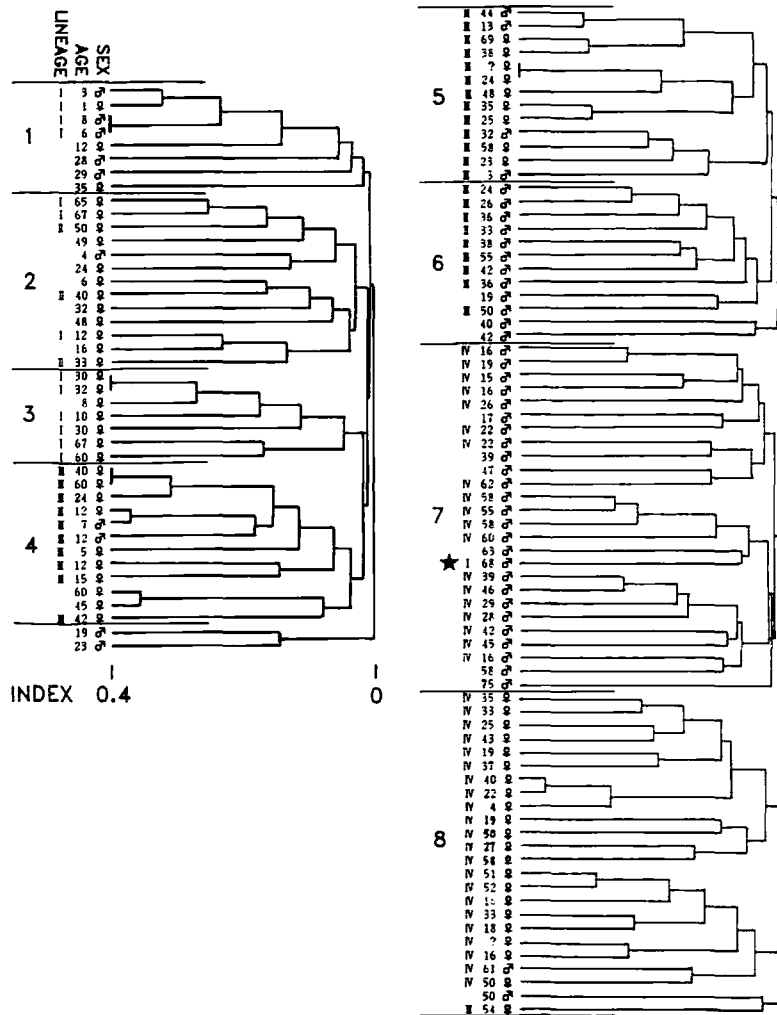


Fig. 13. Dendrogram of association.

Persons who appeared over ten times in the sampling data were analyzed. Resident lineage, age, and sex of these persons are shown. Lineage numbers indicate the lineages of *losombo* level; I: Yoohanda, II: Yikombi'o'Onyata, III: Yokumba'a Nkoso; IV: Yolimo'o'Ombe. Together they comprise the localité Yalisanga. Persons who live outside Yalisanga are not numbered. Familiarity index between two persons A , B is calculated as

$$\text{Index}(A, B) = \frac{N(A \text{ and } B)}{N(A \text{ or } B)},$$

where $N(A \text{ and } B)$ is the number of groups in which A and B were observed together, and $N(A \text{ or } B)$ is the number of groups in which A and/or B were observed. Fusion of clusters is defined as follows. When cluster I and cluster J fuse, and become cluster K , the new index between K and any other cluster H is defined as

$$\text{Index}(H, K) = (\text{Index}(H, I) + \text{Index}(H, J)) / 2.$$

For the simplicity of the figure, fusion points over index level 0.4 are not indicated. Although clusters [1, 2, 3, 4] and [5, 6, 7, 8] fuse at index level 0.0017, the fusion is not indicated.

For example, Sugiyama (1988) reported that among the Bemba in Zambia, who cultivate various crops such as finger millet, maize, cassava, sweet potatoes, groundnuts, and cowpea, men and women each spend 3.9 and 4.3 hours per day on cultivation. In the Nankane-speaking settlement in northern Ghana, where bulrush millet, guinea corn, and groundnuts are planted, men and women each spend 5.1 and 3.7 hours per day on farm work during the wet season (Tripp, 1982). Johnson (1975) and Munroe et al. (1983) also report longer agricultural labor time in other societies.⁽¹⁸⁾

This is mainly due to the relative ease of cultivating cassava, the main crop of the Bongando. Sato (1984) pointed out the nutritional importance of cassava to the Boyela (Fig. 1), who reside adjacent to the Bongando, and have the same kind of agricultural system. They receive 76.4% of their caloric intake from the cassava tuber, and 15.0% of protein from its leaves. In spite of such importance, the Bongando people do not work much in the field after planting. Also they need not spend much time on harvesting and preserving the cassava tuber, because it can be kept in the living form in the soil for several years.

(2) Hunting, fishing, and gathering

The Bongando men and women each spend 32 and 0 min/day hunting (including trapping), 28 and 7 min/day fishing, and 19 and 36 min/day gathering. These time allocations suggest the importance of these activities.

However, the time allocation ratio of these activities as a whole is not large. It is partly because the time required for these activities has become shorter through the recent changes in the subsistence techniques.

Takeda (1988) described several kinds of group hunting by the Bongando, but many of them have now been abandoned. This is mainly because of the decrease in the populations of large mammals in the forest near the village. Instead of group hunting, individual trapping has become common, involving many innovations. New materials such as nylon and steel wire are used in the trapping. According to Sato (1983), the adjacent Boyela people also conduct trapping with nylon and steel wire, and get returns without a large amount of labor input.

Also in fishing, the introduction of new equipment, such as the nylon gill net and the iron fishhook, raised the labour efficiency. Informants said that since nylon nets were introduced in the 1960's, they have been able to catch much more fish than before.

On the other hand, women's subsistence activities do not seem to have changed recently. Women seem to be engaged in some kind of work almost all day. If this is the case, do women work harder than men among the Bongando? I will discuss on this matter more in Section 3.

2. Multi-Subsistence People

The time allocation of the Bongando indicates that they cannot be described as "farmers" in some aspects.

From the studies on the hunter-gatherers, it is found that their time allocation for subsistence activities is unexpectedly short (Lee, 1968). Referring to a series of time allocation studies on various societies, Johnson (1980) concluded that, "In a developmental perspective, it seems likely that labor time increases with intensifica-

tion of human control (domestication) of the environment, peaks in densely settled peasant societies, and then declines once industrial development gets under way." Contrary to Johnson's study, the Bongando spend little time on subsistence activities.

In the Ituri Forest in Zaïre, farmers and hunter-gatherers have established symbiotic relation; i. e. Bantu and Sudanic farmers exchange farm foods for meat with the Mbuti (Ichikawa, 1983). Unlike the Ituri Forest, no hunter-gatherers like the Mbuti live around the Bongando land. However, in the Bongando tales, people called *elemba/bilemba* appear. They are short, and live in the primary forest in groups. Kano & Kano (1987) speculate that when the ancestors of the Bongando entered the tropical rain forest, they encountered the Pygmies, and their historical memory remain in the tales of the *elemba*. If so, the Bongando ancestors probably expelled the aboriginal hunter-gatherers, or assimilated them. At any rate, the Bongando now play the part of hunter-gatherers.

Considering the above, the Bongando people can be best described as "farmer-hunter-fisher-gatherer," or simply "multi-subsistence people," rather than just "farmers."⁽¹⁹⁾

3. Sex Difference in the Concentration on Activity Efforts

The time allocation pattern of the Bongando men and women differ from each other. Men tend to concentrate on one activity at one time, whereas women tend to conduct two or more activities at the same time. This tendency can be explained from the difference in the quality of their activities.

Many of the men's activities require mental and physical concentration, even though these activities do not take much time. Slashing trees to make the field, setting traps for animals or nylon nets for fish, are examples of such activities.

In contrast, much of the women's work do not require concentration, but take a long time. Cooking and caring for children are two examples. They spend long time cooking, but they need not pay much attention. They can chat, eat, or take care of children while cooking.

II. Social Association

1. Basic Tendencies in Individual Association

In the Bongando association patterns, the following two characteristics can be pointed out.

First, men and women clearly spatially separate, even those who live in the same house. This tendency is observed both in the SFS and the dendrogram analysis.

Second, women tend to associate frequently with only a few specific people (mainly close kin), while men tend to associate infrequently and evenly with many people (including many non-kin). In the time allocation analysis, it is also detected that the probability of where men visit linearly decreases along the social axis from their house, and that of where married women visit concentrates at their natal lineage and married lineage.

These two tendencies are also reported in the studies of hunter-gatherer societies such as the Mbuti (Ichikawa, 1978) and the San (Sugawara, 1984). It is noteworthy

that the tendencies are not restricted to hunter-gatherer societies. However, before concluding that these features are universal in human social behavior, further studies in other societies will be necessary.

2. Lineage and Association Patterns

(1) Lineage boundary and social association

One fundamental problem in the study of social association is whether or not lineage serves as a boundary to differentiate the social behavior of its members from that of non-members.

If the social boundary of a lineage has any effect on association, the curves of the FN graph would have two different peaks (Fig. 14). However, the result from the FN graph analysis shows that at least at the localit  and groupement levels, there are no such sharp peak (Fig. 12c). This means that while the Bongando tend to associate more frequently with the members of their own lineage than non-members, they do not distinctly segregate them in their association behavior.

This is partly because Bongando subsistence activities can be performed without much cooperation between families. Actually, even in *behetsi * (small villages in the primary forest), which consist of only one to several families, they can maintain their subsistence without any problem. Even when they conduct subsistence activities together, it is only to chat and avoid dullness, not to cooperate with one another.

(2) Micro-political relations between lineages

In the dendrogram analysis, two micro-political phenomena are detected.

One is the peculiar association pattern of the chief of lineage I. He was frequently visited by the old men of lineage IV, in spite of the confrontation between other members of the lineages. I interpret this behavior of the chief as a political effort to integrate the localit  Yalisanga. As it is uncertain whether or not these features are common in any other lineages of the Bongando, further study is required.

Another concerns the opposition of lineages I, II, and III, against lineage IV. I suppose that the members of the former three lineages need to ally against lineage IV, because of the size lineage IV (Table 6). However, this opposition is not apparent in the daily association level. Then, in what situation is such an opposition clearly expressed?

During the research, I heard about these lineage oppositions in the following cases. 1) When my waterproof cloth was lost, it was supposed to be stolen by a member of lineage IV, and the members of lineages I (in which I stayed), II, and III spoke ill of lineage IV. 2) A member of lineage III hesitated to take a small path leading to lineage IV, when coming back from the field to the village. He feared being suspected by the members of lineage IV of stealing something from their field.

These cases suggest that the lineage opposition is concealed in the daily social interaction, but surfaces when the problems related to the "limited goods" (Foster, 1965) arise.

ACKNOWLEDGMENTS This study was supported by the Grant-in-Aid for Overseas Scientific Research (No. 61041071) from the Ministry of Education, Science and Culture,

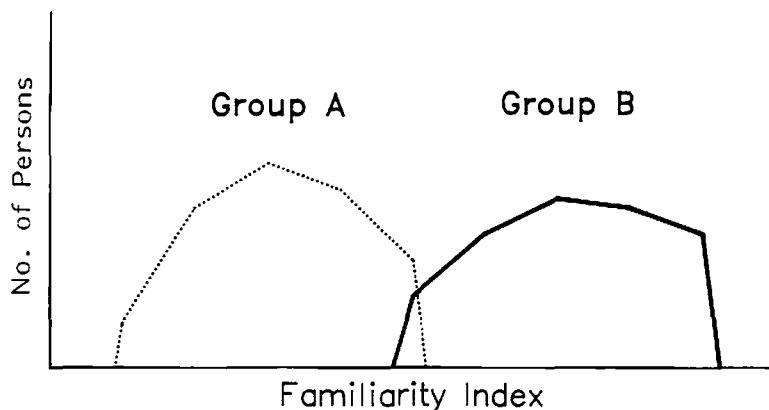


Fig. 14. Schematic representation of FN graph of two groups of familiarity.

Japan, and by the Noma Asian and African Scholarship from Kodansha Publishing Ltd. I conducted this research as an associé de recherche du Centre de Recherche en Sciences Naturelle (C. R. S. N.), République du Zaïre, based on the research convention between C. R. S. N. and the Center for African Area Studies of Kyoto University, Japan. I would like to thank Dr. Zana Ndontoni (Directeur Général) of C. R. S. N., Professor J. Itani of Kobe Gakuin University, Professors T. Nishida, T. Kano, Drs. M. Ichikawa, I. Ohta of Kyoto University, and other members of these institutions. I am also indebted to my informants, Messrs. Lingomo-Bongoli, Nsimba-Lokemba, and other members of Groupement d'Iyondje and Groupement de Wamba. To these persons, I make grateful acknowledgment.

NOTES

(1) Dyson-Hudson (1972) and Quizon (1978) also pointed out the difference between the information from the recollection of the informant and that from the direct observations.

(2) I use the name "Bongando" for this ethnic group, after Hulstaret's tribal map cited by Philippe (1965). However, the notation of the name has been confusing.

In some reports (e. g., Murdock, 1959; Takeda, 1984; 1987; 1990), the name is written as "Ngandu." I suppose that at the time of initial record, "Bongando" was regarded as "Bo (plural prefix) + Ngando," and the plural prefix was omitted. After that, the remaining "Ngando" was noted as "Ngandu," because pronunciation of "o" ([o]) can be heard as "u" ([u]), when it is said softly. However, the people of this ethnic group explain that "Bongando" itself is the name of their common ancestor, and the name "Ngando" or "Ngandu" has no meaning.

In other reports (e. g., Kerken, 1944; Institut Geographique du Zaïre, 1982), the name is written as "Mongandu." The consonant "b" at the beginning of a word in Longando (the language of the Bongando) usually changes to "m" in Lingala. For example, "a man" is "boto" in Longando, and "moto" in Lingala. I suppose that the informant of these reports pronounced "Bongando" in Lingala fashion.

(3) I denote Longando words as follows. (a) Although Longando has seven vowels, they are simplified into five in this article. (b) The high tone is denoted by "ˊ". (c) The plural

form of Longando nouns are given only at the first appearance of the noun (e. g., *losombo/nsombo* = singular/plural). (d) When a Longando noun is denoted as plural in the text, it is written as a singular + "s" (e. g., *losombos*), for simplicity. (e) Contraction of words, which frequently occurs in spoken sentences, is denoted by an apostrophe (e. g., *bóna boyóto* → *bón'oyóto*).

- (4) This map is based on pace measuring. I analyzed data and drew maps using a portable computer (NEC PC-98LT) at the study site, and the data were revised at that time, if inconsistencies were found.
- (5) The definition of "with-ness," i. e. "with whom the informant associates" is somewhat ambiguous. I told the informants that they should record the people who worked, chatted, sat, or walked with them at that time. Generally they did not record people at a distance of more than 10 m. Therefore the "with-ness" in their report is almost synonymous with spatial proximity.
- (6) Although Scaglione (1986) noted on the importance of nighttime activities, the Bongando people do not conduct conspicuous activities at night.
- (7) For more information on the Bongando subsistence ecology, see Takeda (1984; 1987; 1990).
- (8) The category "sitting" is defined as sitting without conducting any other conspicuous activities.
- (9) Details of their frequent verbal interactions has been reported elsewhere (Kimura, 1990).
- (10) *Mpoha* and *nse* means "bailing out" and "fish," respectively.
- (11) In this section, the term "village" denotes the administrative unit "localité."
- (12) "Mb-" is the infinitive prefix.
- (13) In this report, I use the term "lineage" for all patrilineal descent groups. But from this level, descent group can be called a "clan," because the concrete genealogy of the members cannot be traced.
- (14) "*Bolá/belá*" is usually used to describe the lineage of this level. However, the correct meaning of this word is "co-resident group." So even if persons from some different lineages reside at the same place, they can be called a "*bolá*."
- (15) In other words, exogamy defines the localité. I heard the following episode. Once a quarrel occurred in a localité, and the members decided to divide into two localités. At that time, they said, "Let us begin to marry each other."
- (16) Probably they are affected by the western ethnic groups of the Mongo cluster, which originally have the *inongo* age set system (Philippe, 1965).
- (17) However, my data may be biased by the sampling season in which tree cutting and planting are not conducted.
- (18) As Tripp (1982) pointed out, results of time allocation studies are seriously affected by the sampling method. In this study, the duration of subsistence activities may be underestimated compared to other time allocation studies, because even quite short resting periods within the working time was sampled by SFS.
- (19) Takeda (1990) comes to the same conclusion.

REFERENCES

- Bernard, H. R., P. Killworth, D. Kronenfeld, & L. Sailer. 1984. The problem of informant accuracy: the validity of retrospective data. *Annual Review of Anthropology*, 13: 495-517.
- Cabinet du Ministre d'Etat. 1970. *Resultats Officiels du Recensement Général de la Population de la République Démocratique du Congo*. Cabinet du Ministre d'Etat, Kinshasa.

- Conceil de Gouvernement. 1957. *Discourse du Gouverneur Général L. Pétillon Statistiques*. Conceil de Gouvernement, Leopoldville.
- Departement du Plan. 1984. *Combien Sommes-Nous*. Department du Plan, Kinshasa.
- Dyson-Hudson, R. 1972. Pastoralism: self image and behavioral reality. In (W. Irons & N. Dyson-Hudson, eds.) *Perspective on Nomadism. International Studies in Sociology and Social Anthropology Vol.III*, pp. 30–47. E. J. Brill, Leiden, Netherland.
- Foster, G. M. 1965. Peasant society and the image of limited goods. *American Anthropologist*, 67(2): 293–315.
- Gross, D. R. 1984. Time allocation: a tool for the study of cultural behavior. *Annual Review of Anthropology*, 13: 519–558.
- Hulstaert, G. 1957. *Dictionnaire Lomongo Français*. Musée Royal du Congo Belge, Tervuren.
- Ichikawa, M. 1978. The residential groups of the Mbuti Pygmies. *Senri Ethnological Studies*, 1: 131–188.
- 1983. An examination of the hunting-dependent life of the Mbuti Pygmies, eastern Zaïre. *African Study Monographs*, 4: 55–76.
- Institut Géographique du Zaïre. 1982. *République du Zaïre Carte Ethnographique*. Institut Géographique du Zaïre, Kinshasa.
- Johnson, A. 1975. Time allocation in a Machiguenga community. *Ethnology*, 14(3): 310–321.
- 1980. Comment on "Does labor time decrease with industrialization? A survey of time-allocation studies" by Wanda Minge-Klevana. *Current Anthropology*, 21: 292.
- Kano, T. 1980. Social behavior of wild pygmy chimpanzees (*Pan paniscus*) of Wamba: a preliminary report. *Journal of Human Evolution*, 9: 243–260.
- Kano, T. & N. Kano. 1987. *The Fire of Elia (Pygmy Chimpanzee): Mysterious Tales in African Forest* (in Japanese). Dobutsusha, Tokyo.
- Kano, T. & M. Mulavwa. 1984. Feeding ecology of the pygmy chimpanzees (*Pan paniscus*) of Wamba. In (R. L. Susman, ed.) *The Pygmy Chimpanzee: Evolutionary Biology and Behavior*. Plenum Publishing Corporation, New York.
- Kerken, G. Van der 1944. *L'Ethnie Mongo: Mémoires de l'Institut Royal Colonial Belge 13*. Brussels.
- Kimura, D. 1990. Verbal interaction of the Bongando in central Zaïre: with special reference to their addressee-unspecified loud speech. *African Study Monographs*, 11(1): 1–26.
- Lee, R. B. 1968. What hunters do for a living, or, how to make out on scarce resources. In (R. B. Lee & I. DeVore, eds.) *Man the Hunter*, pp. 30–48. Aldine Publishing Co., Chicago.
- Martin, P. & P. Bateson. 1986. *Measuring Behaviour: An Introductory Guide*. Cambridge University Press, Cambridge.
- Munroe, R. L., R. H. Munroe, C. Michelson, A. Koel, R. Bolton & C. Bolton. 1983. Time allocation in four societies. *Ethnology*, 22(4): 355–370.
- Murdock, G. P. 1959. *Africa: Its People and their Culture History*. McGrou-Hill, New York, Toronto, London.
- Philippe, R. 1965. *Inongo: Les classes d'âge en région de la Lwafa (Tshuapa)*. Musée Royal de l'Afrique Centrale, Tervuren.
- Quizon, E. K. 1978. Time allocation and home production in rural Philippine households. *The Philippine Economic Journal*, 36(17) 1 & 2: 185–202.
- Sato, H. 1983. Hunting of the Boyela, slash-and-burn agricultulists, in the central Zaïre forest. *African Study Monographs*, 4: 1–54.
- 1984. Subsistence economy of the Boyela: their cassava utilization and cultivation

- (in Japanese). In (J. Itani & T. Yoneyama, eds.) *The Studies of African Cultures*, pp. 671-697. Academia Publishing, Kyoto.
- Scaglion, R. 1986. The importance of nighttime observation in time allocation studies. *American Ethnologist*, 13(3): 537-545.
- Sugawara, K. 1984. Spatial proximity and bodily contact among the central Karahari San. *African Study Monographs, Supplementary Issue*, 3: 1-43.
- Sugiyama, Y. 1988. The Bemba women of northeastern Zambia: life strategies and subsistence activities among slash-and-burn cultivators. (in Japanese with English summary). *The Japanese Journal of Ethnology*, 53(1): 31-57.
- Takeda, J. 1984. Notes on hunting and sharing game among the Ngandu, a tropical rain forest tribe of central Zaïre (in Japanese). In (J. Itani & T. Yoneyama, eds.) *The Studies of African Cultures*, pp. 227-280. Academia Publishing, Kyoto.
- 1987. Food ecology of the Ngandu in the tropical rain forest: subsistence activities and tendency of food intake of a slash-and-burn farmer in Congo Basin (in Japanese). In (S. Wada, ed.) *Africa: Ethnological Studies*, pp. 1071-1137. Dohosha Publishing, Kyoto.
- 1990. The dietary repertory of the Ngandu people of the tropical rain forest: An ecological and anthropological study of the subsistence activities and food procurement technology of a slash-and-burn agriculturist in the Zaïre river basin. *African Study Monographs, Supplementary Issue*, 11: 1-75.
- Tripp, R. B. 1982. Time allocation in northern Ghana: an example of the random visit method. *The Journal of Developing Areas*, 16(3): 391-400.
- Vuanza, P. N. & M. Crabbe. 1975. *Les Regimes Moyens et Extremes des Climats Principaux du Zaïre*. Centre Meteorologique, Kinshasa.

———Received August 1, 1990

Author's Name and Address: Daiji KIMURA, Faculty of Education, Fukui University, 3-9-1 Bunkyo, Fukui, 910, Japan.

Appendix Bongando Kinship Terminology and Joking/Avoidance Relationship.**Legend**

E: ego; E(m): male ego; E(f): female ego; F: father; M: mother; P: parent; H: husband; W: wife; S: son; D: daughter; C: child; B: brother; Z: sister; Sib: sibling.

(+)/(-): older/younger than the person just before the marked person in this expression.

E. g., MB(+) means mother's brother older than *mother*.

(+E)/(-E): older/younger than ego. E. g., MB(+E) means mother's brother older than *ego*.

(ss)/(os): same/opposite sex to ego.

"/": singular and plural. E. g., "bóna/báána" means "child/children."

": synonym. E. g., "báhángó; isé" means that "báhángó" and "isé" are synonymous.

[]: translation in English.

(): explanation.

?: not certain.

1. Kinship Terminology

Note: In the Bongando society, E(m) can (or is suggested to) marry his MBW, if MB dies. Consequently, E(m) and his MB tend to be identified in terminology.

Human being: *bóto/báto*

Man: *mpáme/mpáme*

Woman: *boyóto/bayáto*

P: *bótsi/bátsi*

F: *báhángó/báhángó; isé/baisé*

M: *nyángó/banyángó; ngóyá/bangóyá*

C: *bóna/báána*

S: *bóna mpáme/báána mpáme* [male child]

D: *bón'oyóto/báána'ayáto* [female child]

PP: *boyóka/baoyóka; bokána/bakána*

CC: *boyóka/baoyóka; bokána/bakána*

Sib: *eóto/bióto*

Sib(ss)(+): *botóóló/batóóló; banyángó/baanyángó*

Sib(ss)(-): *bokúne/baakúne; bakúne/baakúne*

Sib(os): *mbangéla/bambangéla*

FB(+): *boyóka/baoyóka; bokána/bakána*

FB(-): *isé'a mbusa/baisé'a mbúsa* [younger father]

FZ: *isó'oyóto/baisa'ayáto* [female father]

MB: *nyángó mpáme/banyángó mpáme* [male mother]

MZ(+): *boyóka/baoyóka; bokána/bakána*

MZ(-): *nyángó'a mbúsa/banyángó'a mbúsa* [younger mother]

B(+)C: *bóna/báána* (Same as S)

B(-)C: *boyóka/baoyóka; bokána/bakána*

ZC: *nkáli/nkáli*

FBC(ss)(+E): *botóóló/batóóló; banyángó/baanyángó* (Same as Sib(ss)(+))

MZC(ss)(+E): *botóóló/batóóló; banyángó/baanyángó* (Same as Sib(ss)(+))

FBC(ss)(-E): *bokúne/baakúne; bakúne/baakúne* (Same as Sib(ss)(-))

MZC(ss)(-E): *bokúne/baakúne; bakúne/baakúne* (Same as Sib(ss)(-))

FBC(os): *mbangéla/bambangéla* (Same as Sib (os))

MZC(os): *mbangéla/bambangéla* (Same as Sib(os))

FZC: *nkáli/nkáli*

FZS: *báhángó/báhángó; isé/baisé* (Same as F, because if F dies, M may marry FZS).

FZD: *isó'oyóto/baisa'ayáto* [female father] (Same as FZ, because if F dies, M may marry FZS).

E(m)MBS: *bóna mpáme/báána mpáme* [male child] (If MB dies, E(m) may marry MBW).

E(m)MBD: *bón'oyóto/báána'ayáto* [male child] (If MB dies, E(m) may marry MBW).

H: *bóme/baóme*

W: *bolí/baalí*

HP: *boyóka/baoyóka; bokána/bakána*

WP: *bokilo/bakilo*

SW: *boyóka/baoyóka; bokána/bakána*

DH: *bokilo/bakilo*

WB: *bokilo'a lisongo/bakilo'a lisongo; bokoyi/bakoyi*

WZ(+): *bokilo/bakilo*

WZ(-): *bolí/baalí* (Same as W, because E(m) can marry WZ(-)); *bolí'a mbusa/baalí'a mbusa* [younger wife]

HB(+): *boyóka/baoyóka; bokána/bakána; botóóló'on'óme/batóóló'on'óme* [elder brother of husband]

HB(-): *bóme'a mbusa* [younger husband]

HZ: *bokoyi*

B(+)W: *bolí/baalí?* (If B(+) dies, E(m) can marry B(+)W).

B(-)W: *bokilo/bakilo?*

ZH: *bokilo/bakilo?*

FB(+)W: *boyóka/baoyóka; bokána/bakána*

FB(-)W: *nyángó/banyángó; ngóyá/bangóyá* (Same as M)

FZH: *bokilo/bakilo*

E(f)MBW: *bóme/baóme?*

E(m)MBW: *bolí/baalí* (Same as W. If MB dies E(m) can marry MBW).

MZ(+)H: *boyóka/baoyóka; bokána/bakána*

MZ(-)H: *báhángó/báhángó; isé/baisé* (Same as F)

2. Pairs of *Lokána* (Joking Relationship)

The following kin pairs are regarded to be *bokána* (or *boyóka*) of each other, and this relationship itself is called *lokána/nkána*. The *lokána* pairs can insult each other without any trouble, so this term can be translated as "joking relationship." In daily conversation, each of *lokána* pair calls other *luwa* when they are of same sex, and *bolí/bóme* (literally, "wife/husband") when of different sex.

E—PP, E—CC

E—FB(+), E(m)—B(-)C

E—MB, E(m)—ZC

E—MZ(+), E(f)—Z(-)C

E—MZ(+)H, E—WZ(-)C

Note: “E—PP, E—CC” can be explained as follows. Suppose that *A* is the grandchild of *B*. If *A* is taken as ego (E). *A* and his/her grandparent (PP) *B* are in *lokána* relationship. If *B* is taken as ego (E), *B* and his/her grandchild (CC) *A* are also in *lokána* relationship.

3. Pairs of *Lihengo* (Avoidance Relationship)

The following pairs are regarded to be in *lihengo/bahengo* relationship. The term *lihengo* is derived from verb “*m-p-engwa* (to avoid),” and the pairs avoid meeting each other. For example, when *lihengo* pairs are about to encounter on the forest path, one of them hastily rush into the bush to avoid another.

E—HB(+), E(m) —B(-)W

E—HFBS (H is younger than HFBS), E(m) —FBSW (E is older than FBS)

E—HF, E(m) —SW

E—HZDH, E—WMBW

E—HZH, E—WBW

E—WZ(+), E(f) —Z(-)H