GLOSSOLALIA. SOME LINGUISTIC PERSPECTIVES

by

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B A., University of British Columbia, 1953

A THESIS SUBMITTED IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in the Department

of

Linguistics

ACCEPTED
FACULTY OF GRADUATE STUDIES

[redacted]

DEAN

DATE 29 Mar/73

We accept this thesis as conforming
to the required standard

[redacted]

UNIVERSITY OF VICTORIA

November, 1972

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ABSTRACT

Glossolalia is a speech phenomenon that is usually heard in a religious context. Although the flow of speech has little, if any, semantic content, it usually sounds convincingly language-like. The purpose of this study is to investigate and delineate the nature of various patterns in glossolalic speech.

The corpus consists of three recordings of glossolalia made by the same speaker. These have been transcribed in full and at least partially analyzed. Two of the recordings were made on the same day, the third some three months later. This study includes a fairly full analysis and description of the various phonological features in the corpus, including some detailed reference to patterns of stress and intonation. Selected aspects of morphology and syntax have also been analyzed and considered.

Although this study is primarily descriptive, it leads also to certain conclusions:

1) The speech patterns in the corpus are derived primarily from the speech patterns of the informant's native language.

2) There is some evidence of evolutionary development in glossolalic speech over a period of time.

3) There is also evidence of basic underlying patterns that persist over a period of time.

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PREFACE

In the typing of this manuscript the typehead used for phonetic script proved to be faulty in two regards. First of all, the spacing in some instances was uneven. Therefore, no signifance should be attached to the minor aberrations of spacing between phonetic script letters. Secondly, the symbol for the back velar nasal was always preceded by an extraneous mark (e g. ˈ ŋ). In some instances this mark has been erased, but often this proved impossible because it was superimposed on another letter. In any event, whenever it is encountered, it should not be interpreted as some form of exotic diacritic.

A person engaged in research may spend a lot of hours working on his own, but the fruit of his research is seldom the result of his efforts alone. This writer is indebted to many good friends for their help and encouragement as he prepared this thesis.

The work could not have been initiated at all without the willing co-operation of the two people who agreed to serve as informants. It is not always easy to allow a deeply meaningful personal experience to be dissected for the purposes of academic scrutiny. Although this study examines in detail the speech of only one informant, both of them displayed an equally ready willingness to be a part of this venture. Their openness of spirit is deeply appreciated.

During the period of time when this research was being conducted, this investigator worked under two different supervisors. Professor M. H. Scargill and Professor H. J. Warkentyne. Their timely advice and encouragement was a constant source of help. This writer is

indebted also to Professor S E. Martin, Chairman of the Department of Linguistics at Yale University, for his interest in the project and his advice concerning specific matters of phonetic interpretation. While acknowledging the help of these men, it goes without saying that weaknesses and errors which may be embodied in this thesis are the responsibility of the author alone.

The chore of typing a draft and preparing a final manuscript is not a light one. Mrs. Betty McConnell and Mrs. Christine Crawford were always most helpful in attending to the details of this task.

This writer reserves his deepest word of gratitude, though, for his family -- and above all his wife -- without whose constant love and support, mixed with a delightful blend of patience and impatience, this project would never have been completed.

Chapter 1

Introduction

1 1 Background

During the past decade a growing number of Christian people have been experiencing a phenomenon that has a long history The Bible refers to it as "speaking in tongues" [1] As part of an act of worship, either public or private, "tongue speakers" utter a fluent sequence of speech sounds that generally carry no semantic meaning [2] Yet it is a meaningful experience, not only for the one who utters the sounds, but often for anyone who hears the utterance. People who "speak in tongues" sometimes refer to it as a form of prayer or praise that enables them to express themselves "beyond words". Those who hear tongues spoken are often moved to "interpret"[3] the utterance

Even when there is no interpretation, there is still a sense of shared communication between speaker and hearer if the two are participating in a common act of worship Commenting on this phenomenon as a type of formal communicative behaviour, Jaquith (1967 3) likens it to the celebration of a Roman Catholic mass in Latin before an audience that is unfamiliar with Latin as a linguistic code In such circumstances language is not the primary channel of communication Indeed, there are those who would say that the mass "loses something" when it is celebrated in the vernacular, probably meaning that understandable language can get in the way of the deeper message that is being

communicated. With reference to "speaking in tongues"[4] Jaquith says:

> While relevant cultural information is not transmitted linguistically, it is transmitted via codes and channels other than those which constitute a natural language. The empirical measure of this is that the audience knows considerably more after a performance than it did before. (Jaquith 1967: 2)

The speech sounds, then, do not serve primarily as a linguistic channel of communication. For this reason one is apt to get the initial impression that the sounds used have no pattern and amount to little more than random babbling. More careful listening, though, suggests that there are language-like patterns. Curiosity about the nature and stability of these patterns provided the initial impetus for this present study.

1.2 Purpose and Scope

The purpose of this study is to examine in detail a limited corpus of three recordings by a "tongue speaker", two of these recordings (A and B) made on the same day, and one (C) made some three months later.

In fulfilling this purpose the study will include:

1) a full transcription of all three utterances, noting suprasegmental features as well as segmental phones,

2) a phonetic description of all speech sounds used in the utterances,

3) a tabulation of various levels of pattern that are apparent in the utterances,

4) a comparison of patterns in each of the utterances with similar patterns in the other utterances, and where feasible, a comparison with analogical patterns in English, and

5) a comparison of these results with other findings noted in recent literature on this subject

1 3 Terminology

The phrase "speaking in tongues" is a fairly literal translation of the Greek words *lalein glōssē*, used to refer to this phenomenon in biblical records. From the same Greek words is derived the more technical term glossolalia. Although there is little difference in meaning between "speaking in tongues" and "glossolalia", the former term tends to be more specific, usually referring to the experience as it is practiced by Christian people. The latter term has a broader connotation, referring to this sort of speech activity as it occurs, not only among Christians, but in a wider variety of circumstances. For the sake of convenience, the term glossolalia will be used throughout the rest of this study.

As a derivative, the term glossa has been introduced by Samarin who defines it as:

> (a) an alleged "language", represented by a particular glossolalic discourse, (b) a specimen, either written down, or mechanically recorded, of this "language". (Samarin 1968: 70)

Following his usage, the three utterances discussed in this study will be referred to as three separate glossas, even though there are many similarities between them.

1.4 Types of Glossolalia

The term glossolalia has generally been used to cover a wide variety of spontaneous speech activity: everything ranging from monosyllabic grunts to full expressions of known languages.

1.41 Classified by Speech Sounds

Emile Lombard (1910 25 ff) was one of the first to classify these utterances. He delineated four main types of glossolalic activity[5]

1) *Phonations frustes*: This is the designation that he applied to any speech sounds that were difficult to comprehend in normal phonological terms. This would include sounds such as groaning or inarticulate muttering They might be the prelude to a more articulate utterance, or they might be the only sounds uttered by a glossolalist

2) Pseudo-language[6] This consists of language-like utterances which are often alliterative and contain fragments of recognizeable words

3) Verbal fabrication This involves the use of neologisms that incorporate both native and foreign phonemes and are often arranged according to identifiable grammatical rules.[7]

4) *Xénoglossie* This is the designation (xenoglossia in English) applied to the spontaneous utterance of a foreign language which the speaker cannot recall having learned in the normal fashion, either as a child or as an adult

The first three types of glossolalia identified by Lombard are really broad classifications on a continuous spectrum of anomalous speech sounds It is possible that any given glossa will include all three types. Xenoglossia, though, would appear to be a somewhat different phenomenon inasmuch as it is the only one of the four types that communicates meaning primarily through linguistic codes and channels Glossas will often "sound like" another language.[8] One may even hear recognizeable words and phrases from another language.

However these tend to be isolated, though sometimes remarkable, coincidences [9]

Samarin (1968: 51 ff.) has suggested that from a linguistic point of view the word glossolalia would be more useful as a technical term if it did not include xenoglossia. More recently (1970: 59) he has also indicated that it should not include what he calls "some kind of word salad", such as these two utterances that were recorded by Sister Aquina at a meeting of a Shona-speaking religious group called "The People of the Spirit":

> Wonderful gloria, tora [take] picture.
> Half, half.
>
> Christo Jesu, Mwari unoera [Holy God], Christo Rabbi,
> hameni, Jesu, zvakanada [very good] rabbi, rabbi, rabbi,
> rabbi.
> Germany, Germany, hameni, hameni, brrr.
> Gloria, gloria, hameni, hameni, terra, terra, terra.
> Homborera, homborera, terra, terra.
> Glory grammar, Jesu, supper. (Samarin 1970: 59) [10]

Undoubtedly some utterances that Samarin would describe as glossolalia would include occasional recognizeable variations of religiously-oriented words, such as Jesus, Hallelujah, Mary, Glory and Amen. But such words would not form a large percentage of the total utterance.

Lombard's typology is useful for classifying a wide range of spontaneous utterances, whatever their linguistic features may be. Samarin's restrictions really delimit a large sub-group of glossolalic activity that tends to have certain common linguistic features. In this study the word glossolalia will be used in the broadest sense when referring to unusual spontaneous utterances in general.

However in discussing glossolalia as a linguistic phenomenon, it will have the narrower connotation Certainly the glossas uttered by the informant for the purpose of this study lie well within the range of speech activity that Samarin would describe as glossolalia

1.42 Classified by Speech Process

Both Lombard and Samarin have defined and classified various types of glossolalic activity mainly in terms of what is said. Pattison notes that Freida Goldman-Eisler(1958) has typified glossolalia more in terms of how it is said She has noted two main types of glossolalia. Summarizing them, Pattison says

> The first category is "playful" glossolalia characterized by rapid, fluent speech devoid of hesitation pauses and with an increase of breath rate and an increased syllable output per breath. . . The second type of glossolalia may be classified as "serious" This type is characterized by a slower rate of speech with numerous hesitation pauses, a lower breath rate and a reduced number of syllables per breath. (Pattison 1968 79)

Again, these classifications represent two poles of a continuum. In Goldman-Eisler's terms, the informant in this study speaks a form of glossolalia that would generally be classified as "playful". Yet features of intensity, such as lengthened consonants and vowels, fortis articulation and expanded tone range suggest a seriousness of intent.

1 5 Occurrences of Glossolalia

Glossolalia occurs in a wide variety of situations, both secular and religious

1 51 Secular

In secular situations glossolalia is probably more common than

most people realize, partly because the term is so often associated with a religious experience. Pattison (1968: 83-84) notes that many of the subjects he has studied have made use of glossolalia either consciously or unconsciously as a means of reducing tension or anxiety. For them it serves somewhat the same psychological function as tapping one's fingers. The writer has noticed that some members of his own family will unconsciously utter a melodic phrase such as "dum-de-dum-dum-dum" when they find themselves feeling somewhat ill at ease in a situation. In its own way this would be an embryonic form of glossolalia, one, incidentally, which communicates a great deal, albeit non-linguistically. Pattison has also noted (1968: 84) that some subjects he has studied will use glossolalia as a means of relieving boredom when performing routine tasks such as typing or driving.

Glossolalic speech will often be uttered quite consciously and openly by people who are seeking to mimic another language. Some people do this with a remarkable degree of fluency, often to the keen amusement of their friends.

1.52 Religious

Glossolalia occurs frequently in religious contexts, both Christian and non-Christian.

1.521 Non-Christian

May (1956) has documented many instances of glossolalia and related phenomena as they occur in non-Christian religions throughout the world. One gets the impression from his survey that both *phonations frustes* and xenoglossia are more commonly associated with non-Christian religions than with the Christian faith. But this is an undocumented

observation. May notes also (1956 91) that in non-Christian religions glossolalia is "generally the forte of shamans and their assistants, not of the laymen . . "

1 522 Christian

In North America glossolalia is most commonly associated with the faith and practice of certain Christian groups, notably various branches of the Pentecostal church and also many of the holiness movements. In the mid-1960's the established churches, both Protestant and Roman Catholic, found an increasing number of their members were beginning to practise glossolalia. Kelsey (1968 1) suggested that there were two or three million tongue speakers in the year 1964 when his book was first published Samarin (1972 48) suggests the figure eight to fourteen million The phenomena is certainly widespread and growing at the present time in the Christian church

1 5221 Historical Background

It has not always been so. Glossolalia certainly appeared to be a recognized practice in the early years of the Christian church when it was interpreted as one of "the gifts of the Spirit" However, even at that time it was seen as one of the lesser gifts, and Christians were admonished to keep it in perspective and refrain from practising it publicly without an "interpretation".[11]

Throughout the Christian era there has rarely, if ever, been a time when the practice of glossolalia was whole-heartedly accepted by all who called themselves Christians. There was a period from the third to the twelfth centuries when there is no mention of the phenomenon whatsoever

Christian glossolalians have often found themselves either the center of controversy, the cause of dissension, or the victims of rejection, ostracism and persecution. Probably the strongest and most widely accepted practice of glossolalia has come with the growth of various pentecostal movements during the past century. And it is only within the last decade that the phenomenon is beginning to receive grudging and cautious acceptance in some of the established churches.

1.6 Glossolalia in Perspective

Since glossolalia is an unusual form of behaviour, it tends to be a sensitive subject of discussion. Those who practise it are sometimes subjected to prejudice and abuse, occasionally by people engaged in serious academic study.

Glossolalia is sometimes spoken by people who have mental disorders or personality defects. It does not follow, however, that glossolalia is always the result of such aberrations. People speaking glossolalia sometimes seem to be entranced, possibly experiencing a form of altered consciousness. It does not follow, though, that glossolalia is always caused by trance states (cf. Goodman 1969 and 1972).

One of the best documented and most sensitive studies of glossolalia that this writer has encountered is the paper published by Pattison (1968). His "Summary of Behavioral Science Research Data on Glossolalia" is worth quoting in full:

> 1) Glossolalia is an ancient and widespread phenomenon of most societies, occurring most usually in specific religious contexts, 2) glossolalia may occur as part of larger syndrome (sic) of hysterical, dissociative or trance states, or it may occur as a discrete piece of behaviour, 3) glossolalia is not necessarily

> correlated with specific personality variables, 4) glossolalia may be deviant psychopathological behavior or it may be normal expected behavior depending on the sociocultural context, 5) glossolalia is a form of partially developed speech in which the thought-speech apparatus of the person is employed for a variety of intra-psychic functions, 6) glossolalia may accompany psychopathological regression or it may be a form of healthy regression in the service of the ego leading to more creative modes of life (Pattison 1968 84)

This present study is presented as a piece of linguistic research, and the conclusions reached concerning glossolalia as a linguistic phenomenon should not be interpreted as a commentary on the experience as a religious phenomenon Linguistically, glossolalia does not appear to be particularly complex But the writer knows from his contacts with people who practise glossolalia that it has profound significance for them as a religious experience

Footnotes

1. See 1 Corinthians, chapters 12 and 14

2 An exception to this is xenoglossia, a speech phenomenon in which a person spontaneously utters a normal language they cannot recall having learned. Samarin (1968: 50-51) says: "The word. . . , is supposed to have been coined by Charles Richet (as *xénoglossie* in French) at the turn of the century when he reported on his investigation of 'automatic writing in foreign languages' to the London Society for Psychical Research."

3 An "interpretation" is not a translation but more an impressionistic and rather stylized message addressed to the worshippers who believe both the "tongue speaking" and the "interpretation" to be divinely inspired.

4. Instead of the phrase "speaking in tongues", Jaquith uses the term "glossolalia" which is introduced in part 1.3 of this study.

5 The writer was unable to obtain access to Lombard's original text and so has depended heavily on the outline of Lombard's typology that has been recorded by May (1956: 77-78).

6 Samarin (1969) has used the word "pseudo-language" to denote any language-like utterance that is unlearned by the speaker and meaningless to both the speaker and the hearer. For him the term connotes much that is generally meant by "glossolalia", but it excludes xenoglossia (see p. 5 of this study). It also avoids the religious overtones associated with the word "glossolalia" thus facilitating the linguistic study of this type of utterance without reference to the social context in which the utterance was spoken.

7 In May's outline (1956: 77-78) of Lombard's typology, the distinction between pseudo-language and verbal fabrication is not entirely clear. This writer has assumed that verbal fabrication differs from pseudo-language by the addition of foreign phonemes and more structured syntax.

8 This is true on a superficial level because, while the sounds uttered rarely "make sense", they are usually spoken with such fluency that they sound convincingly language-like. It is sometimes true also on a phonological level. Motley (1967: 48 f.) has shown that phones used in glossolalic speech by one English-speaking informant had a significantly higher correlation with Spanish than with English.

9 For a particularly interesting documented example, see Kelsey (1968: 153-157).

10 These transcriptions and bracketed translations by Sister Aquina were relayed to Samarin in personal correspondence.

11 See I Corinthians, chapters 12 and 14. The pentecostal experience spoken of in The Acts of the Apostles, chapter 2, seems to have been an instance of xenoglossia, the only one of its kind noted in the biblical record.

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Chapter 2

The Literature

2.1 Introduction

Glossolalia is an unusual form of socio-religious behavior. It has been of interest, not only to theologians, but also to people specializing in several of the social and behavioral sciences. Their literature is extensive and references are plentiful. This writer has found particularly useful bibliographies in works by May (1956), Wolfram (1966), Motley (1967), Kelsey (1968), Pattison (1968) and Samarin (1968 and 1970). Kelsey's book provides a well-balanced theological perspective on glossolalia. Pattison's paper provides a wide-ranging overview of literature on the subject in many of the behavioral sciences.

2.2 Linguistically oriented literature

The study of glossolalia in the field of linguistics is relatively new, and the literature to date is not extensive. For the purpose of this study the literature review will be limited to those works which are linguistically oriented. Reference will be made to unpublished works by Nida (1965), Campbell (1965), Wolfram (1966) and Motley (1967), and to publications by Jaquith (1967), Samarin (1968 and 1970) and Goodman (1969 and 1972). Their findings will be summarized under broad headings designating various levels of linguistic research on glossolalia.

2.21 Sources and Nature of Data

Nida and Samarin (1968) have based their conclusions on fairly

extensive work with speakers of glossolalia, but only Samarin includes any reference to a specific glossa. Samarin's later paper (1970) is a record of evolution in his own glossolalic private language. Campbell's corpus consisted of two five minute utterances from each of two informants. Wolfram has done a comparative study of eight informants based on seventeen different texts ranging in length from 18 to 202 breath groups. His comparisons are both synchronic, comparing single glossas from each of the eight informants, and diachronic, comparing different glossas by the same informant over a period of three weeks. Motley's corpus was obtained from an informant who spoke three different varieties of glossolalia. Recordings of two varieties totalling some 3½ hours were made over several weeks. The corpus analyzed consisted of random samples constituting about ten percent of the total utterances. Both varieties of glossolalia were compared with each other and with English, Spanish and Russian.

Jaquith's brief study was based on a glossolalic song lasting 44 seconds and a speech lasting 54 seconds. Goodman's earlier paper (1969) is based on recordings of glossalic utterances in four different cultural settings: 1) at a Streams of Power movement service in the Caribbean, 2) at a mid-western tent revival meeting, 3) at a main-line Protestant church in Texas, and 4) at an Apostolic (Pentecostal) church in Mexico City. She writes as an anthropologist, but includes a comparative study of the prosodic features found in the various glossolalic samples. This work is expanded considerably in her later publication (1972) to include data gathered from the Umbanda cult in

Brazil, and from Apostolic churches in Yucatán where the people speak Yucatecan Maya, a language that does not have Indo-European origins

2.22 Phonology

Most of the studies on glossolalia to date have focussed on phonological features, particularly the segmental and syllabic aspects of phonology. Jaquith mentions this, however, only as part of a larger consideration of glossolalia as a formal communicative event, and Goodman stresses primarily the prosodic aspects of phonology.

2.221 Inventory of Phones and Allophonic Variation

Nida, Campbell, Wolfram, Motley and Samarin (1968) generally concur in their findings, and Jaquith's less detailed study would appear to support their conclusions.

The inventory of phones used in any given sample of glossolalia is generally found to be restricted. Wolfram, Motley and Samarin (1968) note that all of the most commonly used phones are derived from the informant's native language, which has usually been English in the studies to date. However, there is some innovation with the limited use of a few "foreign" phones. Wolfram suggests that this may be a matter of experimentation or, more likely, interference from other languages with which the informant has had even passing contact. Samarin (1968) notes that innovation is more frequently characterized by the use of new patterns rather than new phones [1] He illustrates this by referring to the fact that in glossolalic speech one will sometimes hear the alveolar stop [t] between vowels following a stressed syllable (e.g., [kíta]), whereas the more normal pattern in

American English is for this stop to be replaced by the flapped allophone [ř] as in the word kitty

Nida, Wolfram and Samarin (1968) note that the phones selected for use in glossolalic speech generally display a pattern that lacks the symmetry one tends to find in normal languages. For example, the following pattern was derived from one glossa analyzed by Samarin

- t k

m n -

- s -

(Samarin 1968: 62)

Nida comments on allophonic variations, noting that those used in glossolalic speech appear to be derived from the mother tongue of the informant. However, apart from variations he attributes to the stylized forms of some glossolalic utterances, the range of commonly used allophones appears to be more restricted than one would expect. He contrasts this with the wider range of allophonic variation characteristic of three vowel languages such as Quechua and Eskimo.

2.222 Frequency Patterns

Of the phones selected for use in glossolalic speech, it has generally been observed that a few phones are used with great frequency, while the remainder are used very little. Thus the frequency patterns of phones in glossolalia tend to be less graduated than those patterns characteristic of normal language.

Concerning consonant frequencies, both Nida and Wolfram found that preference is given to lingual points of articulation, followed by

labial and velar. Motley found the alveolar point of articulation to be most commonly used. All of these findings concur with analogous frequency patterns in English.[2] In contrast, Jaquith's sample showed more use of the velar point of articulation than the labial. With reference to the ratio between voiced and voiceless consonants, the latter tend to occur more frequently, especially if only obstruents are considered. This too, is characteristic of English, but the preference for voiceless consonants is usually more pronounced in glossolalic speech.

As for vowel frequencies, the pattern seems to be a little more varied. Nida, Wolfram, Samarin and Jaquith all found a to be the most commonly used vowel phone. The phones [e] and [o] were usually next in order of frequency, followed by [ɛ] and [u]. However, in his pilot study Motley found the mid front vowel phone to be most commonly used, and Campbell notes that his samples were low on high front and low back vowels. These findings compare with English in which the most commonly used vowel is [ə], and there is distinct preference for front vowels, then central and back.

The ratio between consonants and vowels in glossolalic speech tends to be almost equal, mainly because the most common syllable pattern is CV. This contrasts significantly with English, which shows a consonant-vowel ratio of almost two to one.

The fact that glossolalia tends to make use of a fairly limited number of phones with a high degree of frequency generally gives the impression of considerable alliteration, repetition and lack of flexibility. Campbell, Wolfram, Motley and Samarin (1968) have all

noted this, especially when comparing glossolalia with English However, Motley has demonstrated that variety and flexibility of phones used in glossolalia is roughly equivalent to the samples of Spanish and Russian used for his study

2.223 Syllable Structure and Phonotactics

Wolfram, Samarin (1968) and Goodman have all noted that glossolalia is characterized by simple syllable structure, with a distinct preference for the CV syllable, followed generally by CVC and then V. Although Wolfram's eight informants used a wider range of syllable types, only CV, CVC and V were common to all eight of them

Both Nida and Motley have noted that very few consonant clusters and vowel diphthongs appear to be used in glossolalic speech. Most of those that are used appear to be derived from English, or at least from English patterns. Wolfram notes, for example, the following similarities:

Glossolalia	English	Similarity
šw	sw	sibilant and semivowel
šn	sn	sibilant and nasal
št	st	sibilant and stop
tš	ts	stop and sibilant
bw	kw	stop and semi-vowel

(Wolfram 1966 63)

With regard to phonotactics, Motley notes an interesting aspect of co-occurrence frequency patterns in English when compared with his glossolalia samples. In all but one instance he found that

consonant combinations that were highly probable in English did not concur with high probability combinations in his samples of glossolalia.

2.224 Prosodic Features

For the most part little research seems to have been done on this aspect of glossolalia. Apart from Goodman's detailed studies, comments in the literature tend to be brief and rather impressionistic.

Nida has suggested that intonational contours used in glossolalic speech are generally derived from the speaker's mother tongue. He also notes three specialized intonation patterns which are often incorporated in glossolalic utterances as a matter of style. He classifies these as: 1) oratorical or preaching, 2) pleading or praying, and 3) liturgical or incantational.

Wolfram suggests that glossolalic intonational contours are characteristic either of the speaker's native tongue or a second language. He also mentions the special contours related to various aspects of worship. He notes as well other contours that could not be classified as either of the above, and suggested that these might be a deliberate attempt by the speaker to use exotic "foreign-sounding" speech patterns. He suggests that extra-linguistic factors such as the emotional state of the speaker may have some influence on the nature of the contours used.

Motley has observed that pitch patterns make it possible to distinguish clause-like units. Samarin (1968) makes a similar observation, noting that glossolalic intonation contours appear to be derived from English. Later (1970) in analyzing the development of his

own glossolalic language he noted at one point an intonation pattern that was not similar to English. In this same article he mentions that changing stress patterns appear to be a means of diversification while repeating a limited number of phonological units. Thus stress appears to take on a pseudo-lexemic function in distinguishing the "words" dára and dará. The shifting stress patterns can also affect the placing of juncture so that the same sequence of syllables can be segmented in different ways suggesting the use of new words. As an example, Samarin suggests that "starting . . . with the hypothetical minimum utterance dadára, we might get dadára dadáradada rádada ráda darádada . . . ." (Samarin 1970: 61)

In considering stress, Motley has noted predictable patterns at the beginning and end of "word-like units" in both his samples of glossolalia. The patterns were not the same, however, in his two samples of glossolalia. In one sample when stress followed a juncture it usually fell on the second syllable of the unit. In the other sample it tended to fall on the first syllable. At the end of a unit the stress tended to fall on the penultimate syllable in both samples. Motley (1967: 97) states that these patterns are not those of his informant's native language. They are, however, permissable patterns in English, both in words and in phrases.

Some of the most detailed and explicit study of intonational contours in glossolalic speech has been done by Goodman. Examining a variety of glossolalic utterances by speakers of four different languages in seven cultural settings, she notes that there are certain

phonological features common to them all. She recognizes various levels of sound in the following terms a pulse (equivalent to a syllable), a bar (roughly equivalent to a word), a phrase (similar to a sentence), an utterance consisting of several phrases and an episode consisting of several utterances. (In the terminology of this study a glossa would be equivalent to an episode) Bars are usually equal in duration, especially when considered in conjunction with pauses Phrases are also similar in length

Goodman notes three degrees of stress and indicates that each phrase begins with a primary stress. The intonational contour is a characteristic of the utterances, spreading over several phrases This contour begins near the mid-point of the speaker's pitch range, undulates gradually to a high peak in one of the intermediate phrases of the utterance, and then declines to a low pitch level as the utterance reaches the point of decay and conclusion

Goodman's latest publication (1972) was only recently available and warrants more study than this writer has been able to give it Her detailed study of prosodic features in glossolalic speech is valuable indeed, but one would have to question her conclusion that similarities in glossalalia found in different linguistic and cultural contexts suggest that the glossolalia is an artifact of a trance state. Certainly much, if not all, of the glossolalia she has observed would appear to be accompanied by various degrees of trance, but the cause and effect conclusion that she draws would seem to be unwarranted in the light of studies by other investigators.

In addition, it should be noted that many normal languages (certainly English) include the features of tone, stress and energy output that she describes in glossolalia, although perhaps to a lesser degree The conclusion of utterances is always accompanied by decay and generally by low pitch Most utterances begin in the mid-pitch range and usually reach an identifiable peak before they decay This is especially true of the stylized intonation patterns related to preaching, praying and liturgy noted by Nida and Woolfram This writer has observed exactly the same kind of tone contours in the preaching of African ministers in Zambia who were speaking in the Chibemba, Chinyanja and Chilala languages

2 225 Paralinguistic Features

While one has to reserve judgment about Goodman's conclusion that glossolalia is always the result of a trance state, there is certainly evidence to suggest that some forms of glossolalia reflect an absence of cortical control over the encoding processes that function in normal language Nida notes that glossolalia of this sort does not include "paralinguistic features such as pauses, hesitations, false starts and repetitions " (Nida 1965 5) Other forms of glossolalia do include such features and would appear to reflect a more conscious encoding process These two types of glossolalic speech concur with those described as "playful" and "serious" by Goldman-Eisler (1958)

2 226 Speech Styles

Apart from the stylized intonation contours already mentioned,

Nida and Wolfram have observed that glossolalia is often characterized by other features of style.

2.2261 Phonological Style

Nida notes that speakers of glossolalia will often make extensive use of a particular phonological feature such as heavy aspiration, unusual breathiness or glottalization of consonants. Whatever style is selected, it often sounds as if it is "overdone". It is an added phonological feature superimposed on the entire utterance, rather than affecting only isolated units.[3]

2.2262 Expressive Style

Wolfram has observed that speakers of glossolalia will sometimes use stylistic features that are characteristic of expressive language. He identifies these as: repetition, reduplication, triplication, rhyme, and alliteration.

2.23 Morphological consideration

In glossolalic utterances one can only rarely identify morphs in the usual sense, that is, recurring phone sequences that carry meaning. Nida has mentioned that glossolalists will sometimes utter the name of Jesus or the Old Testament titles for God, often with presumed Greek or Hebrew pronunciation. These and other religiously-oriented words would carry meaning. Samarin (1968) mentions that meaning is sometimes attributed to other glossolalic words, but usually on a subjective basis by the speaker himself. In his later article Samarin (1970) suggests that the meaning that people associate with particular discourses tends to be an affective one.

> For example, urgency is identified in rapid utterance, 'richer sounds' (as they put it) are associated with being near God, and a 'melodious' discourse signifies adoration (Samarin 1970: 64)

Some experiments where subjects have been asked to associate meaning with nonsense words have demonstrated notable concurrence in the answers given, especially when the subjects were given a choice between two polar referents (Pattison 1968: 78-79). However, one cannot usually identify meaningful sound sequences in glossolalic speech. It is possible, though, to identify frequently recurring structures that do not bear meaning.

2.231 Pseudo-words and Pseudo-morphemes

Wolfram has isolated two levels of recurring partials which he describes as pseudo-words and pseudo-morphemes. Pseudo-words are characterized phonologically as recurring partials that have one primary stress. Pseudo-morphemes are smaller sound sequences that occur predictably with other such units to form a pseudo word. Wolfram has also noted a wide range of pseudo-word alternants, especially when the sound sequence recurs frequently. Such alternants are so classified because they are phonologically similar and always occur in the same position within the framework of a phrase-like structure. The alternation takes the form of vowel or consonant replacement, consonant addition or loss, or metathesis. Samarin (1970) notes that the alterations seem to involve consonants more than vowels.

Motley has also observed phonological variation in units analogous to words and morphemes. None of the morph-like units, though were common to both of the varieties of glossolalia he analyzed, even

though these two varieties were spoken by the same person. Of the recurring partials he noted, some seemed to function only as prefixes, or as suffixes, or as stems, or in isolation. But most such units were used in more than one capacity.

2.24 Syntactical Considerations

As with morphology, it is difficult to speak of glossolalia having syntax in the fullest sense of the word. However, some observations have been made concerning the way in which pseudo-words are ordered.

Nida and Wolfram have noted that word-like units appear more predictably at the end of a breath group than at the beginning. Wolfram notes that such units may also occur in the middle of a particularly long breath group, as if to designate the boundary between two "pseudo-clauses". Clause-like structures are also identifiable in terms of the stress and tone patterns already mentioned.

2.25 Stages of Development in Glossolalic Language

Some observers have indicated that glossolalia passes through various stages of development over a period of time. Pattison's studies (1968 80) confirm Wolfram's observations that there are at least two stages of development, initiatory and habitual. The initiatory stage is the period of learning and experimentation, the habitual stage is reached as the forms used become more stable and consistent. Goodman (1972) compares two samples by the same informant, the second sample recorded a year after the first, and notes that intensity and energy output appear to diminish over a period of time.

Samarin's study of evolution in his own glossolalic speech suggests a gradual process of development leading to a form of glossolalia that is both fluent and stable, yet retains the capacity for innovations and diversification He notes that diversification takes place by the introduction of new phonological units, new clusters, new "words", new variants, new stress patterns and new intonation patterns.

Footnotes

1. Samarin's article actually says "It is the units which are borrowed, not the patterns." (Samarin 1968: 64) However, the illustration he gives well illustrates the opposite to be true, so I am assuming his original statement to be an error.

2. All information concerning English frequency patterns is derived from Hayden (1950: 217-223).

3. Dr. S. E. Martin, Chairman of the Department of Linguistics at Yale University, has suggested in personal conversation that when a person speaks glossolalia he may somehow trigger a different "set" of his speech mechanism resulting in a different style of speaking. He noted that analogous differences in "set" are probably responsible for the distinction between [ø] in French and [ø] in German.

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Chapter 3

The Study

3 1 Introduction

This study was initiated in the year 1968, at which time this writer had access to only a very limited amount of the literature referred to in the previous chapter. Originally it had been planned to do a comparative study of two speakers of glossolalia over a period of time, thus providing a four-way contrast, both synchronic and diachronic. The work would in many ways have paralleled that already done by Wolfram (1966) and Motley (1967). There are still many similarities between this study and the work these other men have done. However, in an effort to carry the nature of their work a step further, this present study includes a full and detailed transcription of the three recordings made by one informant. It is hoped that this will help to fill a gap in the research on glossolalia that has already been noted by Goodman (1969: 227-228 and 1972: 101-102). Although no detailed analysis has been made of the recordings made by the second informant, the work done with this person was valuable in providing additional insight into the nature of glossolalic speech.

3 11 The Informants

The informants for this study were a middle-aged professional man and his wife who live in upper-middle class circumstances. The man comes from a Dutch background and speaks English with a minimal accent. His wife is a native-born speaker of Canadian English. Both informants began speaking in tongues about one and a half years before this study

was initiated, so it would be reasonable to assume that their glossolalic language had reached a fairly stable stage in its evolution. The man, who served as secondary informant, made three recordings, totalling some eleven minutes in duration. Two were made in late October, 1967, and the third was made in mid-January, 1968. At the same time the woman, whose glossas are analyzed in this study, also made three recordings. The first two are each about one minute and twenty seconds in length. The third lasts for almost two minutes and ten seconds. All recordings were made in the privacy of their home without this writer present.

It has already been noted that the primary informant spoke a type of glossolalia that might be classified as "playful", although with serious intent. The secondary informant spoke rather more hesitantly, in a vein that would be classified as "serious" by Goldman-Eisler (1958). There is little evidence on the recordings that either informant was in any state of trance, although they themselves would be the first to acknowledge that they find the experience spiritually uplifting. The secondary informant began one recording by saying, "Testing, --- one, two, three, ----" Then after speaking for eight minutes in a quiet tone of voice, he stops to answer a telephone that rings in the background, presumably to speak quite normally with whoever called.

3 12 The Corpus

The primary corpus in this study consists of the three recordings made by the woman, as noted above. Each recording is designated as a separate glossa. Glossas A and B will serve the purpose

of synchronic comparison between two utterances made by the same informant on the same day. When these are contrasted with glossa C, it will serve the purpose of diachronic comparison between utterances made by the same informant on two different occasions separated by a three month interval.

3.13 The Transcription Problems and Procedures

The writer had not pursued this study for long before he encountered problems atypical of normal language research.

The transcription had to be made entirely from tape recordings with no opportunity for observing the informant in person as she spoke. Nor was it possible to elicit words or phrases again to check and clarify features of pronunciation. The result was that one tended to hear either too little because the recording and playback equipment lacked the fidelity for making fine distinctions, or too much because one was always struggling to hear some distinction that might be significant. The latter was especially true when previous research on this subject had indicated that an extended sample of glossolalia may contain only one or two instances of an unusual phone.

The hearing problem was compounded by the fact that the corpus was entirely etic with no real possibility of it being emicized. Gleason sums up the difficulty well when he makes a general comparison between the problems of phonetic and phonemic segmentation. He says

> . . . most of the problems of phonetics are different in kind, not merely in degree. The problem of phonemic segmentation is in principle soluble, and we do in actual practice approach a solution. The problem of phonetic segmentation is in principle insoluble, and all that can be done is to set up

> a convenient ad-hoc organization of the data without theoretical justification of any kind. (Gleason 1964: 77)

Thus one was always listening for minute distinctions of consonant placement, vowel position, stress intensity or pitch level, never really knowing which of the differences were significant.

One final factor that compounded the hearing problem was the interweaving of repetition with diversification that has been described by Samarin (1970: 61) as a feature of glossolalic speech. One would no sooner begin to organize the data in some ad-hoc fashion when diversification would set in and something new would be heard, necessitating a fresh approach.

While acknowledging the difficulties inherent in this sort of research, the writer accepts full responsibility for the way in which he has presented the data. It will undoubtedly help the reader, though, to know some of the procedures and conventions that were followed, especially in transcribing the recordings.

The segmental phones have been recorded as accurately as possible, allowing for a minimum of allophonic variation. Most of the phones noted were perceived as distinct in similar environments. In such instances they were assumed to be contrastive and therefore classified as different phones, even though they might operate as allophonic variants in English. Minimally contrastive English phonemes were also classified as distinct phones, even though the glossas did not provide an example of distinct contrast.

Even more arbitrary decisions had to be made with regard to

stress, pitch and juncture. The transcription notes two levels of stress: one related to word-like units, and one related to longer sequences that can be likened to clauses. On the pseudo-lexical level three degrees of stress are noted: primary (/), secondary (\) and weak (with no mark at all). Clause level stress is indicated by underlining. These two levels of stress are both characteristic of English.

Similar cues from English were taken in determining pitch levels. Most of the data was covered by the four levels characteristic of English: low (1) to extra high (4). However there did appear to be an even higher level in the glossas, perhaps related to the expressive nature of glossolalic speech. This unusually high level is designated as 5, and it covers quite a wide range.

The marking of pause is another area where somewhat arbitrary decisions have been made. Clause endings are readily identifiable and have been marked with arrows symbolizing the direction of the terminal tone contour: (↗) for rising, (→) for sustained, (↘) for falling, and (↓) for falling accompanied by noticeable decay. Shorter pauses are not as easy to differentiate, but this writer has noted two degrees of lesser pause: the shorter being akin to open transition and marked by space, the longer being designated as juncture and marked (#). Varying degrees of pause are noted as faithfully as possible, regardless of what it does to the canonic shape of recognizeable recurring partials. This is consistent with marking the segmental phones as one hears them, rather than as one would like to hear them. In other words, a serious effort has been made to have the transcription phonologically accurate

rather than morphologically tidy.

A final area of arbitrary decision relates to the marking of features such as nasality and devoicing. For the most part these are allophonically predictable variations and no note is made of them. Occasionally these features occur idiosyncratically, and where their occurrence is particularly noticeable they have been so marked. The same holds true for the marking of vowel and consonant length, which appears to be an overall stylistic feature related to stress. Since it occurs with varying degrees of intensity, it does not appear to be a feature marking significant contrast. Again, it has been noted only where it is particularly obvious.

3.2 Phonological Features

Phonologically glossolalia is similar to normal language inasmuch as one can identify a hierarchy of units ranging from phones to breath groups. Phones are distinguishable in terms of their articulatory features. Syllables consist of one or more phones in sequence, marked by pulse with features of onset and coda. Segments are word-like units that include one or more syllables. They are bounded by either open transition or juncture, and are marked by varying degrees of stress, including a single primary stress. Phrases consist of one or more segments bounded by juncture, and marked by characteristic tone contours. Clauses contain one or more phrases and are marked by a terminal tone contour that always implies juncture. One or more clause in sequence make up a breath group which is bounded by audible breath.

Breath groups are the most readily identifiable units, and

they appear to be remarkably consistent in length. In all three glossas a breath group has an average duration of just over 4.7 seconds. The ratio of syllables to breath groups tends to vary with the speed and intensity of the utterance. This variation is one factor that distinguishes "playful" glossolalia from that which is more "serious". It would be most noticeable between different informants, but variations occur also in glossas spoken by the same informant as the following table demonstrates:

Table 1

Ratio of Syllables to Breath Groups

	A	B	C
No. of syllables	411	377	596
No. of breath groups	17	16	27
Average no. of syllables per breath group	24.18	23.56	22.07

The decrease, even from A to C, is not large, but it probably reflects a slight lessing of intensity. During the first recording there may have been more anxiety related to the mechanics of recording, or possibly some misgivings about the wisdom of submitting a private act of worship to the scrutiny of academic analysis. On the other hand, the later recording may reflect a lessening of intensity related to the evolution of glossolalic experience, such as that noted by Goodman (1972: 116-119). Certainly it is possible on the recording to note that

glossa A is uttered with more intensity than either of the others. This is characterized by lengthened vowels and consonants in stressed syllables, fortis articulation, exaggerated degrees of stress and a wider pitch range

3 21 Inventory of Phones

The three glossas studied had a common inventory of phones, with the exception of a few that occurred very rarely. In tabulating the vowel and consonant inventories, phones that do not occur in all three glossas will be noted in parentheses Also, for the sake of comparison, English phonemes that do not occur in the glossas will be noted on the tables in square brackets Phones that occur in the glossas but not in English will be marked with an asterisk.

3.211 Vowels

The inventory of vowel phones includes 13 simple units and 3 diphthongs. Of these, only the simple units are found in all three glossas.

Table 2

Inventory of Vowels

Simple Units

ɪ	ɨ	[u]
ɩ	3*	ɷ
e		o
ɛ	ʌ	ɔ
[æ]		
a	ɑ	ɒ

Diphthongs

(ᵊo)*	(ᵊɔ)*	(ɒᵊ)*
[aᴵ]	[aᵁ]	[oᴵ]

3.2111 Simple Units

The vowel inventory does not include the English phonemes /u/ and /æ/, although variations of [ɛ] and [a] come close at times to sounding like the latter.

The phones [a], [ɑ] and [ɒ] are all variants of the English phoneme /a/ in the informant's dialect. However, in the glossas they contrast clearly [a] and [ɑ] in the environment t__l (C.9 and C.18), and [ɑ] and [ɒ] in the environment [k__#] (C.25 and C.74).

The phone [ɨ], while part of the informant's normal phonemic inventory, is used much more frequently in the glossas than in English. It contrasts with the phone [ɪ] in the environment [ʃ__n] (B.34 and B.37), it also contrasts with [ɜ] in the stressed syllable [t__#] (B.3 and B.54). If the more open high central vowel occurs at all in the informant's dialect, it would be only as an allophonic variation of the phoneme /ʌ/ in syllables with minimal stress.

The articulation of the phone [ɛ] in the glossa tends to be more central than is characteristic of the informant's English dialect. It is fully fronted only in syllables with strong stress. The phone [ɷ] also tends to be somewhat central, and it is lightly rounded. This, however, is typical of the informant's articulation of the English phoneme /ɷ/.

3.2112 Diphthongs

The occurrence of diphthongs in the glossas is very rare, apart from those which are predictable phonetic variants. There are none at all in glossa A, in glossa B [^{ə}ɔ] occurs only once, and in glossa C [^{ə}ɔ] occurs twice and [ɒ^{ə}] occurs three times. Although all

of the diphthongs in the glossas might be variant forms of phonemes in some English dialects, they are not characteristic of that spoken by the informant. The two on-glides do not occur at all in her usual pattern of speech The off-glide in the glossa is much more pronounced than it would be in any allophonic variation of [ɒ] that she might normally use

3 2113 Phonetic Variants

In the absence of full phonemic analysis one cannot really speak of allophonic variations in the usual sense of the term. However there are some predictable phonetic variants that can be summarized as follows

1) Articulation of vowels tends to move towards a mid central position as stress diminishes
2) Articulation of vowels tends to move back when preceded or followed by [k]
3) Articulation of vowels tends to move down and back when preceded or followed by [l].
4) Articulation of vowels tends to move forward when preceded or followed by [y]
5) Articulation of vowels tends to be nasalized when preceded or followed by nasal consonants.[1]
6) Articulation of vowels tends to be devoiced when preceded or followed by voiceless consonants. This is especially true in syllables with minimal stress
7) Articulation of vowels tends to be lengthened before juncture and in syllables that are heavily stressed

8) The vowels [ɪ], [e], [ɷ] and [o] tend to have homorganic off-glides when followed by any degree of pause. This is also characteristic of [o] when it is followed by the labial consonant [m].

All of the above statements describe variations of the vowels as they are used, not only in the glossas, but also in the dialect of English spoken by the informant. The following more specific variants have also been observed in the glossas.

1) The vowel [ɔ] tends to be more central when followed by [f].
2) The vowel [o] tends to be more open when followed by [f].
3) The vowel [ɛ] tends to be more open in the environment [y_ # tʌ].
4) The vowel [ɪ], when preceded by a stop and followed by another vowel, tends to be very short.

3 212 Consonants

The total inventory of consonant phones includes 16 simple units and 4 complex units. Of these, only 11 simple units and 1 complex unit are found in all three glossas.

Table 3

Inventory of Consonants

Simple Units						
[p]			t		k	?*
[b]			(d)		(g)	
	f	(θ)	s	ʃ	(x)*	(h)
	[v]	[ð]	[z]	[ʒ]		
				[tʃ]		
				[dʒ]		
m			n		ŋ	
			l			
[w]			y	[r]		
Complex Units						
(m͡y)			n͡y			(h͡y)
(m͡w)*						

3.2121 Simple Units

The consonant inventory is noticeably restricted when compared with the English phonemic system. It does not include any

bilabial stops, any affricates, or any voiced fricatives. Nor does it include either the labial or the retroflexed semi-vowels. The voiced stops [d] and [g] occur very rarely. [g] is found only once in glossa B, and [d] occurs once in glossa C. The voiceless fricatives [θ] and [h] are also uncommon in the glossas. [θ] occurs once in glossa B and once in glossa C, [h] occurs four times in glossa C. The non-English phone [x] occurs only once, and that is in glossa C.

While the glottal stop does occur in English, it is not phonemically significant. In the glossas it most frequently occurs before vowels that are not preceded by any other consonant, as is true in English. However it also occurs as a discrete unit before the consonant [s] (A 66 and C 60).

3 2122 Complex Units

In English the sounds [n͡y], [m͡y] and [h͡y] are generally interpreted as phone sequences. In analyzing the glossas, however, this writer has assumed them to be palatalized consonants. Similarly, the non-English sound [m͡w] has been interpreted as a labialized consonant[2].

The complex units are not at all common. Only [n͡y] is found in all three glossas and it never occurs more than twice in any one glossa. The phone [m͡w] occurs once in glossa A and twice in glossa B, while [m͡y] occurs once in glossa B and [h͡y] is found once in glossa C.

3 2123 Phonetic Variants

The phone [l] has two variants that appear to be conditioned environmentally. When it occurs as the initial consonant in a syllable, it tends to be velarized in a manner typical of the informant's English dialect. However, when it occurs as the final consonant in a syllable (e.g., B 11), it is articulated with a higher tongue position than one would normally expect the informant to use.

Other phonetic variants tend to be stylistically, rather than environmentally, conditioned. The consonant [t] has an almost dental articulation, while [k] tends to be articulated well back in the mouth. Both stops, moreover, are pronounced with unusually light aspiration, sometimes sounding almost as if they were glottalized. These features, which are not typical of the informant's ordinary speech, are more noticeable whenever she appears to be emphasizing the sounds uttered. Such emphasis also tends to be accompanied by increased consonant length and more fortis articulation.[3]

3.22 Frequency Patterns

A study by Hayden (1950) has determined the relative frequency of phonemes in general American English. While these figures might differ slightly from the relative frequency of phonemes in Canadian English as it is spoken by the informant, this writer is assuming that the overall pattern is close enough to provide a useful means of comparing frequency patterns in the glossas with those in English.

In reading the tables that follow, it should be noted that while all the percentage figures for English have been derived directly from Hayden's study, the phonetic symbols she uses have been rationalized with the symbols used in this study for the sake of more ready comparison. It should also be noted that, since the phoneme /a/ in general American English tends to be articulated further forward than in the dialect spoken by the informant, that phoneme is consistently compared with the phone [a] in the glossas rather than with either [ɑ] or [ɒ].

In Table 4 the vowels of English and the three glossas are ranked in descending order. In each case the numbers represent percentage ratings of frequency in relation to all phones, both consonants and vowels.

Table 4

Ranked Frequency of Vowels

English		Glossa A		Glossa B		Glossa C	
ʌ	9.96	ʌ	16.52	ʌ	15.92	ʌ	15.59
ɪ	9.75	ɨ	9.92	ɨ	10.08	ɨ	9.22
æ	3.09	ɪ	4.16	o	5.44	ɪ	4.36
ɛ	2.03	a	4.04	a	4.25	a	3.94
e	1.94	ɔ	3.55	ɪ	2.79	o	3.77
a	1.80	o	3.06	ɔ	2.65	ɜ	2.35
ɪ	1.66	ɪ	2.08	ɒ	1.99	ɷ	2.09
u	1.52	ɑ	1.96	ɑ	1.73	ɛ	2.09
o	1.49	ɛ	1.84	ɷ	1.20	ɑ	2.01
$a^{ɪ}$	1.46	ɒ	1.35	ɛ	1.06	ɪ	1.34
ɔ	1.02	ɜ	.73	ɪ	1.06	ɔ	1.26
ɷ	.99	e	.49	e	.93	ɒ	.92
a^{u}	.64	ɷ	.24	ɜ	.53	e	.33
$o^{ɪ}$	.06			^{ə}o	.13	$ɒ^{ə}$	.25
						$^{ə}ɔ$	.17
	37.40		49.94		49.76		49.69

The use of vowels is consistently more frequent in the glossas than in English. The rating of nearly 50% in each case reflects

the very common use of the CV syllable pattern.

The most commonly used vowel sound in both English and the glossas is [ʌ], but the relative frequency of use is significantly higher in all the glossas. The vowel sound ranking second is [ɪ] in English and [ɨ] in the glossas. Hayden (1950) does not give any percentage rating for /ɨ/ in English, so her analysis may include the high central vowel sound as part of the English phoneme /ɪ/. Confusion about this, however, makes it difficult to draw any valid inferences about the possible relationship between [ɪ]and[ɨ] in English and the glossas

The frequency rating in English, as well as in the glossas, drops sharply after the second vowel and then diminishes gradually thereafter. The total rating for the first two vowels almost equals the total rating for all of the other vowels taken together.

Table 5 ranks the frequency of consonants in descending order. Again, the percentage ratings represent frequency in relation to all phones, both consonants and vowels.

Table 5

Ranked Frequency of Consonants

English		Glossa A		Glossa B		Glossa C	
n	7.95	y	10.04	y	9.68	y	10.48
t	7.59	m	7.10	m	6.77	n	7.38
r	7.10	t	7.10	t	6.50	m	6.37
s	4.89	s	6.36	s	6.50	s	6.12
l	3.65	n	4.77	n	6.23	k	5.45
ð	3.35	k	4.77	k	4.11	t	5.03
d	3.21	l	3.92	l	3.85	l	3.44
k	2.98	f	2.45	f	2.76	f	2.01
m	2.87	ʃ	1.35	ʃ	1.59	ʔ	1.76
z	2.36	ʔ	1.35	ʔ	.80	ʃ	1.26
v	2.33	ŋ	.49	ŋ	.66	h	.35
p	2.25	n͡y	.24	m͡w	.27	ŋ	.17
w	1.77	m͡w	.12	g	.13	n͡y	.17
b	1.65			θ	.13	θ	.08
f	1.61			n͡y	.13	×	.08
y	1.20			m͡y	.13	d	.08
g	1.14					h͡y	.08
h	1.11						
ʃ	.87						
ŋ	.80						
t͡ʃ	.53						
d͡ʒ	.50						
θ	.44						
h͡w	.37						
ʒ	.03						
	62.55		50.06		50.24		50.31

The most commonly used consonant in the glossas is [y], a phone that ranks quite low in the English frequency ratings. The phones [t], [s] and [n] all rank fairly high in both English and the glossas. However [r], which is another high ranking phone in English, does not occur at all in the glossas.

The frequency rating drops fairly sharply after the third consonant in English, and thereafter decreases at a fairly gradual rate. In the glossas there is a fairly sharp drop after the first consonant and thereafter the ratings decrease somewhat more unevenly than they do in English.

While the frequency ratings noted in Tables 4 and 5 provide us with a certain amount of comparative information, they tend to obscure other data because the overall ratio of consonants to vowels in English differs significantly from the same ratio in the glossas. This can be overcome by separating vowels from consonants in determining frequency ratings. Then it is possible to have an equitable comparison that would enable us to determine, for instance, what percentage of the consonants in English and the glossas have an alveolar point of articulation. In order to facilitate such a comparison the writer has computed frequency ratings for each consonant in relation to other consonants, and for each vowel in relation to other vowels. The ratings for English are based on those determined by Hayden (1950).

The revised ratings are noted comparatively in Tables 6 and 7

Table 6

Comparative Frequency of Vowels

Glossa A		Glossa B		Glossa C		English	
ʌ	33 09	ʌ	32 00	ʌ	31 37	ʌ	26 62
ɨ	19 85	ɨ	20 27	ɨ	18.55	ɨ	----
ɪ	8 33	ɪ	5.60	ɪ	8.77	ɪ	4 44
a	8.09	a	8.53	a	7 92	a	4.81
ɔ	7 11	ɔ	5 33	ɔ	2 53	ɔ	2.73
o	6 13	o	10 93	o	7 59	o	3 98
ɩ	4 17	ɩ	2 13	ɩ	2 70	ɩ	26.06
ɑ	3.92	ɑ	3.47	ɑ	4.05	ɑ	(cf a)
ɛ	3 68	ɛ	2.13	ɛ	4.22	ɛ	5 43
ɒ	2 69	ɒ	4 00	ɒ	1 85	ɒ	(cf.a)
ɜ	1.47	ɜ	1 07	ɜ	4.72	ɜ	----
e	98	e	1 87	e	.67	e	5 19
ɷ	49	ɷ	2.40	ɷ	4 22	ɷ	2.65
		^{ə}o	.27	^{ə}o	----	^{ə}o	----
				ɒ^{ə}	.50	ɒ^{ə}	----
				^{ə}ɔ	34	^{ə}ɔ	----
						æ	8 26
						u	4.06
						a^{ɪ}	3.90
						a^{u}	1.71
						o^{ɪ}	16
100 00		100.00		100 00		100.00	

Most of the vowels show fairly consistent frequency ratings in the three glossas, but there are a few noticeable variations. The phone [ɪ] is used with less frequency in glossa B than in either

of the other two. The phone [ɔ] is used with less frequency in each succeeding glossa, especially in the last one. At the same time two other back rounded vowels, [o] and [ɒ], have the highest frequency rating in glossa B. The phone [ɜ] is used more frequently in glossa C than in either of the other two. Apart from the introduction of rarely used diphthongs in glossas B and C, the inventory of phones used is consistent throughout. The slight increase in the use of diphthongs in glossa C suggests a very limited increase in overall complexity, but otherwise no evolutionary trend is discernible.

Comparing the three glossas with English, the glossas have a more restricted inventory. Of the vowel sounds used, the most notable difference relates to the use of the phones [ɪ] and [ɨ]. However this is due in part to the fact that Hayden (1950) gives no figures at all for the English phoneme /ɨ/. The phone [o] is used more frequently in the glossas than in English, while [e] has a lower frequency rating in the glossas.

Table 7 gives comparative data concerning individual consonant sounds in both English and the glossas. The comparison is somewhat obscured by the fact that this writer has interpreted palatalized and labialized consonants in the glossas as complex units rather than phone sequences. However, since these complex units have very low frequency ratings, the overall pattern is not affected significantly. It is interesting to note that Hayden (1950) appears to have drawn a distinction between the parallel sounds [h͡w] and [h͡y]. She has given a frequency rating to the former sound suggesting that she classifies

it as a phoneme. The sound [h͡y] however, has no frequency rating, indicating that it has not been counted as a distinct phoneme.

Table 7

Comparative Frequency of Consonants

Glossa A		Glossa B		Glossa C		English	
y	20.05	y	19.26	y	20.83	y	1.92
m	14.18	m	13.46	m	12.67	m	4.59
t	14.18	t	12.93	t	10.00	t	12.13
s	12.71	s	12.93	s	12.17	s	7.82
n	9.54	n	12.40	n	14.66	n	12.71
k	9.54	k	8.18	k	10.83	k	4.76
l	7.82	l	7.65	l	6.83	l	5.83
f	4.89	f	5.54	f	4.00	f	2.87
ʃ	2.69	ʃ	3.17	ʃ	2.50	ʃ	1.39
ʔ	2.69	ʔ	1.59	ʔ	3.50	ʔ	----
ŋ	.98	ŋ	1.32	ŋ	.33	ŋ	1.28
n͡y	.49	n͡y	.26	n͡y	.33	n͡y	----
m͡w	.24	m͡w	.53	m͡w	----	m͡w	----
		g	.26	g	----	g	----
		θ	.26	θ	.17	θ	.70
		m͡y	.26	m͡y	----	m͡y	----
				h	.67	h	1.78
				x	.17	x	----
				d	.17	d	5.13
				h͡y	.17	h͡y	----
						r	11.35
						ð	5.36
						z	3.77
						v	3.73
						p	3.60
						w	2.83
						b	2.64
						t͡ʃ	.85
						d͡ʒ	.80
						h͡w	.59
						ʒ	.05
100.00		100.00		100.00		100.00	

The frequency ratings for consonants in the glossas are fairly consistent throughout. The rating for [t] decreases in successive glossas, while the rating for [n] shows an increase. Glossa B shows an increased inventory over glossa A, glossa C has a shift in inventory when compared with glossa B, but the net increase in inventory is very small. No significant evolutionary trend is apparent.

Comparing the glossas with English, one notes again that many English phonemes, some with a high frequency rating, are not used at all in the glossas. The phones [y] and [m] are used much more frequently in the glossas than in English, and to a lesser extent the same is true of [s] and [k].

3.221 Comparison of Vowel Features

The figures given in Table 6 can be collated in various ways to give a comparative overview of common vowel features. Table 8 gives frequency percentage ratings for front, central and back vowels in the three glossas and in English. In all of the tables comparing vowel features, narrow diphthongs, such as [ɪ^{ı}], [e^{ı}], [ɷ^{ʊ}] and [o^{ʊ}] have been counted as phonetic variants of the basic vowel. Wide diphthongs, however, have been noted separately. Those that occur most frequently in English have a basic vowel that

is articulated with a front tongue position. In the glossas the basic vowel in each diphthong has a back tongue position.

Table 8

Comparison of Vowel Features
Front, Central and Back

	Glossa A	Glossa B	Glossa C	English
Front	25.25	20.26	24.28	54.19
Central	54.51	53.34	54.64	26.62
Back	20.34	26.13	20.24	13.42
Diphthongs	-----	.27	.84	5.77

The data shows that front vowels have the highest frequency rating in English, while in the glossas the central vowels predominate. The ratio of front to central vowels in the glossas is almost an exact inversion of the same ratio in English. As for back vowels, they occur with higher frequency in the glossas than in English. Comparing the glossas with each other, one notes that in glossas A and C there is a slight preference for front vowels over back vowels, whereas in glossa B this preference is reversed.

In Table 9 a comparison is made between high, mid and low tongue positions. Again, wide diphthongs are noted separately, but those that occur most frequently in English have a basic vowel that is low In the glossas the basic vowel is either low or mid

Table 9

Comparison of Vowel Features
High, Mid and Low

	Glossa A	Glossa B	Glossa C	English
High	34 31	31 47	38 96	37 21
Mid	50 99	52 26	46 38	43 95
Low	14 70	16 00	13 82	13 07
Diphthongs	----	27	84	5.77

In both English and the glossas mid vowels occur with the greatest frequency, and low vowels are the least common The ratio between high and mid vowel frequencies shifts somewhat in the glossas glossa B has the highest frequency rating of the three for mid vowels, while glossa C has the lowest

Table 10 gives a comparison of frequency ratings for rounded and unrounded vowels. While the wide diphthongs are noted separately, those most frequently used in English have a basic vowel that is unrounded. In the glossas all the wide diphthongs have a basic vowel that is rounded.

Table 10

Comparison of Vowel Features
Rounded and Unrounded

	Glossa A	Glossa B	Glossa C	English
Rounded	16.42	22.66	16.19	13.42
Unrounded	83.58	77.07	82.97	80.81
Diphthongs	-----	.27	84	5.77

The relative frequency of rounded and unrounded vowels is about the same in both English and the glossas. The most notable difference occurs in glossa B which has a higher frequency rating for rounded vowels than either of the other glossas.

Table 11 compares frequency ratings for tense and lax vowels. For the sake of this comparison, the vowels [ɪ], [e], [æ], [ɨ] and [o] are assumed to be tense, all other vowels are considered lax. Wide diphthongs that occur most frequently in both English and the glossas have a basic vowel that is lax.

Table 11

Comparison of Vowel Features.
Tense and Lax

	Glossa A	Glossa B	Glossa C	English
Tense	35.29	38.67	35 58	25 93
Lax	64 71	61.06	63.58	68.30
Diphthongs	-----	.27	84	5 77

The frequency ratings indicate a preference for lax vowels in both English and the glossas. This preference, however, is stronger in English, especially when the diphthongs are taken into consideration.

3 222 Comparison of Consonant Features

The figures in Table 7 can be collated to provide comparative information about various consonant features. Table 12 indicates the relative frequency ratings for various manners of articulation. Semi-vowels and complex units other than affricates have been noted separately.

Table 12

Comparison of Consonant Features:
Manner of Articulation

	Glossa A	Glossa B	Glossa C	English
Stop	26.41	22.96	24.50	30.08
Fricative	20.29	21.90	19.68	27.17
Affricate	-----	-----	-----	1.65
Nasal	24.70	27.18	27.66	18.58
Lateral	7.82	7.65	6.83	5.83
Semi-vowel	20.05	19.26	20.83	16.88
Complex	.73	1.05	.50	2.24

The frequency ratings in the glossas are much the same for all three, although glossa A differs slightly in having relatively more stops and fewer nasals than either of the others. In general, however, nasals are the most commonly used consonants in the glossas,

followed in order by stops and fricatives. In English, on the other hand, the most commonly used consonants are stops, followed by fricatives and nasals. Semi-vowels have a slightly higher frequency rating in the glossas than in English. This is significant inasmuch as the only semi-vowel used in the glossas is [y].

The primary and secondary informants in this study showed absolute contrast in their use of fricatives and affricates when speaking glossolalia. The primary informant used fricatives but no affricates, the secondary informant made frequent use of affricates, but never uttered a fricative.

Table 13 gives relative frequency ratings for various points of articulation. It does not, however, include data on semi-vowels, affricates or other complex units.

Table 13

Comparison of Consonant Features.
Point of Articulation

	Glossa A	Glossa B	Glossa C	English
Labial	19.07	19.00	16.67	17.13
Dental	-----	.26	17	6.06
Alveolar	44.25	45.91	43.83	47.39
Alveopal	2.69	3.17	2.50	3.09
Velar	10.52	9.76	11.33	7.86
Glottal	2.69	1.59	4.17	1.78

Comparing the glossas, one notes that the use of labial consonants is reduced in glossa C, while in that same glossa there is a slight increase in the use of glottal sounds. Most of the consonants used in both English and the glossas have an alveolar point of articulation, followed in turn by labial and velar. Velar and glottal consonants tend to be used more frequently in the glossas than in English, but English makes significantly more use of inter-dental fricatives.

In Table 14 there is a comparison of frequency ratings for voiced and voiceless obstruents. This includes data on affricates, but not on the other complex units.

Table 14

Comparison of Consonant Features
Voiced and Voiceless Obstruents

	Glossa A	Glossa B	Glossa C	English
Voiced	-----	.26	17	23 30
Voiceless	46 70	44.60	44 68	37.38

The three glossas are consistent in their frequency patterns, but they contrast sharply with the relative frequencies characteristic of English. Voiced obstruents almost never appear in the glossas, whereas their use is common in English. Voiceless obstruents are more commonly used in both English and the glossas, but the frequency rating

ıs higher ın the glossas than ın Englısh

3 23 Syllable Types Inventory and Frequency Patterns

The glossas are all characterızed by the predomınant use of syllables that do not ınclude vowel or consonant clusters Whıle the ınventory of syllable types does ınclude some complex structures, these occur very rarely

The inventory of syllable types is summarized in Table 15, together with frequency of occurrence noted both as an absolute figure and as a relative percentage. A ligature over the consonant symbols indicates either a palatalized or a labialized consonant, which in this study has been treated as a complex unit. A ligature over vowel symbols indicates an unusually long vowel marked by one or two changes in pitch level. Such syllables, however, do not have more than one peak and can be distinguished from a syllable sequence such as CV V, which would have two distinct pulses.

Table 15

Syllable Types and Frequencies

	Glossa A		Glossa B		Glossa C	
	Abs	Rel	Abs	Rel	Abs	Rel
CV	399	97 08	361	95 73	567	95 14
V	4	97	5	1 34	8	1 34
CVC	3	73	5	1 34	11	1.85
$\widehat{CC}$V	3	73	2	53	3	50
CCV	1	24	---	---	1	17
C	1	24	2	53	3	50
$\widehat{CC}$VC	---	----	2	53	---	----
CV$\widehat{V}$	---	---	---	---	2	34
CV$\widehat{VV}$	---	---	---	---	1	17
	411	100 00	377	100 00	596	100 00

Compared with English, the inventory of syllable structures that occur in the glossas is very restricted. This becomes even more apparent when one classifies all syllables containing unitary phone sequences as variants of a simpler structure. The basic syllable types and their variants in all the glossas are summarized in Table 16. The simplest structures are noted in the first line in descending order of frequency, reading from left to right.

Table 16

Basic Syllable Types and Variants

CV	CVC	V	C	CCV
$\widehat{CC}V$	$\widehat{CC}VC$			
$C\widehat{VV}$				
$C\widehat{VVV}$				

The vast majority of syllables used in the glossas have a basic CV pattern. The V syllable occurs only when voicing is carried through strongly from the vowel of the preceding syllable. The C syllable occurs only as a syllabic variant of the consonant forming the onset of the following syllable. In both occurrences of the CCV syllable the consonant sequence is [$^{?}s$]. Looking at Table 15, one notes a slight decrease in percentage ratings for the CV syllable, indicating an increase in the use of other syllable types. This would suggest a very minimal increase in overall complexity, hardly enough

to be significant

3 24 Phonotactics

The phonotactic relationships between various consonants and vowels will be examined both within syllables and on syllable boundaries Most of this information can be summarized best in tabular form

3 241 Co-occurrence Patterns Within Syllables

In Table 17 all CV co-occurrences that are found within syllables in glossa A are marked with an "X" Tables 18 and 19 provide the same information for glossas B and C respectively In each table all the vowel phones used in the glossas are noted in order of frequency from left to right, all the consonant phones are listed in order of frequency from top to bottom

Comparing Tables 17 and 18, one notes that glossa A has a total of 64 different CV combinations within syllables, while glossa B has a total of 66 Of these, however, only 49 (approximately 75%) are common to both glossas Thus a significant number of such co-occurrences are found in only one glossa or the other.

Glossa C has a total of 93 different CV combinations within syllables, a notable increase in comparison with the other glossas Of this total number, 47 (approximately 50%) are common to all three glossas, 7 others are found only in glossas A and C, another 8 only in glossas B and C One third (31) of the CV co-occurrences in Glossa C are entirely new, having occurred in neither of the previous glossas

Table 17

Summary of CV Co-occurrences Within Syllables·
Glossa A

	ʌ	ɨ	ɪ	a	ɔ	o	ɪ	ɑ	ɛ	ɒ	ɜ	ɵ	ɷ	ɐo	ɒɐ	ɔɐ	
y	X	X	X	X	X		X	X	X		X						9
m	X	X	X	X	X	X				X			X				8
t	X			X	X	X	X	X	X		X	X					9
s	X	X			X	X			X								5
n	X	X	X			X						X					5
k	X	X	X	X	X		X	X									7
l	X	X	X	X	X		X	X	X								8
f	X	X				X											3
ʃ		X					X										2
ʔ				X	X	X		X		X							5
ŋ								X									1
n͡y			X														1
m͡w				X													1
g																	
θ																	
m͡y																	
h																	
×																	
d																	
h͡y																	
	8	8	6	7	7	6	5	6	4	2	2	2	1				64

Table 18

Summary of CV Co-occurrences Within Syllables
Glossa B

	ʌ	ɨ	ɪ	a	ɔ	o	ɩ	ɑ	ɛ	ɒ	ɜ	e	ɷ	^{ə}o	ɒ^{ə}	^{ə}ɔ	
y	X	X		X	X	X	X	X	X		X		X				10
m	X	X	X	X	X	X				X			X				8
t	X	X		X	X	X	X				X	X		X			9
s	X	X			X	X							X				5
n	X	X	X	X		X		X									6
k	X	X	X	X	X	X		X			X	X					9
l	X	X	X					X	X			X					6
f	X	X					X										3
ʃ		X					X										2
ʔ					X			X		X		X					4
ŋ																	
n͡y				X													1
m͡w							X			X							2
g																	
θ																	
m͡y				X													1
h																	
×																	
d																	
h͡y																	
	8	9	4	7	6	6	5	5	2	3	3	4	3	1			66

Table 19

Summary of CV Co-occurrences Within Syllables
Glossa C

	ʌ	ɨ	ɪ	a	ɔ	o	ɪ	ɑ	ɛ	ɒ	ɜ	e	ɷ	ᵊo	ɒᵊ	ᵊɔ	
y	X	X		X	X	X	X	X	X		X		X		X		11
m	X	X	X	X	X	X	X	X		X	X		X		X		12
t	X	X	X	X	X	X	X	X			X	X					10
s	X	X	X		X	X	X		X		X		X				9
n	X	X	X	X		X	X		X								7
k	X	X	X	X		X	X	X	X	X	X		X			X	12
l	X	X	X	X				X	X		X	X					8
f		X	X			X			X								4
ʃ		X					X		X								3
ʔ	X		X	X	X	X	X			X	X		X				9
ŋ																	
n͡y	X		X														2
m͡w																	
g																	
θ																	
m͡y																	
h					X		X	X				X					4
x																	
d									X								1
h͡y				X													1
	9	9	9	8	6	8	9	6	8	3	7	3	5		2	1	93

While a significant number of new CV combinations are found in glossa C, some of those found in the earlier two are omitted, 8 of those found only in glossa A, 8 found only in glossa B, and 3 common to both A and B, are not found in glossa C at all

A synchronic comparison of glossas A and B, then, reveals a considerable shift in the inventory of CV combinations used. A diachronic comparison with glossa C shows further shift and significant expansion of the inventory This could be interpreted as evidence of some form of evolution in the development of the informant's glossolalic speech

In examining all the glossas, one notes a few CV combinations that are not typical of the informant's usual speech patterns The palatalized consonants occur before the vowels [ɪ], [ʌ] and [ə] in the glossas, whereas in English they occur only before [u] The sequences [yɷ] and [mɷ] would be unusual in the informant's speech, if in fact they occur at all Other atypical combinations involve phones such as [m͡w] and [ᵊo], which the informant does not use when she speaks English.

Conversely, one finds that the glossas do not utilize all of the English CV combinations possible within the range of their restricted inventory of phones This is especially true of the vowels [e] and [o] , where one notes the absence of such common English phone sequences

as [me], [se], [fe], and [tʊ], [lʊ] and [ʃʊ].

The CV combination is the one that occurs most frequently within syllables in the glossas. However there are also a few occurrences of CC and VC combinations. The only CC combination is [ʔs], and it occurs once in glossa A and once in glossa C.

The combination VC occurs as the final phone sequence in a CVC syllable. The range of VC combinations within syllables are noted in Table 20. Columns are arranged according to the manner of articulation of the final consonant.

Table 20

Summary of VC Co-occurrences Within Syllables

Glossa A			
ɒ ŋ			
ʌ ŋ			
Glossa B			
ɑ ŋ	ɒ l	ɪ θ	ɪ g
ʌ ŋ			
ʌ n			
Glossa C			
ʌ ŋ	a l	ʌ x	ɛ t
ʌ n	e l	3 θ	
ɨ n			
ʊ n			
o m			

As was true with the CV combinations, one notes a larger inventory of VC co-occurrences in each succeeding glossa. The rate of increase, though, is much more even, so there is little difference between a synchronic comparison of glossas A and B, and a diachronic comparison of these two with glossa C.

3.242 Co-occurrence Patterns on Syllable Boundaries

Since the majority of syllables in the glossas have a CV pattern, most of the co-occurrences across syllable boundaries have the inverse VC relationship. The onset of the initial syllable in a segment is generally #C, the coda of the final syllable is usually V#. The VC, #C and V# relationships at syllable boundaries in each of the glossas are summarized in Tables 21, 22 and 23 respectively. In each table consonants are noted in descending order of frequency from left to right, vowels are listed in descending order of frequency from top to bottom.

Table 21

Summary of VC, #C and V# Co-occurrences on Syllable Boundaries Glossa A

	#	y	m	t	s	n	k	l	f	ʃ	ʔ	ŋ	n͡y	m͡w	g	θ	m͡y	h	x	d	h͡y	
#		X	X	X	X	X	X	X	X	X	X			X								11
ʌ	X	X	X	X	X	X	X	X	X	X		X	X									12
ɨ	X	X	X	X	X	X	X	X					X									9
ɪ	X	X				X																3
a	X	X		X	X	X		X														6
ɔ	X	X	X	X	X			X	X													7
o	X	X	X	X	X	X		X	X													8
ɩ	X		X			X	X															4
ɑ	X	X					X	X		X												5
ɛ	X	X			X		X		X													5
ɒ	X			X				X														3
3	X				X																	2
e	X	X																				2
ɷ		X																				1
ɐo																						
ɒɐ																						
ɐɔ																						
	12	11	6	7	8	7	6	8	5	3	1	1	2	1								78

Table 22

Summary of VC, #C and V# Co-occurrences on Syllable Boundaries Glossa B

	#	y	m	t	s	n	k	l	f	ʃ	ʔ	ŋ	n͡y	m͡w	g	θ	m͡y	h	x	d	h͡y	
#		X	X	X	X	X	X	X	X	X	X		X	X								12
ʌ	X	X	X	X	X	X	X	X	X													9
ɨ	X	X	X	X	X	X	X		X	X												9
ɪ		X															X					2
a	X	X	X	X				X														5
ɔ	X	X		X	X			X	X													6
o	X	X	X	X	X		X	X	X					X								9
ɩ			X			X																2
ɑ	X							X		X												3
ɛ	X	X			X		X															4
ɒ	X	X						X														3
ɜ	X	X																				2
e	X	X																				2
ɷ	X	X				X			X													4
ᵊo	X																					1
ɒᵊ																						
ᵊɔ																						
	12	12	6	6	6	5	5	7	6	3	1		1	2			1					73

Table 23

Summary of VC, #C and V# Co-occurrences on Syllable Boundaries Glossa C

	#	y	m	t	s	n	k	l	f	ʃ	ʔ	ŋ	n͡y	m͡w	g	θ	m͡y	h	x	d	h͡y	
#		X	X	X	X	X	X	X	X	X	X		X					X				12
ʌ	X	X	X	X	X	X	X	X	X	X								X				11
ɨ	X	X	X	X	X	X	X	X					X									9
ɪ	X	X	X																			3
ə	X	X	X	X	X			X														6
ɔ	X	X		X		X			X													5
o	X	X	X	X	X	X	X	X	X													9
ɩ	X		X	X		X	X						X									6
ɑ	X	X			X			X		X												5
ɛ	X		X	X	X	X	X		X	X												8
ɒ	X						X	X														3
ɜ	X	X		X	X		X		X													6
e		X																				1
ɷ	X	X				X	X		X													5
^{ə}o																						
ɒ^{ə}		X		X																		2
^{ə}ɔ	X	X																				2
	13	13	8	10	8	8	9	7	7	4	1		3					2				93

A comparison of Tables 21 and 22 shows that Glossa A has 79 different VC, #C and V# co-occurrences on syllable boundaries, and glossa B has 73 Of these, 61 are common to both glossas

Table 22 shows that glossa C has a total of 93 different combinations on syllable boundaries, a significant increase over the earlier glossas. Of this total number, 55 are common to all three glossas, 11 others occur only in glossas A and C, 7 occur only in glossas B and C, and 20 occur for the first time in glossa C

Some of the combinations that occurred in the first two glossas are not found in the last one Thus, 7 from glossa A, 6 from glossa B and 6 common to both A and B, are omitted entirely from glossa C

The data concerning co-occurrence patterns on syllable boundaries is similar to that concerning co-occurrence patterns within syllables Comparing glossas A and B, one notes a fairly significant shift in the inventory Then when these two are compared with glossa C, one finds a further shift and considerable expansion of the inventory. Again, this may point to some form of evolution in the glossolalic speech of the informant

Some of the co-occurrences noted in Tables 21, 22 and 23 would be unusual or non-existent in the informant's dialect of English. Most of these involve phones that are not part of her normal dialect, but combinations such as [ɑm] and [ɑʃ] would be unusual for her as well

Then, too, a good many co-occurrences that are found in English do not occur in the glossas at all. One notes, for instance, a paucity of combinations involving the vowels [ɪ] and [e], and the consonants [g] and [d]

By far the most common co-occurrence patterns on syllable boundaries are VC, #C and V#, as noted in the three preceding tables. However, other combinations do occur, and these are summarized in Table 24.

Table 24

Summary of Syllable Boundary Co-occurrences
Other than VC, #C and V#

	Glossa A	Glossa B	Glossa C
#V		#ɑ	#a #ʌ #ɑ #ɒ^{ə}
VV	ɪa ɪɑ iɑ	aɪ ɪɒ	ɑɑ ɒɒ 3ɛ ʌɑ
#C	#m	#ŋ	#m #ŋ #l
CC	mm	ŋk	mm ŋk ll
CC		ŋk	mn nt nd θh͡y
C#	ŋ #	ŋ # n # g # l # θ #	ŋ # l # t # x #

Comparing glossas A and B, one notes a significantly larger number of C# combinations in B. Apart from this though, the first two glossas are much the same in terms of total inventory. This contrasts with glossa C, which has a noticeably larger overall inventory, suggesting once again a slight increase in complexity over a period of time.

Looking at the individual combinations, one sees a considerable shift from one glossa to another. There are 6 different co-occurrences in glossa A and 11 in glossa B, but only [ŋ#] is common to them both. Of the 22 different combinations in glossa C, one is common to all three glossas, 2 are used in glossas A and C, three are used in glossas B and C, and 16 are used for the first time in glossa C.

It should be noted that Table 24 shows only the syllabic consonants that follow pause. All other consonants that occur initially are shown on the three preceding tables. Syllabic consonants occur only as the initial phone in a segment, and are always followed by another consonant that has the same point of articulation. This is not typical of English as it is spoken by the informant.

3.25 Stress Patterns

In preparing the present study, the area of greatest difficulty encountered by this writer has been the analysis of stress patterns in the glossas. The system of analysis used is postulated as one method of dealing with the data related to stress. However, it is based on a combination of decisions that are arbitrary and impressions that are subjective, with little real possibility of developing a more objective theoretical framework against which the data could be checked. While

this is true of the analysis of all phonological features of glossolalia, the analysis of stress has been particularly difficult, and the results are probably most open to question.

Stress has been perceived by this writer on two different levels: one related to the word-like segments, and the other related to clauses. It has been assumed that there are three different degrees of segment stress and two degrees of clause stress. In the transcription primary segment stress is marked with an acute accent (´) and secondary stress with a grave accent (`), weak stress is not marked at all. On the clause level, strong stress is indicated by underlining, while weak stress remains unmarked.

The distinction between segment level and clause level stress is often a matter of subjective impression. For instance, it is almost impossible to make any objective distinction between CV́ and CV̲́, and the same holds true for CV̀ and CV̲̀. Moreover, these subjective decisions concerning stress are inter-related with decisions concerning segment boundaries since, by arbitrary definition, segments are characterized by a single primary stress. One cannot, therefore, be too categorical in describing stress patterns in the glossas. The observations which follow relate not to some objective reality, but to the stress patterns as they were perceived by this writer.

3.251 Segment Level Stress

Most of the stress patterns that occur frequently are common to all three glossas. These are noted in Table 25. The left hand column indicates the number of syllables per segment. Each set of patterns is listed in descending order of overall frequency. The numbers under the

glossa headings indicate the actual frequency of occurrence in each glossa. For the sake of clarity, weak stress is marked in this section with the symbol ˘

Table 25

Summary of Common Segment Level Stress Patterns

	Patterns	Glossa A	Glossa B	Glossa C
1	ˊ	49	45	37
2	ˊ ˘	22	25	29
	ˋ ˊ	6	8	18
	ˊ ˋ	9	7	10
	˘ ˊ	4	6	7
3	˘ ˊ ˘	10	11	19
	ˊ ˘ ˋ	7	9	16
	ˋ ˘ ˊ	6	9	9
	ˋ ˊ ˘	3	4	15
	ˊ ˘ ˘	10	4	7
	˘ ˊ ˋ	1	--	3
	ˋ ˊ ˋ	--	1	3
4	ˊ ˘ ˋ ˘	10	9	16
	ˋ ˘ ˊ ˘	2	2	5
	˘ ˋ ˘ ˊ	2	3	--
	˘ ˊ ˘ ˘	--	--	4
5	ˊ ˘ ˋ ˘ ˋ	6	9	4
	˘ ˋ ˘ ˊ ˘	1	--	3
6	ˊ ˘ ˋ ˘ ˋ ˘	5	--	4

In general, the descending order of frequency is the same for all three glossas. There are, however, some significant exceptions: use

of the pattern /˘˘ is proportionately higher in glossa A than in either of the other two, while use of the pattern \/˘ increases considerably in glossa C. The complete omission of the most common six syllable pattern from glossa B is also worthy of note. The ratio of monosyllabic to polysyllabic segments shows a marked decline in glossa C, especially when one remembers that the last glossa is approximately 50% longer than either of the other two. In the four syllable segments there is a diachronic contrast, the pattern ˘\˘/ occurs only in glossa A and B, the pattern ˘/˘˘ occurs only in C.

In English, primary lexical stress rarely, if ever, occurs after the second syllable. This is also true of most of the segment level stress patterns in the glossas. One notable exception is the three syllable pattern \˘/. The patterns ˘\˘/ and ˘\˘/˘ are also atypical of English.

Table 25 summarizes all the segment level stress patterns in the glossas that have an overall frequency of 4 or more. The occurrence of other stress patterns, both English and non-English, is considered insignificant, especially in view of the problems of analysis mentioned above.

3 252 Clause Level Stress

This writer is well aware that his perception of clause level vis-a-vis segment level stress may be coloured by interference from English patterns with which he is most familiar. However, the pattern of stress on clauses in the corpus appears to be consistent enough to warrant a few general observations.

Clause level stress has a rhythmic orientation that affects the speed with which syllables between stresses are uttered. Thus one senses a "beat" in the flow of the glossas as they are spoken. However, there also appear to be subtle changes in the "timing", which may be another form of diversification within the glossas. While this aspect of clause stress has not been thoroughly analyzed, changes in the rhythmic pattern seem always to come between clauses, rarely, if ever, within a clause. The sort of changes referred to may be observed in the sequence of clauses from B.20 to B 27 and from C 63 to C 68.

Most clauses have two rhythmic stresses: one near the beginning, usually on the first syllable, and one near the end, usually on the penultimate syllable. The stress near the beginning of a clause may occur on the second syllable, especially if the first syllable is an optional prefix (e.g., lɛkayʌ cf. kayʌ). Occasionally the initial stress occurs even later, as in A.43, which appears to be rhythmically bound with the clause following it.

The rhythmic stress near the end of a clause, although usually on the penultimate syllable, sometimes occurs on the last syllable (e.g., A 1 and A 5). In rare instances one finds clause level stress on both the penultimate and the final syllables (e.g. A 6). On the other hand, if these last two syllables have a weak segment level stress, the final clause level stress occurs three syllables from the end (e.g., C.6).[4] Occasionally this final stress is omitted altogether (e.g., C 50). In such instances the clause appears to be rhythmically bound with the one that follows it.

The more frequent pattern for a series of related clauses is

to have two rhythmic stresses in the initial clause and only the final stress in succeeding clauses (e g A 53 and 54) A similar pattern occurs in a clause containing a series of short phrases (e g , B 32 and 33) each phrase tends to carry a single clause level stress on either the penultimate or the final syllable of the phrase Thus a clause with several phrases may have more than two clause level stresses.

In the dialect of English spoken by the informant, rhythmic or clause level stress most commonly occurs on the last lexical item in a clause. This would be comparable to the final stress in glossolalic clauses When stress occurs near the beginning of a clause in English, it rarely, if ever, comes after the second syllable This is generally true in the glossas, although there are exceptions In general, then, clause level stress patterns in the glossas appear to be similar to those in English. The most significant distinction would be the higher frequency of rhythmic stress near the beginning of the glossolalic clauses.

Samarin (1970 62) has indicated that speakers of glossolalia will alter the stress patterns on the segments they use as a means of diversification In evolutionary terms this also leads to the development of new lexemic items A clear example of this may be noted with the sequence [kʌ́liyʌ miyʌ́], which occurs in A 9. In A.27 there is a transition to [kʌ́liyìmiyɛ̀], and in A 31 there occurs a form that appears to be a combination of the former two [kʌ́liyì miyì́]

3.26 Tone Contours

The analysis of intonation in the glossas is another area where this writer has had to make some arbitrary decisions in order to

develop a framework of organization for the data. It has been assumed that there are five pitch levels in the glossas; four of them are similar to the four levels of phonemic pitch in English, the extra level is still higher and covers quite a wide range of pitch that may be associated with strong emphasis or expression of emotion. The glossas also include both rising and falling glides, although they are not used frequently. Falling glides are most common and they usually occur on a monosyllabic interjection, such as [ʔo] or [ʔɑ], that is sometimes uttered at the beginning of a clause. As in normal language, pitch levels are relative and vary slightly in relation to the degree and intensity of stress.

Since there is no possibility of relating distinctions in pitch level to differences in meaning, the intonation contours in the glossas have been categorized only in terms of their general shape. Thus, contours such as 12, 13, 14, 24 and 234 are all classified as <u>rising</u>. A rising contour may consist of or include a rising glide such as 2-3, but more frequently it consists of one or more upward steps. Thus, in describing the contours, the term rising does not usually refer to an upward glide, it simply denotes the direction of the contour. The same principle holds true with reference to the term <u>falling</u>.

Eight different clause contours were found to be common to all three glossas. These are listed in Table 26 in order of overall frequency. The numbers refer to the total number of occurrences in the three glossas.

Table 26

Common Clause Intonation Contours

Rising-falling	52
Falling-rising-falling	50
Falling	47
Falling-rising	23
Rising	21
Level	15
Rising-falling-rising-falling	10
Rising-falling-rising	4

While other clause contours do occur in some of the glossas, they are very uncommon. The above categories account for almost 98% of the data. The last part of each clause contour is related in part to the terminal contour that follows it. Thus, a falling clause contour is followed only by a sustained or falling terminal, a rising clause contour is followed only by a sustained or rising terminal, and a level clause contour is followed only by a sustained terminal.

Distinct preference is shown in the glossas for clause contours that end with a falling slope. This is characteristic of the

dialect of English spoken by the informant. It should also be noted that the most common clause contour in English (231) would be classified as rising-falling, the most common category in the glossas.

In her studies on tone contours in glossolalia, Goodman (1969 236 and 1972 122) has noted that the contour over a whole breath group (which she calls an utterance) usually begins about the mid-point of pitch range and undulates to an identifiable peak before sloping off to the point of decay at the end of the breath group. In general, this is characteristic of the breath groups that make up the glossas for this study However, it is probably also true of most breath groups uttered by speakers of any language that is not lexically tonal

3.3 Morphological Features

The glossas under consideration contain no morphemes that convey any semantic information However there are many instances of recurring morph-like units that are phonologically similar Moreover, many of these units tend to recur in the same relative position within a clause For the sake of convenience, such units will be referred to as pseudo-morphs[5]

3 31 Pseudo-morph Characteristics

Pseudo-morphs are identifiable primarily in terms of their constituent consonants, because these remain reasonably stable The vowels of any given pseudo-morph, on the other hand, display quite a wide range of phonological variation, a factor that is compounded by shifting patterns of stress and juncture.[6] In this study, therefore, pseudo-morphs are designated only in terms of their constituent consonants. Thus, the phone sequence [mʌʃɨ] is designated as the

pseudo-morph m∫ The pseudo-morph sfsn identifies a set of phone sequences characterized by the consonants indicated and a fair amount of variation in the constituent vowels.

Consonant sequences characteristic of pseudo-morphs sometimes persist even when they are split by a shift in phonological juncture. In Glossa A, for instance, the sequence m∫ becomes well established as a pseudo-morph that is always preceded by the sequence sfsn. Then in glossa B one finds that m∫ is usually divided by all the junctural features associated with a clause ending (e.g. B 3 and 4). The initial consonant m is linked with the preceding sequence to form a new pseudo-morph, sfsnm. The final consonant ∫ is linked with the first segment of the following clause. The new form sfsnm is used again in B 15, this time with no ∫ following it in the next clause.

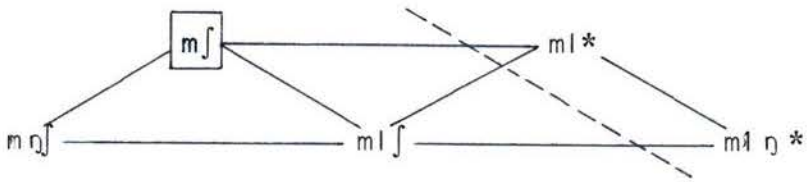
3.32 Pseudo-morph Networks

The glossas contain many examples of closely related pseudo-morphs that are distinguished from each other only by some form of consonant alternation: addition, loss, replacement or metathesis. The various relationships can be clearly seen when the relevant pseudo-morphs are arranged in the form of a network.

One of the simplest pseudo-morph networks is shown in Figure 1. The form m∫ is enclosed in a square to indicate that it is used more frequently than any of the other forms. The lines linking the various forms symbolize a single alternation of the sort noted above. This is not to suggest, however, that one form is necessarily derived from the other. The sequences ml and mlŋ are marked with an asterisk to indicate that they occur in more than one network and may be some kind of link between the various groupings of pseudo-morphs. These forms, however, do not generally occur in the same linear "slot" as m∫, mŋ∫ and ml∫. This distinction is indicated by the broken line.

Figure 1

Pseudo-morph Network Related to m∫

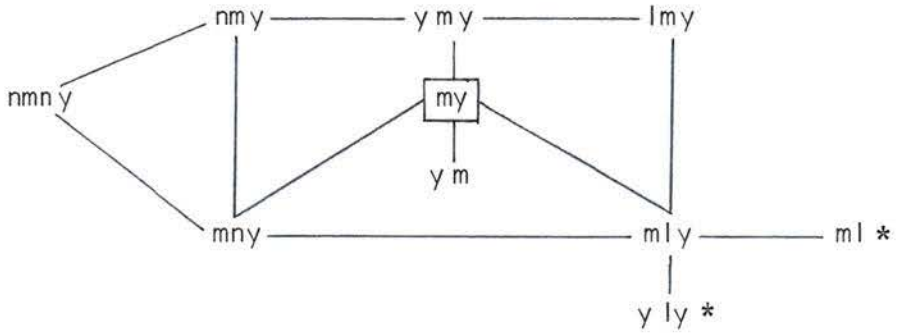


Of the forms noted in Figure 1, only m∫ and ml occur in all three glossas. The sequence mŋ∫ occurs only in glossa A, ml∫ is found in glossas B and C, and mlŋ occurs only in glossa B.

Figure 2 depicts a more complex network related to the pseudo-morph my.

Figure 2

Pseudo-morph Network Related to my

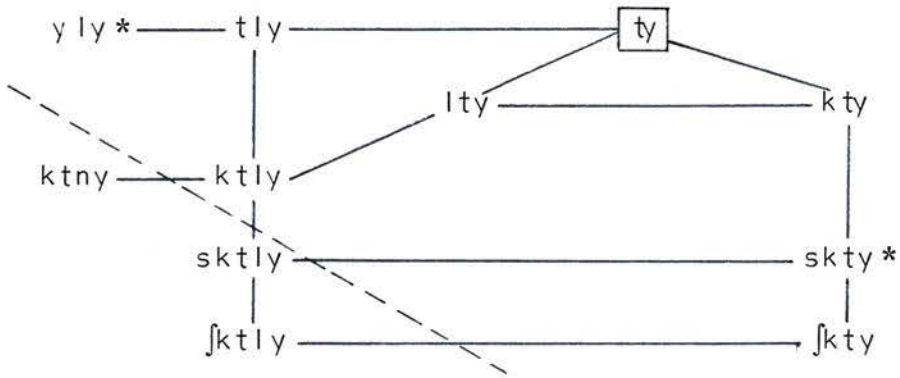


Of the forms noted above, my, nmy, mny, mly and ml are found in all three glossas The pseudo-morph ym is found in glossas A and C, y ly is found in B and C, nmny occurs only in B, and lmy and ymy are found only in C The latter two could be considered an explanation of "vocabulary" closely related to the more common form nmy The sequences ymy and y ly may be related in some way that is noted above, but stress patterns and usage suggest that each of them is related more closely to the other forms with which they are linked. In this regard it should be noted that, while the networks shown are reasonably complete, they are intended to be more illustrative than exhaustive Therefore some of the more uncommon pseudo-morphs and distant relationships are omitted

In Figure 3 the network is related to the key pseudo-morph ty. Again, the broken line symbolizes the possibility of overlapping networks, with the sequences on each side of the line generally being used in different linear slots.

Figure 3

Pseudo-morph Network Related to ty



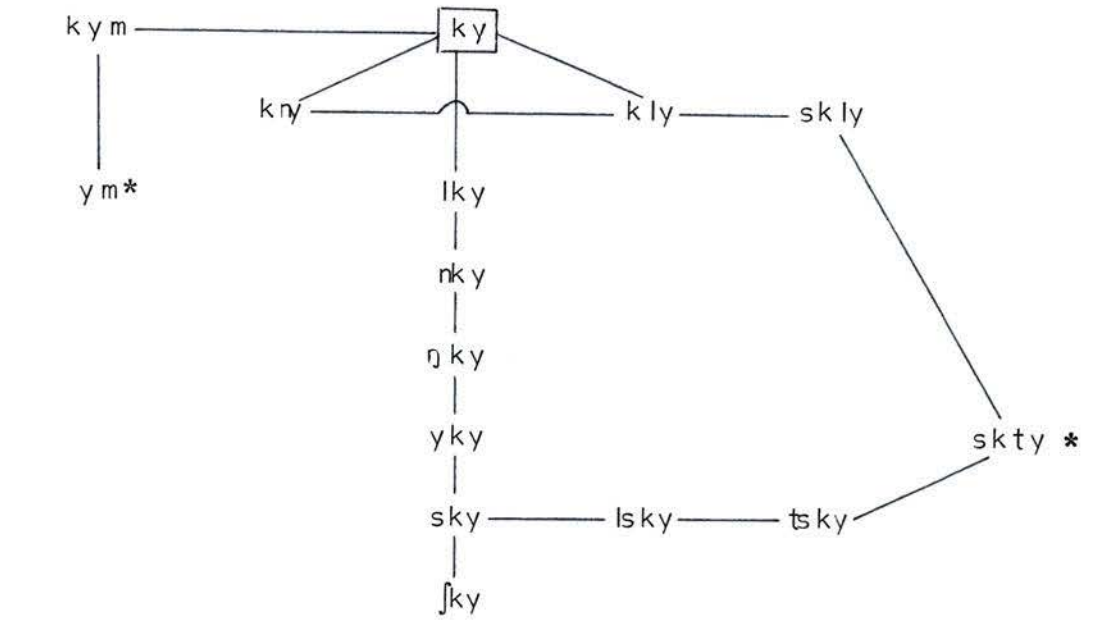
Of the pseudo-morphs noted in Figure 3, only ty and ktly are found in all three glossas. The form skty is used only in glossa A, while ʃkty is found in B and C. The sequence ktny also occurs only in glossa A, tly is found in A and B, kty is used in A and C, lty and yly occur in B and C, and sktly and ʃktly are found only in C.

This data suggests a certain amount of evolution in the use of various forms. Three of the sequences noted occur only in the first two glossas and not in the third. Two others occur only in the third glossa. It should also be noted that the overall inventory of forms used in glossa C is larger than either of the other two. A diachronic comparison of the glossas, therefore, indicates both transition and growth in the variety of pseudo-morphs used.

The network shown in Figure 4 is even more extensive than those that have already been outlined It focusses on the pseudo-morph ky.

Figure 4

Pseudo-morph Network Related to ky

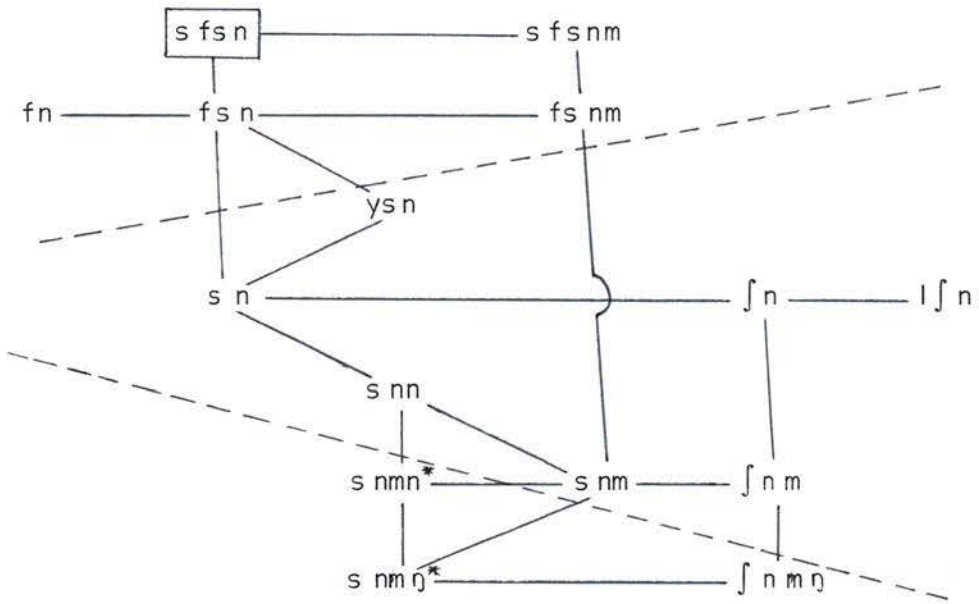


Of the various forms noted in Figure 4, ky, lky, kly and sky are common to all three glossas. The sequences kym, skty and tsky are found only in Glossa A, lsky is found in A and B, kny and ym are used in A and C, ʃky occurs only in B, yky and ŋky are found in B and C, and skly and nky are found only in C.

A rather different network of some complexity relates to the key pseudo-morph s fs n as shown in Figure 5. The broken lines indicate that this chart may include three overlapping networks.

Figure 5

Pseudo-morph Network Related to s fs n

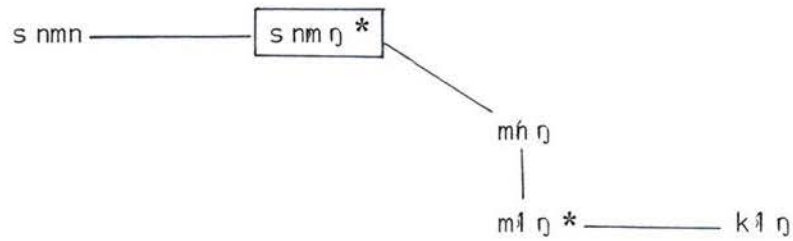


Of the forms noted above, only s fs n, fs n and s n are common to all three glossas. The sequences fn and s nm occur only in glossa A, s nmŋ and ∫nmŋ are found in both A and C, ys n, fs nm, ∫nm and l∫n are used only in B, s fs nm and ∫n are found in B and C, and s nn and s nmn occur only in C.

One other small network is worth noting because it relates closely to the one just outlined. The key pseudo-morph is s nm ŋ, one of the forms that occurs also in the s fs n network.

Figure 6

Pseudo-morph Network Related to s nm ŋ



The transition form s nm̀ ŋ to mɦ ŋ involves more than a single alternation, but these forms are closely related because all of them are followed by the pseudo-morph ky. None of the sequences noted occur in all three glossas. The form s nm̀ ŋ is found in glossas A and C, the other three all occur only in glossa B. This would suggest a tendency at times to use certain pseudo-morphs to the exclusion of others, even though all may occur in the same "slot" in a linear flow of speech.

The various pseudo-morph networks outlined above suggest the kind of permutations and combinations that occur in the glossas. With shifting patterns of stress and juncture and with various forms of consonant alternation, new canonic shapes are always emerging. But underlying all of the new forms there appears to be a solid core of basic pseudo-morphs that are used much more frequently than the others. While it is beyond the scope of this present study, it would be

interesting to examine in more detail the whole question of "word formation" in glossolalic speech.

In addition to the network of pseudo-morphs already noted, there are three monosyllabic pseudo-morphs that tend to recur in the same relative position in clauses and breath groups. The most predictable of the three is t (usually followed by the vowel [ʌ]) which occurs as the last segment in almost every clause that has a falling terminal contour. Another t pseudo-morph (usually followed by the vowel [o]) occurs frequently before the sequence s fs n. A third monosyllabic pseudo-morph can be symbolized as ?, signifying a simple vowel sound such as o or a uttered as sort of an interjection, often at the beginning of a breath group. The pseudo-morph t, which occurs at the end of a clause, has the variant form ty (usually [tɪy ɛ]) in glossa C. The interjection ? has the variant form ?y, used in glossas B and C, and the form ?h, used only in C.

It would be difficult to do a thorough morphological analysis of the data as it has been transcribed, because the transcription is phonologically oriented. However, it is possible to observe a large number of recurring units, many of which are closely inter-related. The various pseudo-morph networks, taken in conjunction with the three monosyllabic pseudo-morphs noted above, account for approximately three-quarters of the data in all the glossas.

3.4 Syntactical Features

In this present study no attempt is made to provide an exhaustive analysis of all features of syntax in the glossas. Discussion will be limited to general observations concerning the linear order of

pseudo-morphs within clause and breath groups. The patterns noted tend to be similar for all three glossas.

3.41 Obligatory Relationships

Some pseudo-morphs occur only in an obligatory, predictable relationship with certain others. Thus, the sequence s nm ŋ and its variants (Figure 6) are always followed by ky. The converse, however, is not true: ky is not always preceded by s nm ŋ. The pseudo-morphs m ʃ, m ŋ ʃ and m l ʃ provide another example of obligatory relationship, for they are always preceded by s fs n or some form closely resembling it. The latter sequence, though, is not always followed by m ʃ or one of its variants.

3.42 Free Relationships

For the most part pseudo-morphs are not bound to co-occur in certain relationships. Nonetheless, it is possible to discern certain fairly common linear patterns. Some pseudo-morph relationships, while not obligatory, tend to occur more frequently than others. By analyzing the various frequency patterns, one is able to determine the sequence of pseudo-morphs most likely to occur in a clause or series of clauses bounded by falling terminal contours. Such a sequence can be symbolized as follows:

$$? \quad ky \quad \begin{matrix} my \\ ty \end{matrix} \quad t_1 \quad s\ fs\ n \quad my \quad t_2$$

Each pseudo-morph noted above symbolizes a range of forms that are closely related to it as noted in the various networks. The forms t_1 and t_2 are generally distinct from each other, although sometimes there is overlapping as can be noted in B.53 and 54 where a single t

appears to serve two purposes The sequence my symbolizes roughly the same range of pseudo-morphs in both of the position where it occurs The fact that the first my is placed above the ty indicates that in this slot there is roughly an equal chance of either form appearing, and sometimes both occur The obligatory forms snmŋ and mʃ have been omitted, because their placement is predictable

The sequence of pseudo-morphs noted above indicate general relationships within a clause or series of clauses. However, one rarely finds all of the forms occurring in exactly this sequence. Any one of the forms can be dropped from a given clause, and several of them usually are Moreover, in the normal flow of speech there is a tendency to reach a certain point in the sequence and pause with a sustained terminal contour, then carry on or even double back before going ahead in the sequence. In this way the series of pseudo-morphs is often broken up into several clauses, but allowing for omissions, the sequence in each clause will generally be the same as that indicated above. As an illustration of the above process in practice, we can note the sequence of clauses from A 7 to 11 as they are typed under the relevant parts of the model sequence:

?	ky	my ty	t_1	s f s n	my	t_2

?	lky →		t_1	s f s n	m →	
	kly	my →				
		ty		s f s n	m ny	t_2 ↓

While a large percentage of the data in the three glossas is accounted for by the model sequence noted above, it should be remembered that this model is only a reflection of the most likely pattern There are undoubtedly other patterns, as well as a certain amount of syntactical innovation But there is clearly enough evidence to indicate that the glossas have at least some structure on the level of syntax

The basic model already noted is applicable to all three glossas, but the increased range and complexity of pseudo-morphs in glossa C appears to be paralleled by greater variation from this basic model. Once again, then, a diachronic comparison of glossas A and B with glossa C would suggest at least some measure of evolutionary development.

Footnotes

1 Vowels have a particularly nasal quality in the environment [m_ŋ] In one instance (C 5) the [ŋ] is not discernible, but the nasalization remains.

2 While this is a valid interpretation, it has made comparison with English somewhat more difficult, especially in tabulating frequency patterns of phones From this point of view it would probably be more satisfactory to treat the palatalized and labialized consonants as phone sequences rather than complex units

3. As a feature of juncture, consonants articulated at the onset of a syllable are often anticipated by being shaped but not articulated during the coda of the preceding syllable Hence the impression of long consonants at the beginning of segments In the case of glottal stops, there is sometimes glottal closure at the very end of a clause anticipating the opening glottal sound of the following clause. In such instances the glottal closure at the end has been transcribed in parentheses, but has not been counted as a separate consonant.

4. While it seems unusual, one occasionally finds an initial clause level stress on a syllable that is normally weak in terms of segment level stress (e.g , A.35)

5. Wolfram (1966 70) has used the word pseudo-morphemes. This writer prefers to avoid the suggestion that these recurring partials are in any emic

6. Pattison (1968 80) has noted studies which suggest that vowels and intonational features (including stress patterns) are the primary parameters of speech for communicating how an individual feels about what he or she is saying.

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Chapter 4

Summary and Conclusions

4 1 Introduction

In pursuing this study the primary purpose has been to transcribe and analyze three samples of glossolalic speech uttered by the same person. Two of the samples or glossas were recorded on the same day, the third was recorded some three months later. The results of the analysis have been tabulated, and each of the three glossas has been compared with the others as well as with the informant's dialect of English.

Several similar studies have been conducted in recent years, and for the most part, the results of this present study concur with the findings already described in the literature and noted above in Chapter 2. In summarizing the facts derived from this present analysis, therefore, comparison with other research will be made only when the results of this study are significantly different from those that have been noted in the literature.

4.2 Summary of Results

A large proportion of this study has been devoted to the analysis of phonological features in the glossas. However, some aspects of morphology and syntax have also been considered.

4 21 Phonological Features

In general, the inventory of phones used is the same in all

three glossas. Glossas B and C have a slightly larger inventory than glossa A, but the additional phones are used very infrequently. There is limited innovation in the use of a few phones not found in English (see pp. 37 and 41), but all of the commonly used vowel and consonant sounds appear to be derived from the informant's normal dialect. Compared with English, though, the inventory of phones used in the glossas is restricted. This is especially true of consonants. Moreover, the pattern of phones selected for use in the glossas lacks the symmetry one usually finds in normal languages. A fairly full range of vowels is used for instance, but [æ] and [ʊ] are omitted altogether. As for consonants, although frequent use is made of the bilabial nasal [m] and the voiceless stops [t] and [k], the voiceless bilabial stop [p] does not occur at all. Many voiced obstruents, commonly used in English, are also omitted from the glossas. As for diphthongs and complex consonants, the glossas include very few such units, and those that do occur are rarely used.

Much of the research that has been done on glossolalia indicates that those who speak it have a tendency to make frequent use of a very few phones and relatively little use of several others. The result is a frequency pattern that lacks the graduation generally considered to be a characteristic of normal language. This is clearly demonstrated in Wolfram's study (1966: 55 and 57). The glossas analyzed in this present study show a similar tendency, but the frequency pattern declines more gradually than in any of the samples cited by Wolfram.

This writer found [ʌ] to be the vowel sound that occurred most frequently in the data that was analyzed. Other commonly used vowels in order of overall frequency were [ɨ], [o], [a] and [ɪ]. The vowel [e] was used very little, while [æ] and [u] did not occur at all. This concurs in general with the findings of other researchers, although none of them mention the use of the vowel [ɨ]. In their analysis, however, they may have counted this sound as part of a pseudo-phonemic unit /ɪ/.

A comparison of percentage frequencies with regard to various vowel features in the glossas indicated an overall preference for central tongue position, followed by front and then back. This contrasts with English which manifests a preference for front vowels, then central and back. All the other vowel features showed the same relative frequency patterns for both English and the glossas. With regard to tongue height, preference is shown for mid, then high and low. Unrounded vowels tend to be used more than those that are unrounded. Lax vowels occur more frequently than those that are tense.

The consonant phone that appeared most frequently in the glossas was [y]. Other commonly used consonants in order of overall frequency were [m], [s], [t], [n], [k], [l] and [f]. Several consonant sounds common to English were omitted from the glossas altogether.

Percentage frequency ratings of various consonant features showed an overall preference for nasals, followed by stops, fricatives and laterals. Affricates did not occur at all. This contrasts with English which shows a preference for stops, followed by fricatives,

nasals, laterals and then affricates. As for points of articulation, both English and the glossas manifest a preference for alveolar, then labial and velar consonants. Again, in both English and the glossas voiceless obstruents are used more frequently than those which are voiced. However, the preference for voiceless obstruents is much higher in the glossas because the voiced counterparts almost never occur.

An analysis of syllable types and frequencies in the glossas indicated a restricted inventory compared with English and almost exclusive use of the CV pattern. The only other patterns to occur in all three glossas were CVC, V, CCV and C, listed in order of overall frequency.

With regard to phonotactic relationships both within syllables and on syllable boundaries, the analysis indicated a considerable shift in the inventory from one glossa to another and significant expansion of the inventory in glossa C. A few non-English combinations occur (see pp. 67 and 73), but at the same time the glossas do not utilize all the possible English combinations that their restricted inventory of phones would allow.

In analyzing the stress patterns, an arbitrary decision was made to note three degrees of segment level or "lexical" stress, and two degrees of clause level or rhythmic stress. The distinction between these two levels of stress was often a matter of subjective interpretation. A tabulation of segment level stress patterns in the glossas (see p. 77) shows that most of them have a primary stress on either the

first or second syllable, a feature that is characteristic of English One three syllable pattern, however, has a primary stress on the final syllable, and two longer patterns have the primary stress on either the penultimate or the final syllable All of these are atypical of English

Clause level stress had a rhythmic orientation, affecting the speed with which syllables between stresses would be uttered Most clauses had a rhythmic stress near the beginning, usually on the first syllable, and near the end, usually on the penultimate syllable There was variation though the initial stress sometimes occurred on the second syllable, the final one sometimes on the last syllable When a series of clauses were rhythmically bound there was a tendency for two rhythmic stress to occur on the first clause, but only the final stresses on each of the succeeding clauses. A series of phrases that were rhythmically bound tended to be marked by one clause level stress in each phrase In English, clause level stress most commonly occurs on the last lexical unit This concurs in part with the patterns found in the glossas However, rhythmic stress near the beginning of a clause is not such a common feature of the informant's dialect of English

In general, the clause level stress patterns in this study are similar to the stress patterns that have been observed by other researchers However, while it is possible to identify certain norms with regard to stress, it must also be acknowledged that there is a fair amount of variation from these norms. This sort of variation has

not been noted previously in the literature.

In transcribing and analyzing intonation, an arbitrary decision was made to note five pitch levels, four of them characteristic of English, and a fifth to accommodate still further ranges of pitch that appear to be a feature of the intensity and expressiveness of glossolalia. Tone contours were identified in terms of the general direction of the pitch changes, usually a step up or down, but sometimes a rising or falling glide. A tabulation of the most common intonation contours (see p. 82) reveals a distinct preference for those contours that end with a falling slope. The terminal contour following may be either sustained or falling. If a clause intonation contour ends with a rising slope, the terminal contour following is either sustained or rising. Level contours are followed only by a sustained terminal. In general, it may be said that the glossas in this study tend to have an intonation pattern that suggests pleading or praying, as has been noted by Nida (1965: 5).

4.22 Morphological and Syntactical Features

The glossas contained a variety of morph-like units that were phonologically similar and tended to recur in the same "slot" in a linear sequence. The vowels in these pseudo-morphs exhibited a high degree of subtle variation. There was also a tendency for some of these units to be broken up and reshaped by shifting patterns of stress and juncture. Pseudo-morphs, therefore, were most readily identified in terms of their component consonants.

It was possible to discern in the glossas a number of closely related pseudo-morphs that were distinguished from each other only by

some form of consonant alternation addition, loss, replacement or metathesis. These related pseudo-morphs could be grouped in a network that had as its core one particular form that occurred much more frequently than the others. Six such groupings were identified in this study, and it is possible that some of those outlined included two or more overlapping networks.

The various groupings of pseudo-morphs provided a key for a very rudimentary syntactical analysis of linear order. By identifying the most common pseudo-morph co-occurrences, it was possible to construct a typical linear clause-like sequence (see p. 93). This proved to be a model that accounts for much of the data, although the sequence is rarely, if ever, found in its entirety. Any one of the units in the sequence may be omitted, and several usually are. Moreover, there is a tendency to utter part of the sequence as a clause followed by a sustained terminal contour, and then carry on or even double back before proceeding to the end of the clause. There may be two or three such breaks before the final clause ends with a falling terminal contour.

4.3 Conclusions

In the introduction to this study the writer has indicated his interest in determining the nature and stability of the language-like patterns that characterize glossolalia. An effort has been made to find answers to three basic questions. What is the nature of the language-like patterns? How do these patterns compare with those in the informant's dialect of English? And how stable are the various patterns over a period of time?

The nature of the language-like patterns has been summarized in the previous two sections. It is apparent that, while there is evidence of a limited amount of phonological innovation, most of the patterns at that level appear to be derived from the informant's dialect of English. As a general rule, though, the inventory of units and patterns tends to be more restricted in the glossas than in English. On the level of morphology and syntax, it is not possible without further research to draw any valid conclusions about the relationship between the glossas and English.

As for the stability of patterns, one can make two observations that complement each other.

1) There is some evidence of transition, development and increasing complexity over a period of time. This is noted especially in the area of phonotactic relationships. It is also reflected in the way that more pseudo-morphs are used in a greater variety of linear relationships in glossa C. This sort of transition and development may be especially significant inasmuch as the informant had been speaking glossolalia for more than two years at the time of recording. Presumably, therefore, she had passed the "initiatory" stage and entered the "habitual" stage of tongue speaking as it is categorized by Pattison (1968: 80).

2) Many of the patterns in the glossas prove to be exceedingly stable. Almost all of the percentage frequencies relating to various phones and their respective features tend to be the same for all three glossas. Then, too, on the level of morphology and syntax, while there is evidence of evolutionary development, none of the basic patterns

outlined completely disappears over the three month period

These two observations would seem to substantiate Samarin's observations (1970 61) concerning repetition and diversity in glossolalia. The stable patterns may well provide a solid frame on which the various changes can be rung

4.4 Epilogue

One of the difficulties encountered in this study was the frustration of spending so much time on the transcription and phonological analysis that it was possible in the time available only to begin tackling the analysis of morphological and syntactical features The work on phonological aspects of glossolalia has now been done by several people, with results that largely concur It is possible that someone may wish to make use of the data contained in this thesis to delve further into various aspects of morphology and syntax in glossolalia If that should be so, this writer would be happy to have this material and the accompanying tape used in any way that would be helpful

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APPENDICES

Glossa A

A 1) k a l ɪ y ʌ m ʌ →
2 1 4

A 2) k ɔ y ʌ # s o t ɔ f + s + n ʌ m ʌ ʃ + →
3 1 2

A 3) k a l ɪ y ʌ m ɪ y ʌ →
2 1 5 1

A 4) t o y ʌ m ɔ y ɔ →
3 1 2

A 5) t ɔ l ɔ m ʌ →
1 2

A 6) t ʌ s ʌ f + s + n ʌ m ɑ y ɛ # t ʌ ↓ (Breath)
3 2 3 2 1

A 7) ʔ ɒ # l + k a y ʌ →
3-2 2 1 2

A 8) t o # s ʌ f + s + n ʌ m ʌ ʃ + →
3 2 3

A 9) k ʌ l ɪ y ʌ m ɪ y ʌ →
2 4

A 10) t ɔ y ʌ # s ʌ f + s + n ʌ

A 11) m + n ɪ y ɛ # t ʌ ↓ (Breath)

A 12) l ɛ k a y ʌ m a y ʌ →

A 13) t o s o f + s + n ʌ m ɪ ↗

A 14) ʔ ɔ # n + m ɔ y ɔ →

A 15) k ɔ t o l i y ɪ m ɪ y ɔ →

A 16) tʌ sʌfɨsɨnʌmʌʃɨ →
3 4

A 17) kʌlɪyʌ motʌ ↓ (Breath)
4 5 1

A 18) yɪ # kayɪmʌ →
2 1

A 19) to sɔfɨsɨnʌmʌʃɨ →
2

A 20) kʌlɛyɪmɪyɪ →
2 3

A 21) t.oyʌ molaˈ tʌ ↓ (Breath)
4 1 4 1

A 22) ʔa # sɨnʌmʌŋ kayʌ →
3-1 1

A 23) to sɔfɨsɨnʌ miyʌ ↘
2 4 2

A 24) ʔo # n+miyʌ →
3-2 2-4 2

A 25) t3 # lak+y3 →
3-2 3 1

A 26) to sɔf+s+nʌmʌ ʃ+ →
1 2

A 27) kʌliyimiyɛ tʌ ↓ (Breath)
1 2 3 1

A 28) lɛ sʌ ka yʌ →
2 3 5 1

A 29) m͡wa ti ay ʌ →
4 2-1 1

A 30) sɔf+s+nʌmʌ ʃ+ →
2

A 31) kʌliyi miyi tʌ ↓ (Breath)
2 4 1

A 32) yɪmʌ tʰayaˀ →
2 2-3

A 33) noˀ miyʌ kaˀlʌ →
3 2 3 1

A 34) sʰkʌteyʌ nomʌsʰtʰʌ →
2 1 3 1

A 35) fʰsʰnʌmiyʌ ↘
2 3 4 1

A 36) tʰʌˀliyʌ → tʰasʰkayʌ →
1 3 1

A 37) tʰɔˀlʌmɵ̇yʌ →
1 2

A 38) tʰɜsɔ foˀnʌ mʌyɛ tʰɔ ↓ (Breath)
2 1

A 39) sʰkaˀyʌ mɔˀlʌyɛ →
1 2 1

A 40) tɔsɔ fʌnʌmɨyɛ tɔ ↓
1 2 1 2 3 1

A 41) lʌ kayʌ moy3 →
2 1 5 1

A 42) t3 # sɨkɨnyiniya to ↓ (Breath)
3 2 1

A 43) lʌkayʌ tɔy3 →
2 1 2 1

A 44) sɛfɨsɨnʌ mɨniyɛ tɛ ↗
2 1 2 4

A 45) ʔo # yɨm ɒliyʌ kɨyʌ # tayʌ →
2-1 1 3 2 1

A 46) sʌfɨsɨnʌ mɨniyʌ tʌ ↓ (Breath)
1 2 1

A 47) laʃikayɨ malʌtʌ ↘
1 3 2 1

A 48) ʔa # yɪkay^ →
3-2 2 1

A 49) to sɔf+s+n^m^ʃ+ →
2 1

A 50) k^teyɪyɪm^ ↓ (Breath)
2 3 1

A 51) ʔay+n^ m^k+tɪkɪya ↘
2 1 2 3 1

A 52) s+n+ m+l^ kɪay^ →
3 2 1

A 53) tɔ sɔf+s+n^ m^ŋaʃ+ →
1 2

A 54) k^nɪy^ mɔt^ ↓ (Breath)
2 3 4 1

A 55) ʔɔ # lɛs^kay^ →
2-1 1

A 56) m ɔ l a y a t ʌ ↓ (Breath)
3 1 2 1

A 57) ʔ a # s + k ʌ ny ɪ a t ʌ ↘
2 1 3 1

A 58) l a s + k ʌ n e y + m ʌ t ʌ ↓ (Breath)
2 1

A 59) s + n ʌ m ɔ t ɪ a y ʌ # t o l ɪ y ʌ →
1 2 2-1 1

A 60) s + n + m ʌ y ʌ k ɔ t o →
2 1 2 3 4

A 61) s o f + s + n ʌ m ʌ ʃ + →
1

A 62) k + t a n ɪ y ʌ m ɪ y a t ʌ ↓ (Breath)
1 5 2 1

A 63) ʔ a # l ɪ k ɪ y a →
2-1 1 4 1

A 64) ta # s+kʌte #
3

A 65) yala mmayʌtʌ ↓ (Breath)
3 2 1

A 66) ʔs+nʌmɔŋ kayʌ →
1 2 1

A 67) to # sof+s+nʌ
2 3 2 1

A 68) m+nɪyɛ # tʌ ↓ (Breath)
1 3 2 1

A 69) lɛ # ʃɪnʌmɔŋ kayʌ →
2 1 2 1

A 70) tolɪyʌ mɔyʌ →
3 2

A 71) to # sof+s+nʌ m+yʌ ↓ (End)
2 1

Glossa B

B 1) s+mʌ #
4 2

B 2) kayʌ # lɛkoyʌ mʌ →
3 1 2 3 1 2

B 3) t+ # s+f+s+nʌ mʌ →
3-2 1 2

B 4) ʃ+kʌtʌyʌ # m.ʌliyʌ tʌ ↗ (Breath)
2 1 3 1 2

B 5) ŋkayʌ mʌliyʌ →
2 1 3

B 6) to # sofʌs+nʌmʌ →
2 1

B 7) ʃ+kayʌ # miya tɔ ↓
2 1 4 1

B 8) ʔɔ # leyʌ mɔyɔ →
2 3

B 9) to # sof+s+nʌ mɔlaŋ →
3 1 2

B 10) kayʌ # maya tʌ ↓ (Breath)
2 1 2 1

B 11) ñya # s+kayʌ mwɔl· →
2 3 2 3-1

B 12) to # sof+s+nʌmʌ →
4 1

B 13) ʃɪnʌ mʌnɪya tʌ ↓
1 2 1

B 14) lɪyʌkɔyʌ mɔlʌ →
2 1 3 1

B 15 to # sof+s+nʌmɔ ↘
3-2 2

B 16) ʔɔ # s+kayɷ →
3-2 2 1 2-1

B 17) mɔlɪy^ t^ ↓ (Breath)
2 1

B 18) yokay^ #
2 1

B 19) toy^ sof+s+n^ mɪy^ ↘
2 4 1

B 20) ale y^ m^ya t^ ↓
3 1 3 1

B 21) l^tay^ #
1

B 22) sof+s+n^ mɔla →
2

B 23) ʃ+n^ k^y^ →
2 1 2 1

B 24) to sofɪθ →
3 2

B 25) no moyat∧ ↓ (Breath)
2 1

B 26) ŋkay∧ may∧ →
2 3 1 5 1

B 27) k∧to # sof+ʃ+n∧ mɒlaʃ+ →
2 4 2

B 28) ka ɪ m͡ya t∧ ↓ (Breath)
2 3 1

B 29) yɷ nom∧y∧ →
2-1 1 2

B 30) tɔleyɪmɪyɔ →
2

B 31) to # sɷf+s+n∧ may∧ ↘ (Breath)
3 4 2 3 1

B 32) l∧n kɪya →
2 4 1

B 33) no tɪ ɒ y∧ # sof+s+n∧mo ↗ (Breath)
3 3-1 1 2 2-3

B 34) ʃ+n∧ ka y∧ #
2 1 2

B 35) mɒ l+yɔ tɪ ɒ y∧ →
3 3-1 1

B 36) m+yɔ # tɔ sɔf+s+n∧mɒ ↓ (Breath)
3 2 1 2 1

B 37) l+ʃɪn∧ may∧ →
2 1

B 38) t+kɔy∧ # mɒl∧to ↘
2 1 3 1

B 39) so # n+m+ya t.ɔ(?) ↘
2-1 1 2

B 40) ʔɔ yɜ # no mʷiɡ →
2 1 4

B 41) kɔy^ # to liy^ →
1 2

B 42) to sof+s+ #
2

B 43) n+m+niyɛ t^ ↓ (Breath)
2 1

B 44) l+s+kay^ to →
2 3

B 45) f+s+n^m+ →
1 2

B 46) ʃin^ m+niyɛ t^ ↓ (Breath)
1 2 3 4 1

B 47) niya t^ →
2

B 48) sʌf+s+nʌmʌ # ʃ+nʌmʌ →
2

B 49) kaliyʌ # to #
2

B 50) sof+s+nʌ mʌnaŋ →
2 3

B 51) koyʌ # molo to ↓ (Breath)
3 1 2 3 1

B 52) ʔɔ # s+kayɷ moto ↘
2 2-3 3 1

B 53) sɷnʌ mayɛ →
1 2 1

B 54) t3 sʌf+s+nʌmʌ →
2 1

B 55) n+m+niyɛ tʌ ↓ (Breath)
1 2 3 2 1

B 56) y+kʌte yaleyʌ →
2 3

B 57) to so # na m+ya tʌ ↓ (Breath)
3 4 1 2 1

B 58) ʔey 3 kayʌ # tʔo →
2 3 2 1 3-1

B 59) lɛs+k3yʌ f+s+nʌ mɷyʌ →
2 4

B 60) k+tolıyʌ tʌ ↓ (Breath)
2 3 2 1

B 61) yɛsɷnʌ mɷya tʌ ↘
2 4 2

B 62) lʌkeyʌ alʌ tʌ ↓
2 3 1

B 63) ʔa # s+kayɷ mɔto →
3-2 2 3 2 3 1

B 64) sɔf+s+nʌ mʌ →
2

B 65) ʃ+nʌ m+nɪya tʌ ↗ (Breath)
2 3 4

B 66) l+keya tʌ ↘
2 1 2-3 1

B 67) sɔ f+s+n+mʌ →
2 1 3 2

B 68) ʃ+nʌ m+nɪyʌ ↘
1 2 3 2

B 69) kʌlʌŋkɪyʌ →
1 3

B 70) to sof+s+nʌ nʌmɪyʌ ↓ (End)
2 1

Glossa C

C 1) lɜkáyʌ # sónʌmɑ̀nʌ kíyɔ →

C 2) tó # sóf+sɩ̀nʌmʌ̀ʃ+ →

C 3) kálɩyʌ tóyʌ →

C 4) mɨ́sɨnʌ̀ káyʌ ↓ (Breath)

C 5) lɜ̀kʌ́yʌ # sɨnʌ́mʌ̃̀ kɨ́yʌ →

C 6) tó fɨsɨ̀nʌmʌ́ʃɨ kɨtɨ́lɩyʌ →

C 7) sɨ́nʌ mɑ̀nɩyá tíyɛ ↓ (Breath)

C 8) ŋkoyʌ mɒlayɛ ta ↓
2 1 2 3 2 1

C 9) ʔomnn+mʌx s+k+talɪyʌ →
2 1

C 10) sɷnʌ mɷnɪyʌ # tɪyo →
2 1 2 3 2 3 2

C 11) ko fɪsɷnʌmʌʃ+ k+tʌlɪyʌ →
2

C 12) sɷnʌnʌ mɷnɪya tɪyɛ ↓ (Breath)
2 1

C 13) yɛ # nomɷyʌ t.o͡o →
3 1 2 4 3-1

C 14) ya s+kʌtayʌ →
1

C 15) sɷf+s+nʌ m+nɪyo ↗
2 4 5

C 16) yɛkoy^ # moleyʌ teyʌ #
2 3 1 4 3 2

C 17) s+nʌmʌŋ kayʌ →
2 3 1

C 18) na s+k+talɪyʌ →
3 1

C 19) sof+s+nʌmʌʃ+ k+talɪyʌ →
2

C 20) no mɷnɪya tʌ ↓ (Breath)
2 1

C 21) ʔã # lɜkaɣʌ →
3-2 2 3 1

C 22 sɷnʌ mʌyɛ tʌ ↘
4 2 3 1

C 23) sʌf+s+nɪmɪ ʃɛnɛniyʌ ↓
2 3 2 1

C 24) ʔɑ̃yɛ # n+kɪyʌ #
2 1 2 1

C 25) haʃ+no # mokʊ ↓ (Breath)
3 1 2 1

C 26) f+ʃ+nʌmʌʃ+ k+tʌlɪyʌ →
1 2

C 27) ʃ+nʌ mɑ̃yɔt ɔ (?) ↘
2 3 1

C 28) ʔɔyʌ # n+kayɔ →
2 3 1

C 29) na ʃ+kayʌ → namɪyʌ ta ↘
4 2 1 3 1

C 30) ʃʌf+ʃ+nʌmʌʃ+ k+tʌlɪyʌ ↓ (Breath)
1 2 1

C 31) yɛ n+kɜyʌ →
2

C 32) to # sof+s+nʌ m+yʌ ↗ (Breath)
3 2 1 4

C 33) yɛnʌ k+nayʌ ↘ ʔono ↓ (Breath)
2 1 3 1 3 1

C 34) ʔɜsʌka.liyʌ →
2 5 2 1

C 35) miyʌ ɔ̃ʔtʌ ↘
3 1 2-1 1

C 36) ʔa # sɛfɛs+nʌ molaʃ+ →
3 2

C 37) k+layɛ ta ↘
2 1

C 38) malʌ s+k+tayʌ →
3 2

C 39) sɜf+s+nʌ mʌyɛ ↘
2 3 1

C 40) tosɔ # n+m+lɪyɛtʌ ↓ (Breath)
2 3 2 1

C 41) yɪkaʏʌ →
2 4 1

C 42) mɑ̃nɪyʌ kɔ →
3 2

C 43) l3 s3f+s+nʌm3 →
2 1

C 44) ʃ+nʌk3yʌ # mʌyʌ →
2 1 2 1

C 45) k3yʌ nomʌyʌ →
2 3

C 46) sɑ̃nʌ mɪyʌl3tʌ(?) ↘
4 2 3 1

C 47) ʔɔyʌ # nʌs+kaʏʌ #
2

C 48) nʌmʌkatʌ ↓ (Breath)
3 1

C 49) yɪkɛna kayʌ → lɛtɪyʌ →
2 3 4 1 2 1

C 50) sʌkoyʌ mʌn.tɪkʌ →
3 2 1

C 51) sɜf+s+nʌmʌʃ+ →
2 3

C 52) kalɪyʌ n+mɪyʌ →
3 4 5

C 53) t͡oo # y+m+n tɪyʌ →
3-1 1

C 54) sɜf+s+nʌ molaʃ+ →
2

C 55) k+tayʌ # nʌ mʌnɪyɛ tʌ ↓ (Breath)
2 3 2 1

C 56) yɪkɪnʌ masʌ # kʰɔ ↘
2 1 3 4-1

C 57) yaliyʌ miyotɔ ↘
4 2 3 2 1

C 58) ʔo # siyʌnʌmʌ kɜθ. hy̆asʌ ↓ (Breath)
3 2 1 2 1

C 59) ʔʌs+nʌ ma a ʔɪtʌ (?) ↓
2 3 1 2 1

C 60) ʔsɔ # lɛʃɪnʌ kalal →
4 3 2 1

C 61) sɔf+s+nʌmʌ →
2 1

C 62) ʃ+k+nʌ hɪm+n.dɛt ↗ (Breath)
2 1 2-3

C 63) n+kayʌ moyɷ natʌ ↘ (Breath)
2 1 3 3-4 2

C 64) yɪkɪn̂yʌ moyʌ →
2 3

C 65) l 3 sᐩkᵊɔyʌ →
3 2-1 1

C 66) mɔlaᐩteya
2 3 2-3 2

C 67) sofᐩoyamʌ ↓ (Breath)
3 4 1

C 68) ʔɔ ᐩ lɛsᐩk 3 yʌ moᐩtɪyɛ ↘
2 1 3 1

C 69) sɔfᐩsɪ nɪmɪ yaᐩtʌ ↓ (Breath)
2 1

C 70) yᐩkᐩnɪ yʌmɔnʌ kʌya →
2 1 2 3 4

C 71) toᐩyʌ ᐩ nʌmʌ sᐩkʌlaᐩyʌ →
2-1 1 2 2-3 3

C 72) to # sɔ̃ f+ sɪ n+
3 2

C 73) m+ ya tʌ ↓ (Breath)
2 1

C 74) ʔɪ ya # nʌ kɔ̃ yo # mɔ̃ ka →
3 4 1 2 3-2 2 3

C 75) sʌ f+ s+ nʌ mʌ ʃ+ k+ ta lɪ yʌ →
2

C 76) mɒ lʌ tɪ yʌ ↓ (Breath)
4 3 1

C 77) ʔʌ hɔ # l+ k ɜ yʌ →
2 3 2 1

C 78) mɒ k o yo tʌ ↓
2 3 1

C 79) n+ m ɜ yʌ →
1 2

C 80) s+n∧m3y∧ # k3t∧hel →
2 1 2 1

C 81) sof+s+n∧ miy∧ ↓ (Breath)
3 4 1 1

C 82) sɷn∧ m̩ma y∧ →
2 1 1-2 2

C 83) ka lay∧ may∧ ↓ (Breath)
3 4 2 1

C 84) ʔiyo kiy∧mɒ.ɒ t∧ ↓ (Breath)
2 3 1

C 85) ʔoy3 # n+miy∧ #
2 1 2 1

C 86) al3ɛ ta ↓ (Breath)
3 1-2 1

C 87) ʔi # ʔ͡ooo →
2 2-3-1

C 88) s3 f1 y a # l l ɛ m ɔ² y ʌ →
2 3 1 2-3 2

C 89) n+ k1 y ɔ³ t ʌ ↓ (Breath)
3 1

C 90) y1 k+ n1 y+ m ʌ y ʌ #
2 3

C 91) k+ t3 so f1 a l ʌ ↓ (Breath)
4 1

C 92) ʔa # ʃ+ n ʌ m ɑ y ɛ t ʌ (?) ↓
2 1

C 93) ʔɔ y3 # n + m ɔ y ʌ →
3 2 1

C 94) t3 k+ s + n̂ y1 ʌ m ɑ n t ʌ a l ʌ →
1 2 1 2

C 95) f+ s+ n ʌ m ɑ y ʌ # t a y ʌ ↓ (Breath)
3 2 1 2 1

C 96) s+kɪyʌ matʌ →
3 3-2 1

C 97) sɔfsɑnʌ mɑnɪya tʌ ↓ (End)
2 1

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