

URUBÚ SIGN LANGUAGE

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0. Urubú¹ Sign Language (SL) differs from that of the North American Plains Indian's in that it is intra-tribal rather than intertribal. A possible reason for its development among the Urubú is the presence of many deaf and dumb individuals. There is approximately one mute for every 75 non-mutes, or a total of approximately seven mutes in this tribe of 500 persons. This figure varies with births, deaths, and the development of new mutes. New mutes are those who become deaf, possibly due to the loss of the hearing sense through high fever. With the loss of hearing, they gradually lose their ability to talk.²

¹ Urubú belongs to the Tupí-Guaraní language family and is spoken in the state of Maranhão, Brazil. Data have been collected during field trips to the village of Capitão Xátarixã on a tributary of the Gurupí river during the years 1962-1965 under the auspices of the Summer Institute of Linguistics and the Museu Nacional of Rio de Janeiro. Thanks are due to the Serviço de Proteção aos Índios for granting permission for the field trips and to the Indian agent, João Evangelista de Carvalho, for his assistance. A mute lived in the village of Capitão Xátarixã, which facilitated learning the sign language.

This paper in its present form was written at the 1966 linguistic workshop of the Summer Institute of Linguistics of the University of Oklahoma. I am grateful to Irvine Davis for his many suggestions in its presentation. The first draft of this paper was in the form of a term paper presented to George Grace of the University of Hawaii in partial fulfillment for a course in Ethnolinguistics. I have benefited from both the seminar in Ethnolinguistics and the linguistic workshop.

² Mabel Hubbard Bell, the wife of Alexander Graham Bell, had scarlet fever at the age of four

The author made a trip to a village four days from the Indian post in June of 1965. Our journey took us through four villages and we remained in the fifth. We had in our company a 20 year old baggage carrier who was mute. During the trip, we encountered a mute girl of 5 or 6 years of age in the first village, another mute girl of 13 or 14 years of age in the third village, and we hired a half deaf man in the fourth village as guide for the rest of the journey. In the village where we remained, we encountered no mutes but our mute carrier had no difficulty communicating with the villagers there. It seems that there has been a mute in every Urubú village at one time or another and the SL is known throughout the tribe.

This paper attempts to analyze Urubú SL on two levels as suggested by Voegelin.³

1. The gestemic level⁴ is analogous to the phonological hierarchy in the tagmemic

which left her deaf. Their doctor informed her parents that she would become dumb in a few months, but through intensive training and education, Mabel Hubbard learned to lip read. Similarly, the Indian agent pointed out a mute individual of 18 years of age who used to talk until the age of 8. At 8, this Indian suffered from a high fever which left him deaf. He soon lost the ability to talk and switched completely to sign language. This would not have been his first attempt at sign language since Urubú children grow up knowing both the verbal and, because of other mutes, the gestemic communication systems.

³ C. F. Voegelin, Sign language analysis, on one level or two? IJAL 24.71-77 (1958). The same issue contains an article by Kroeber which includes a bibliography of articles on sign language among the North American Plains Indian.

⁴ Irvine Davis called my attention to Magnus Ljung's article, Principles of a Stratificational Analysis of the Plains Indian Sign Language, IJAL 31.119-127 (1965), after the Norman Linguistic workshop. In this subsequent revision, Ljung's

model. The principle is to recognize certain basic 'building blocks' much like the phonemes, from which larger units are built. Thus hand and body movements involved in the SL are analyzed in terms of combinations of the basic units outlined below. In this presentation, three characteristics of the basic gestemic units are assumed.⁵ (1) The set is finite or closed, and the number of units is low. (2) They are relatively free from semantic associations. (3) They are combinable to form larger units.

The explanation of the notational system now follows:

1. Alphabetic symbols indicate points of reference (of body or place).
2. Numerical superscripts indicate types of motion and positions, and are separated by periods.
3. Parts of body acted upon are given first in order.
4. Succeeding letters and/or numerals augment or amplify the action.
5. Asterisk (*) indicates left hand, otherwise all signs are with the right hand.
6. Plus sign (+) means 'followed by ___'.
7. Parentheses enclose entities.
8. Braces ({ }) indicate simultaneous action or position of body parts.
9. Hyphen (-) indicates sequences.

Alphabetic symbols are:

- A—closed fist
- B—little finger extended
- C—ring finger extended
- D—middle finger extended
- E—index finger extended
- F—thumb extended
- G—palm open with fingers together
- H—forehead
- I—head
- J—nose

term 'gestemic' is used. Davis had originally suggested the term 'kinematic' level.

Although the syntactic units are in terms of the tagmemic model, the term 'level' is used in a different sense as noted in the text.

⁵ These principles were mentioned by Voegelin. However, his fourth and fifth points are not taken into consideration in this paper.

- K—mouth
- L—tongue
- M—Adam's apple or neck
- N—eye
- O—heart region
- P—chest
- Q—forearm
- R—arm outstretched
- S—shoulders
- T—stomach

Numerical superscripts are:⁶

- 1—motion to the right
- 2—motion up
- 3—motion to the left
- 4—motion down
- 5—motion away from the body
- 6—motion towards the body
- 7—motion towards referent
- 8—motion repeated n times
- 9—moulding or kneading motion
- 10—contact (touching)
- 11—proximity (near but not touching)
- 12—facing down
- 13—facing up
- 14—facing front
- 15—facing back
- 16—grasp
- 17—above
- 18—below (under)
- 19—base of ___
- 20—side of ___
- 21—tip(s) of ___
- 22—back of ___
- 23—bent
- 24—degree indicated by distance (close = little, far = lots or many)
- 25—wrist twist
- 26—spread out
- 27—suck air in
- 28—blow air out
- 29—make circular motion
- 30—straighten out

Examples are: (The reader is invited to experiment with this notational system before reading the explanation. See 3 for more items.)

⁶ The first seven numbers are taken from Voegelin's article.

H¹¹—is to be read 'X near the forehead' where X needs to be specified (see examples following).

{*Q¹⁰}—is to be read 'tip of right hand {G²¹} (finger tip) in contact with left forearm'.

{*G^{11,12}}^{(2-4).3}—is to be read 'right hand {G¹²} (palm down) near left hand (palm down) with up and down motion repeated n times'. This is a sign for a car or truck, i.e. a car bouncing along the road.

G²⁶—is to be read 'right hand with fingers spread'.

A(F¹⁰E²³)—is to be read 'make a circle with thumb and index finger while the other three fingers are clenched'. When this circle is put over the eye, it becomes a sign for a jaguar.

2. The second level under analysis is the syntactical level. SL, like spoken language, is described in terms of tagmemes and classes of items manifesting the tagmemes. The latter include units corresponding to syntactical units such as nouns, pronouns, adjectives, adverbs, and verbs. The degree of animation in SL may add shades of meaning or emotional overtones in a manner similar to intonation in spoken language. A brief description of Urubú clause structure is given to show the relationship between verbal and gestemic⁷ structure.

2.1.0. Clauses in Urubú are independent or dependent. Dependent clauses contain a dependent marker /-rahã/ post-posed to items manifesting the predicate tagmeme of a declarative clause or to items manifesting the comment tagmeme of a nominal clause. Dependent clauses must always be preceded or followed by another clause, generally an independent one. There are two major clause types under each division. These are the declaratives and nominals. The declarative

⁷ The term 'gestemic' is synonymous with 'sign language'.

clause has two subtypes, transitive and intransitive clauses.

2.1.1 The maximum expansion for an intransitive clause is: ±Introducer (I) ± Temporal (T) ± Relational (R) ± Subject (S) + Predicate (P) ± Closure (C). Certain permutations are permitted but are not relevant to this paper. No more than three other tagmemes besides the obligatory P tagmeme have been observed to occur.

2.1.2. The maximum expansion for a transitive clause is: ±I ± T ± R ± Object (O) ± S + P ± C. Permutations are permitted but will not be discussed here. No more than three other tagmemes besides the obligatory P tagmeme have been observed to occur.

2.1.3. The maximum expansion for a nominal clause is: ±Topic (To) + Comment (Ct) ± C. Permutation between To and Ct is permitted.

2.1.4. S and O tagmemes may be manifested by nouns, pronouns, noun phrases, and nominalized verbs. Only the noun phrase is relevant to this paper. One form of noun phrase is: +Head ± Modifier. One of the items manifesting the modifier slot is an adjective.

2.2.0. Gestemic structure is similar to the verbal structure but much simpler. Gestemic clauses do not contain the I or C tagmemes. The usual ordering also differs in that the R tagmeme occurs after the P tagmeme.

2.2.1. The maximum expansion for a gestemic intransitive clause is: ±T ± S + P ± R. R may be permuted between T and S. All tagmemes have been observed to occur. Using minimum wording to convey the idea of signs, an example of an intransitive clause is: Early morning - I - went - over there.

2.2.2. The maximum expansion for a gestemic transitive clause is: ±T ± O ± S + P ± R. R may be permuted between T and O. All tagmemes have been observed to occur. An example of a transitive clause is: Early morning - mutum (a bird) - I - shot - nearby.

2.2.3. The maximum expansion for a ges-

temic nominal clause is: $\pm To + Ct$. No permutation is permitted. Example: House - pretty.

2.2.4 A noun phrase which contains a modifier is constructed differently in a gestemic clause than it is in a verbal clause. A clause such as "I shot a big mutum" is broken down into its kernel clauses. Thus: I shot a big mutum \rightarrow $\left\{ \begin{array}{l} \text{mutum - I - shot} \\ \text{(mutum) - big} \end{array} \right\}$

'Big mutum' becomes a nominal clause in the gestemic clause. The To 'mutum' in the second clause may be omitted and only the sign 'big' may be given.

2.3. Only the future tense is formally marked in the verbal system. Present and past are unmarked and are differentiated by the context. Tense in the SL, if indicated at all, is either intrinsic to the particular 'verb' used, or else is expressed by the time tagmeme. Most conversations in the SL relate past events and thus are understood as past tense events. Past tense can be further amplified by giving the sign for sleep along with the fingers to indicate the number of nights gone by. Present tense is of the form "I'm going for a bath", "there is a bird up in the tree", and such incidents or actions going on presently. Future events during the day can be indicated by giving the position of the sun beyond the present position. Tomorrow can be shown by the sign for the opening of a new day. A more expressive way is to follow the sun from its present position to setting position, then the sign for sleep, and finally the sign for the opening of a new day. Distant future events can be indicated by the number of fingers and toes along with the sign for the opening of a new day. Months may be indicated by the position of the moon. A knowledge of the different positions of the sun and the different phases of the moon associated with its position is important in relating temporal events.

Some signs are intrinsically present or past. Such a sign is the verb *to eat*. The present tense form is indicated by

$K^{11}G^{21}$.^{(2-4).8} i.e. waving of the right hand before the mouth with the fingers pointing toward it. This can mean *I'm going to eat*. Coupled with the sign for *come*, it can mean *let's eat* or *come and eat*.

The past tense *ate* is indicated by $M^{11}(AE^{12})^{4.8}$ i.e. a pumping downward motion of the index finger along the middle of the chest, as if food had gone down the throat into the stomach.

2.4. Person, in the verbal system, is indicated by an obligatory pronominal prefix on verbs, and by optional pronoun, noun, or proper name. In the SL, the referent is pointed out. Thus, first person singular *I* is indicated by pointing at oneself. Second person singular *you* and third person singular *he/she* who is in sight, is indicated by pointing to the referent. The plural forms are indicated by pointing to all the referents.

In the absence of the third person, he is indicated by pointing to some distinctive feature of that person. Once a sign designating a particular person is adopted, it becomes permanently associated with him in much the same way as a personal name. For example, the Indian Agent (IA) is identified by $P^{10}G^{21}$.^{(2-4).8} i.e. rubbing one's chest to indicate the hair on it. The second in command at the post is identified by $J^{18}(AE^{20})^{(1-3).8}$ i.e. rubbing the index finger across the upper lip to indicate the mustache. One Indian in the village where the author has lived is indicated by $P^{10}G^{26.23(1-3).8}$ i.e. scratching the chest to indicate the manifestation of a skin disease which itches. This sign is distinct from rubbing the chest. The author wears glasses and is indicated by making a circle with the index finger and thumb and holding it over the eye, $N^{10}(A(F^{10}E^{23}))$. Since the author's presence in the tribe, a homogesteme has been introduced. Formerly, the sign for a circle over the eye meant *jaguar*. Now it has two meanings.

Women or female sex are identified by cupping the hand under the breast as a sign

for this organ, P¹⁰G^{13.23}. Wives are indicated by relationships, e.g. 'a woman of John Doe'. Thus the IA's wife is referred to by rubbing the chest (to indicate the agent) followed by the sign for a woman. Children are also indicated by relationships, in which the approximate height of the child is shown, followed by the sign for his father/mother. For a tribe of 500 Indians, it does not mean that 500 distinctive signs are needed to indicate each individual. Many of the 500 include children who do not have distinctive signs. In addition, not every adult member would be the topic of conversation unless he is present, in which case the referent can be pointed out. However, there are some overlaps in that the same sign may indicate two people. Such an example is (S²) the sign of hunching the shoulders which is assigned to the IA's brother and also an Indian in the village where the author lived. If the context is ambiguous, the referent may be identified by indicating the relationship of the former, or by the use of a sign M^{22.11}G¹² + G¹⁰ to mean an Indian in the latter case (the sign indicates long hair). When the IA's brother is meant, the sign for the IA is made to establish relationship.

2.5. Other clause types in the SL that correspond to spoken language are imperatives, interrogatives, and conditionals.

In the spoken language, imperatives are expressed by prefixing /e-/ to items manifesting the predicate tagmemes. In the SL, imperatives are generally of the mild type such as "do this," "take this to John Doe," "come here," and so forth. There is no overt marker for the imperative, but a gestemic clause is understood as imperative by the context and/or by accompanying facial expressions. An example of a strong imperative occurred at the Indian post when the agent told one of the mutes to lock up his knife. This was a precautionary measure as it was festival time and a fight could have erupted. The signs given to the mute were: Knife - hide. Lock up. Knife -

I - see. I - snatch. Throw - water - nearby. The signs were accompanied by tense facial muscles and slightly enlarged eyes as this was the second warning. Notice that this sequence also illustrates a conditional. A free translation into spoken language would be: *Go lock up your knife, if you don't, I'll take it and throw it into the river.* "If you don't" comes from the signs, "knife - I - see." Other conditionals are of the type, "if he comes, I will go." There is no overt marker in the SL for the conditional. In the spoken language, a conditional is expressed by post-posing /-rahã/ *if, when* to items manifesting the predicate or topic tagmemes. (See 2.1.)

Interrogatives in SL, on the other hand, include a sign which indicates questions. A clause may be begun and/or ended with, (AE)^(7.25), a motion of the index finger towards the referent (addressee) with a slight wrist twist. Thus, a contrast between *the Indian agent went* and *did the IA go?* are:

IA went IA (distinctive feature) - go
(direction travelled).

P¹⁰G^{21.(2-4).8} - P¹¹(AE) + R⁵

Did IA go? IA - go - question?

P¹⁰G^{21.(2-4).c} - P¹¹(AE) + R⁵ - (AE)^{7.25}

In the spoken language, an interrogative clause is distinguished by the intonation contours.

3. Some lexical items are given in this section to show the use of the gestemic units. This list is not exhaustive.

G²³ + ³⁰ *There is none, it is no good, I don't want it, it's a lie.*
The hand is flicked out as if brushing off something.

{R }^{4.8}
{G²³} *Nearby.* The arm is extended and the fingers are bent pointing to the ground.

{*S¹¹ } + R⁵
{(AE²¹)} *Far away.* The hand is held with the index finger extended as for pointing,

- then starting from a position near the left shoulders, the hand is flung out in the direction desired.
- (G¹⁴)^{5.8} *Stay put or wait here.* Pumping motion with the hand, the palm in the direction of the person or area indicated for waiting.
- {G⁷}
{R} This sign gives the time of day, or month (moon). Arm and hand pointing in the direction of the sun (moon).
- (G^{13.26.23}) + ^{10.21.8} *Weak or soft.* Palm up, with a kneading motion of the fingers and thumb.
- (G^{13.26.23})^{2.8} *Boiling water.* Palm cupped with fingers apart and a slight upward pumping motion to simulate bubbles.
- N¹¹G¹⁵ *To see or look for.* Palm held near the eyes.
- (K¹⁰G^{13.19}) + ²⁷ *Water.* Base of palm in contact with the mouth followed by sucking air into the mouth.
- H¹⁰(AE²⁰)^{(3-1).8} *Close relative of the opposite sex.* Side of index finger rubbing the forehead.
- I¹² + N¹¹(G^{12.26.23})^{4.8} *Sad or jealous.* Head bent forward and fingers spread apart simulating tears dropping from the eyes.
- I^{20.11}(A(EF¹³)²⁶) + I^{(3-1).8} *Drunk.* Thumb and index finger are spread apart and pretending to cradle the head which is shaken from side to side.
- I^{20.11}G^{15.21} + G⁽⁴⁻⁵⁾ *Forget.* The hand sweeps from near the right ear down and away.
- L¹⁰(AE²¹) *Salt.* Index finger touching tongue. Sometimes a double motion is given: L¹⁰(AE²¹) + (G^{12.26.23})^{4.8}. The second part simulates falling grains.
- L¹⁰(AE²¹) + (AE¹²)²⁹ *Sugar.* Index finger touching tongue as for salt and then a second motion simulating stirring.
- M¹⁰(AE²¹) *I'm full (of food, i.e. satisfied).* Side of index finger touches the throat.
- O¹⁰G^{21.26} + K^{(27-28).8} *Tired, heart organ, or liver organ.* Finger tips on heart region and making a panting noise.
- *Q^{11.17}G¹² + G⁵ *Pretty, good.* Finger tips of right hand sliding over the back of left forearm and hand.
- {(*G^{14.26.11})^{(2-4).8}}
{(G^{14.26})^{(4-2).8}} *Many.* Fingers of both hands spread apart and extended upward with alternating up and down motion. Back of hands faces speaker.
- {(*G^{14.26.23.11})^{(2-4).8}}
{(G^{14.26.23})^{(4-2).8}} *Many wild pigs.* Fingers of both hands spread apart and bent with alternating up and down motion. This motion resembles scratching.

4. It appears that SL among the Urubú will continue as long as there are mutes in the tribe. It is used by speakers to communicate with the mutes, and by the mutes with the speakers. In addition, the Brazilians on the Indian post and the Tembés (Indians of the same language family) who have frequent contact with the mutes, have learned many signs and are able to carry on communication with the mutes.

A notational system such as outlined in this paper is comparable to phonemic notation. Although the inventory of symbols used here does not claim to be exhaustive,

the total number of symbols needed for an exhaustive analysis of Urubú sign language is probably finite. Most of the signs are associated with the body and a relatively small number of symbols are needed to represent every 'emic' body part. Furthermore, all motions used in the sign language can be reduced to a manageable number. It should be noted, however, that some motions are required for only a single lexical

item. This means that these are not as productive as others and do not quite compare with phonemes of a spoken language, each of which is regularly used in a great number of lexical items.

Each SL symbol carries a certain functional load, but they have no consistent semantic association. Presumably new lexical items can be described from combinations of the basic stock of 'gestemes'.