主論文 I

DAILY ACTIVITIES AND SOCIAL ASSOCIATION OF THE BONGANDO IN CENTRAL ZAIRE

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1. INTRODUCTION

This study aims to analyze the daily activity and association patterns of the Bongando, Bantu farmers living in central Zaire. So far social and cultural anthropologists have paid little attention to these subjects. The main reason for this may be that the indigenous people themselves take these subjects as a matter of course. Unlike the lineage system, or marriage rules, the indigenous people are unlikely to be able to explain how they allocate time for each activity, or how they associate with others. However, these are the very fundamental aspects of their social life. In this study, systematic sampling methods are used to clarify accurate pattern of activities and association.

First, time allocated to daily activities is considered. So far study of time allocation have focused on subsistence activities (Lee, 1979; Sugiyama, 1988). I pay special attention to activities such as sitting, chatting, and drinking with others. While not directly related to subsistence, these activities take place in contexts in which social interactions frequently occur.

Second, the segregation patterns of association partners by age, sex, kinship relation, and residence are described. I aim to present accurate data of social association, which can be compared with those of hunter-gatherers (Ichikawa, 1978; Tanaka, 1979; Sugawara, 1984).

Finally, I studied how the Bongando people become involved in social interactions. Their daily greeting shows that there are two levels of interaction; face-to-face and non-face-to-face interaction. This structure is important for their social life, and seems to be a new subject for the study of social interaction.

2. STUDY AREA AND PEOPLE

2.1. The Bongando

The Bongando [1] inhabit the eastern part of the Region d'Equateur and the western part of the Region du Haut-Zaire of the Republic of Zaire. Murdock (1959) classified them as a branch of the Mɔ́ngɔ [2] (Fig. 1). The population is estimated to be 450,000-500,000 [3]. Bongando informants explain that their ancestors crossed the Ubangi River north of Kisangani, passed near Kisangani [4], proceeded to the west, and came to the place where they now live.

Their mother tongue is Longando [5]. It resembles Lɔmɔ́ngɔ, the major language of the Mɔ́ngɔ people (Hulstaert, 1957). A Longando speaker and a Lɔmɔ́ngɔ speaker can communicate with each other. Those over six years old also can speak Lingala, one of the four main intertribal languages of Zaire.

2.2. Study Area

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

Settlements extend along the road (Fig. 2) [6], which was constructed during the Belgian colonial era. The road is at least 3 m wide, and is passed by truck. The houses are scattered in the

courtyards (láánjá/báánjá) 10-30 m wide. The distance between two houses usually does not exceed 20 m (Fig. 3). Beyond the láánjá, there is secondary forest scattered with cassava and coffee fields. Behind the secondary forest, there are vast primary forest, in which rivers and small streams run.

The vegetation of the Bongando land is described by Kano and Mulavwa (1984). Secondary forest is classified as aged secondary forest (dominant plants are Marantaceae spp., 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 apparent. The trees reach up to 50 m in height. The forest near river becomes swamp forest, in which density of tall trees is low (Kano & Mulavwa, 1984).

2.2. Subsistence Activities

The main crop of the Bongando is cassava. Bananas, yams, maize, rice, and some vegetables such as peppers, onions, tomatoes, lísíngo/básíngo (Phytolacca dodecandra), losólo/nsólo (Solanum melongena) are also cultivated. Coffee was introduced as the cash crop in the 1960's.

Hunting, fishing, and gathering are also important subsistence activities. The Bongando people have developed various techniques for subsistence. Takeda reported the diversity of their food repertory. They eat at least 65 spp. of mammals, 48 spp. of birds, 20 spp. of reptiles and amphibians, 104 spp. of fish, 50 spp. of insects, and 95 spp. of plants (Takeda, 1987).

They are not dependent on other people for their protein consumption.

They keep goats, pigs, chickens, and ducks. These animals are transferred as bridewealth, but are rarely eaten. They also keep dogs for hunting [7].

2.3. Lineage System and Marriage

The Bongando people have a patrilineal lineage system. It is stratified into six levels from the extended family to the Bongando ethnic group itself. All lineage levels are called liyótsi/bayótsi. This noun is derived from verb mb-óta (to give birth), and means "the people who have the same ancestor." The lineage name is composed by replacing the first syllable of the common ancestor's name with "Yo" or "Ya." For example, Bohanda's descendants are called "Yohanda" or "Yôhanda". The chiefship of the lineage is inherited as follows. When the chief dies, his eldest brother becomes chief. When all of the brothers are died, the eldest brother's eldest son becomes chief (Fig. 4). Usually members of the same lineage live closely.

An example of structure and population of each lineage level is shown in Table 1. Each level is as follows. (1) The minimum lineage level is the extended family (elombo/bilombo) of 2-20 members. (2) Several elombos make up a lower lineage level called lɔsɔmbɔ/nsɔmbɔ of 10-100 members. In a lɔsɔmbɔ's area a small hut, which is called also a lɔsɔmbɔ, is constructed. In this report, I call it the "lɔsɔmbɔ hut." Men of the lɔsɔmbɔ frequently congregate in this hut to chat, but women usually do not enter it. The chief is called nkóko/bankóko. (3) Some

lɔsɔmbɔs compose an upper lineage level [8] of 50-500 members. This lineage level has no Longando name [9]. In this report, I will borrow the name of the administrative unit "localité," which roughly corresponds to this lineage level. Localité is the unit of exogamy [10]. The chief is called nsómí/nsómí. He wears a skin hat and a necklace of leopard(nkóy/nkóy)'s teeth in ritual ceremonies. The members of a localité express their alliance by saying "We have one nkóy." (4) Several localités make up a lineage level of 500-2000 members. This level also has no Longando name. I will borrow the administrative name "groupement." Usually the traditional chief simultaneously holds the post of administrative chief of the groupement. (5) Groupements are organized into four large lineages, Lalia-Buuma, Lalia-Iyondo, Lalia-Ngolu, and Lalia-Boyela. The areas of these lineages are the northeast, northwest, center, and south sections of the Bongando land. The boundary of the area of this lineage level is not clear, and they have no chief. I studied the people belonging to the Lalia-Ngolu. (6) These four large lineages compose the Bongando.

Marital residence is virilocal, and polygyny is possible. The wife does not change her lineage after marriage. If she dies, the body is sent back to her natal lineage, and buried. The husband's lineage (usually extended family elombo) must pay bridewealth [11] to the wife's lineage, as long as the marital state continues. The wife's lineage have the right to bring her back, if bridewealth is not paid. In fact, such cases frequently occur. Therefore, the wife retains strong ties with the natal lineage.

3. METHODS

Field research was conducted in October - December 1986, June 1987 - February 1988, and June 1988 - February 1989. I stayed in the Groupement d'Iyondje, Zone de Djolu, Region d'Equateur. This Groupement is adjacent to Groupement de Wamba, in which Japanese scientists have studied pygmy chimpanzees (Pan paniscus) since 1973 (Kano, 1980).

For communication, I usually used Lingala, but in the latter half of the research, Longando was also used.

3.1. Self Focal Sampling

3.1.1. Sampling Method

A systematic sampling method is indispensable for the accurate measuring of time budgets. However, focal sampling (Martin & Bateson, 1986) is difficult to use in studies of humans, because the presence of the observer greatly disturbs the focal individual's activity.

In this study, modified focal sampling called "Self-Focal Sampling (SFS)" was conducted. Three adult men (M1, M2, M3) and three adult women (F1, F2, F3) were chosen as informants (Table 2). Each of them carried a field notebook and a watch, which beeped on the hour. They recorded the time, place, their activity, and the people whom they were with, when the watch beeped. They did not record when they slept. The sampling was continued from June to December 1988, and 17,029 sampling units were recorded.

Categories of place and activity were not defined beforehand. Informants wrote these data freely in Lingala. They came to my

house and reported every 1-3 days. The data were input to a portable computer *in situ*. If the reports were obscure, I inquired again. Additional information, such as details of activities and the kind of foods eaten were also recorded. Their reports were thought to be reliable on the whole, because they coincided closely with the actual behavior I observed.

The definition of "with-ness", i.e., "*with* whom the informant was" 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 synonymous with spatial proximity.

3.1.2. Classification of Activity

Activities were roughly classified when I input the data to a computer. Afterwards I re-classified them and combined similar categories. Some of these categories are not exclusive of each other. For example, a woman could cook and suckle her child simultaneously. Informants recorded only one of these activities. However, I could estimate which was the main activity being recorded in almost all cases. For example, in the above case, she probably recorded "cooking." Such cases are explained in Section 4, where necessary.

3.1.3. Classification of Place

For the classification of place, a "social axis" and an "ecological axis" were defined (Table 3). The Bongando people constructed the village along the road. The social axis extended

parallel to the road, while the ecological axis extended perpendicular to it. When one walks along the road from one's house, one crosses the areas of one's elombo, lɔsɔmbɔ, localité, and groupement. This order corresponds to the stratification of the lineage system. On the other hand, when one walks into the forest, one crosses láánjá, secondary forest, field, primary forest, and river. Each of there areas has its own ecological meaning for the Bongando people.

3.1.4. Statistical Analysis

In order to demonstrate the analysis of time allocation, I will use the activities recorded at 7:00 as an example. It may be assumed that these activities were randomly chosen from the parametric population of activities in the period of 6:30-7:30, because the Bongando people do not conduct specific activities at specific times. Suppose that one informant recorded that he was eating at 7:00, 25 times in 173 days' record. According to the above assumption, the probability of eating in the period of 6:30-7:30 is 25 / 173 = 0.145. Therefore the informant ate 60 min x 0.145 = 8.7 min in 6:30-7:30 on average.

3.2. Line Sampling

An informant walked about the area of the Yalisanga lineage (Fig. 3) several times a day. Whenever he saw anyone, he recorded the time, place, and their name. Sampling was conducted October 1987 - February 1988, and June - December 1988, and 1752 grouping samples were recorded. Because he walked in the láánja, he mainly recorded people who were outside the house: i.e., who were in the

láánjá, in the kitchen hut with no wall, or in the lɔsɔmbɔ hut.

3.3. Profiles of the Persons

The profile data of the persons who appeared in the above two samplings were collected as follows. The persons' names were sorted alphabetically by a portable computer. Wrong data as follows were corrected: (1) input mistake, (2) one person was recorded by two or more different names, (3) two or more persons were recorded by the same name. These details of these persons' sex, age, kinship relation to the informant, birth place, and resident place were later obtained from the informant.

3.4. Greeting

The situations in which the Bongando people exchange, or do not exchange greetings were investigated. I asked the six subjects of SFS whether they exchanged greetings with adults in the same localité. I inquired "When you sit in your house or the lɔsɔmbɔ hut, and the target person comes there and meet you for the first time in that day, do you say "Ómooya" (their common greeting) to the person or not." The answers were classified into "I greet," "According to circumstances," and "I do not greet."

4. RESULTS

4.1. Description of Activities

Table 4 shows the activity repertory and time allocated to each activity per day. The mean for the three male informants, and that for the three female informants are shown. Details of activities which can not be understood from the heading alone are

given below.

(1) Social intercourse, Leisure: When the informants recorded "sitting," "drinking," or "drinking coffee," it is probable that they chatted, if they were with other people.

(2) Agriculture: "Working in coffee field" includes planting, weeding, harvesting, and drying of coffee beans. "Working in cassava field" includes "cutting tree to open field" (leengi/beengi), which is men's work. Weeding was done by women.

(3) Hunting and fishing: "Hunting" includes group hunting using nets (botái/betái), using a bow and arrow (bakímáno/bakímáno or bakulá/bakulá), and personal hunting using a shotgun. "Trapping" [12] consisted mainly of spring trapping using nylon string (nilón/nilón), wire (zɛ́ki/zɛ́ki), or a small sack-shaped net (ikɔnɔngɔ/tɔkɔnɔngɔ). Usually these traps were set individually. "Fishing" consisted mainly of nylon net or hook fishing by men, and fishing by evacuating water (mpóha'á nse/mpóha'á nse) by women. Men's fishing was usually conducted individually, or at most by two or three men. Mpóha'á nse was conducted by one to several women, and sometimes involved more than ten women working cooperatively.

(4) Caring livestock: Almost all of this category are driving chickens into the small hut in the evening. Other livestock are not earnestly cared.

(5) Gathering and other foraging activities: "Gathering" includes gathering wild or cultivated plants except for cassava and coffee, and gathering edible caterpillars, which could be found from July to September.

(6) Cooking: Women generally chatted while cooking, if they

were with other people. They could do this because most of the cooking time is spent in activities for which they need not concentrate, such as watching over the fire.

(7) Eating: Also while eating, Bongando people generally chatted if they were with other people.

(8) Walking: This category includes walking along forest paths, on the way to field, river, or forest. Therefore, for example, when a female informant returned from river carrying gourds of water and soaked cassava, she recorded that she walked. Walking along the road to go to other villages is also included. Chatting occurred frequently when they walked with others.

4.2. Time Allocation

4.2.1. Subsistence Activities and Social Interactions

Table 5 shows the main activities in order of frequency. The mean number of people who were with the informant is also shown [13].

Activities which are not directly related to subsistence (e.g., sitting, eating, chatting, and smoking) were frequent. In addition, in the women's 148 min cooking, they simultaneously chatted. Social interactions occurred mainly in these activities. By contrast, subsistence activities (e.g., hunting, fishing, gathering, and working in the field) were relatively infrequent.

4.2.2. Hourly Variation in Activity

Hourly change in the frequency of the seven main activities are shown in Fig. 5. The following tendencies are pointed out.

There were two peaks in "Eating," one in the morning (7:00-

8:00) and one in the evening (18:00-19:00). However, even near noon, Bongando people ate 10 % of 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 precede the peaks of "eating."

"Chatting" had a sharp peak in the evening (near 19:00). The peak for men is higher than that for women. "Drinking coffee" also had a peak in the morning (6:00-7:00). In that time, men were with 1.03 persons and probably chatted. As "chatting" was associated with "eating," "drinking coffee" and "cooking," it can be concluded that the Bongando people's chatting was most frequent in the morning and evening.

4.2.3. Analysis along the Social Axis

Fig. 6 shows time allocation along the social axis. Men's stay has no peak along the axis. In contrast, women's stay is bimodal: i.e., they mainly stayed near the house and outside the localité, but seldom went to the lɔsɔmbɔ hut or to others' houses. When outside the localité, women mainly visited their natal lɔsɔmbɔ. In sum, the probability of men's being in one place monotonously decreases along the social axis from their house, and that of women's being in one place concentrates at two points: their married family's house and their natal lɔsɔmbɔ.

4.2.4. Analysis along the Ecological Axis

Table 6 shows time allocation along the ecological axis. Both men and women spent longer time in the forest than in the

fields. This tendency agree with that of the time allocation of activities shown in 4.2.1.

Fig. 7 shows hourly change of time allocation along the ecological axis. Frequency of staying in the field and forest increased in the morning, reached a peak at noon, and decreased in the afternoon.

4.3. Association pattern

4.3.1. Self-Focal Sampling

Fig. 8 and Fig. 9 are graphs which are used for analyzing how a person extends his/her social relation.

Fig. 8 shows general tendencies in association patterns. Averages of three male informants and three female informants are shown. Data for all classes of association partner are combined in this graph. The number of specific partners who often associated with the female informants (unfamiliarity index 0-1) was greater than that for the male informants. This tendency reverses in the area of partners rarely associated with (index 1-3.5). Compared with women, men associated with many partners in this area. Thus, women associate frequently with only a few specific people, while men associate infrequently and evenly with many people. In other words, women are more selective of their association partners than men.

Fig. 9 shows the association patterns with partners classified according to age-sex, kinship, residence. In Fig. 9-1, 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 than with those of different sex.

In Fig. 9-2, association partners are classified by kinship. I defined the "kinship index" between two persons as (degree of consanguinity) + (number of conjugal linkages). The index between non-kin is infinite. Those of kinship index 0-3, 4-7, and over 8 are distinguished. Men's close kin (kinship index 0-3) appear in the area of unfamiliarity index 0.5-1. However, most of the association partners in unfamiliarity index 1-3.5 consisted of distant or non-kin (kinship index over 8). Compared with men, women's association partners tended to be close kin.

Residence of association partners is classified as (1) informant's localité, (2) informant's groupement (except informant's localité), (3) outside informant's groupement (Fig. 9-3). Men generally tended to associate more frequently with partners who resided near by. In the area of unfamiliarity index 0-2.0, women mostly associated with partners of their resident localité. In the area 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. This agrees with the tendency pointed out in the time allocation analysis along the social axis (Section 4.2.3.).

4.3.2. Line Sampling

A dendrogram of association pattern in the localité Yalisanga was drawn from the results of line sampling (Fig. 10).

Adult women appearing in the dendrogram are classified into

two categories: those who were born in the lineage (bosékά/besékά), and those who married into the lineage (bɔ́li'ɔ'ɔsɔngɔ/baɔ́li'ɔ'ɔsɔngɔ). NL, a man of 36 years old, belonged to lineage I, conducted the line sampling, and so does not appear in the result.

I will briefly explain membership tendency of clusters 1-8.

1: Children of NL, and visitors to lineage I, including me.

2: Bosékás, bɔ́li'ɔ'ɔsɔngɔs and children of lineages I and II.

3: Bosékás, bɔ́li'ɔ'ɔsɔngɔs and a child of lineage I related to NL.

4: Bosékás, bɔ́li'ɔ'ɔsɔngɔs, and their children of lineage III, related to LO (an adult man of lineage III).

5: Men, Bosékás, bɔ́li'ɔ'ɔsɔngɔs, and children of lineage III.

6: Adult men of lineages II and III.

7: Adult men of lineage IV.

8: Bosékás, bɔ́li'ɔ'ɔsɔngɔs, and children of lineage IV.

The clusterring pattern corresponds to the lineage segmentation, with the exceptions of clusters 2 and 6. Women of lineages I and II are together in cluster 2, and men of lineages II and III are together in cluster 6. By contrast, segmentation between lineages I, II, III and lineage IV is clear. I assume it is because lineages I, II, and III were smaller than lineage IV (Table 1). Therefore the members of the former three lineages needed to ally against lineage IV. In fact, sometimes members of lineages I, II, and III spoke ill of a member of lineage IV, whereas such kind of speech was not heard between members of lineages I, II, and III.

An old man in cluster 7 (marked by a star) was an exception for this confrontation. He was the oldest man among lineages I,

II, and III, and was the chief (nkɔ́kɔ) of lineage I. Old men including the nkɔ́kɔ of lineage IV frequently visited his house, in spite of the confrontation between other members. It is possible that this association of old men was a political behavior to integrate the localité Yalisanga.

In the clusterring, men and women separate clearly, except in cluster 5. They scarcely associated, even though they live sympatrically. Children are seen in the clusters including women, and are not seen in the clusters of men. These findings agree with the tendencies apparent from the analysis of self-focal sampling.

4.4. Greeting Boundary

Greeting is usually conducted at the beginning and the end of a social interaction. Those who do not exchange greetings when they encounter one another are already involved in a certain level of social interaction (or they are complete strangers to one another). For example, it is natural that two persons exchange "Good morning" at their first encounter of the morning. But if they encounter one another again after ten minutes, they do not exchange greetings. This is because they have become involved in a certain interactional situation by the first greeting.

The Bongando people's common greeting at the encounter is "Ómooya (You have come)." and "Oo/ɛɛ (Sure)." The former is spoken by the person who is stationary, and the latter by the person who comes. However, in some cases, they do not exchange these greetings.

Fig. 11 shows how informants greeted people in their

localité. Generally speaking, the informant did not greet those who lived within a radius of 150-200 m, and greeted those who lived outside that area. I call the boundary between these two categories the "greeting boundary." The pattern suggests that those who resided inside the greeting boundary were involved in a certain social interaction.

On the other hand, the unfamiliarity index and greeting behavior were not correlated with each other (Fig. 12). This means that some dyads (1) lived closely, (2) did not greet to each other, and (3) rarely conducted face-to-face interactions. Most of these dyads are composed of persons of different sex. For example, NG (adult female) lived next door to informant M3's house, but she appeared only eight times in M3's 2896 sampling units. M3 said that he did not greet her, if they encountered.

5. DISCUSSION

5.1. Time Allocation

5.1.1. Multi-Subsistence People

Although the Bongando are usually called "farmers," they do not spend so much time for agriculture. They spend a lot of time in hunting, fishing, and gathering. They eat many species of wild animals and plants, and obtain almost all protein for themselves. If "farmers" are defined as those who conduct agriculture at all, then the Bongando are farmers. But if they are defined as those whose main activity is agriculture, then the Bongando should be called rather "farmer-hunter-fisher-gatherer," or simply "multi-subsistence people."

5.1.2. Subsistence Activities and Social Interaction

The Bongando people spend a lot of time sitting, chatting, eating, and in other contexts in which social interactions frequently occur. They spent relatively little time in subsistence activities. Why are they not so busy?

Cassava is the main crop of the Bongando. Sato pointed out the nutritional importance of cassava to the Boyela people, who reside adjacent to the Bongando (Fig. 1). They receive 76.4 % of their calorific intake from the cassava tuber, and 15.0 % of protein from the cassava leaf (Sato, 1984). In spite of such importance, cassava cultivation does not require long time. In cassava cultivation, the Bongando people spent the most time only cutting and burning woods, and planting. They scarcely weed the field after the planting. They do not spend time preserving cassava tuber, because it can be kept in the field soil for several years [14].

Time required for hunting and fishing has become shorter through the recent changes in techniques. Takeda described several kinds of group hunting of the Bongando, but many of them have now been abandoned. For example, bohonda/behonda, the net hunting of bushpig (Potamochoerus porchus), has not been conducted since 1959 (Takeda, 1984), and net hunting of duikers (botái) is rarely done these days. It is mainly because populations of large mammals have decreased in the forest near the village. Instead of group hunting, individual trapping has become common and includes many innovations. For example, new materials such as nylon and wire are used in the new trapping techniques, nilón and zɛ́ki. According to Sato (1983), the adjacent Boyela people also conduct

trapping, and get returns without a large amount of labor input.

Also in fishing, the introduction of new equipment such as nylon gill nets and iron fishhooks, raised the labour efficiency. Informants said that when nylon nets were introduced in 1960's, they caught more fish than before [15].

On the other hand, women's subsistence activities do not seem to have changed recently. They have probably spent not very much time in gathering and fishing. According to SFS data, female informants spent only 36 minutes per day in gathering, and 7 minutes in fishing.

To summarize, they do not spend much time in subsistence activities for two reasons: (1) cassava cultivation does not require much time, (2) technological innovations have reduced the time required for hunting and fishing.

5.1.3. Sexual Differences in Mental and Physical Concentration on Activities

Although both Bongando men and women conduct activities relating to social interactions, time allocation structures differ. For example, SFS's male subjects chatted for 72 min., and female subjects chatted for only 18 min. per day. However, when female subjects cooked and chatted simultaneously, they reported that they had been cooking [16]. Moreover, they might also take care of a child at the same time. In other words, men tend to conduct one activity at one time, whereas women tend to conduct two or more activities at one time. This tendency can be explained in terms of the differences 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 a field (leengi and bolemo), setting traps for animals or nylon nets for fish, are examples of such activities.

By contrast, much of the women's works do not require concentration, but takes a long time. Cooking and caring for children are two examples. Tubers and leaves of cassava are the main foods of the Bongando people, but they take a long time to cook. Women must boil them for several hours every two or three days. However, they need not pay attention while cooking. They can simultaneously chat, eat, or take care of child.

5.2. Two Features of Association Pattern

In the Bongando's association structure, two characters were pointed out: (1) Probability of men's being in a place decreases along the social axis as they are away from their own house, whereas that of women's stay concentrates at their married house and natal losombo. Also men's association partners extend to non-kin, but those of women concentrate on close kin. (2) Men and women clearly segregated spatially. Such tendencies were also reported in the studies of hunter-gatherer societies such as the Mbuti Pygmy (Ichikawa, 1978) and the San (Sugawara, 1984). It is important that such tendencies were confirmed not only in hunter-gatherer's societies, but in a farmer's society. Are these common features of human societies? More precise studies of association pattern in other societies are required.

5.3. Two Levels of Social Interactions: Face-to-Face and Non-Face-

to-Face Interactions

The Bongando people do not greet those who reside within the "greeting boundary," circle of 150-200 m radius. People within this area continually involved in a kind of social interaction, even in the non-face-to-face situation.

I believe that the main medium of this interaction is the Bongando people's frequent loud speech. In another report (Kimura, in press) I showed that in the house or the láánjá, the distant speech of another can frequently be heard. In the daytime (7:00-18:00), at least one speech could be heard at almost any time (94.7%), and two or more speeches were heard simultaneously about half of the time (53.1%). At the distance of the greeting boundary, 150-200 m, loud speech can be heard. It seems that the Bongando people are almost always involved in verbal interaction, in which the partners are not specified. In addition, they can easily look at a distant speaker across the wide open láánjá. Such visual reinforcement may support non-face-to-face interactions.

Thus, the Bongando people have two levels of social interactions. In face-to-face interaction, the association partners are individually distinguished. Each of the Bongando people distinguish his/her association partners by their age, sex, or kinship relation. The dendrogram analysis even suggests "micro-political" behavior, based on such segregation. On the other hand, in non-face-to-face interaction, association partners are determined only by the distance of resident place. In other words, partners are not distinguished individually. Such "feeling of co-presence" always continues in the Bongando's daily life.

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NOTES

1 I use the name "Bongando" for this ethnic group, after Philippe (1965). However, the notation of the name has been confused.

In some reports (e.g., Murdock, 1959; Takeda, 1984; 1987), the name is written as "Ngandu." I assume that "Bongando" was

regarded as "Bo (plural prefix) + Ngando." After that, "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" is the name of their common ancestor, and the name "Ngando" or "Ngandu" has no meaning.

In other reports (e.g., Van der Kerken, 1944; Institut Géographique du Zaire, 1982), the name is written as "Mongandu." The consonant "b" at the beginning of a word in Longando usually changes to "m" in Lingala. For example, "a man" is "boto" in Longando, and "moto" in Lingala. I assume that the informant of these reports pronounced the name of this ethnic group in Lingala fashion.

2 The Bongando people explain that their legendary common ancestor "Bongando" is a son of "Mɔ́ngɔ."

3 I could not find recent population statistics for the Bongando. I used the population estimate of 200,000 by Van der Kerken (1944), and 250,000 by Murdock (1959). After these estimate, population growth rate was calculated by three statistical reports (Conceil de Gouvernememt 1957; Cabinet du Ministre d'Etat 1970; Department du Plan, 1984), which gave an approximate rate of 2 % per year. From these data, I estimated a population of 450,000-500,000.

4 Van der Kerken (1944) estimated that they passed there 200 years ago.

5 I denote Longando words as follows. (1) Vowels [o] and [ɔ], [e] and [ɛ] are distinguished, and denoted "o," "ɔ," "e," "ɛ." (2) High tone is denoted by "´." (3) Plural form of Longando nouns are given only at the first appearance of the noun (e.g., lɔsɔmbɔ/nsɔmbɔ = singular/plural) . (4) When a Bongando noun is denoted as plural in the text, it is written as singular + "s" (e.g., lɔsɔmbos), for the simplicity.

6 This map is based on pace measuring. I analyzed the data and drew the maps using a portable computer (NEC PC-98LT) at the study site, and revised the data in situ if inconsistencies were found.

7 For more information on the Bongando's hunting and food ecology, see Takeda (1984; 1987).

8 In this report, I call all patrilineal descent group "lineage" for simplicity of description. But from this level, descent group can be called "clan," because concrete genealogy cannot be traced.

9 "Bolá/belá" is usually used to describe the lineage of this level. However, the original meaning of this word is "co-resident group." Therefore, even if persons from some different liyótsis reside at the same place, they are called a "bolá."

10 In other words, exogamy defines the localité. I heard the following episode. A quarrel occurred in a localité, and the members wanted to divide it. In speaking of the division, they

said "Let us begin to marry each other."

11 Strictly speaking, it should be called "goods exchanged between two affine lineages." It differs from ordinary bridewealth treated in cultural anthropology in that: (1) these goods are endlessly required as long as the marital stage continues; (2) goods are exchanged, i.e., not only the husband's lineage, but also the wife's gives goods.

For example, a husband's lineage (bakiló'a ngando: affines of ngando) gives goods (ngando/ngando) such as ornamental spear (likɔngá/bakɔngá), large copper ring (baango/baango), knife (lokulá/nkulá), goat, etc. In return, wife's lineage (bakiló'a lisongo: affines of lisongo) gives goods (lisongo/basongo) such as hunting net (botái/betái), spirits, chicken, duck, etc. Recently, the Bongando people have begun to exchange money instead of goods.

12 The trap's general name is ilónga/tolónga.

13 Time allocation for "work in cassava field" in this data are biased by the sampling period (June - December). Men cut trees to open new fields mainly from January to March. Even so, I assume that time allocated to work in the field was less than that in the forest.

14 Sugiyama (1988) reported that among the Bemba people in Zambia the time spent in cultivation 3.9 hours for men and 4.3 hours for women per day. These are extremely long compared with those of the Bongando people. They clutivate various crops such

as finger millet (Eleusine coracana), maize (Zea mays), cassava (Manihot sp.), sweet potatoes (Ipomea batatas), ground nuts (Arachis phypogaea), and coupea (Vigna unguiclata). I assume that crops other than cassava require a long time for cultivation.

15 Recently the catch has begun to decrease again, probably because of over-fishing.

16 Sugiyama (1987) also reported frequent chat in cooking of the Bemba.

17 Women's association beside the river, and at women's dances are two exceptions. In the village, they seldom walk away from their own houses. The river is a place where they can talk with women of another lineage freely. They sometimes aggregate for dance. There are different kinds of dances, such as ondeyo, botémbé, and lokényá. These dances are not the traditional ones, i.e., they were introduced from outside the Bongando land, or were originated by a person in these ten to thirty years. They seems to function as the social devices which strengthen the intimacy between women.

REFERENCES

Cabinet du Ministre d'Etat 1970. Resultats Officiels du Recensement General de la Population de la Republique Democratique du Congo. Cabinet du Ministre d'Etat, Kinshasa.

Conceil de Gouvernement. 1957. Discourse du Gouverneur Général L. Pétillon Statistiques. Conceil de Gouvernement, Leopoldville.

Department du Plan. 1984. Conbien Sommes-Nous. Department du Plan, Kinshasa.

Hulstaert, G. 1957. Dictionnaire Lɔmɔ́ngɔ Français. Musée Royal du Congo Belge, Tervuren.

Ichikawa, M. 1978. The residential groups of the Mbuti Pygmies. Senri Ethnological Studies, 1:131-188.

Institut Géographique du Zaire. 1982. Republique du Zaire Carte Ethnographique. Institut Géographique du Zaire, Kinshasa.

Kano, T. 1980. Social behavior of wild pygmy chimpanzees (Pan paniscus) of Wamba: A preliminary report. J. Human Evol., 9:243-260.

Kano, T. & M. Mulavwa. 1984. Feeding ecology of the pygmy chimpanzees (Pan paniscus) of Wamba. In Susman, R. L. (ed.) The Pygmy Chimpanzee: Evolutionary Biology and Behavior. Plenum Publishing Corporation, New York.

Lee, R. B. 1979. The !Kun San. Cambridge University Press, London.

Martin, P. & P. Bateson. 1986. Measuring Behaviour: An Introductory Guide. Cambridge University Press, Cambridge.

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). Musee Royal de l'Aflique Centrale, Tervuren.

Sato, H. 1983. Hunting of the Boyela, slash-and-burn agriculturalists, in the central Zaire forest. Afr. Stud. Monogr., 4: 1-54.

-------. 1984. Subsistence economy of the Boyela: Their cassava utilization and cultivation (in Japanese). In Itani, J. and T. Yoneyama (eds.) The Studies of African Cultures. Academia Publishing, Kyoto.

Sugawara, K. 1984. Spatial proximity and bodily contact among the central Karahari San. Afr. Stud. Monogr. Suppl. Iss. 3:1-43.

Sugiyama, Y. 1987. "May I use your mortar?" Micro-politics of the Bemba Women on the ownership and usage of daily utensils (in Japanese with English abstract). Journal of African Studies (Africa-Kenkyu). 30:49-69.

----------. 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 (Minzokugaku-Kenkyu). 53-1:31-57.

Takeda, J. 1984. Notes on hunting and sharing game among the Ngandu, A tropical rain forest tribe of central Zaire. (in Japanese). In Itani, J. and T. Yoneyama (eds.) The Studies of African Cultures. 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 Wada, S. (ed.) Africa: Ethnological Studies. Dohosha Publishing, Kyoto.

Tanaka, J. 1979. San Hunter-gatherers of the Kalahari: Study in ecological anthropology. University of Tokyo Press, Tokyo.

Van der Kerken, G. 1944. L'Ethnie Mongo: Mémoires de l'Institut Royal Colonial Belge 13. Brussels.

Vuanza, P. N. & M. Crabbe. 1975. Les Régimes Moyens et Extrêmes des Climats Principaux du Zaire. Centre Meteorologique, Kinshasa.

Table 1. Stratified lineage structure and each lineage's population. 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 and Yambomba. Underlined Lineages are the unit of exogamy, which roughly corresponds to the administrative unit "localité." All small lineages under the localité level are called "lɔsɔmbɔ." Some large lɔsɔmbɔs include small lɔsɔmbɔs. Population of each lineage is shown right of the lineage name. Some small lineage's populations were not censused.

Iyondje 1921
- Yokali 133
  - Yokumbe 39
  - Yambomba 37
    - Yomboli'a Ngole 21
    - Yakisi'Ilengo 36
- Yohala 190
  - Yingoli'o'Ohala 38
    - Yambonjo'o'Ohe 19
    - Yalokake 19
    - Yondonga'a Mbonjo 94
  - Yolunvu'o'Ohala 39
    - Yongolo 39
- Yangonde 417
  - Yayele 98
    - Yolonga 59
      - Yambonjo'o'Olonga 14
      - Yelengo 26
      - Yaliyeke'o'Oombo 19
    - Yambonjo'a Mpete 39
  - Yambonjo'e'Etee 144
    - Yalolombo 101
    - Yoseli'e'Etee 43
    - Yakanga 73
      - Yakaa'a Nkolo 38
      - Yeya'a Mbonjo 35
    - Yisenge yo'Olinga 22
  - Yokonji 80
    - Yambonjo'o'Okonji 53
    - Yokuto'o'Oombo 27

(continued)

- Yohe 94
  - Yosai'o'Ooke 19
  - Yangolu 10
  - Yokumbe'e'Esanga 65
- Yolalya 72
  - Yosai'i'Itsulu 58
  - Yohenya'a Mputsu 14
  - Yanganga'a nyongo 7
- Yotole 286
  - Yalongongo 105
    - Yotsili'o'Olunvu
    - Yambeli
  - Yilome'e'Elango 35
    - Yokongo'a'Ato
    - Yohaso'a'Ato
    - Yikoka yo'Olunvu
  - Yampotsi'o'Otsili 97
    - Yikumbo'o'Osambi
    - Yokoke
    - Yambonjo'a Mpotsi
    - Yohenda
  - Yalotsika'a Nyongo 49
    - Yelalya
    - Yokumba'a Ndala
    - Yambonjo'a Ndala
- Bolingo 89
  - Yondonga 41
  - Yamputsu 27
    - Yohenya 18

(continued)

- Yalohili 279
  - Yolota 129
    - Yotsili'o'Olota
      - Yotsili'a Ausu
      - Yotsili'a Nkose
      - Yakengola
    - Yomangi'i'Isandu
  - Yambombe/Yapete 150
    - Yampaka
    - Yongila
    - Yondonga'a Lokumo
- Bisanau 156
  - Yalaha 32
  - Yokumba'a Nsongo 37
  - Yayele'a Mbonjo 87
- Yalisanga 192
  - Yolimo'o'Oombe 107
  - Yakoso'o'Onyata 72
    - Yokumba'a Nkoso 54
    - Yohanda 18
  - Yikombi'o'Onyata 13

Table 2. Profiles of the informants of self-focal sampling.

Informant	Sex	Age	Families	Sampling period	No. 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

Table 3. 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 <u>láánja</u>, and <u>lɔsɔmbɔ</u> hut)	One's own house
Road	One's own kitchen
Cassava field	Adjacent area of one's house
Coffee field	One's own <u>láánjá</u>
Others' field	One's own <u>lɔsɔmbɔ</u> hut
Secondary forest	One's own field
River and riverside	Area of one's localité
Primary forest	Other's house or <u>láánjá</u> in one's localité
	Other <u>lɔsɔmbɔ</u> huts in one's localité
	Forest behind one's localité
	Outside of one's localité
	Natal localité (for married women)
	Hunting/fishing camp

Table 4. Daily activities and their time length per day.

Activity	Time (min)	
	Men	Women
Social intercourse, Leisure		
Chatting	72	18
Drinking	36	8
Drinking coffee	24	5
Smoking	53	0
Styling hair	2	12
Sitting	202	71
Seeing others	10	32
Dancing	1	1
Playing	4	1
Writing a letter	1	0
Reading a book	4	0
Singing a song	3	1
Worshipping	7	4
Beating a drum	1	0
Reporting the SFS's data	8	9
Doing forced labor	3	2
Other activities	1	0
Agriculture		
Working in coffee field	16	5
Working in cassava field	1	1
Cutting tree to open field	2	0
Hunting and Gathering		
Hunting (except trapping)	17	0
Trapping	15	0
Fishing	28	7
Caring livestock		
Caring livestock	1	5
Gathering and other foraging activities		
Gathering	19	36
Making palm wine	10	0
Buying and selling goods	4	9
Cooking		
Gathering cassava	0	7
Soaking cassava	0	10
Cutting firewood	1	12
Making fire	4	5
Cooking	11	148
Washing tableware	0	10
Drawing water	0	9
Eating		
Eating	139	140
Drinking water	1	4

(continued)

(continued)

Table 4. (continued)

Activity	Time (min)	
	Men	Women
Making tool		
Cutting material wood	18	2
Making tool	31	21
Constructing a house	13	4
Hygienic activities		
Washing body	37	26
Removing lice and sand fleas	1	6
Excreting	8	4
Launderring	3	10
Sewing clothes	1	5
Wearing clothes	1	0
Going to the hospital	0	5
Making and drinking traditional medicine	1	4
Administerring	0	3
Sweeping láánjá	12	33
Caring children		
Suckling	0	11
Washing a child	0	17
Other activities	1	7
Walking		
Walking	78	115

Table 5. Daily activities in order of time length, and the mean number of association partners.

Men's activities	Time (min)	No. partners	Women's activities	Time (min)	No. partners
1 Sitting	202	0.99	1 Cooking	148	0.74
2 Eating	139	0.79	2 Eating	141	1.45
3 Walking	78	0.59	3 Walking	115	1.33
4 Chatting	72	2.53	4 Sitting	71	1.29
5 Smoking	53	1.03	5 Gathering	36	0.94
6 Washing body	37	0.65	6 Sweeping láánjá	33	1.01
7 Drinking	36	1.95	7 Seeing others	32	1.17
8 Making tool	31	0.60	8 Washing body	26	0.88
9 Fishing	28	0.28	9 Making tool	21	1.05
10 Drinking coffee	24	1.03	10 Chatting	18	2.07
11 Gathering	19	0.58	11 Washing a child	17	1.14
12 Cutting material wood	18	0.38	12 Cutting firewood	13	0.79
13 Hunting	17	0.60	13 Styling hair	12	1.29
14 Working in coffee field	16	0.31	14 Suckling	11	1.12
15 Trapping	15	0.19	15 Washing tableware	10	0.97
16 Making a house	13	0.54	16 Soaking cassava	10	1.05
17 Sweeping láánjá	12	0.09	17 Reporting SFS's data	9	1.49
18 Cooking	11	0.53	18 Drawing water	9	1.06
19 Seeing others	10	1.25	19 Buying and selling goods	9	0.93
20 Making palm wine	10	0.22	20 Drinking	8	1.27

Table 6. Time allocation along the ecological axis.

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

Legends

Fig. 1

Distribution of the Bongando and the adjacent ethnic groups.

Fig. 2

Map of the study village, fields, and forest.

Fig. 3

Map of the study village and lineage segmentation. Vertical lines show the segmentation of four lɔsɔmbɔs which compose an upper lineage, Yalisanga.

Fig. 4

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.

Fig. 5

Hourly changes in the frequency of the main activities.

Fig. 6

Time allocation along the social axis. Average time length in a day of informants' being is shown for each place. Field, forest, and river are excluded in this analysis, because social segmentations indicated in the social axis are ambiguous in these places.

Fig. 7

Hourly changes in time allocation along the ecological axis.

Fig. 8

General tendency of association pattern of partners.
"Unfamiliarity index" between the informant and other persons is calculated as $Index(\underline{P})=-\log_{10}(N(\underline{P})/Nt)$, where $N(\underline{P})$ is the number of observation units in which association partner $\underline{P}$ 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. The vertical axis is also has a a logarithmic scale.

Fig. 9

Association pattern of partners classified by age-sex, kinship, and residence. Composition of the graphs is the same as that of Fig. 8.

Fig. 10

Dendrogram of association. Persons who appeared over ten times in the sampling data were analyzed. Resident lineage (for married women, her husband's lineage), age, and sex of these persons are shown. Lineage numbers indicate the lineages of <u>lɔsɔmbɔ</u> 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 numberred. Familiarity index between two persons $\underline{A}$, $\underline{B}$ is calculated as $Index(\underline{A},\underline{B})=N(\underline{A}\cap\underline{B})/N(\underline{A}\cup\underline{B})$ where $N(\underline{A}\cap\underline{B})$ is the number of groups

in which A and B were observed together, and N(A∪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 Index(H, K)=(Index(H, I)+Index(H, J))/2. For the simplicity of the figure, (1) fusion points over index level 0.4 are not indicated, and (2) clusters (1, 2, 3, 4) and (5, 6, 7, 8) fuse at index level 0.0017, but the fusion is not indicated.

Fig. 11

Greeting boundary of male informants M2 (upper figure) and M3 (lower figure). The informant's house is marked by a star. Two kinds of persons were taken as the target: (1) those who appeared over three times in the informant's SFS data, and (2) adults reside the localité Yalisanga. Circles are drawn in front of the target persons' houses. Filled circles and blank circles indicate those who do not and do exchanged greetings with the informant. Circles which filled a half are those who sometimes did so. Arrows shows those who do not reside there, but stayed there for several weeks. They were mostly bosékás and their children.

Fig. 12

Distance of resident place, unfamiliarity index, and greeting pattern of the persons and the informant M2. Horizontal axis is the distance between the houses of the informant and the target person. Vertical axis is the unfamiliarity index between the informant and the target person, which is used in Fig. 8. Circles and triangles indicate women and men. Filled marks and blank

marks indicate those who do not and do exchange greetings with the informant. The persons who resided out of the localité Yalisanga, and who did not encounter the informant in SFS are shown separately.

Fig. 1

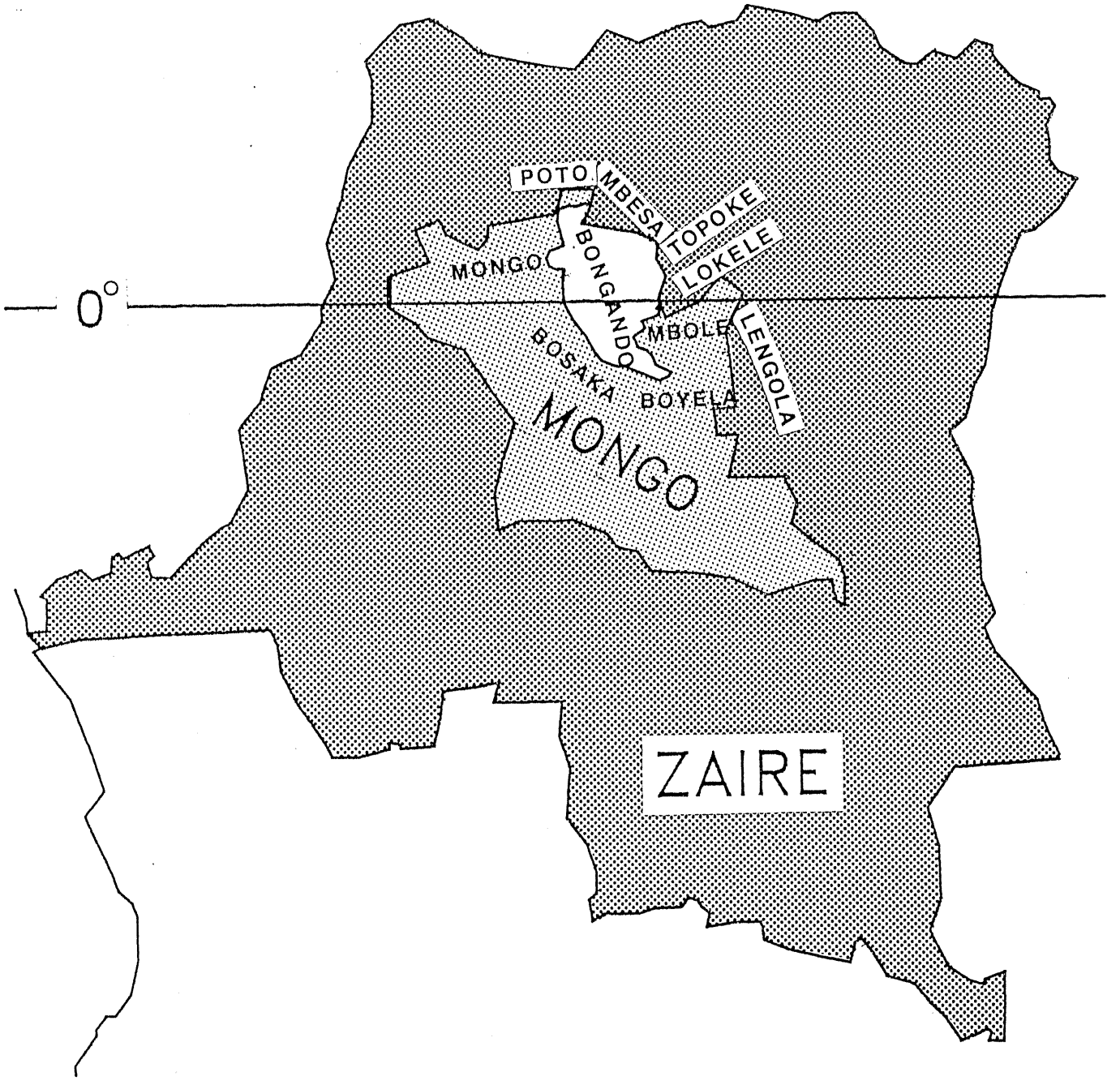
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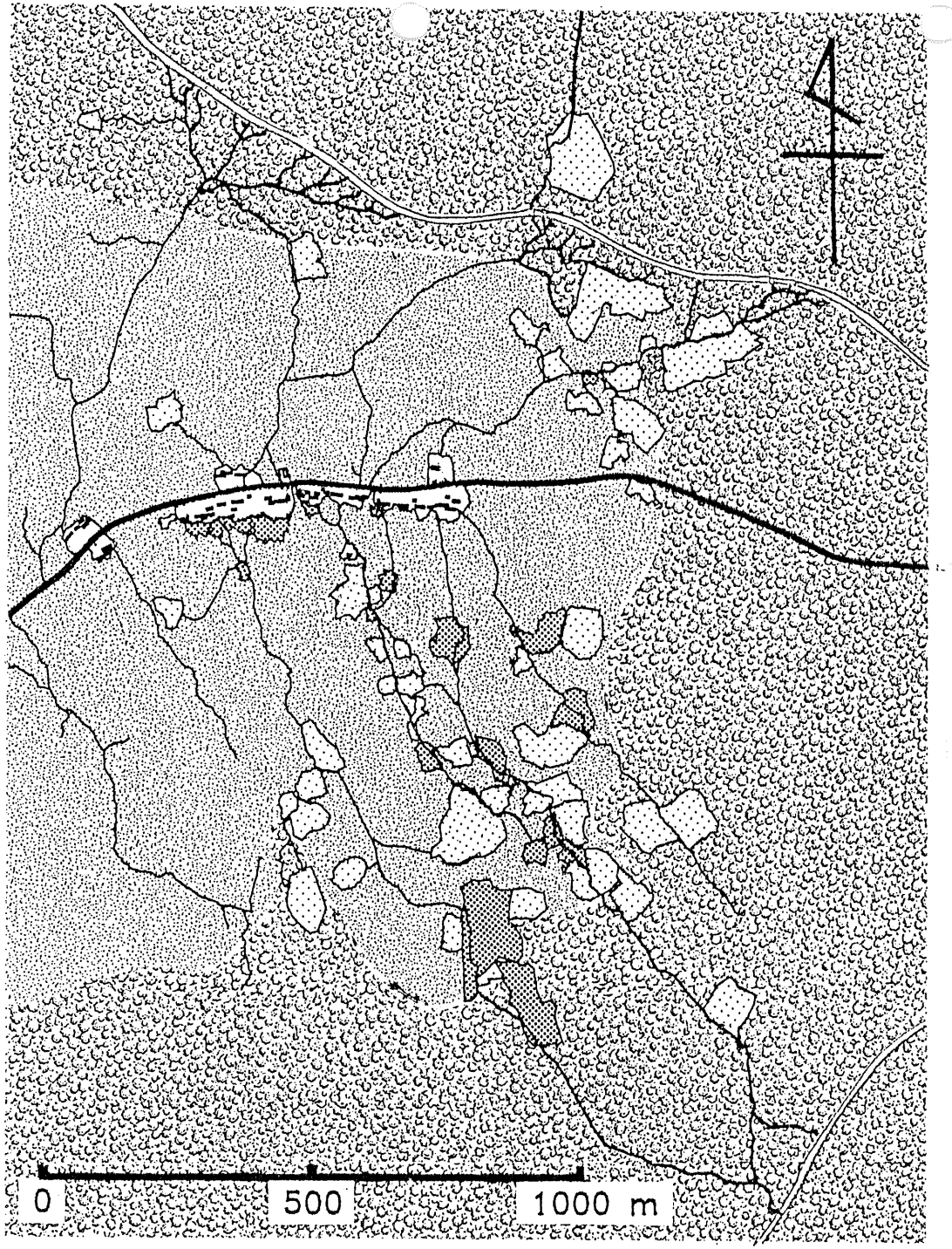
Fig. 2.



Primary Forest

Secondary Forest

River

Cassava Field

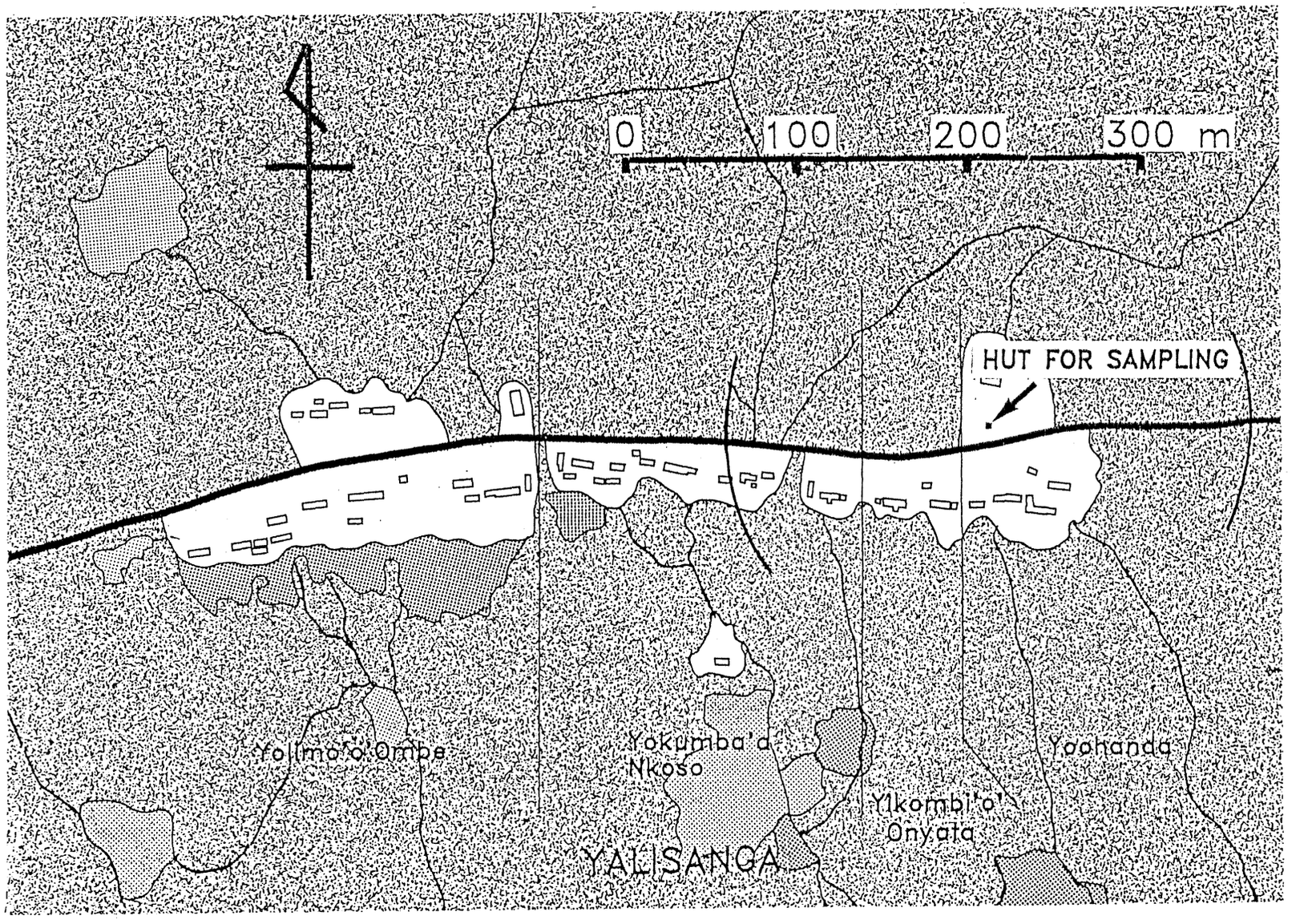
Coffee Field

Courtyard and Houses

Path

Road

Fig. 3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Yochanda
Yikombi'o' Onyata
YALISANGA
Secondary Forest
Cassava Field
Coffee Field
Courtyard and Houses
Path
Road

Fig. 4

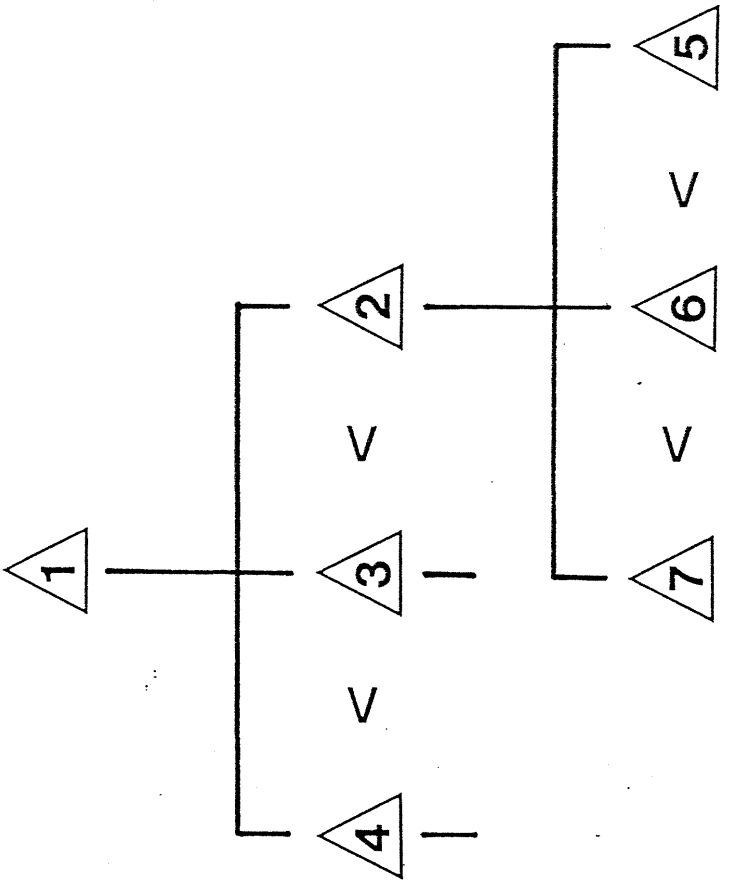
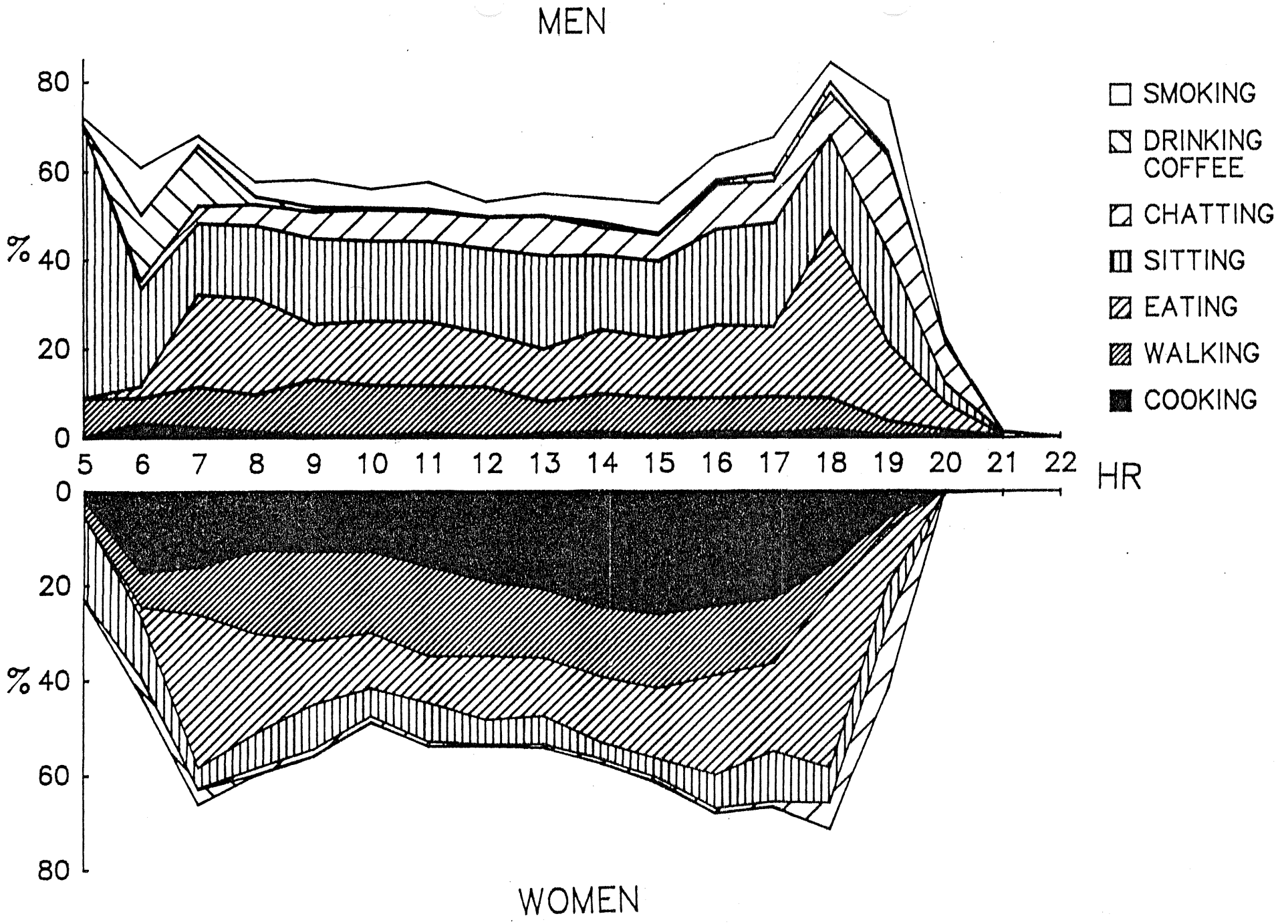


Fig.5.


MEN
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SMOKING
DRINKING COFFEE
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COOKING
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20
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80
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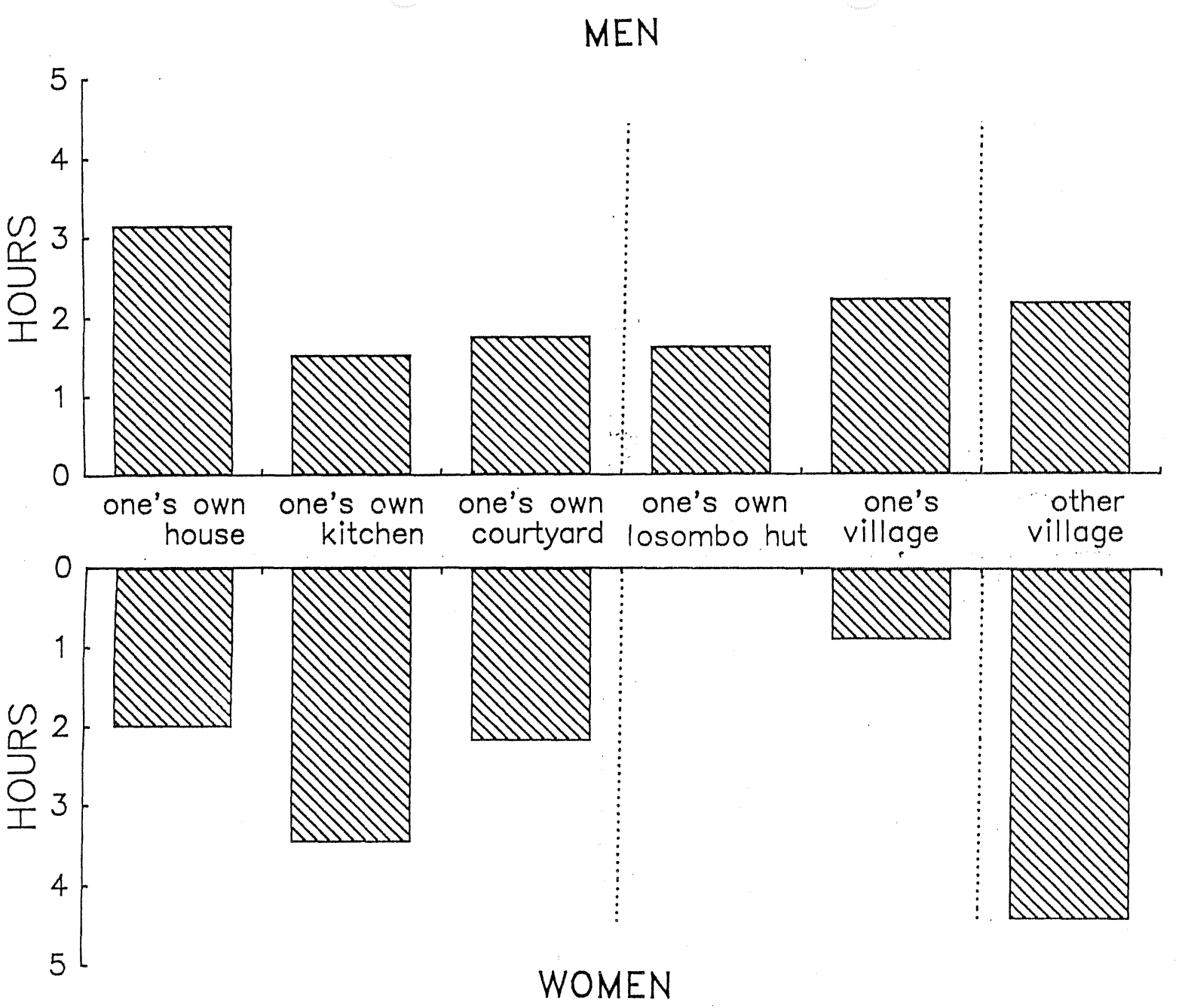
WOMEN

Fig. 6


MEN
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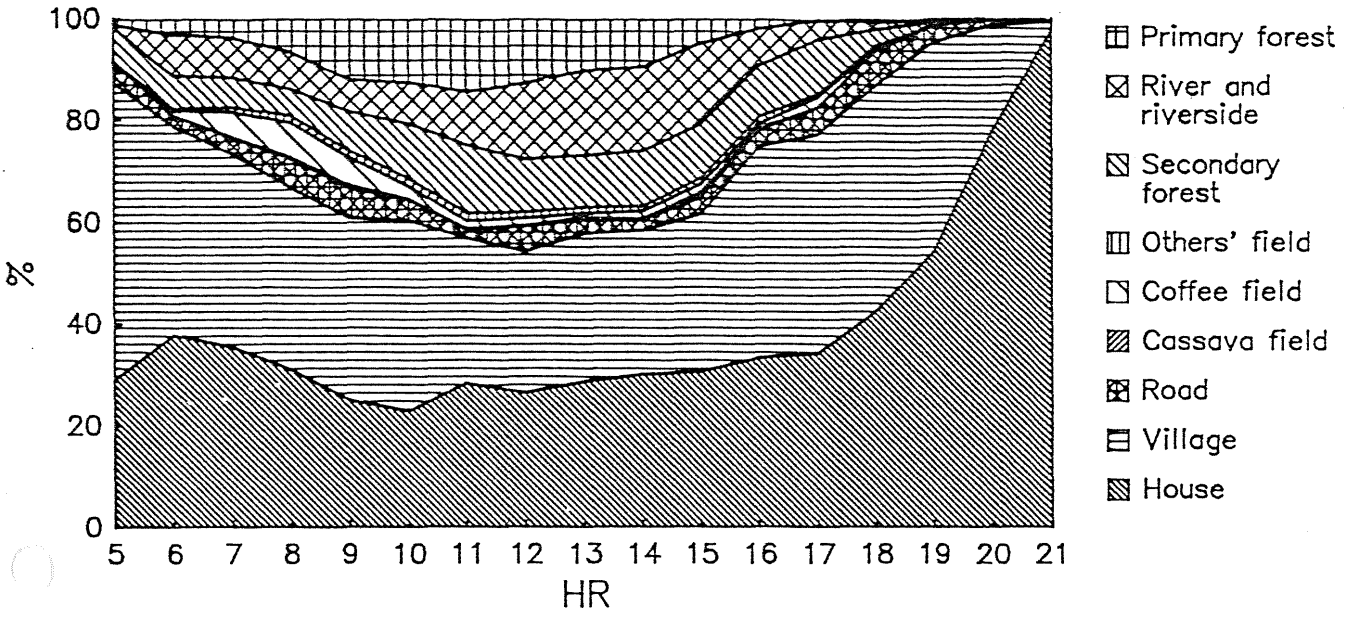
one's own house
one's own kitchen
one's own courtyard
one's own losombo hut
one's village
other village
0
1
2
3
4
5
HOURS
WOMEN

Fig. 7

MEN



WOMEN

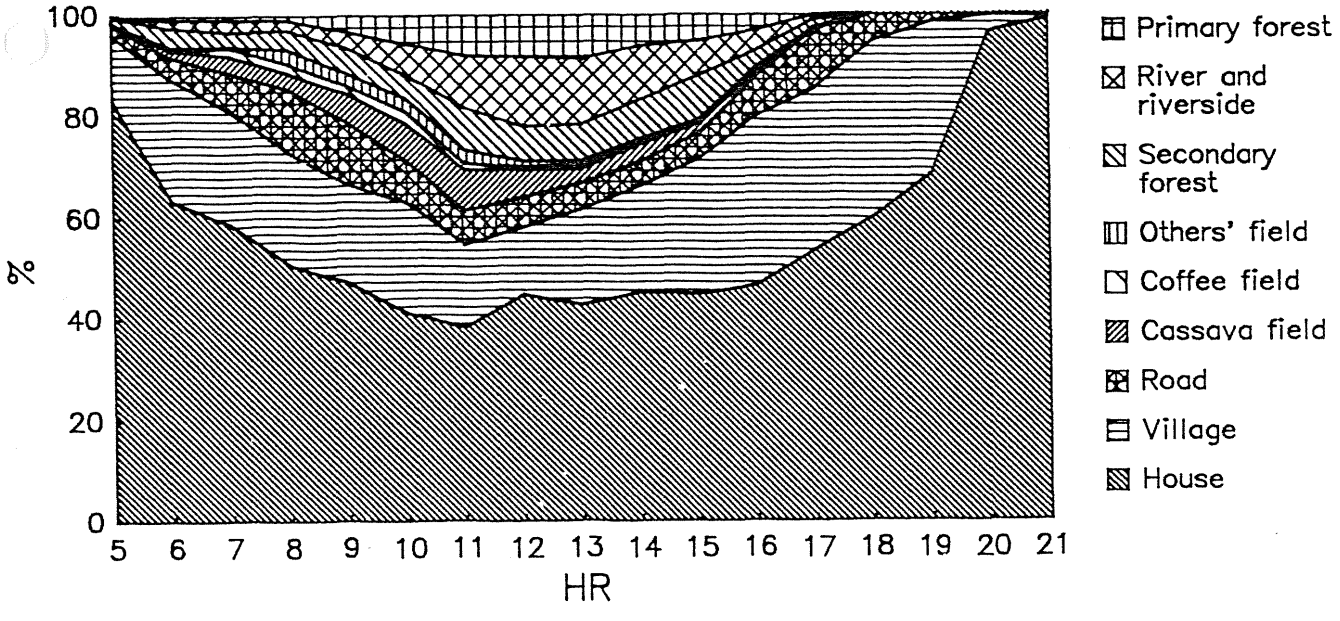


Fig. 8.

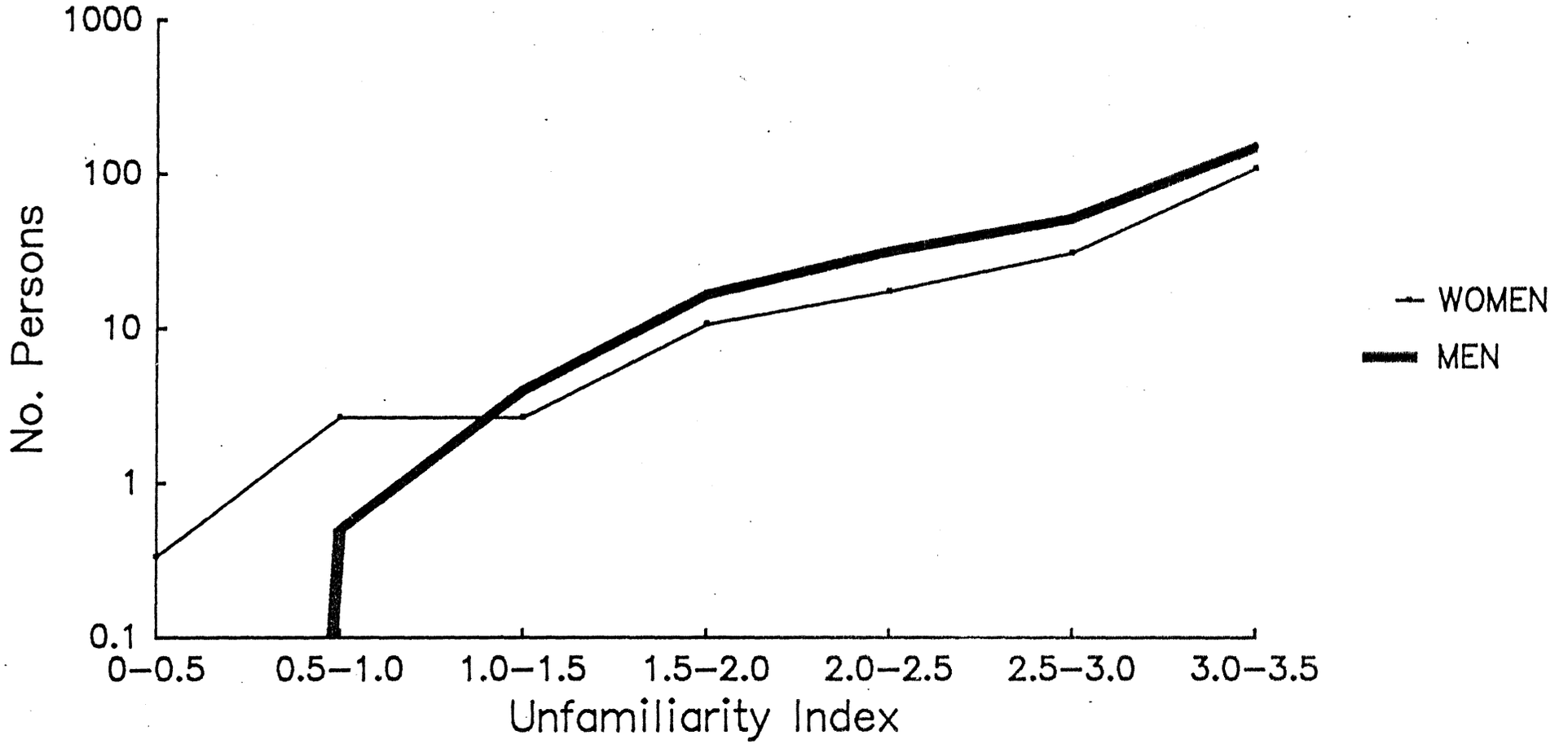
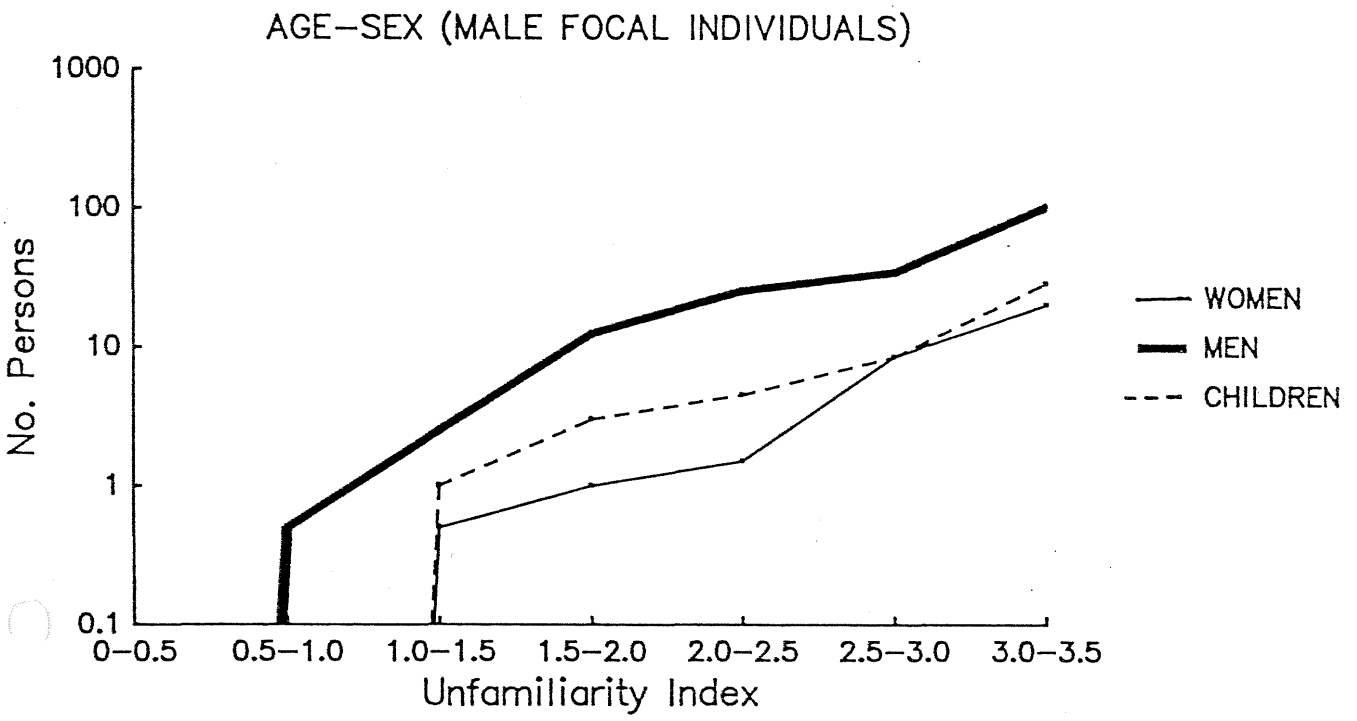

1000
100
10
1
0.1
No. Persons
0–0.5
0.5–1.0
1.0–1.5
1.5–2.0
2.0–2.5
2.5–3.0
3.0–3.5
Unfamiliarity Index
WOMEN
MEN

Fig. 9-1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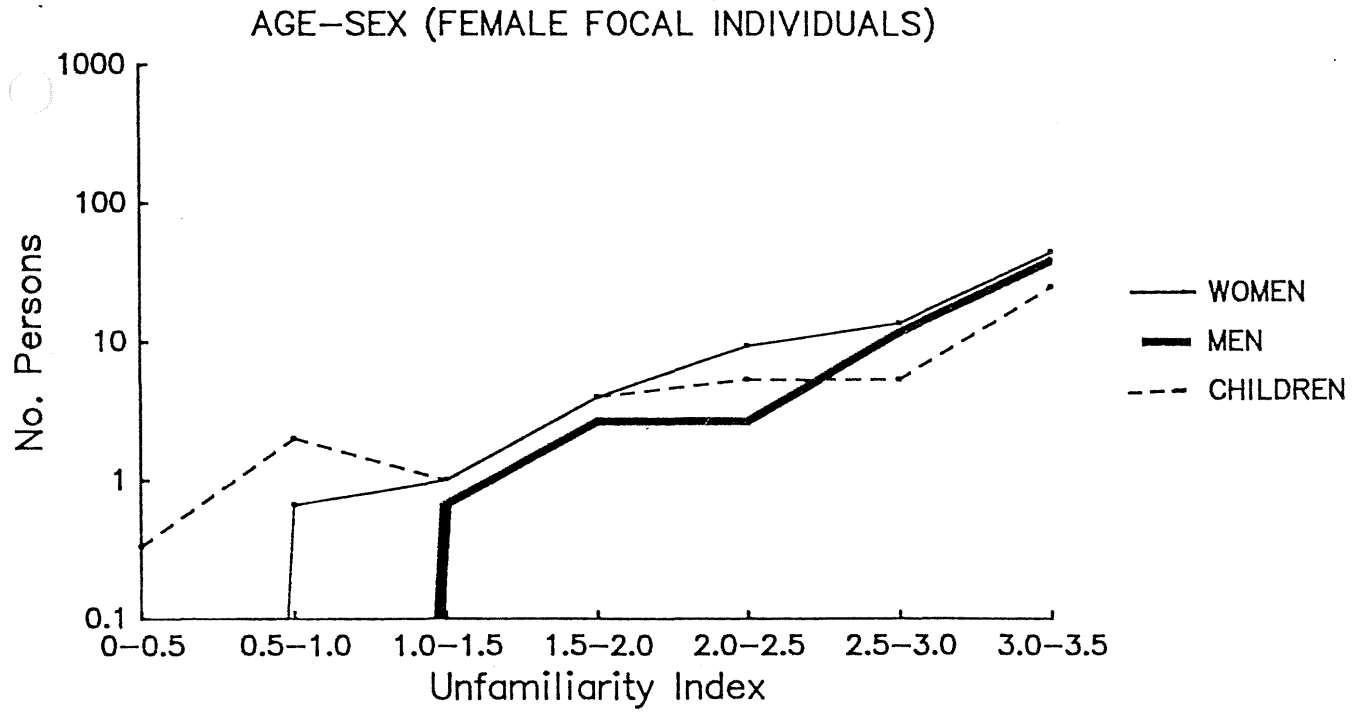
10
1
0.1
No. Persons
0–0.5
0.5–1.0
1.0–1.5
1.5–2.0
2.0–2.5
2.5–3.0
3.0–3.5
Unfamiliarity Index
WOMEN
MEN
CHILDREN


AGE–SEX (FEMALE FOCAL INDIVIDUALS)
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10
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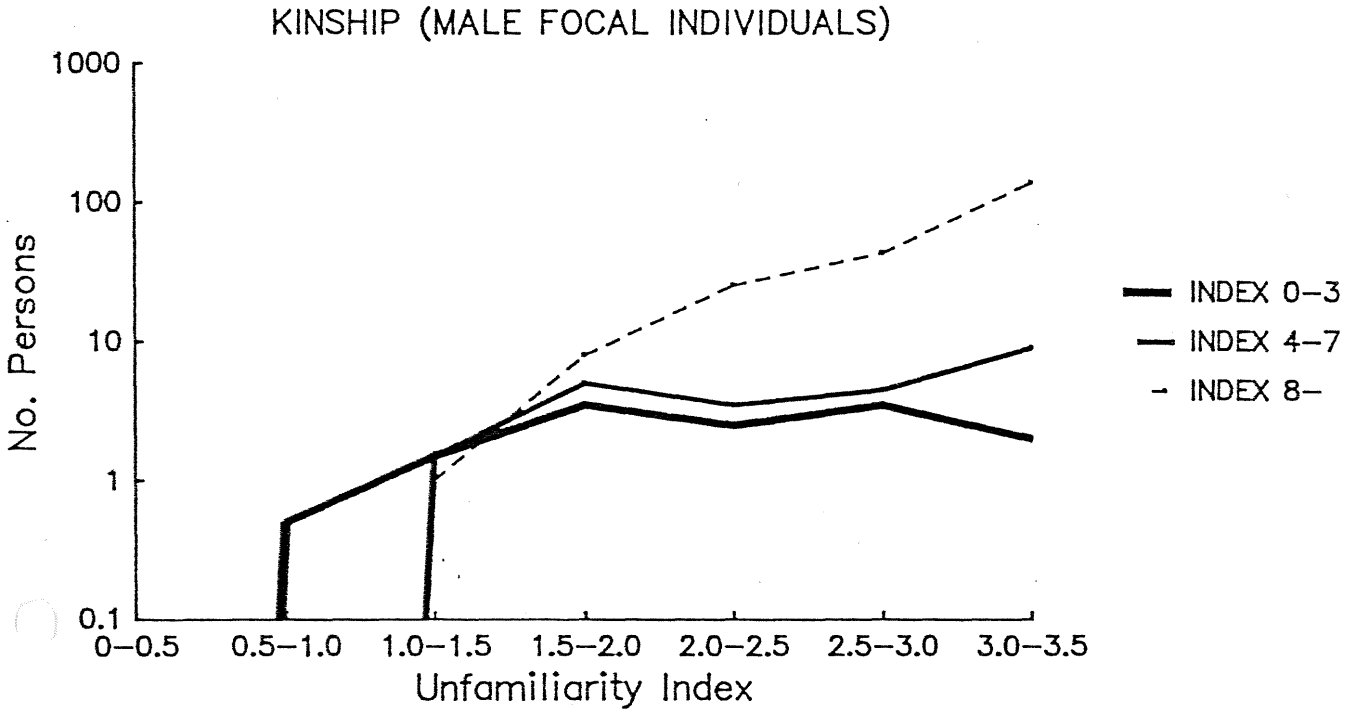
0.1
No. Persons
0–0.5
0.5–1.0
1.0–1.5
1.5–2.0
2.0–2.5
2.5–3.0
3.0–3.5
Unfamiliarity Index
WOMEN
MEN
CHILDREN

Fig. 9-2


KINSHIP (MALE FOCAL INDIVIDUALS)
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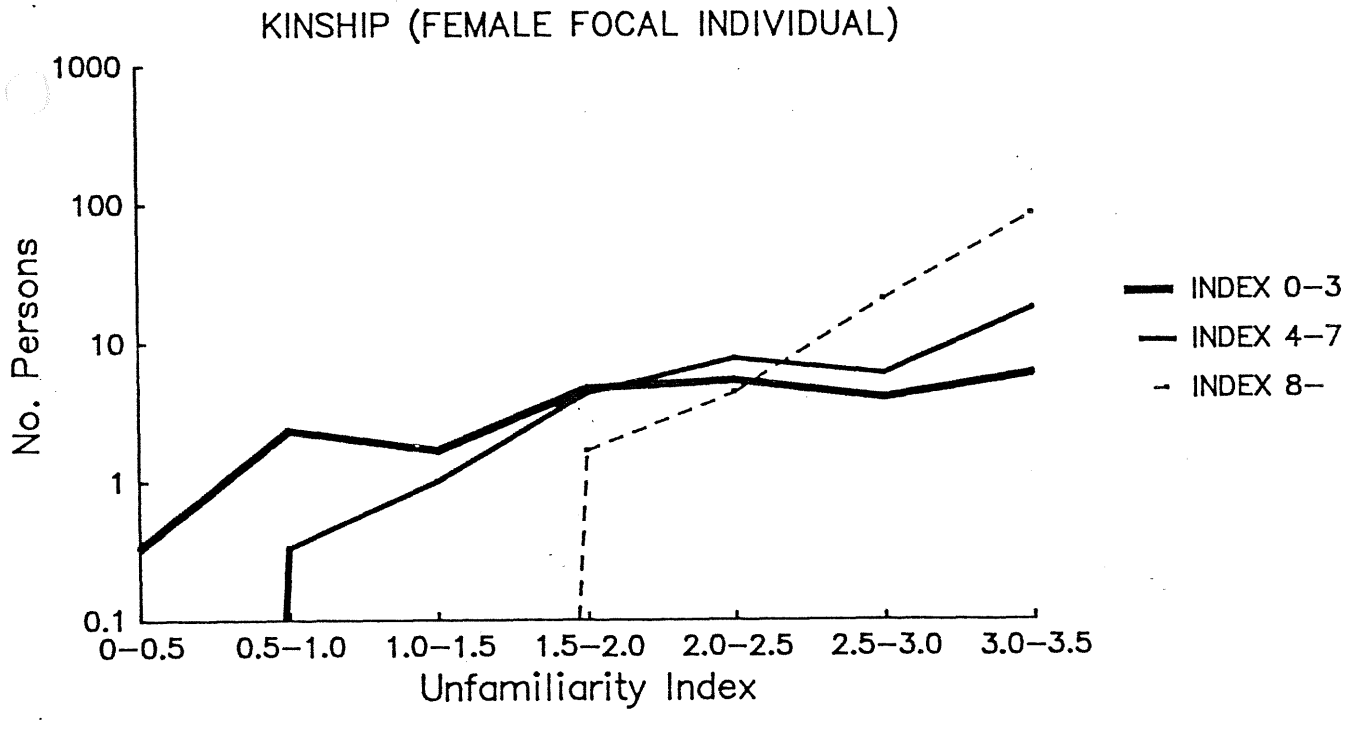
100
10
1
0.1
No. Persons
0–0.5
0.5–1.0
1.0–1.5
1.5–2.0
2.0–2.5
2.5–3.0
3.0–3.5
Unfamiliarity Index
INDEX 0–3
INDEX 4–7
INDEX 8–


KINSHIP (FEMALE FOCAL INDIVIDUAL)
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No. Persons
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0.5–1.0
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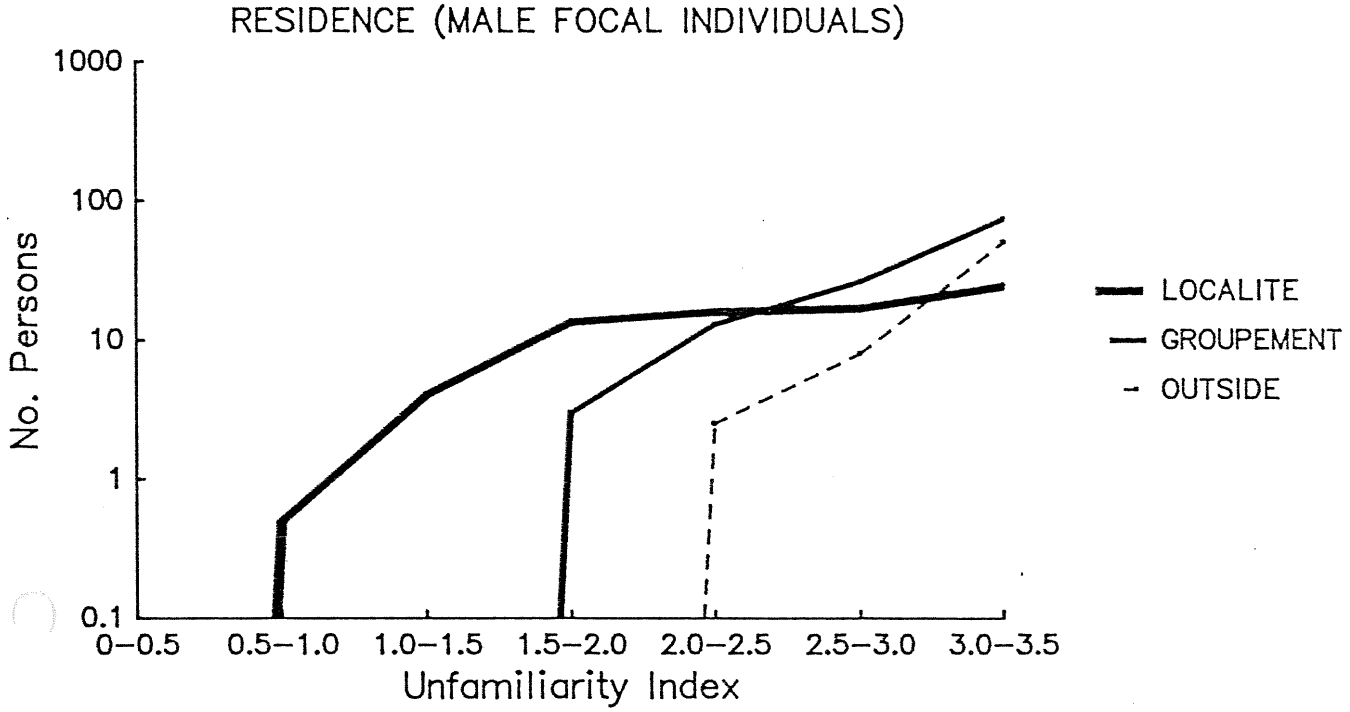
1.5–2.0
2.0–2.5
2.5–3.0
3.0–3.5
Unfamiliarity Index
INDEX 0–3
INDEX 4–7
INDEX 8–

Fig. 9-3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0.1
No. Persons
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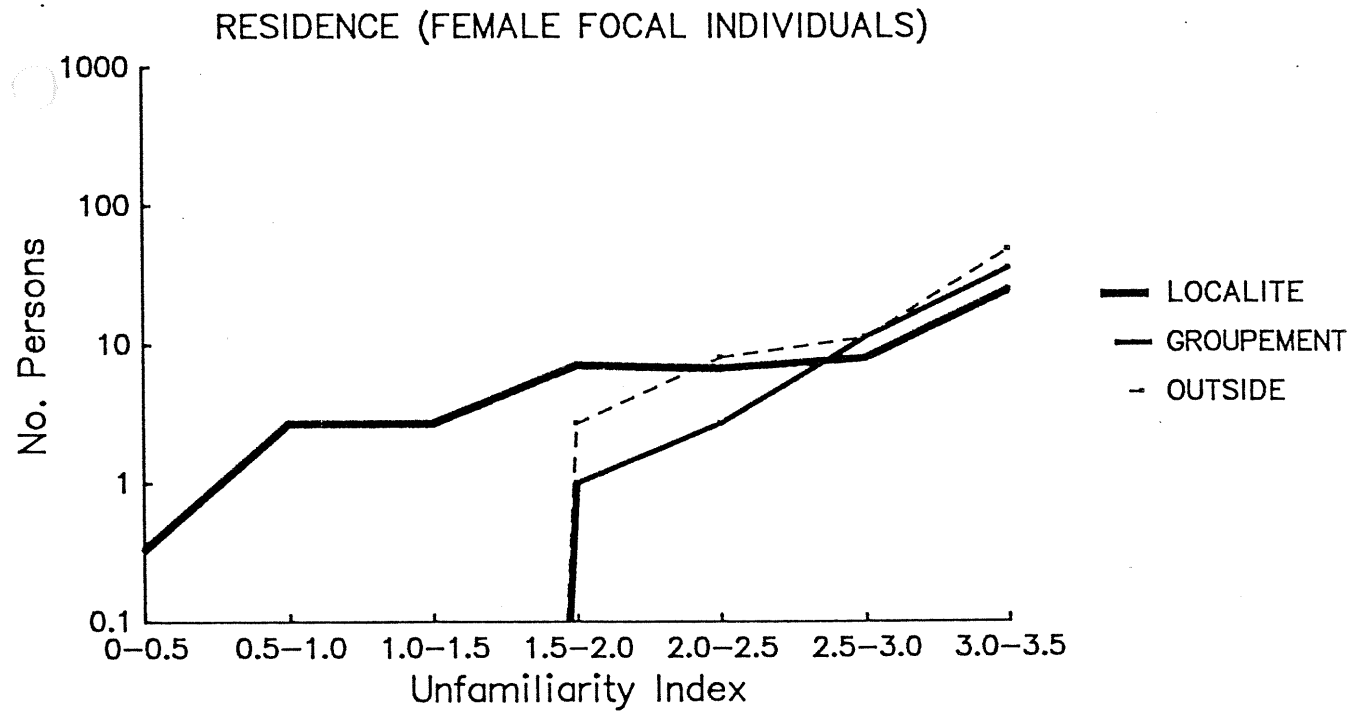
0.5–1.0
1.0–1.5
1.5–2.0
2.0–2.5
2.5–3.0
3.0–3.5
Unfamiliarity Index
LOCALITE
GROUPEMENT
OUTSIDE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100
10
1
0.1
No. Persons
0–0.5
0.5–1.0
1.0–1.5
1.5–2.0
2.0–2.5
2.5–3.0
3.0–3.5
Unfamiliarity Index
LOCALITE
GROUPEMENT
OUTSIDE

Fig. 10

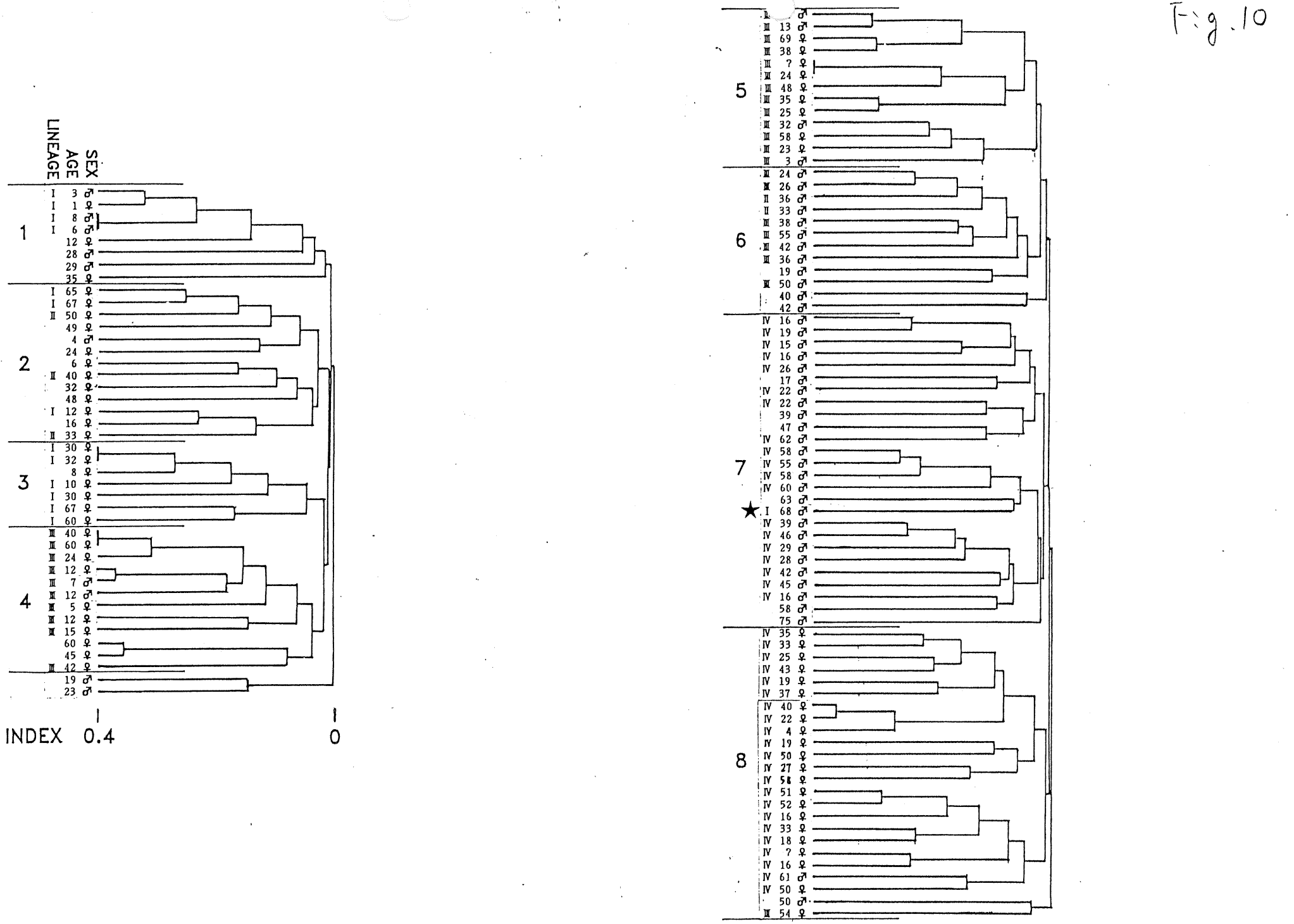
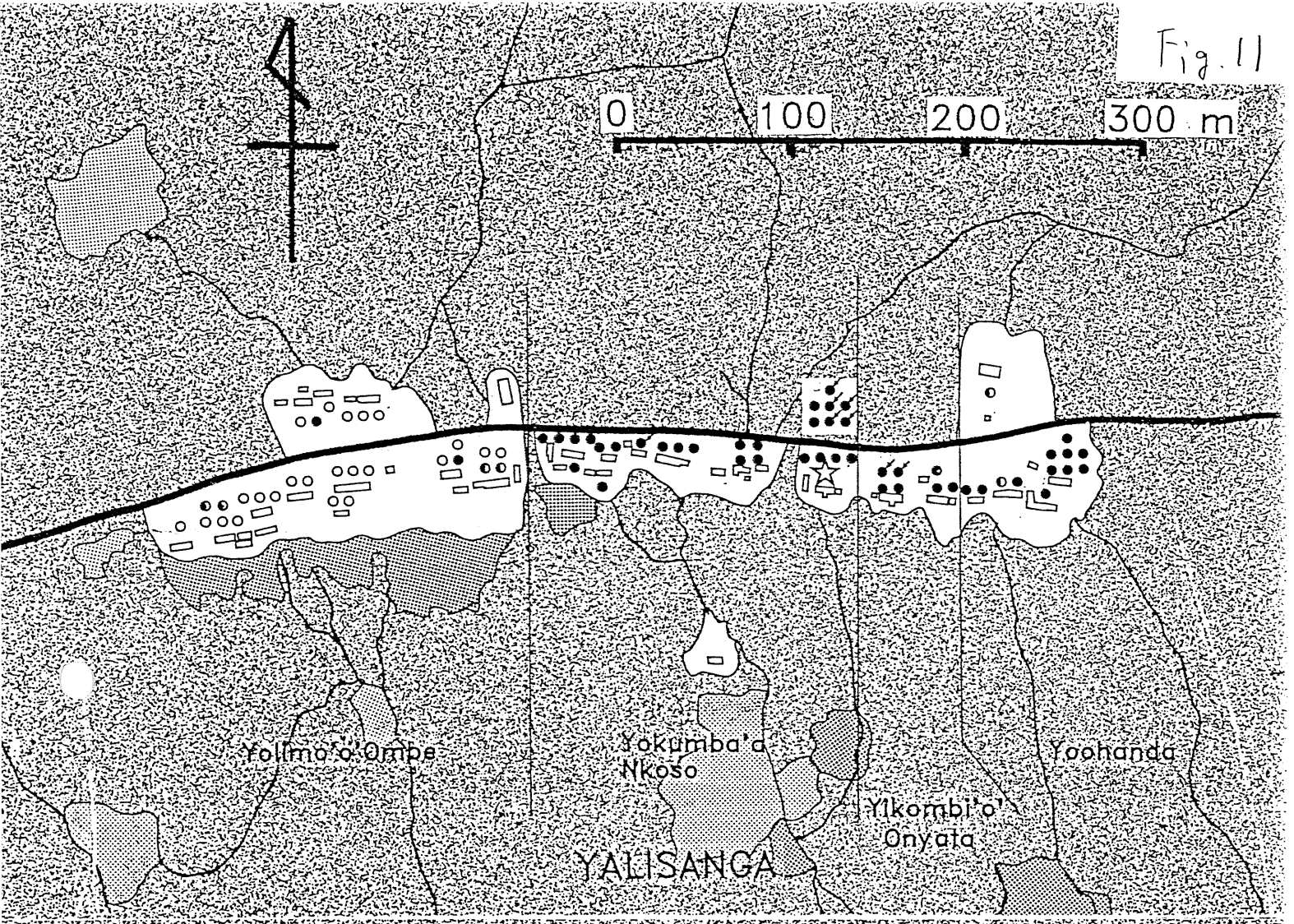


Fig. 11


0
100
200
300 m
Yolmo'o'Ombe
Yokumba'a
Nkoso
Yoohanda
Yikombi'o'
Onyata
YALISANGA

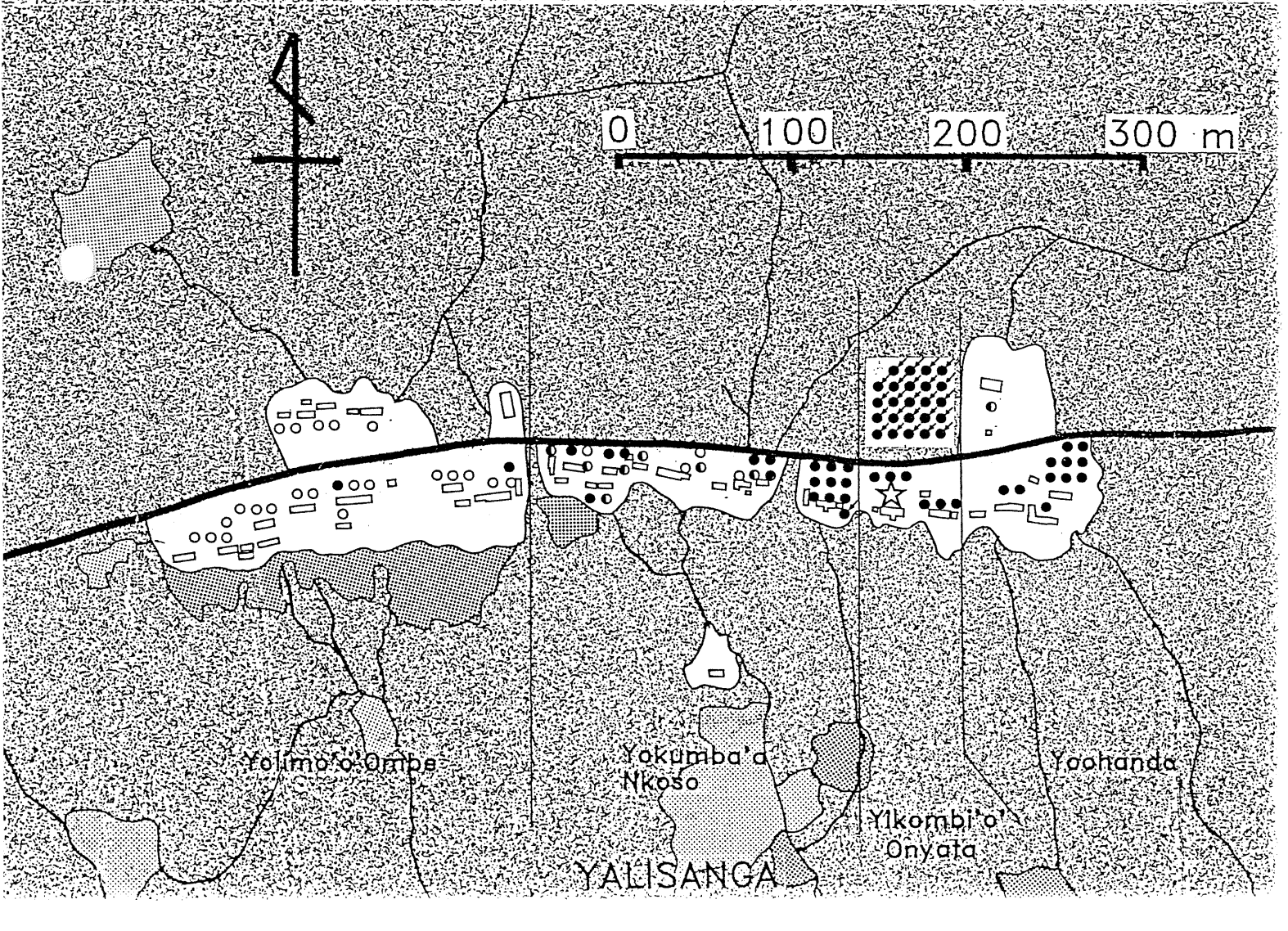
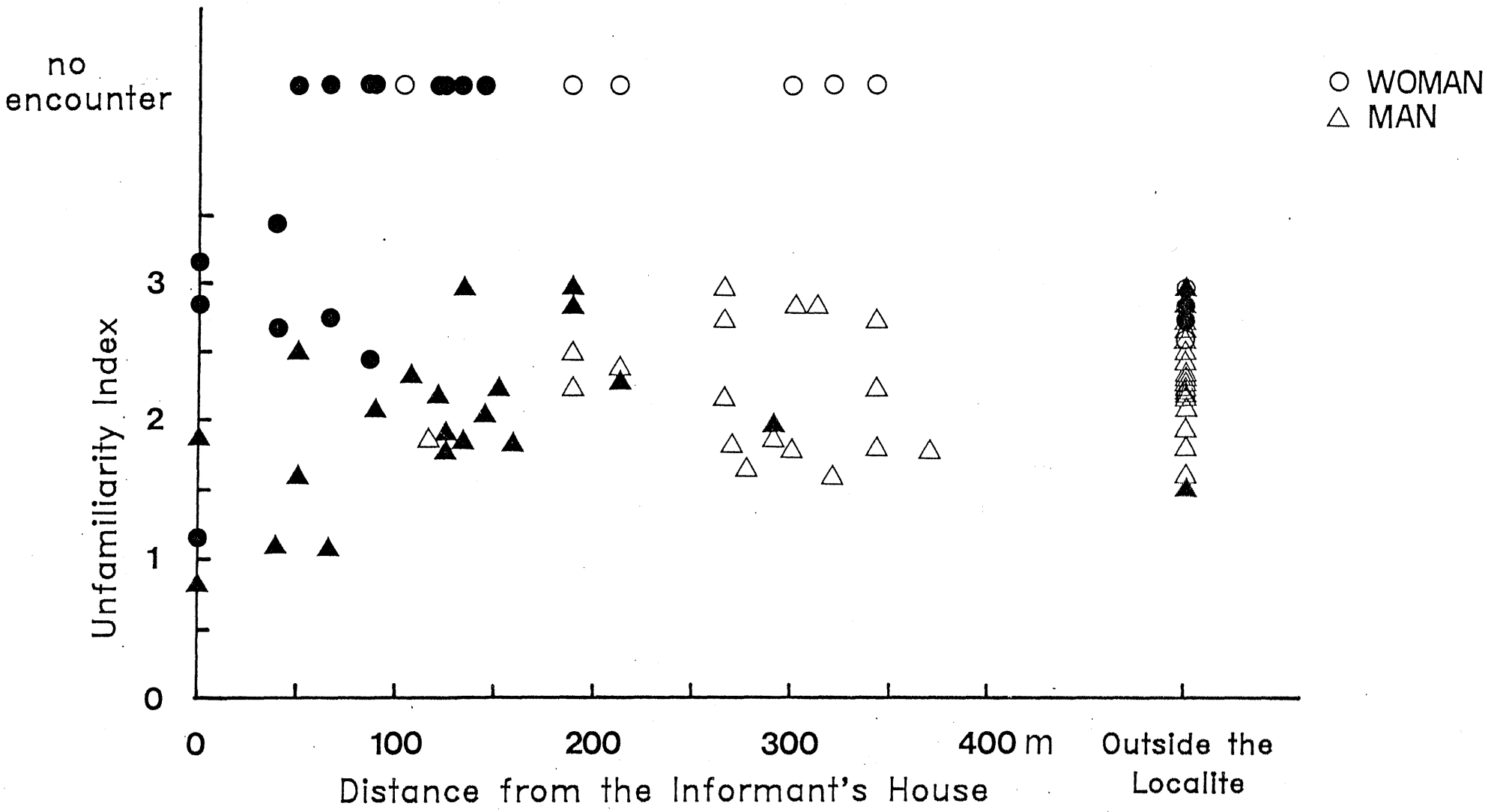

0
100
200
300 m
Yolmo'o'Ombe
Yokumba'a
Nkoso
Yoohanda
Yikombi'o'
Onyata
YALISANGA

Fig.12


no encounter
Unfamiliarity Index
3
2
1
0
0
100
200
300
400 m
Outside the Localite
Distance from the Informant's House
WOMAN
MAN

主論文II

VERBAL INTERACTION OF THE BONGANDO IN CENTRAL ZAIRE: WITH SPECIAL REFERENCE TO THEIR ADDRESSEE-UNSPECIFIED LOUD SPEECH

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République du Zaïre

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Faculty of Science, Kyoto University

1. INTRODUCTION

Speech is an important medium for human social interactions. Sociolinguists (e.g., Gumperz & Hymes, 1974) and conversation analysts (e.g., Sacks et al., 1974) have conducted studies on speech in everyday life. These studies took into consideration the social context of speech, unlike classical linguistics in which only the "static" written form of speech is analyzed.

As ways of clarifying the meaning of speech in human social interactions, however, the former two disciplines also have their shortcomings. Sociolinguists ultimately aim to explain the social structure of each society, and speech is regarded only as part of the framework of the structure. On the other hand, conversation analysts intend to study the structure of conversation itself, but their studies have been mainly conducted in North American or West European industrialized societies. Moreover, they focus only on conversation out of the various styles of human speech.

This study presents to analyze "Addressee-Unspecified Loud speech" [1] (AUL speech) of the Bongando in central Zaire. During my stay in the Bongando land, I was impressed by their frequent use of AUL speech. Even when I stayed alone in a house, others' speeches could be heard almost all of the time. AUL speech differs from conversation, which has been studied by conversation analysts. In style, it has no "organizing device" of conversation, such as the turn-taking system (Sacks et al., 1974). In function, many AUL speeches do not work as <u>in situ</u> social acts. AUL speech is a new subject for the study of verbal interactions.

In this report, the frequency, form, and contents of speech of the Bongando, including AUL speech, are described. On the

basis of these analyses, first, the meaning of AUL speech in the Bongando society is considered, and second, the variety and evolution of human verbal interactions are discussed.

2. STUDY AREA AND PEOPLE [2]

The Bongando are Bantu farmers inhabiting the eastern part of the Region d'Equateur and the western part of the Region du Haut-Zaire of the Republic of Zaire (Fig. 1). This ethnic group is a branch of the Mɔngɔ (Murdock, 1959). The population is estimated to be 450,000-500,000. They usually speak Longando [3], their native language, but in certain situations, those over 6 years old speak Lingala, one of the four main intertribal languages of Zaire.

They live in the tropical rain forest (300-400 m above sea level) in the Zaire Basin. The daily maximum and minimum temperatures are about 30° C and 20° C throughout the year. The annual rainfall is about 2,000 mm (Vuanza & Crabbe, 1975).

The main crop is cassava. Bananas, yams, maize, rice and some vegetables are also cultivated. The only cash crop is coffee, which was introduced in the 1960's. Hunting, fishing, and gathering are also important subsistence activities. They also keep livestock, including goats, pigs, chickens, and ducks.

The Bongando's settlements extend along the road (Fig. 2). Houses are scattered in an open area beside the road, 10-30 m wide, called <u>láánjá/báánjá</u> (Fig. 3). The distance between two houses usually does not exceed 20 m. Secondary forest stretches outside the <u>láánjá</u>, and cassava and coffee fields are scattered within it. Behind the secondary forest, there are vast areas of

primary forest, through which rivers and small streams run.

The Bongando have a patrilineal lineage system. Their marital residence is virilocal. Usually members of the same lower lineage level live closely (Fig. 3). The lineage system is stratified into six levels, from the extended family to the Bongando ethnic group itself. I will explain levels 1 and 2 for this report. The minimum lineage is the extended family (elombo/bilombo) of 2-20 members. Several extended families comprise a lower lineage level called lɔsɔmbɔ/nsɔmbɔ of 10-100 members. In a lɔsɔmbɔ's area, there is a small hut which is also called lɔsɔmbɔ. In this report, I call it the "lɔsɔmbɔ hut."

Social activities of adult women and those of adult men differ. Women ordinarily stay at their house or adjacent láánjá, and spend their time cooking, eating, and chatting. They leave the house mainly to work at the stream or in the field. In contrast, men frequently go to the lɔsɔmbɔ hut or to an other's house, and chat, eat, smoke, or drink (Kimura, in press).

3. METHODS

Field research was conducted in October - December 1986, June 1987 - February 1988, and June 1988 - February 1989. I stayed in the Groupement d'Iyondje, Zone de Djolu, Region d'Equateur. This Groupement is adjacent to Groupement de Wamba, in which Japanese scientists have studied pygmy chimpanzees (Pan paniscus) since 1973 (Kano, 1980).

For communication, I usually used Lingala, but in the latter half of the research, Longando was also used.

Besides general observations of speech, I collected three

kinds of data systematically, as follows.

3.1. Time Sampling of Background Speech

Inside the houses or in the láánjá, it was frequently possible to hear the distant speech of others. I call this "background speech." [4]

I made a hut in the láánjá (Fig. 3), sat there, and recorded attributes (loudness, direction of address, and speaker's age and sex) of background speech [5]. It was not practical to use a tape recorder because some speeches heard in situ were too quiet to be recorded.

I used a modified "instantaneous sampling" method (Martin & Bateson, 1986). The attributes of background speech were recorded in the first second of every 15 seconds, which comprised one sampling unit (Fig. 4). Usually data of an instant are recorded in the instantaneous sampling. However, I set a one second period as the "sampling window," because in some cases I could not accurately record the auditory impression in an instant. Timing of sampling was regulated by beeps from a tape recorder.

Speakers were classified as children (under 15 years old), adult men, and adult women. Seven adult men, 11 adult women, and 9 children lived in the area from which I could hear the background speech (within a radius of about 150 m) (Fig. 3).

Speech was classified into four types (I, II, III, and IV) by two criteria; non-loud/loud, and addressee-unspecified/addressee-specified (Fig. 5). The contents of the speeches were disregarded. The "non-loud speech" included speeches not louder than the Bongando's usual conversation [6]. The "addressee-

specified speech" was distinguished by (1) the turn-taking of two or more speaker-listeners, or by (2) the addressing of the participant(s) by calling his/her name in the speech. Such context of speech was traced continuously even outside the "sampling window." When the speech could not be classified clearly, for example, speech was judged to be addressee-unspecified, and between loud and non-loud, I wrote I/III on the field notebook, and added 0.5 sampling unit to each type in the analysis.

In the sampling session, when someone approached me to talk, sampling was stopped. Five or more simultaneous speeches were out of my recognition ability, therefore they could not be recorded completely. Some non-loud speeches superimposed by loud speeches could not be recorded. No distinction was made between multiple speeches that were spoken as one conversation, and those that were not.

Samples were collected from November 1988 to February 1989. One sampling session was 10-40 minutes long, and a total of 41 h 24 min (9937 sampling units) was collected. Sampling sessions were subtotaled in the time period of one hour interval since 4:00 to 22:00, i.e., 4:00-5:00, 5:00-6:00, and so on to 21:00-22:00. All all of them exceeded 3 hours.

3.2. "Conversation Analysis" Method

Some speech scenes were recorded using a portable video camera. Recorded persons paid attention to the camera only at the beginning. My Bongando informant LB listened to the playback, and transcribed the speeches. He explained to me the details of the

transcription, and I translated it into Japanese. After that, I wrote down the parameters of conversation analysis such as loudness, duplications, and pauses of the speech.

Note that even though these data were analyzed in the style of "conversation" analysis, they include speeches which did not have the characteristics of conversation.

3.3. Recording of the Content of Loud Speech

LB recorded the contents of loud speeches from May to July, 1988. Throughout this period he carried a field notebook, and recorded the time, the speaker, the listeners (if they could be specified), and a summary of the contents of the speech. He recorded 307 episodes of loud speech, and 68 episodes of them were classified as AUL speech.

4. RESULTS

4.1. Village filled with Background Speech

The frequency of background speech in a day is shown in Fig.6. Percentage of time samples in which 0, 1, 2, and over 3 speeches were heard simultaneously is shown. From 22:00-4:00, the village (the area of láánjá and houses) was silent. The frequency of speech increased from 4:00 to 7:00, remained fairly constant from 7:00 to 18:00, and decreased from 18:00 to 22:00. In the daytime (7:00-18:00), at least one speech was heard in almost every sample (94.7%), and two or more speeches were heard simultaneously about half of the samples (53.1%). The frequency of background speech increased in the morning (near 7:00) and in the afternoon (14:00-17:00), because in these periods, many people

together stayed in the village, and frequency of speech by each person increased (Kimura, in press). The frequency of each speech type is analyzed in Sections 4.3. and 4.4.

4.2. Drift of Speech Form

The four speech types were discrete, but graded into one another. The Bongando people could change this from one type of speech to another within a single episode. I called this change "drift of speech form," or simply "speech drift." Drift between types I - III, II - III, III - IV, and II - IV was frequently observed.

The Bongando people perform the speech drift more smoothly than Japanese. This is illustrated by the following description. When the Bongando people in Groupement de Wamba saw Japanese researcher calling one another at a distance, they said that the researchers spoke as if they were astonished at something. They felt that such calls were quite curious. It was because the Japanese regularly uttered loud voices only in special situations. When the Japanese changed speech from non-loud to loud, they had to get over a psychological threshold. The Bongando people felt such tension to be curious. They did not regard loud speech as being so special, and could shift their speech to it without tension.

4.3. Description of Speech Types I, II, and IV

Before describing AUL speech (type III), I will briefly explain other speech types.

4.3.1. Type I: Monologue, Song, and Cry

Type I (addressee-unspecified non-loud speech) includes monologues, crying, and songs of usual loudness. Children's speeches of this type were frequent (Fig. 7), but many of them were infants' crying. Adults' crying was not heard. Songs were heard rarely.

Speech Example 1 in Appendix is a scene of monologue. It was recorded in front of BH's house. BH sat down on a low chair, tearing branches to make a mat. There was no person near him, and his wife cooked about 15 m away from him. He specified no addressee for his speech. In fact, no response was uttered to his speech (line 1-11 in Speech Example 1), and he did not set his face in any specific direction. First he expressed his displeasure of high contribution to the church. In the last part of this bout, the speech became loud with the speaker's excitement. He took a 50-second pause, and then complained to a chicken about its noise. After a 26-second pause, he asked his grandson to bring a bottle.

The "loud monologue" in the first bout is classified as AUL speech. Their monologue can easily change into AUL speech. It suggests that monologue and AUL speech differ only in their loudness. Also as seen in the lines 14 and 15, monologue and usual conversation can appear by turns.

4.3.2. Type II: Usual Conversation

Type II (addressee-specified non-loud speech) is usual conversation. The frequency of this type was prominently higher than that of other three types; i.e., most background speech was

conversation of usual loudness (Fig. 7). Informant NL told me that he was able to understand the contents of about a half of such conversations from far away, if he concentrated on them.

Speech Example 2 shows the conversation scene in the kitchen of BL (woman, about 65 years old). The kitchen had no wall. Four women, BL, MJ (about 25 years old, BL's brother's daughter), KV (about 12 years old, BL's another brother's daughter's daughter), and an unidentified adult woman (denoted as AW) appears.

MJ and KV sat side by side, and cooked. BL sat near them. First, MJ and KV conversed about the cooking (lines 1-11 in Speech Example 2). In 11-13, KV asked MJ for some palm oil, but MJ jokingly asked for money in return (12-20). MJ and AW laughed at KV, saying ironically that KV had much money (21-27). KV replied playfully that she would run away from home (28-31). After that, the topic changed.

In the last part of this speech episode (23-30), the speeches became loud as the speaker became excited. Speeches of lines 23 and 25 can be classified as AUL speech, because the speakers apparently supposed that these speeches would be heard by other persons. Therefore the boundary between usual conversation and AUL speech is ambiguous. In other words, usual conversation was "semi-public" in the Bongando society.

Another character of this speech episode was overlap of speeches. The speaker of the superimposed speech uttered it without considering the listeners. I.e., such speeches were addressee-unspecified non-loud speeches (type I).

4.3.3. Type IV: Long-Distance Conversation

Type IV (addressee-specified loud speech) is conversation exchanged at a distance. It is possible that two or more persons sit side by side, and converse loudly. However, I classified such speech as AUL speech, because the speakers seemed to expect that their speeches would be heard by many and unspecified persons.

The following example was reported by T. Furuichi, a researcher of pygmy chimpanzee of Wamba. When he and a trucker walked on the road, a man came from the opposite direction. The trucker and the man began to converse. They passed each other and gradually parted, but they did not look back, and continued to converse. Their speech did not become louder than before, even though Furuichi could hardly hear the man's speech. (Furuichi, 1988).

Exchange of greetings at a distance was seen more frequently. When the Bongando people sat in <u>láánjá</u> or the house, they usually paid attention to the road. When an acquaintance passed, they greeted "X (passenger's name), ómooya! (X, you have come)," and the passenger answered "Oo! (Yes!)." Such exchanges occur even at a distance of more than 50 m.

4.4. Description of AUL speech

AUL speech included loud speech, sudden shout, and loud song. But the latter was rarely heard. Most of children's speeches were exclamations made in play. Speech of this type was heard 9.3 % of the daytime (5:00-21:00), and 18.0 % of the evening time (16:00-18:00) with its frequency peak. Men's speech was more frequent than women's (Fig. 7).

4.4.1. Bonango

The Bongando people utter a kind of AUL speech called bonango/benango. When I asked them the meaning of bonango, they explained that they utter it to notify or inform the villagers of something [7]

Bonango is mostly spoken by adult men. Adult women may speak it only in their native lɔsɔmbɔ. Even a young person can speak it, if he/she is good at speaking. The speaker stands or sits in the láánjá, and utters it in a loud voice. The facial expression of the speaker is rather cool, and he/she does not laugh. The loudest voice reaches 200-300 m, and the bonango sometimes continues for 30 minutes. Such bonango is frequent in the evening.

The following examples illustrate the characteristics of contents and style of bonango. When I went to a small village in the forest, the old chief of the village began to utter bonango in the evening. It lasted about 20 minutes. He spoke in the lɔsɔmbɔ hut, in which five men sat including me. His voice was so loud that even women in their own huts seem to have heard it. In fact, they sometimes uttered exclamations. He spoke bonango in Lingala. Although I could not fully understand it at that time, I felt it was about an urgent and important problem. Later I asked informant LB the contents of the bonango. He explained to me that the topic was that "We should respect our parents."

In this case, the bonango was told in a serious atmosphere, but the content was quite conventional. It is not a rare case. Records of bonango by LB shows as follows. Of the 68 bonango recorded (see Appendix 2), invitations or instructions, such as

"Let us go to repair a bridge tomorrow.", informative speeches such as "A woman died in the hospital." are contained. However, I assume that many of these bonango's contents were already known to all beforehand through usual conversations. Other kinds of bonango include complaint, such as "Goats went into the cassava field and ate the leaves," "My grandson refuses to go to the class," or "It is too hot." Complete repetition of preceding bonango is also seen. Thus bonango can be regarded as "formal announcement" of information or instructions which are already known.

Moreover, the term bonango has another nuance. The Bongando people communicate using the talking drum (lokolé/nkolé) (Carrington, 1949), whistle, and whistle with cupped hands. The sound of the talking-drum travels up to 60 km, and is usually used to tell of a person's death, invitation to hunting, etc. Whistles do not carry so far, and are used to communicate in dense forest.

However, sometimes they utter private talks by the talking-drum or the whistle. For example, in an evening, I heard the sound "LHHLH, LHHLH" (L and H means low and high tone) of whistle with cupped hand. I could understand that it traced the sentences "Botótólotó! Botótólotó! (Nothing! Nothing!)." A man near me explained that a boy was expressing his hunger. Such talks are also called bonango. LB told me that when they hear the drum talking bonango such as "I am hungry!" or "It's always raining these days!", they concentrate on it only at the beginning. After understanding the content, they say "Oh, it's bonango," and stop listening.

Thus, for the most part, bonango is not informative, although

it is generally explained as being uttered to teach something.

Speech Example 3 shows a part of a bonango, which was recorded in the center of the láánjá of lɔsɔmbɔ Yoohanda. The speaker of the bonango was BH (about 65 years old), the chief of the Yoohanda. There was nobody near him. He stood, and spoke loudly with exaggerated gestures. The contents of this speech were: "I gave my goat to one person, but he does not pay money." This was a personal problem of BH, but he uttered it as bonango. Moreover, I assume that this problem was already known everywhere in the village.

No verbal response was recorded to this bonango. In other words, no verbal response was the characteristic response. Generally the listeners do not show prominent responses to bonango. They take an attitude of "ritual indifference" (Goffman, 1963). At most they utter gentle laughter, and do not begin to converse about the bonango.

In this bonango, pauses of more than one second were frequent. Such long pauses did not occur in their usual conversation. These pauses are a characteristic sign which distinguish bonango from usual conversation.

4.4.2. Other AUL Speeches

The Bongando people utter other kinds of AUL speech, which are less formal than bonango. Unlike bonango, they have no special Longando name, and are referred to only descriptively, e.g., "Átenda ma nkɛ́lɛ (He/she speaks with anger)." These speeches appear temporarily in episodes of speech types I, II, and IV, and accounted for the majority of AUL speeches.

Besides such AUL speeches, I present three characteristic examples of AUL speech.

The following episode was reported by G. Idani, a researcher of the pygmy chimpanzees of Groupement de Wamba. When he and a Bongando trucker walked in the primary forest, they encountered a middle-aged man who was sitting alone near the path, speaking loudly. The trucker did not inform the man of their approach. The man seemed not to be aware of their approach, because he was quite astonished at the encounter. Therefore, when he spoke loudly, he was convinced that he was alone [8]. This case suggests that the speakers of AUL speech do not necessarily expect that their speech is heard by others.

In the early morning or evening, some of the Bongando people suddenly utter a meaningless loud shout such as "A!" or "Waa!" They do not regard it to be abnormal, and call it baasase/beasase [9]. They told about it as follows: (1) One sometimes shouts baasase when he/she responds to a distant incident by extra-sensory perception; e.g., one utters it in the village, when a game is caught in a trap which he set in the forest; (2) Baasase is shouted frequently on chilly days; (3) Witch doctor (nkanga/nkanga) often shouts baasase.

The Bongando people's songs are classified into two categories. One includes the songs sung in special situations such as epic talking or dance. The another includes the loud songs which are sung in daily activities such as walking along the forest paths, cutting trees to make a field, etc. They resemble AUL speech, except that their contents are not grammatically structured. Songs in the forest inform others that the singer is

there. Consequently they do not encounter suddenly. However, they are not sung only for this purpose. The people say that they sing at work to make their body vital, or simply for fun.

5. DISCUSSION

5.1. Origin of AUL speech

The Bongando people can comprehend the distant non-loud speech. I assume that they can understand it only by the high/low tone, even vowels and consonants are not clearly heard. Actually, Longando is a tonal language, and the Bongando people can communicate even by the talking drum, whistle, and whistle with cupped hands, by which only the sequence of high/low tone is uttered.

I suppose that AUL speech should have originated in tropical rain forest, the Bongando people's habitat. In the dense forest, only a loud voice is adequate for long-distance communication. I assume tonal language, which can transmit information through tone alone, was also developed in such circumstance. Probably it has become to be used in the village, and produced AUL speech.

5.2. "Castness" of AUL speech

In this Section, I analyze the properties of AUL speech, and introduce a new concept named "castness" of speech. This concept characterizes AUL speech in social interactions.

5.2.1. Lack of "Organizing Devices" of Conversation

Conversation analysts have pointed out that the "organizing devices" are used in conversation, such as the turn-taking system,

adjacency pairs (question-answer, greeting-greeting, etc.), and markers of entry into/exit from conversational interaction (Hudson, 1980). Human ethologists have also denoted various kinds of nonverbal communication, such as posture and facial expressions that are used in conversation (e.g., von Raffler-Engel, 1980). These devices stabilize the conversational situation through the cooperation of the participants,

In AUL speech, some these devices do not operate, and others operate at a lower level. First, no turn-taking is seen in AUL speech [10], because the speaker utters arbitrarily with reference to others, and the listener maintains "ritual indifference." Second, adjacency pair is not observed in AUL speech, because the speech is unilateral. Third, many AUL speeches begin and end with gradual speech drift, therefore markers of entry into, and exit from conversation do not occur. Fourth, the effectiveness of nonverbal communication is greatly attenuated because listener is usually remote from the speaker, and often does not look at the speaker. So the listener cannot see the details of the speaker's posture and facial expression.

Thus AUL speech does not fully provide organizing devices seen in conversation. The speaker and the listener do not sustain the conversational situation cooperatively. In other words, the speaker and the listener are interactionally "separate."

5.2.2. Lack of Responsibility for "Speech Giving Act" and "Speech Listening act"

Suppose the information in the boy's whistle "Botótólotó! Botótólotó! (Nothing! Nothing!)" was conveyed in usual

conversation, i.e., A told B "I am hungry" in a face-to-face interaction. In such a situation, A beard the responsibility for his speech, because it was clear that he gave that speech on his own responsibility. Here A achieved a kind of "speech act" (Searl, 1969). I call it "speech giving act."

Simultaneously, not only A but B performed a certain social act. If B said "I heard nothing." after A's speech, of course A could accuse B saying "You did really hear my words!" It was because B performed a social act by listening to A's speech. I call it "speech listening act."

In the case of AUL speech, the person who speaks can usually be recognized. However, AUL speech is not directed towards a specific listener, and who actually listened to it cannot be ascertained, because AUL speech is omnidirectional. In other words, the speaker can be exempted from the responsibility of the speech direction, and the listener can also be exempted from the responsibility of the speech listening act [11].

5.2.3. "Castness" of AUL Speech

Fig. 8 represents the relations of speaker, listener, and AUL speech. Although the fact that a speaker conducted speech giving act is clear, the speaker and the listener do not sustain a cooperative situation as seen in conversation, and the fact that a listener conducted speech listening act is uncertain. Such situation resembles "broadcasting." The broadcasting station omnidirectionally transmits the electric wave, and the listeners receive it only if they want to. Thus the verb "cast" seems to be suitable for describing AUL speech. AUL speech is cast by the

speaker, and it is not certain that this speech is surely caught by others.

5.3. Social use of "Castness"

As shown in the Appendix 2, some AUL speeches are used for the information transmission. On the other hand, the social use of its "castness" is also important in the verbal interaction of the Bongando. Not "being," but "lack" of social relevance between speaker, hearer, and AUL speech is used in several ways.

5.3.1. Expression of Opinion

First, I will discuss AUL speeches by which the speaker intends to express an opinion.

Sometimes bonango is used to expressions of complaint, such as "Goats went into the cassava field and ate the leaves," or "Someone stole the game caught in my trap." If such complaints were spoken face-to-face, the hearer(s) may assume that they are being called to account for the problem. But when complaints are spoken by AUL speech, such doubt does not occur, because the complaints are not addressed to a particular person. Thus, using AUL speech, the speaker can complain without hesitation, even when he is not certain who the goat owner is, or the thief of the game is.

In sum, AUL speech is used to express uncertain or groundless opinions without bearing responsibility.

5.3.2. Expression of Dignity and Accomplishing Feeling of Co-presence

Second, I discuss the situation in which only the fact that "AUL speech is uttered" is significant.

The Bongando people say "A man who cannot utter bonango well is not a true man." AUL speech is used to express their dignity. I assume that the bonango "We should respect parents" in the small village in the forest is a good example. Probably the old chief told such a true but harmless bonango, in order to express his authority. Also the complete repetition of the preceding bonango has the same function.

In another report (Kimura, in press), I showed that men and women of the Bongando seldom encounter one another in face-to-face situations. However, those who reside at a distance of 150-200 m are included in certain social interactions, in which greeting does not occur. I suppose the lack of greeting is mainly caused by AUL speech. Not the content of AUL speech, but only the fact that it is spoken/heard results in such a social situation [12].

In these social uses of speech, the information content should not seriously be taken into account. AUL speech's "castness" is suitable for such purpose.

5.3.3. Concept Symbolization and Emotional Expression

Third, AUL speech which is supposed to be uttered only from the speaker's own necessity is analyzed.

Here I will use "monologues" for comparison. Literally, a monologue is uttered without assuming that there are any listeners; i.e., it is not spoken for information transmission or as a social act. I assume that one of its functions is to symbolize a concept. It is just like a memorandum written when

one considers a future plan. Through symbolization, the speaker can manipulate concrete symbol, rather than an ambiguous concept. Some AUL speech which I called "loud monologue" seems to have the same function.

The speaker of a monologue assumes that there are no listeners, and does not want the monologue to be confused with usual speech, which is used for transmitting information or conducting a speech act. On the other hand, the speaker of loud monologue avoids confusion using the "castness." Even though AUL speech is uttered loudly, its social influence is slight.

In addition, loud song and baasase are used for expressing emotion, or catharsis. I assume that some of the grammatically structured AUL speech is also uttered for such purposes. Even so, these speeches do not cause confusion because of "castness."

5.4. Meaning of "Castness" in Social Interaction

In the study of primate social interaction, it has been made clear that chimpanzees can perform complicated interactions, which can be described as "political" (de Waal, 1982). Such interaction systems are more complicated in human society. However, I assume that the more elaborate an interaction becomes, the more unstable it becomes.

I will illustrate this using a simple model. Not only humans but higher primates can predict their partner's response, before it happens (e.g., de Waal, 1982; Nishida, 1989). If so, then one can predict the response to the response, and response to that, and so on, like the distorted mirrors set against each other. If the series of prediction diverges, the behavior will not be

determined. For example, one may hesitate to behave, thinking "If I do X, then he will do Y. It is not good, so I will not do X. But he would predict my prediction. If so, he will not do Y....."

However, in ordinary social interactions, such "evil infinity" does not occur. It is probably because we have the social devices to "cut" at some point in the prediction chain. Of course "social norm," studied in social anthropology, is one such device. By obeying the norm, one need not predict the chain of acts [13].

"Castness" is another device which regulates the complicated web of social interaction. Perhaps one could not utter even one AUL speech, if one seriously considered the social reactions to it. Also one could not live peacefully in the village if one honestly replied to all of AUL speech. "Castness" is a device which places unrestrained AUL speech stably in the interaction system of the Bongando.

So far the study of social interaction has concentrated on ways in which it is successfully accomplished. In this report, I have shown that the mechanisms which restrain interactions from occurring are also indispensable in the highly organized society of humans.

5.5. Evolution of Human Verbal Interaction

Animals communicate by various media; voice, face and body expression, smell, and body contact. Language, which is generally quoted as a landmark between human and other animals, is based on the auditory sense. Our ancestors doubly segmented voice (voice to phoneme, and phoneme to morpheme), and opened the way for the

development of the complicated information transmission system called language. Voice was selected as the medium probably because it was easily segmented.

Itani (1963) analyzed the vocal communication of the Japanese monkey. He classified utterances of Japanese monkeys by two criteria; one-to-many/one-to-one and strong emotion/calm emotion. He concluded that the utterances in the quadrant of one-to-one and calm emotion ("muttering") are used for regulating subtle social relations. Itani discussed that this category is related to human language. On the other hand, the quadrant of one-to-many and calm emotion ("calling") contains various styles of utterance, and are used for controlling troop movement and troop unification. However, this kind of utterance, which probably our ancestors also had, was thrown away in the process of evolution, because the medium for long-distance communication turned from acoustic to visual (Itani, 1963).

In addition to Itani's discussion, voice, especially a loud one, has a property which is not suitable for one-to-one interaction. It spreads omnidirectionally, so the addressee of verbal communication can hardly be specified. Moreover, voice enters the ears whether one likes it or not, because the hearer cannot "shut the ears." The organizing devices of conversation work to compensate these properties of vocal sound. For example, turn-taking can be regarded as the chain of expressions that "I am responding to your speech," so the partners of the conversation are continuously confirming each other's interest.

The Bongando people's AUL speech is classified as a one-to-many loud utterance. Unlike conversation, AUL speech is not

suitable for subtle one-to-one interaction. However, the Bongando people utilize AUL speech for other purposes mentioned above, such as concept symbolization and emotional expression.

As the media of interaction, utterance has wide variety in style and social use. However, the studies on verbal interactions have been focused on only a part of the variety. This study showed an example of a style (AUL speech) and its social meaning ("castness"), both of which seem to be new subjects for the study of verbal interactions.

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NOTES

1 Similar types of speech has been reported in some other African societies (Douglas, 1963; Marshall, 1976; Sugawara, in press), but have not been fully analyzed.

2 For more information, see Kimura (in press).

3 Longando words are denoted as follows. (1) Vowels [o] and [ɔ], [e] and [ɛ] are distinguished, and denoted "o," "ɔ," "e," "ɛ." (2) High tone is denoted by "´." (3) The plural form of Longando nouns are given (e.g., lɔsɔmbɔ/nsɔmbɔ = singular/plural) only at their first appearance. (4) When a Bongando noun is denoted as plural in the text, it is written as singular + "s" (e.g., lɔsɔmbos), for simplicity.

4 In this report, "speech" is used to mean the general act of speaking, and "conversation" is used to mean the systematic cooperative interchange of speech by two or more persons. Therefore "speech" includes "conversation."

5 Note that using this sampling method, not the speech types "spoken," but speech types "heard" in the village were analyzed.

6 I was impressed by the fact that the Bongando people's utterance penetrates further than that of Japanese, even it was spoken not so loudly. Probably their elocution makes it possible.

7 In Lomongo, there is a noun boango, which probably has the same origin as bonango in Longando. Its meaning is "testament" (Hulstaert, 1957).

8 However, it is possible that the man spoke to the spirits of ancestors who live in the forest.

9 Speech like baasase is also observed in the Mbuti Pygmy in the Ituri forest of Zaire (Sawada, in prep).

10 However, if such attitudes of the speaker and the listener are based on social agreement, the unilateral utterance of the speech could be regarded as a very long turn. Even so, the cooperative mood of conversation is greatly reduced, because in conversation such a mood results mainly from the systematic role exchange of the speaker and the listener.

11 In this discussion, I deny only the influence of AUL speech on the in situ interaction, not the long-term influence of AUL speech. Even though the listeners maintain "ritual indifference," if the old man complains about the problem of his goat everyday, for example, others may gradually begin to think about it.

12 Sawada (1987) also pointed out that loud conversation of Efe pygmy men reveals phatic communion.

13 I presented another example of "cutting" the prediction chain

in social interactions in a small island community in Japan. They stop considering polyadic social relations, which necessarily become complicated. They operationally confine their concern to dyadic relations, which are relatively simple (Kimura, 1987).

REFERENCES

Austin, J. L. 1962. How to Do Things with Words. Oxford University Press, Oxford.

Carrington, J. F. 1949. Talking Drums of Africa. The Carey Kingsgate Press, London.

Douglas, M. 1963. The Lele of the Kasai. International African Institute, London.

Furuichi, T. 1988. In the Forest of Pygmy Chimpanzees (in Japanese). Tokyo Kagaku Dojin, Tokyo.

Goffman, E. 1963. Behavior in Public Places: Notes on the Social Organization of Gathering. Macmillan Publishing, New York.

Gumperz J. J. & D. Hymes (eds.) 1986. Directions in Sociolinguistics. Blackwell, New York.

Hudson, R. A. 1980. Sociolinguistics. Cambridge University Press, Cambridge.

Hulstaert, G. 1957. Dictionnaire Lomóngo Français. Musée Royal du Congo Belge, Tervuren.

Itani, J. 1963. Vocal Communication of the wild Japanese monkey. Primates 4(2):11-66.

Kano, T. 1980. Social behavior of wild pygmy chimpanzees (Pan paniscus) of Wamba: A preliminary report. J. Human Evol., 9:243-260.

Kimura, D. 1987. Structure of association in a small-group society: The case of Tokara Islands, Japan (in Japanese). Kikan Jinruigaku, 18(2):172-216.

---------. (In press) Daily activities and social association of the Bongando in central Zaire. Afr. Stud. Monogr.

Marshall, L. J. 1976. The !Kung of Nyae Nyae. Cambridge, Harvard University Press.

Martin, P. & P. Bateson. 1986. Measuring Behavior: An Introductory Guide. Cambridge University Press, Cambridge.

Murdock, G. P. 1959. Africa: Its People and their Culture History. McGrau-Hill, New York, Toronto, London.

Nishida, T. 1989. Animal and mind: Ethology of deception (in Japanese). In Murakami, Y (ed.) The Place of Mind. University of Tokyo Press, Tokyo.

Sacks, H., E. A. Schegloff & G. Jefferson. 1974. A simplest systematics for the organization of turn-taking for conversation. Language, 50(4):696-735.

Sawada, M. (In prep.) Two patterns of chorus among the Efe (Pygmies) and their characteristics: Why do the Efe love to sing?.

Searl, J. R. 1969. Speech Acts: An Essay in the Philosophy of Language. Cambridge University Press, Cambridge.

Sugawara, K. (In press) Conversation structure of the San: with special reference to their long talk (in Japanese). In Tanaka, J. & M. Kakeya (eds.) Natural History of Man. Heibonsha Publishing, Tokyo.

Van der Kerken, G. 1944. L'Ethnie Mongo: Mémoires de l'Institut Royal Colonial Belge 13. Brussels.

von Raffler-Engel, W. (ed). 1980. Aspects of Nonverbal Communication. Swets and Zeitlinger B. V.

Vuanza, P. N. & M. Crabbe. 1975. Les Régimes Moyens et Extrêmes des Climats Principaux du Zaire. Centre Meteorologique, Kinshasa.

de Waal, F. B. M. 1982. Chimpanzee Politics. Jonathan Cape, London.

Appendix 1
Speech Examples

Vowels are indicated by "a," "ɛ," "e," "i," "ɔ," "o," and "u." Tone is indicated by "´" (high tone), no mark (low tone), "^" (descent tone), and "ˇ" (ascent tone). Loudness is indicated by no mark (non-loud), underline (medium), and wave underline (loud).

The meaning of other marks are as follows. "->": continuity of one speech written in two lines. "....." : the speech which could not be comprehended clearly. "=": contact of two speeches. "( )": length of pause in seconds.

The times of speech of every five seconds are indicated in the ruled lines.

In the translation, line number corresponds to that of transcription. Explanation of the content of the speech is in parentheses "()", and the supplement of the speech is in square brackets "[]".

Speech Example 1
22 December, 1988, A.M. 8:49-8:51

——— 28 ——— 30 ———
1 BH: bákútá bákútá bángoyála lóyi mbɔ (1.7) áángotsíkélá ->
——— 35 ———
2 BH: likútá ásúmolaka penepene'a latsína (2.6) ma lini' ->
——— 40 ———
3 BH: ímooyala m̀bɔ (1.8) bot'ɔmɔ́kɔ́ ahuta itano (2.4) zaire ->
——— 45 ———
4 BH: ńtúk'íhé l'itâno (2.0) koko nko'onó'ootw'émí lo'onó' ->
——— 50 ———
5 BH: okílí'ɔnɛ́ (1.3) iíntɛnɛ'ono'falanga ámbéndé bámbéndá ->
——— 55 ———
6 BH: kilísa ekilése nyobéndá falánga má la'ato (4.2) latsína ->
——— 00 ———
7 BH: (1.4) ɔkɔ́ íyɔ'aílákíálé nkɔ mbɔ táhútaka nta'akútá'atano ->
——— 05 ———
8 BH: (1.3) koko nká'akútá'áhé (1.2) koko límooyálá nde mbɔ ->
——— 10 ———
9 BH: kɔmbɔ́láká ingélíáká kɔmbɔ́láká ingélíáká (1.2) óo (3.4) ->
——— 15 ———
10 BH: likambo líní'íyatsú íyɔ li'i (1.8) m̀m bóna'mí la'alíya ->
——— 20 ———
11 BH: (2.2) .....

(49.8)
——— 51'11 ———
12 BH: bekele áále nko l'óohóla ńk'ńk'oo oyatonɛ nko toma áhana ->
——— 15 ———
13 BH: lókíná lɔhɔsɔ

(26.0)
——— 40 ———

14 BH: katoraván =ɔtwɛ́láké'olangí ɔ́ɔ́
15 QV: (.6)oó=

Translation

---

1 BH: money, money, they will be here tomorrow, and he will leave ->

---

2 BH: money for me, he told me [the problem of contribution] recently because it (the contribution of church) ->

---

3 BH: becomes as follows; one person pays five, ->

---

4 BH: twenty-five Zaire (currency unit of Zaire). And from the time when I was born ->

---

5 BH: on the earth, I have never seen such a collection of money as they collect. ->

---

6 BH: The ch.. church collects money from people. Because ->

---

7 BH: they have done [as such] since old times. We have paid five Makuta (old currency unit of Zaire) ->

---

8 BH: and two Makuta. And the problem is as follows; ->

---

9 BH: Collect [the money the people]! Put in! Collect! Put in! Oh! ->

---

10 BH: The problem with all of them [is always as such]. Mm, I and Malia. (Malia is BH's sister. It means that the problem is very serious just like the problem that he and his sister cannot marry with.)

---

11 BH: .....

(49.8)

---

12 BH: Eggs (chickens) should only go out, and only peck the food, and then they does not utter

---

13 BH: other noises.

(26.0)

---

14 BH: Quatre-Vinghts (BH's grandson)! Bring the bottle.
15 QV: What?

Speech Example 2
15 December 1988, A.M. 11:36-11:37

```
          36                                  40
1  MJ:  ..... ->
2  KV: bóyákaa (1.8) boyak'é (2.3) bóyák'en'eyali ->
                                  45
3  MJ: ..... okálíngá tóma nányi oongotsi ->
4  KV: ŏtákalingakăhe ndé (.3) ehée
                                                                  50
5  MJ: ok'emi mpoosilia lɔ'ɔkɔlɔ'ómɔkɔ bauta'amiinda'ahasiliama ->
                                                                  55
6  MJ: koúkou (.9) láhumba máho mbal'ísaso (.4) ɛɛ koko ->
7  KV:                                  (.9) yéé
8  MJ: ɛ óókia yóyi nanyi .... yɔmb'óókia nko nsóle ɔɔlɛ ->
9  KV: koko o onyí okia
                                  00
10 MJ: nk'ɔlɛ =la ndé la'ááse la mbókía nsole ..... ->
11 KV:      (.5) íyee=                          (1.0) nóngíla ->
                                  05
12 MJ: ..... ií mpăkilél'ɛ́ɛ =ií mpăkiléla aá áhumbaki ->
13 KV: nd'itate mâ'á (.4) yá= ..... ->
                                  10
14 MJ: tɔkɔtɔk'ɛɛ ɔ ɔmɛɛ́hɛ́lia'aná'ák'ɛɛ'ángoy'ɛɛ la'akɔ
15 KV: ... eh eh (1.7)
                                                                  15
16 MJ: =ɛɛ hólíák'ɛ́n'ɛɛ nkóto njómi nko ->
17 KV: éyalake nóngohumba lá'aase=
18 MJ: lakilel'ɛ́n'ɛɛ ndambo
19 KV:                                  (.4) ɛɛ ->
20 AW:                  (.8) hólíák'ín'ɛ́ɛ́ nkoto njomi
                                  20
21 MJ:          (.7) íy'oo óha'a falánga iy'oliyák'ɛ́ɛ́'a tóma nde ->
22 KV: el'íkó meya
                                                                  25
23 MJ: boíngó'ol'ón'ó la'a likóto yá hàháháháháhá boíngó'óla lini ->
24 AW: .....
25 MJ: likóto'á falánga linyí kum'ɔn'íya ndá'ato falángɔ'ɔnɛ=
26 AW:                                  =endé ->
                                  30
27 AW: atsúa tóná'ndé mâko asikí ósómbá tona tók'ende=
28 KV:                                  =énakaá íya ->
                                  35
29 KV: iítě bot boto ákŏtsuá endé ámɔɔkótókólía mál'emí íí ->
                                                                  40
30 KV: mpootsuél'éndé ntomo=
31 MJ:                  =atsuá'a koko to to to.. koo'aha'aoyi'a..
```

Translation
(Long line is divided by dotted lines.)

1 MJ: .....
2 KV: They come, they come, they come to the place I stay (she

MJ: ..... ->
KV: sings a catholic hymn). ->

3 MJ: ..... What kind of food
4 KV: Why didn't you cook [cassava leaves] ?

MJ: to cook? [Even] my food which is not good [vegetable?] ->
KV: Ehee!

5 MJ: I don't eat [all of them] in one day. Palm oil [of mine] is

MJ: not finished ->

6 MJ: at once. I cook it (palm oil) at three times. Yes, sure.
7 KV: Yee!

8 MJ: What do you sniff? If you sniff only
9 KV: Then is that seasoned well?

MJ: flavor of food, you only ->

10 MJ: eat it. You eat it with water and sniff flavor.
11 KV: Iyee! I will drop ->

12 MJ: I don't drop it for you.
13 KV: some [palm oil of you] here. Ya!

MJ: I don't drop it. You cooked ->
KV: ..... ->

14 MJ: your food. You know the way of you. You will invite them
15 KV: Eh. Eh.

MJ: (KV's lovers(?) to give these foods).

16 MJ: Pay your ten
17 KV: I leave this problem. I will cook it with water.

MJ: Zaire, then ->
KV:

18 MJ: I will drop some [palm oil] for you.

19 KV: Well, ->
20 AW: Pay your ten zaire.

---

21 MJ: You have money, by which you eat foods, ->
22 KV: where is it?

---

23 MJ: because your purse is big, hahahahahahaha (laughter), because
24 KV: .....

MJ: your ->

---

25 MJ: purse of money is big, and she (KV) has stolen other person's

---

25 MJ: money like that.
26 AW: She ->

---

27 AW: goes there with her money. She surpasses in buying her goods

---

AW: [by the money].
28 KV: Listen, ->

---

29 KV: I say that, a man, a man who goes, he said to me that I ->

---

30 KV: go for him, which is not errand.
31 MJ: Go, .. it is the problem of

Speech Example 3
22 January 1989, A.M. 10:02-10:03
(Record of 02-06 second is lost.)

48 — 50

1 BH: baotámba ntáa ena'mí (1.3) koko ende aɔyɔ́ɔtɛ́ka koko emí ->

55

2 BH: emíaméne lôyoohólia l'ɛkɔ́ kóko laákíná (1.7) koko ->

3 BH: lóyiil'ííte kok'opútáké kok'atápútá (1.4) koko end' ->

00

4 BH: aombil'emi áte oo ómoombíl'emi oot'íí mooyaká ntaa ɛn'ɛ́ɛ ->

02 06

5 BH: oó óyáléká ii njáléká/...../ɛ (1.3) ɔn'ɔ́mɔnyí (1.2) ->

10

6 BH: ɔn'ɔ́mɔyí nk'ááta kok'ɔn'ɔ́mɔyí a a ayanola (3.4) ->

15 — 20

7 BH: njéélélâhé (1.7) Baóohénda Aóhenda (1.5) ɛɛ́ la'Átolota ->

8 BH: eki átɛndáká mâ yanányi latɛndáki (1.3) ma lɔsɔmbɔ ->

25

9 BH: lóná'Á lóná'Átolota (1.2) koko ńk'end'ímelia (2.2) ->

30

10 BH: kum'emi lóoyuwol'íite éka ntaa éko oo oháhúte ndé koko ate ->

32

11 BH: íí mpaáhúte ntaa

Translation

1 BH: He took my goat. And he sold it, and I, ->

2 BH: myself, gave him that [goat], and again ->

3 BH: I did, I said, "Pay [money of goat]," but he didn't pay [the money]. And he ->

4 BH: said to me, "You said to me," he said, "I kill your goat, ->

5 BH: you eat [it], I eat [it]." Another one (goat), ->

6 BH: another one, if he get another one, h.. h.. he [will] answer [about this problem]. ->

7 BH: I invited Baohenda [today]. [I said,] "Baohenda, you and Atolota, ->

8 BH: in what lineage he (Atolota) told [about the problem of goat]?" [He answered,] "I told at the lineage ->

9 BH: of A.. of Atolota." And he (Baohenda) admitted ->

10 BH: when I asked him, "Don't you pay for that goat?" then he said, ->

11 BH: "I don't pay for the goat."

Appendix 2

Contents of Bonangos

These speeches were spoke loudly, and the addressee could not be confirmed. The profiles of the speakers are not given here. Usually they were old men.

Date	Time	Summary of the Content
3/8	4:53	Ndongo-Elonga is missing in the forest. Let's go look for him.
	6:09	(The same contents were spoken by another speaker.)
	8:35	(The same contents were spoken by another speaker.)
	8:48	(Ndongo-Elonga returned to the village and told how he lost his way in the forest.
3/9	3:30	Beat the drum and dance ondeyo (a name of dance).
	9:33	Why don't they (maybe the people from the plantation) buy our coffee?
	18:31	Let's go to repair the path to the Luo River.
3/11	5:02	I am looking for my goat.
	5:26	Let's have a ceremony for clearing away the impurity of our relative's death.
	18:00	Why don't we go net-hunting?
3/16	5:03	Respect the work of the police.
3/17	16:04	The shop owner of Boliaka (the name of the plantation company) wants a shopman.
3/20	7:13	Who stole game from my trap?
	17:17	The person who loses one's authority, is disliked by the people.
3/21	4:55	Let's open a large coffee field.
3/25	15:01	(About the problem between the speaker and another man.)
3/27	9:21	(How his first wife died.)
4/4	6:03	(About the thief who stole the speaker's coffee.)
4/5	6:35	Let's gather money for Loleko-Afokasu, whose wife has died.
4/8	5:23	My grandson refuses to go to the class.

4/9	5:07	Let's go net-hunting to catching a blue-duiker which was seen last night
4/10	5:02	A person of localité Yangonde killed himself in the forest.
4/13	6:03	Let's gather food for the soldiers.
4/14	8:02	(The speaker asked the people to work salongo, forced labor ordered by the public office.)
	15:06	Goats went into the cassava field and ate the leaves.
4/16	5:41	(A female speaker told how her husband refused her.)
4/17	4:50	My sister had 2,500 Z stolen from her. I will curse the thief, if he won't return it.
4/20	5:15	Let's go to the forest of Wamba to catch a pygmy chimpanzee.
4/23	17:02	(The speaker told how he fought with a bushpig.)
4/24	4:58	(The speaker spoken about how to be polite in the family)
4/28	11:06	It's too hot today!
	12:29	(The female speaker was angry with the fickleness of her husband.)
	20:32	(The speaker told how he killed a civet by bow and arrow.)
4/29	5:20	Let's go to salongo to repair the bridge of Kɔhɔla River.
	17:26	(The speaker described a situation of buying coffee.)
4/30	6:15	(The speaker explained how the nephews of lɔsɔmbɔ Yongolo make their joking-relations.)
5/2	5:22	Let's kill the mad dog.
5/3	5:20	Shut goats up in the house, or they will eat cassava leaves in my field.
	18:56	Leela-Mbonjo lost his way in the forest.
5/4	4:58	Let's go into the forest to look for Leela-Mbonjo.
5/27	6:02	A goat ate cassava leaves in my field!

5/28	5:00	Game was stolen from the trap set in the forest.
5/30	6:35	Let's cut grass near the houses.
6/9	5:35	Let's prevent the goats from going to eat cassava leaves.
6/10	7:36	(The speaker told the women who will dance botembe to do well.)
6/11	11:38	My grandson is a bad child. He is a thief!
6/13	6:42	Let's go to hunt the gazelle which he saw in the forest near the village.
6/16	5:46	Let's gather food for nurses taking care of leprosy patients.
6/21	6:38	Wives of my lɔsɔmbɔ are impolite!
6/22	11:04	It is always rainy. A storm will come.
	19:35	Let's go to the meeting at Yangonde the day after tomorrow.
6/25	19:48	Don't be disorderly in the lokenya dance.
6/26	5:21	(The same contents were spoken by the same speaker.)
6/29	5:48	(The speaker told about his journey to the lineage Ya'a mponongoli.)
7/5	6:06	Let's go hunting monkeys in the forest near the village.
	17:46	Let's go to the salongo.
	19:38	(The same contents were spoken by another speaker.)
7/6	8:59	(The speaker spoken about the sharing of the goods of the deceased Iyoko.
	9:05	(The speaker told how his wife try to kill him by a curse.)
	15:28	A woman died at the hospital of Yalisele.
	15:28	(The same contents were spoken by another speaker.)
	15:28	(The same contents were spoken by another speaker.)
7/7	13:06	(The speaker greeted the people at the beginning of the ceremony of drinking sugar cane wine.)
7/8	17:18	(The speaker abused another person who made a complaint to the police.)
7/10	18:52	Let's go to sign the papers of salongo.

7/11 6:27 Let's gather money for Loleko-Afokasu, whose wife has died.

LEGENDS

Fig. 1

Study site.

Fig. 2

Map of the study village, field, and forest.

Fig. 3

Map of the study village and lineage segmentation. Vertical lines show the segmentation of four lɔsɔmbɔs which comprise an upper lineage, Yalisanga. The hut for the sampling of background speech, and the area from which I could hear background speeches is shown.

Fig. 4

Timing of sampling.

Fig. 5

Classification of speech types.

Fig. 6

Frequency of background speech.

Fig. 7

Mean frequency of four speech types for each age-sex. Vertical axis shows the mean No. of speech heard in a sampling window.

Fig. 8 Relations between speaker, hearer, and AUL speech.

Fig. 1

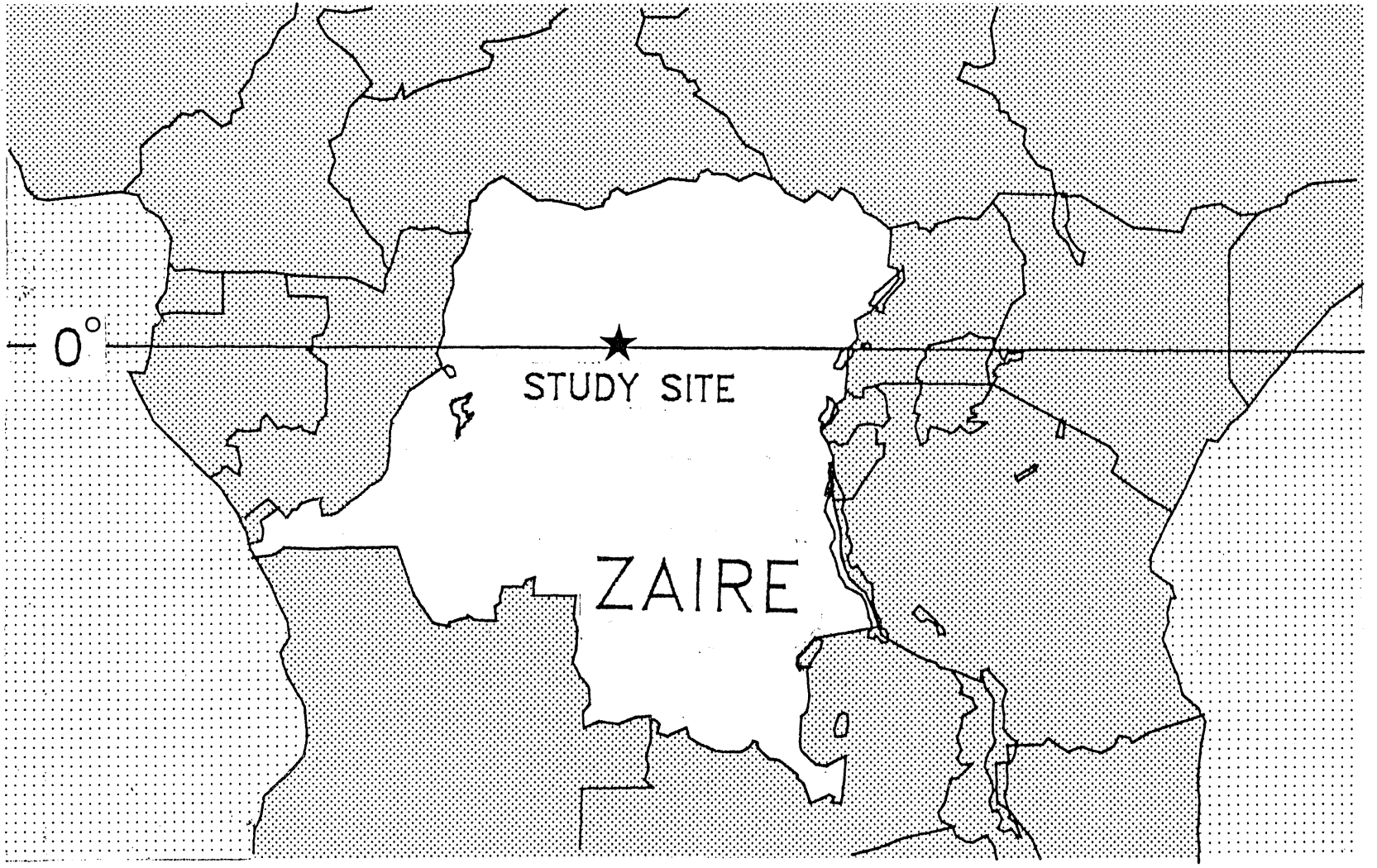
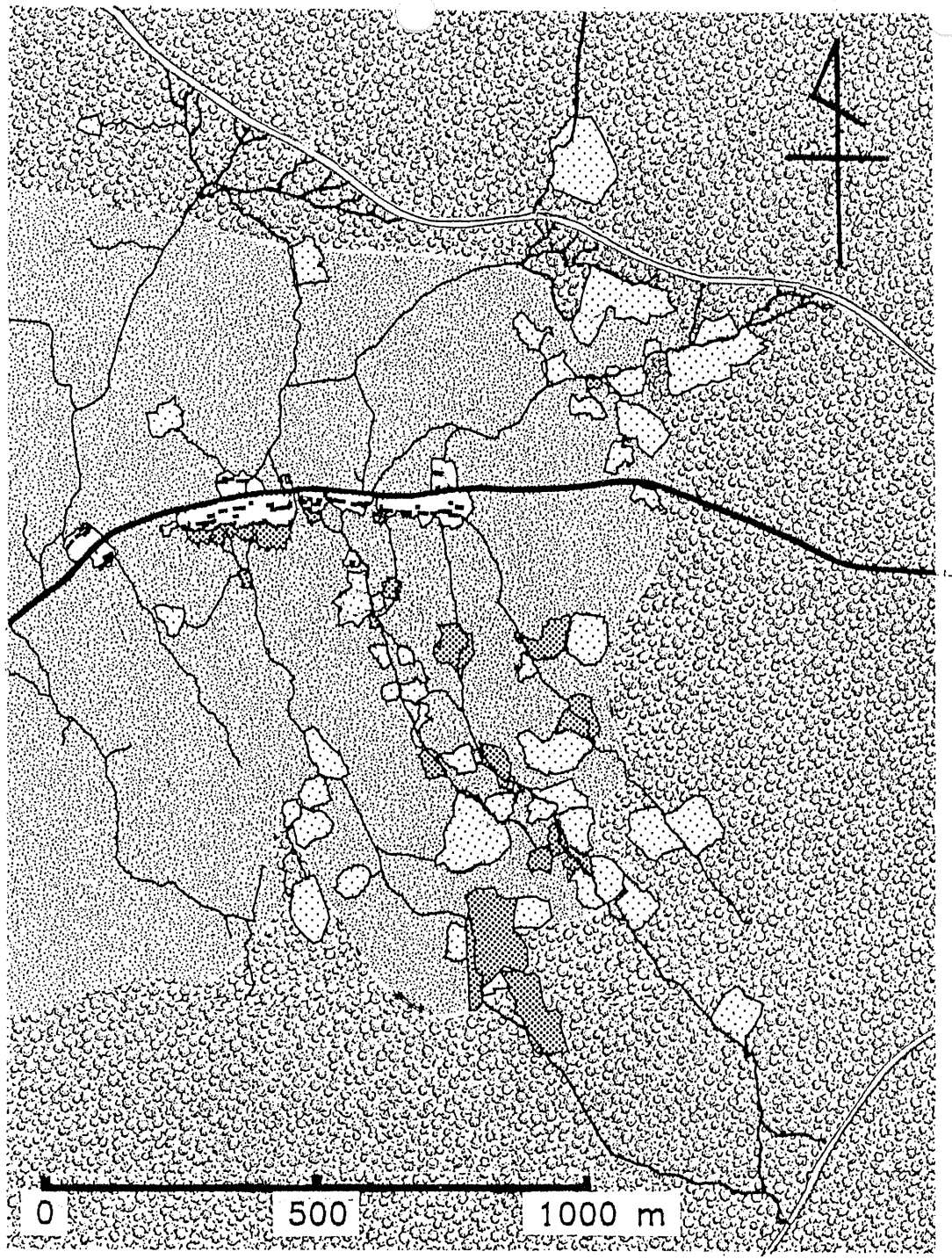


Fig. 2.



Primary Forest

Secondary Forest

River

Cassava Field

Coffee Field

Courtyard and Houses

Path

Road

Fig.3.

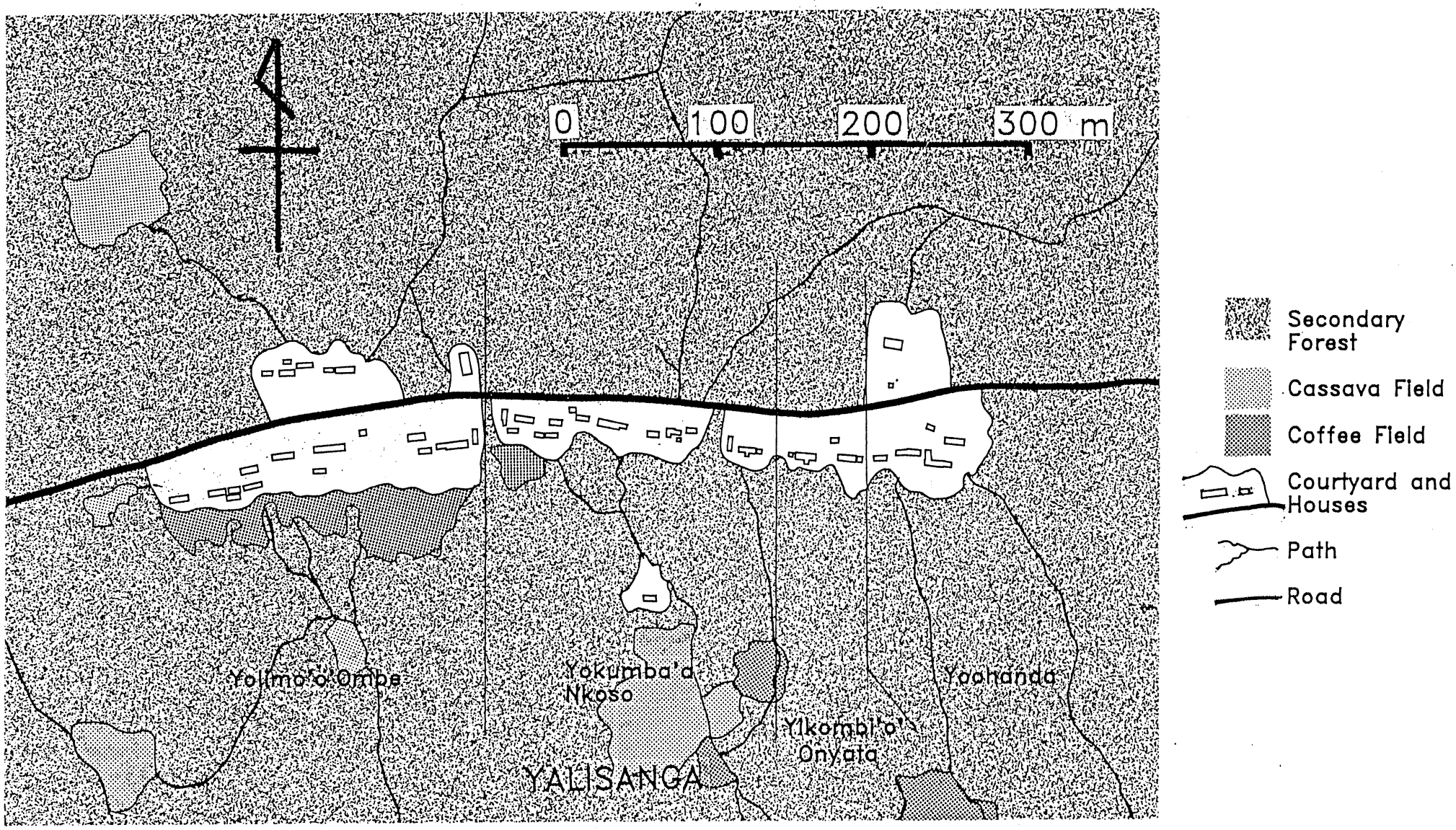

0
100
200
300 m
Yolmo'o'Ombe
Yokumba'a
Nkoso
Yaahanda
Yikombi'o'
Onyata
YALISANGA
Secondary Forest
Cassava Field
Coffee Field
Courtyard and Houses
Path
Road

Fig.4

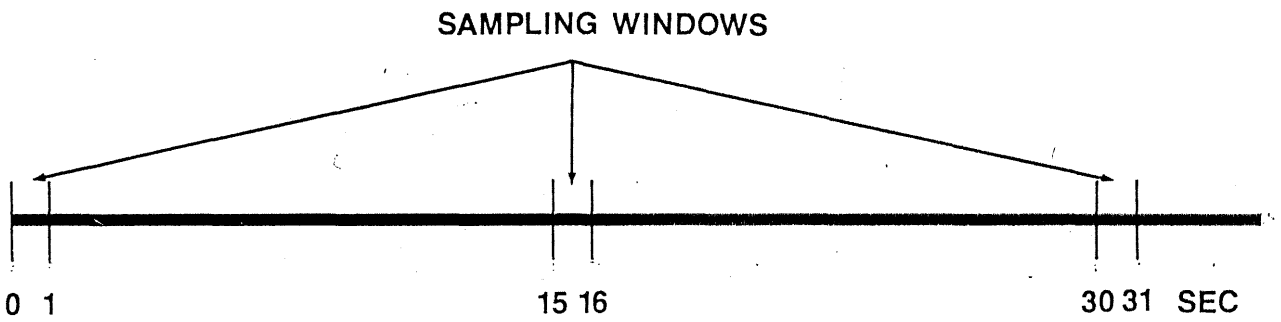


Fig. 5

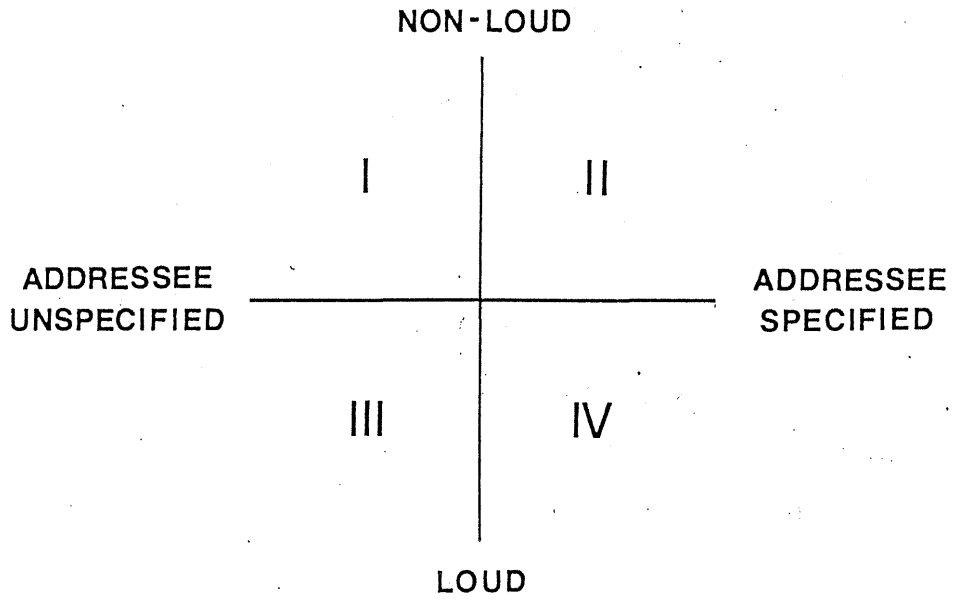

NON-LOUD
I
II
ADDRESSEE
UNSPECIFIED
ADDRESSEE
SPECIFIED
III
IV
LOUD

Fig. 6

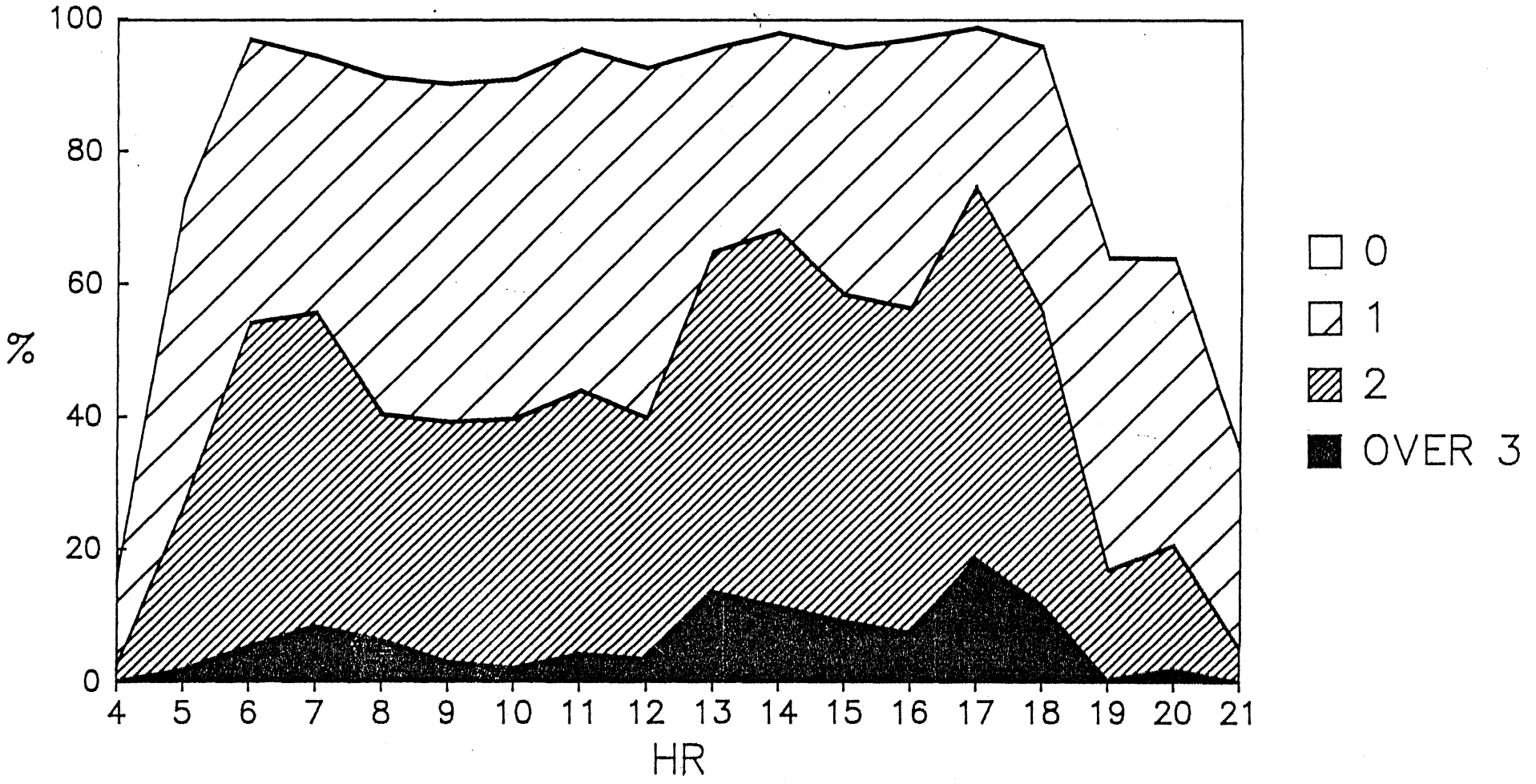
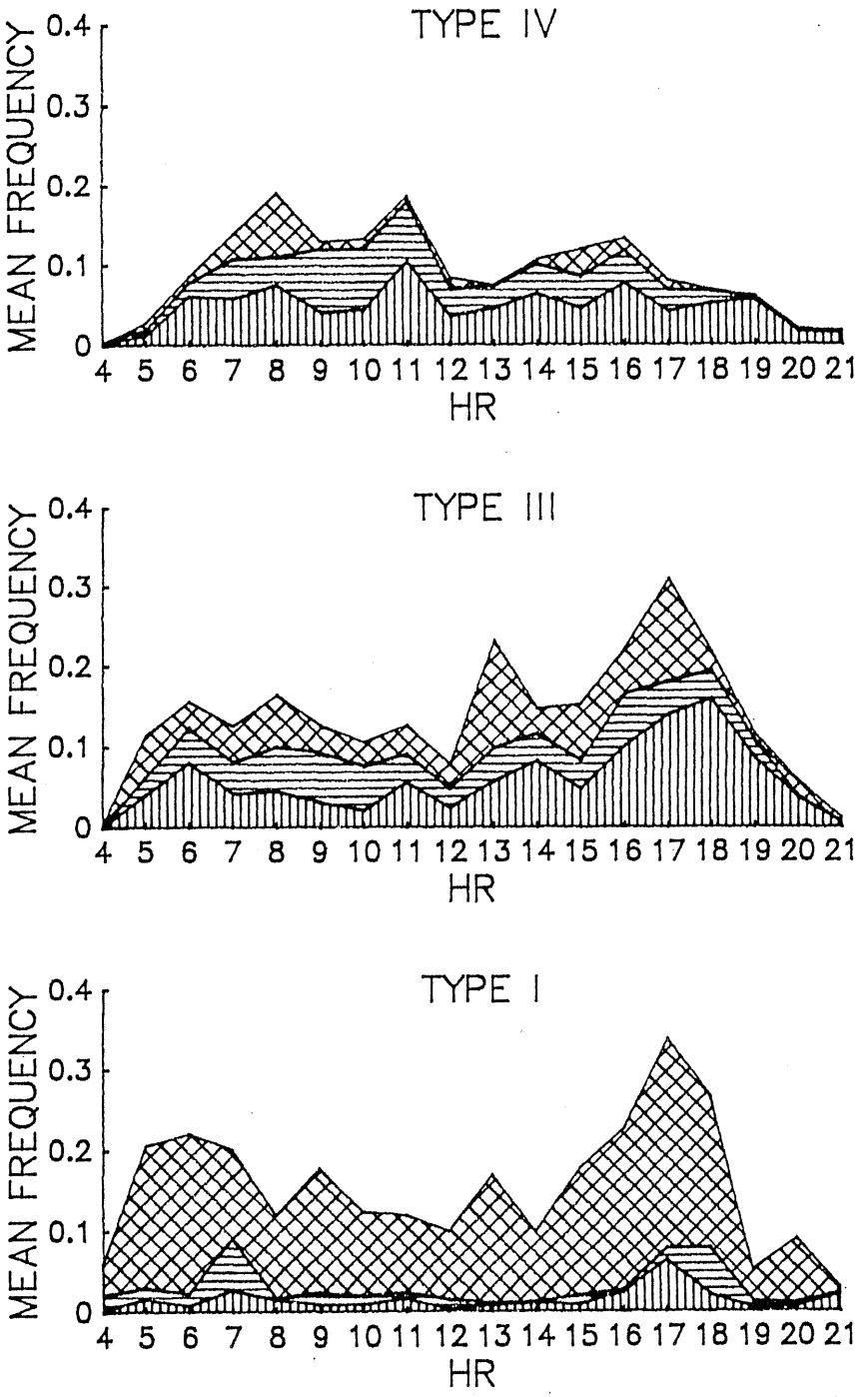

100
80
60
40
20
0
%
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
HR
0
1
2
OVER 3

Fig. 7.


TYPE IV
MEAN FREQUENCY
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0.3
0.2
0.1
0
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
HR
TYPE III
MEAN FREQUENCY
0.4
0.3
0.2
0.1
0
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
HR
TYPE I
MEAN FREQUENCY
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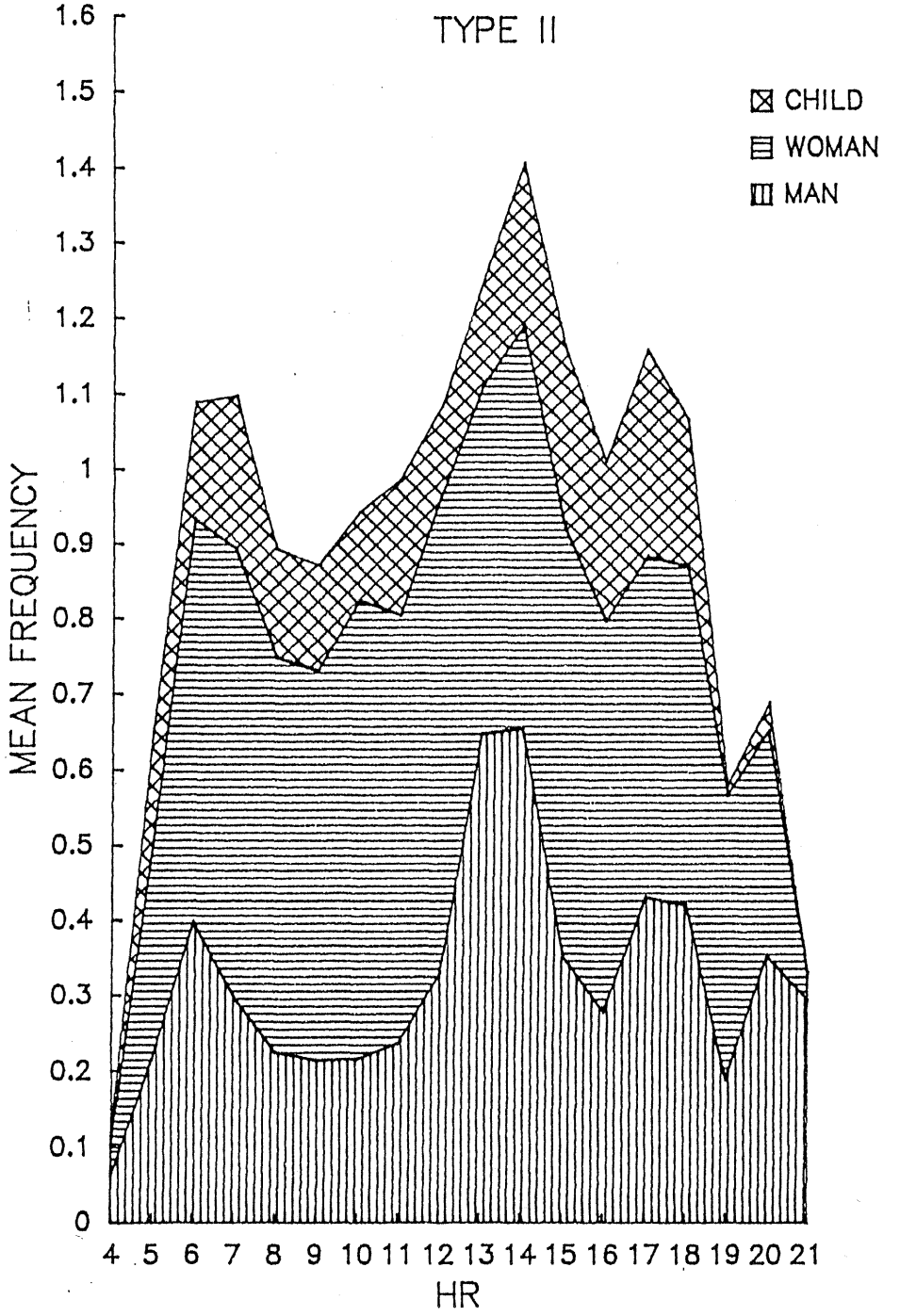
0.3
0.2
0.1
0
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
HR


TYPE II
CHILD
WOMAN
MAN
MEAN FREQUENCY
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
HR

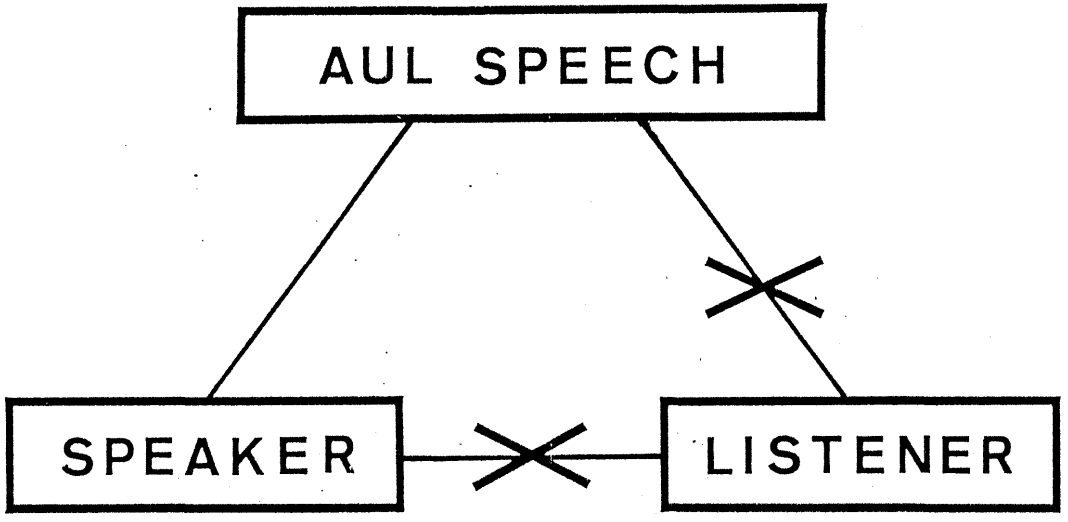



Fig. 8.