PHONETIC DESCRIPTIONS OF GLOSSOLALIA

by

L. Patrick Atkins
A Thesis
Submitted to the
Graduate Faculty
of
George Mason University
in Partial Fulfillment of
The Requirements for the Degree
of
Master of Arts
English

Committee:

Director

Department Chairperson

Dean, College of Humanities
and Social Sciences

Summer Semester 2014
George Mason University
Fairfax, VA
Phonetic Descriptions of Glossolalia

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts at George Mason University

By

L. Patrick Atkins
Bachelor of Arts
Liberty University, 2009

Director: Steven H. Weinberger, Associate Professor, Department of English, Program in Linguistics

Summer Semester 2014
George Mason University
Fairfax, VA
DEDICATION

This is dedicated to my wife, Fain, who has persevered in patience and encouragement for me, especially throughout the most trying times of the last several months.
ACKNOWLEDGEMENTS

A special thanks to the many individuals who have so generously given of their time and expertise to assist me in this work: To my wife, Fain, who assisted in locating and connecting with my subjects. To Samantha Armitage and Hayley Taylor, who cheerfully undertook revision of my IPA transcriptions. To Charlie Jones and Doug Wolf, whose discernment and suggestions have proved invaluable. To Steven Weinberger, who directed me in the research with rich insight and great patience. To all of my linguistics professors at George Mason, whose passion for the field is contagious. And lastly, to God and His followers for possessing good humor and an unabashed willingness to have convictions scrutinized for the sake of furthering empirical research.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Tables</td>
<td>v</td>
</tr>
<tr>
<td>List of Figures</td>
<td>vi</td>
</tr>
<tr>
<td>Abstract</td>
<td>vii</td>
</tr>
<tr>
<td>1. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>2. Review of the Literature</td>
<td>10</td>
</tr>
<tr>
<td>3. Methodology</td>
<td>17</td>
</tr>
<tr>
<td>4. Data &amp; Analysis</td>
<td>23</td>
</tr>
<tr>
<td>5. Discussion</td>
<td>35</td>
</tr>
<tr>
<td>Appendix A</td>
<td>42</td>
</tr>
<tr>
<td>Appendix B</td>
<td>44</td>
</tr>
<tr>
<td>References</td>
<td>47</td>
</tr>
</tbody>
</table>
### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Universals from Maddieson, 1986</td>
<td>8</td>
</tr>
<tr>
<td>2. Observations from Goodman, 1972</td>
<td>13</td>
</tr>
<tr>
<td>3. The Subjects at a glance</td>
<td>22</td>
</tr>
<tr>
<td>4. Phonetic Category Frequencies (% of Consonants) in Glossolalia Data</td>
<td>37</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. IPA Consonant Chart for English</td>
<td>24</td>
</tr>
<tr>
<td>2. IPA Vowel Chart for English</td>
<td>24</td>
</tr>
<tr>
<td>3. Charlie’s Consonants</td>
<td>25</td>
</tr>
<tr>
<td>4. Charlie’s Vowels</td>
<td>26</td>
</tr>
<tr>
<td>5. Jill’s Consonants</td>
<td>27</td>
</tr>
<tr>
<td>6. Jill’s Vowels</td>
<td>27</td>
</tr>
<tr>
<td>7. Karen’s Consonants</td>
<td>28</td>
</tr>
<tr>
<td>8. Karen’s Vowels</td>
<td>29</td>
</tr>
<tr>
<td>9. Vowels: Glossolalia v. Maddieson</td>
<td>34</td>
</tr>
</tbody>
</table>
ABSTRACT

PHONETIC DESCRIPTIONS OF GLOSSOLALIA

L. Patrick Atkins, M.A.

George Mason University, 2014

Thesis Director: Dr. Steven H. Weinberger

This paper phonetically describes the glossolalia speech of three native English-speaking subjects. The subjects were interviewed for biographical information and recorded speaking in tongues. After transcribing the speech into International Phonetic Alphabet symbols, segment inventories were generated for each of the subjects’ samples, and the segments of glossolalia were described in light of phonological universals. This study concludes that linguistic universals influence glossolalia and that the segments of a glossolalist’s speech are a subset of the segments of his or her native language. These conclusions have particular implications for the potency of phonological universals as well as for further phonetic studies of glossolalia.
1. INTRODUCTION

The term *glossolalia* is derived from a Greek compound of two simple parts: *gloss* meaning *tongue*, and *lalein* meaning *talk*. Glossolalia, as defined by the Oxford English Dictionary, is “the faculty or practice of speaking with ‘tongues’” (OE Dictionary, 1989). Here, *tongues* refers to a foreign language. Glossolalia is believed by its partakers to be not only that, but a miraculous, heavenly language. To outsiders, these human speech productions are commonly equated with gibberish, a jumble of sounds and syllables, involving familiar consonant and vowel combinations, yet possessing encrypted meaning and indiscernible syntax. To be sure, every glossolalist is an island, each having his distinct, *heavenly* language, fundamentally unknown by all others. Its vernacular approximations are *gift of tongues* and *speaking in tongues*, and though the practice it describes is not exclusively Christian, the primary association made with the practice of speaking in tongues is with evangelical Christianity, more especially with more charismatic subsets like Pentecostals.
In 1879, the term *glossolalia* was coined by an Anglican cleric named Frederic Farrar. In his *Life and Work of St. Paul*, Farrar defines instances of glossolalia as “those soliloquies of ecstatic spiritual emotion” (p. 52). He also equates this with the biblical and familiar *gift of tongues*. Since Farrar, the term *glossolalia* has emerged as the preferred term for referring to the phenomenon in scholarly writing. It is used to describe the often spiritually driven speech utterances not corresponding to any ordinary human speech, which are sometimes accompanied by a trancelike state in the speaker. Phonologically speaking, while glossolalia has some basic, natural language components, it falls short of being ordinary human speech by virtue of lacking clear parameters of syntax, semantics, and necessary communicative properties. Conversely, such languages as French, Hebrew, Yoruba, Japanese, Norwegian, and Kiswahili are examples of ordinary speech systems, along with several thousand others worldwide.
The colloquial term *speaking in tongues* is taken from the New Testament book of the Acts of the Apostles. Acts 2 describes the account of a miracle that happened as the twelve apostles were gathered together after the Ascension of Christ:

“[2] And suddenly there came a sound from heaven as of a rushing mighty wind, and it filled all the house where they were sitting. [3] And there appeared unto them cloven tongues like as of fire, and it sat upon each of them. [4] And they were all filled with the Holy Ghost, and began to speak with other tongues, as the Spirit gave them utterance” (ESV Bible, 2007).

The passage proceeds to describe the Apostles preaching to a throng of people, the multitude rallying about them astounded, because “every man heard them speak in his own language.” There is disparity, however, between what was chronicled and how we have defined glossolalia. What Acts 2 describes is perhaps a miracle of xenoglossia—that is, “the ability to speak in a foreign language previously unknown to the speaker”

---

1 The biblical establishment for the practice of speaking in tongues is derived solely from the New Testament of the Bible, the first explicit mention of the practice being from Acts.
(Oxford English Dictionary, 1989)—and/or some miracle of hearing, not the same as what is contemporarily meant by speaking in tongues.

Current manifestations are more inspired by the book of 1 Corinthians. The Apostle Paul says of the tongues speaker that he “speaks not to men, but unto God; for no man understands him, but he utters mysteries in the Spirit.” (ESV Bible, 2007). In contemporary Christian circles, the practice is quite controversial. Associates of various denominations disagree about whether or not speaking in tongues is a gift that God continued to grant to the Church after the first century (Grudem, 2012). Chapters 12 and 14 of 1 Corinthians contain clearer guidelines about conducting the practice of speaking in tongues on a corporate and private level. The author describes in corporate settings that where the gift of tongues is given to one, the gift of interpretation of those tongues must be given to another. Privately, the subjects interviewed for this study view their speech productions as manifestations of a personal prayer language, which allows them to feel closer to the Spirit of God.

Nowadays, outsiders to the world of Pentecostal Christianity are not left to rely on anecdotal descriptions of glossolalia. There are documentaries that have probed into the Christian subculture of tongue speakers. A recent example is the Nightline special
“Faith Matters: The Science of Speaking in Tongues” (ABC, 2008). The full-length documentary film, *Jesus Camp* (Ewing and Grady, 2006) took a close look at several charismatic Christian families whose children go to the same summer camp. They are taught there to grow in the ways of Christian devotion, including tongue speaking. Furthermore, YouTube and other websites host video and audio recordings of glossolalia.

With this background knowledge, we now turn to our primary questions concerning the practice. The forthcoming section will address points of inquiry investigated in the past. The current study will speak to the following questions:

1) Do any phonological universals that govern the segments of ordinary human language also limit the segments and inventories of glossolalic speech?

2) Are there instances of commonality, with regard to segments, between separate samples of glossolalia?

3) Do any analogous patterns emerge between distinct glossolalia samples? If so, what are they, and can they be assembled together into a typology of glossolalia?

*Terms and Limitations*
Before launching into my hypotheses, I give explanation for repeated terms, which are used for consistency. I also explain limitations of the nature of this study.

William Samarin (introduced at greater length in the next section) coined terms such as *gloss, glossolalic,* and *glossolalist* (1968, p. 70). I also adopt these terms and use them throughout. Glossolalic and glossolalist are fairly clear; glossolalic is the adjective form of the noun glossolalia, whereas a glossolalist is a person who practices glossolalia.

*Glossa* is less intuitive. Simply, a glossolalist’s glossa is his or her *glossolalia language,* however, I avoid associating glossolalia with language for numerous reasons.

Glossolalia is not verifiably communicative, nor does it have verifiable syntax, semantics, pragmatics, or other common attributes of ordinary human language. Each of my three subjects has his or her own *glossa,* or bank of sounds used in the production of glossolalia. Sometimes I refer to these sounds as *sounds,* and sometimes as *segments.* These terms are synonymous with phonetics and it is how I intend them. This brings me to my next point and a limitation.

Phonetics is the study of human speech sounds. Phonology, on the other hand, looks at patterns of human speech sounds, and that, typically, through comparing languages. If a given glossa does not meet the criteria to be considered a language, then it would be
difficult for it to have a substantial role in phonology. Technically, while each of my
subjects’ glossas employs sounds or segments, one cannot exhaust all of the same
phonological patterns through studying their segments (e.g., allophonic variation). For
this study, however, I take the phonetic segments that make up each glossa and compare
them with the others and also with segments of English. Thus, while phonological
analysis on the basis of allophonic variation, aspiration, and vowel shape may not be
possible, still the common denominator between the unordinary human speech
(glossolalia) and ordinary human speech (for this study, the English language) is
phonetics.

_Hypotheses_

This study takes a phonetic look at the glossolalia of three English-speaking,
American subjects. Justification for this study is based on a previous, shorter
investigation of glossolalia that I conducted. I consult phonological universals that have
been traced in ordinary human speech and compare them with glossolalia. More
specifically, I hypothesize that similar universals at work in, for example, such a
nuanced linguistic phenomenon like creole languages may bear on the sounds of a
glossolalia sample. Also, I hypothesize that, just as creole may fit into a theoretical
typology (Klein, 2011), so might glossolalia. Table 2 below contains a small sample of the universals implicated in Maddieson, 1986 (p. 113-114). These universals and others may apply to the samples of this study. More on Maddieson, 1986 will appear in the next section.

<table>
<thead>
<tr>
<th>Table 1. Universals from Maddieson, 1986 (incl. # of UPSID exceptions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>/k/ does not occur without /t/ (one exception in UPSID)</td>
</tr>
<tr>
<td>/p/ does not occur without /k/ (four exceptions in UPSID)</td>
</tr>
<tr>
<td>Nasals consonants do not occur unless stops occur at the same place of articulation (five exceptions in UPSID)</td>
</tr>
<tr>
<td>Mid vowels do not occur unless high and low vowels occur (two exceptions in UPSID)</td>
</tr>
<tr>
<td>Rounded front vowels do not occur unless unrounded front vowels of the same height occur (two exceptions in UPSID)</td>
</tr>
</tbody>
</table>

I use data (forthcoming) to attempt to develop a typology based on phonological universals and observed phonetic trends. After a review of notable literature on the sounds of glossolalia and linguistic universals, I describe research methodologies for the study and brief biographical sketches of the subjects. Data is then presented and analyzed. Lastly, I interpret the data and expound on conclusions. This study reveals that glosses will typically contain a subset of phonetic segments of the glossolalist’s native language. Those hypothetical subsets will typically contain segments that are
more frequently produced in the speaker’s native language. Glossolalia segments adhere
to phonological universals that are also evident in ordinary human languages (e.g., stops
more frequent than glides, place of articulation match, CV = ideal structure). With these
things in mind, we now consider the highlights of past linguistic inquiry into glossolalia.
In 1970, William Samarian wrote that “language will be thoroughly understood only when all of its manifestations are examined, not merely its ordinary, socially accepted ones” (p.1, emphasis added). He was the first to substantially consider glossolalia as a linguistic, and further, phonological intrigue. The first big question asked of glossolalia by the linguistic community of researchers was not Is it real language? but rather, Is it at least language-like? Much of linguistic inquiry into glossolalia has analyzed how speaking in tongues fits in with what we know of how ordinary human speech behaves. It has sought to frame glossolalia within the context of other language phenomena and how universals that bear on ordinary human speech affect the phenomenon of glossolalia. In this section, we explore the most notable literature of linguistic perspectives on glossolalia. We begin with the work of William Samarian. Next, we will look at one of his contemporaries, Felicities Goodman (1969, 1972), who analyzed a set of tapes containing samples of glossolalia in a corporate
setting. After that, we will consider the work of Michael Motley (1967, 1981), who did a research project while earning his master’s at Texas A&M, also in the late 60s, for which he gained data from two tongue-speaking subjects. Lastly, we give a useful summation of Maddieson, 1984, in which are spelled out some applicable concepts for the present study concerning linguistic universals.

_Samarian_

Pioneer of linguistic inquiry into glossolalia as he was, Samarian’s focus was not strictly on the phenomenon, but it included the sociological investigation of an entire subculture of Christianity. Samarian writes “the acquisition of glossolalia is generally associated with becoming a member of a social group with its own patterns of behavior and values” (1969, p. 60-61).

Samarian concluded that while a person can learn much about he charismatic subculture, he or she doesn’t exactly learn to do glossolalia (1969, p. 64). Conversely, Spans, et al., 1986 concluded that glossolalia can be taught (p. 23). At first bluff the two conclusions may appear at odds, but Samarian contended for the acquisition of glossolalia, as opposed to being learned. He wrote, “it is possible for a person who has been exposed to glossolalia to retain enough information so that he uses the same
sounds,” but what little of the instruction that a prospective glossolalist gets is of linguistic importance (1969, p. 64). Samarian, 1969 became a chapter in his expanded work, *Tongues of Men and Angels: The Religious Language of Pentacostalism* (1972). This work set out to answer the question of why people speak in tongues. For his study, Samarian spent a period of about five years collecting and analyzing samples from individuals as well as from corporate meetings and in several different countries in North America and Europe. He transcribed the audio recordings using the International Phonetic Alphabet (IPA). Samarian, 1972 focused solely on examples of English-speaking glossolalia, though he remarked that it would be necessary to eventually compare samples of glossolalia based in other languages (p. 77). Samarian also divided transcribed glossolalic sounds into *breath groups*, which are simply a group of sounds that is produced within one breath. Additionally, in his investigation, Samarian demonstrated a respectful approach to the subject of glossolalia and the community of glossolalists. Samarian believed that glossolalia has ties to language universals of ordinary speech; he ultimately determined that testing glosses on the basis of linguistic universals would lead to better understanding of both ordinary human language and glossolalia (Samarian, 1970, p. 66).
Felicities Goodman’s research and analysis beginning in the late 1960s at Ohio State University grew out of a set of recordings she acquired, which contained samples of glossolalia. The data had not originally been collected with linguistic analysis of glossolalia in mind, but Goodman repurposed them. Goodman, 1972 incorporated new data, collected from a Pentecostal congregation outside of Mexico City from native Spanish speakers, and the other samples came from English-speaking glossolalists. Goodman, 1969, which eventually became a chapter of Goodman, 1972, demonstrated that glossolalia was distinct from ordinary human speech in many respects, but also that these domains of comparison did not vary according to the glossolalists’ native languages (i.e., English, Spanish). Goodman’s primary observations are seen in Table 1 below.

<table>
<thead>
<tr>
<th>Table 2. Observations from Goodman, 1972</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Every syllable has an onset, but no complex syllable onsets</td>
</tr>
<tr>
<td>b) <em>Accent</em> corresponds to stress; primary accent falls on the first syllable in each string of speech, or “phrase”</td>
</tr>
<tr>
<td>c) Phrases are of equal length, having a peak midway through, and a precipitous decay</td>
</tr>
</tbody>
</table>
Goodman transcribed the samples into the International Phonetic Alphabet as well.

Observations (a), (b), and (c) in Table 1 highlight a broader analysis than our current study, including syllables and descriptions of the prosodic language elements (i.e. stress, accent, intonation). Regarding (a), this study’s analysis will not divide strings of glossolalic speech into syllables, for reasons to be discussed in the beginning of the next section. Observation (c) does not hold for this study, as one may observe from a brief look at Appendix B, which contains my subjects’ transcriptions. However, for my current study, Goodman’s work does add to the notion of native language influence on the phonetics of glossolalic speech.

Motley

In Motley, 1981, the subject was a 61-year-old, native English-speaking American man, who identified himself as Pentecostal. Motley describes him as monolingual, “linguistically naïve and relatively uneducated,” having had no “unusual exposure to any foreign languages via courses, overseas trips, [or] foreign service,” (p. 19). Perhaps most remarkable about this subject was his ability to, on request, speak one of two separate varieties of tongues. Motley labels them “Variety I” and “Variety II.” One was more Spanish-sounding, while the other was described as sounding more
Russian. Though Motley had only one subject for the study, he took measures to collect a sizeable number of samples from his featured glossolalist. His final recording yielded two hours of Variety I glossolalic speech and one hour of Variety II, recorded over the span of several days and divided into 15-minute samples. Motley was particularly impressed by the comparison of tongues, in many respects, to ordinary human speech. His ultimate rationale for the study was to investigate the similarity of glossolalia to ordinary speech. He hoped that the investigation would lead to further clues about the internal processing of speech (p. 18). In addition, Motley wanted to explore the extent to which glossolalia may be informed by the native language of its speakers (p. 18-19). Motley concluded that glossolalia was more like ordinary language than unlike it, but that both of his subject’s varieties of tongues were sufficiently unlike his native English, (p. 24-25). He compared them all according to relative speech sound frequencies, presence of non-English segments, absence of certain English segments, as well as intra-syllable consonant clusters (1981, p. 25). My current study will also carry on investigating the relation of native language to glossolalia.

Maddieson
Maddieson, 1984 catalogues the segments and phonological inventories of 317 of the world languages. This work is based upon the UPSID—the UCLA Phonological Segment Inventory Database. In the UPSID, for example, Rooks represents the simplest inventory at 11 segments while the most complex is !Xu at 141 segments. Maddieson, 1984 uses this database to extract phonological universals based on descriptions and comparisons of the languages. Updates since Maddieson, 1984 have added to the database, bringing the total languages to almost 600.

My current study will use Maddieson’s research to compare tendencies, or universals, in ordinary speech with those of samples of glossolalic speech and their phonetic inventories.
3. METHODOLOGY

Subjects for this study were given a questionnaire to elicit biographical information and details about personal thoughts, attitudes, and experiences relating to glossolalia (see Appendix A). Requirements for participation in the study were as follows:

1) Must be at least 18 years of age

2) Must be a native English speaker

3) Must agree to be audio-recorded while speaking in tongues

For the recorded interview, I allowed the subjects to be as brief or as detailed as they wished with their answers. After the interview portion, we delved into the glossolalia portion of the interview.

At this point, we would transition by praying in English, which helped set the tone for the subjects to begin in their own prayer language. I informed the subjects beforehand that I only needed two to three minutes of glossolalia speech per person, so the samples
from each subject were roughly of that length. All of the subjects indicated that they are in control of their glossolalia production such that they can stop and start at will.

To record the subjects, I used a Zoom Handy H2 Digital Recorder. For each subject’s sample, I pulled a selection (approximately one minute in length) from the middle of the 2-3 minutes of glossolalic speech. The 1-minute samples were then transcribed into IPA and divided into breath groups. When transcribing, I simply marked the breath groups at each new inhale of breath. Transcriptions begin and end at breath group boundaries.

This method of dividing up breath groups was also practiced by Motley and Samarian. Samarian, Goodman, and others divided up the breath groups further, based on what they may have termed syllables. I have chosen to leave the breath groups whole so as not to suggest any sort of syllable or word boundaries where no such verifiable boundaries can be established. We now consider our three subjects, some biographical

---

2 During recording sessions, I performed test recordings with the subjects before properly beginning each interview.

3 I enlisted the help of two phonetically-trained colleagues, Sam Arbitrage and Hayley Taylor, to check my IPA transcriptions. The final transcriptions are thus an amalgamation of my originals and their suggestions.
information on each, and their answers to the questionnaire. The names I use for the subjects are pseudonyms.

**The Subjects**

I interviewed three subjects in total. The first subject was Jill. She is from the town of Blue Ridge in southwestern Virginia. In 1942, Jill’s mother had travelled to Bluefield, West Virginia so as to be close to the family for her birth, but Jill has lived almost all of her life within the same 30-mile radius along I-81 in southwest Virginia. She moved to Georgia during her husband’s military service. She is a native English speaker having no experience travelling or living abroad and no substantial second language training; the only exception being her studying Latin at a younger age – most of which she reports having forgotten. She has been speaking in tongues since 1975. Her first time speaking in tongues was the first time she ever encountered the practice. She remembers that she was in her living room alone praying out loud when she first began glossolalia, and that it initially sort of startled her.

Charlie, husband of Jill, was my second subject. I interviewed him on the same evening as his wife in March of 2013. He was born in Roanoke, Virginia in 1940, and he has lived almost all of his life in that area. The only exception was his three years of
service in the U.S. Army. First, he was in South Carolina for 10 weeks during basic
training. Next, he went to San Antonio, Texas for three months, and then Columbus,
Georgia for approximately 18 months. Charlie soon received his orders to go to South
Korea, where he lived, on active duty, for 13 months. He reports having had no
language training nor any further extensive time abroad. Of his proficiency in the
Korean language, he says that he may have picked up around 20 words or so when he
lived there, but has since forgotten almost all. Jill introduced him to the practice,
unknown to him previously. During the interview he told of a time when he had been
*baptized in the Spirit*, but he was not able to speak in tongues, so he went to his wife for
help. He began speaking slowly, but over a period of a week or two, his prayer
language began to flow more naturally.

The third subject we will call Karen. Karen was born in 1972 in Danville,
Pennsylvania. Karen’s family moved around a lot during her childhood. They moved
around Pennsylvania, then to Florida, then West Virginia where Karen attended high
school. At 18, Karen went to UNC-Chapel Hill for her undergraduate degree, and then
to New Haven, Connecticut for law school. She then got a job in Washington, D.C. and
has lived in that area since 1997. In between she travelled some, though the only
travelling abroad was to Santiago, Chile for one month. She studied Spanish throughout her high school and college years, though spent comparatively little time in any native Spanish-speaking areas. She has also minimally studied other languages like Italian, Modern Hebrew, Biblical Hebrew and Greek, German, and Mandarin. Karen first spoke in tongues on December 23, 1996, while visiting her parents in Alabama. She says that she had began praying to be closer to God some time before that. During that time she remembers being alone praying and hearing these strange words or syllables in her head. Karen describes receiving some encouragement from a fellow parishioner at her church regarding speaking in tongues and baptism of the Holy Spirit, but she was somewhat opposed or skeptical about the practice at that point. Karen described that she was opening her mouth expecting to produce English as usual, but that the strange syllables were issuing forth, which seemed to have startled her. She said that it took her a while to accept that this had happened, because she did not believe in it at the time.

Table 3 below contains a summary of our three subjects.
Table 3. The Subjects at a glance

<table>
<thead>
<tr>
<th>Subject (pseudonym)</th>
<th>Age</th>
<th>Location</th>
<th># of Years Glossolalist</th>
<th>Native Language</th>
<th>Substantial Exposure to Other Languages</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Jill”</td>
<td>70</td>
<td>SW Virginia</td>
<td>38</td>
<td>English</td>
<td>n/a</td>
</tr>
<tr>
<td>“Charlie”</td>
<td>72</td>
<td>SW Virginia</td>
<td>37</td>
<td>English</td>
<td>n/a</td>
</tr>
<tr>
<td>“Karen”</td>
<td>41</td>
<td>Northern Virginia</td>
<td>16</td>
<td>English</td>
<td>High school &amp; college Spanish</td>
</tr>
</tbody>
</table>
4. DATA & ANALYSIS

As Goodman pointed out, glossolalia is not communicative (1969, p. 237). Samarian added that “what one person speaks on different occasions is not the same in the linguistic sense,” (Samarian, 1972, p. 73). Thus, we develop a phonetic inventory for each of the subjects’ glosses, treating each of them like a separate language in a way. However, there are a few details that bear mentioning about the inventories. First, in the consonant and vowel inventories, segments that occurred less than three times in each sample appear starred (*) in the charts. This was done to highlight what this study will henceforth call frequent. By this, I mean that we isolate the least frequent segments in each gloss in order to separate them from those more frequent in each gloss. Second, affricates ([to] and [dʒ]) were transcribed as single segments and as component parts (i.e., [t], [ʃ], [d], [ʒ]), because two of the three speakers produced them each separately.

4 Three was chosen because, for each sample, I noticed that there were several segments that surfaced not only very seldom, but more specifically, on a statistically insignificant basis (where \( p < 0.05 \)).
and in affricate forms. That said, Figures 1 and 2 below represent the IPA consonant and vowel inventories for English, respectively, while Figures 3 through 8 contain the consonant and vowel segment inventories for the glosses of Charlie, Jill, and Karen, respectively.

<table>
<thead>
<tr>
<th>CONSONANTS (PULMONIC)</th>
<th>Bilabial</th>
<th>Labiodental</th>
<th>Dental</th>
<th>Alveolar</th>
<th>Retroalveolar</th>
<th>Rhotic</th>
<th>Velar</th>
<th>Uvular</th>
<th>Pharyngeal</th>
<th>Glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plosive</td>
<td>p</td>
<td>b</td>
<td>t</td>
<td>d</td>
<td>k</td>
<td>g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nasal</td>
<td>m</td>
<td>n</td>
<td>r</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tap or Thj</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friction</td>
<td>f</td>
<td>v</td>
<td>θ</td>
<td>ð</td>
<td>s</td>
<td>z</td>
<td>j</td>
<td>ñ</td>
<td>h</td>
<td></td>
</tr>
<tr>
<td>Affricate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>tf</td>
<td>dθ</td>
</tr>
<tr>
<td>Lateral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approximant</td>
<td>r</td>
<td>j</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lateral Approximant</td>
<td>l</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Where symbols appear in pairs, the one to the right represents a voiced consonant. Shaded areas denote articulations judged impossible.

Figure 1. IPA Consonant Chart for English

Figure 2. IPA Vowel Chart for English
These inventories for English consonants and vowels were taken from the *Speech Accent Archive*, (Weinberger, 2013), which were adapted from Ladefoged, 1993. In addition to the segments contained in them, English has the labia-velar, voiced central approximant [w] and five diphthongs. Some vowels and other consonants will differ according to location and community.

![CONSONANTS (PULMONIC)](image)

**Figure 3. Charlie’s glossolalia consonants**
In the whole of Charlie’s transcribed sample, there occurred 574 total segment tokens, and the transcription yielded a phonemic inventory of 23 distinct segments between vowels and consonants, including 2 instances of [w], which in the IPA appears in the ‘other segments’ table. Not counting those segments that occurred less than 3 times in the sample, the total phonetic inventory was 16 segments. Furthermore, Charlie’s sample contained no diphthongs.
## Figure 5. Jill’s glossolalia consonants

<table>
<thead>
<tr>
<th>CONSONANTS (PULMONIC)</th>
<th>Bilabial</th>
<th>Labiodental</th>
<th>Dental</th>
<th>Alveolar</th>
<th>Postalveolar</th>
<th>Retrolabial</th>
<th>Palatal</th>
<th>Velar</th>
<th>Uvular</th>
<th>Pharyngeal</th>
<th>Glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plosive</td>
<td>b</td>
<td>t</td>
<td>d</td>
<td></td>
<td>k</td>
<td>g*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>?</td>
</tr>
<tr>
<td>Nasal</td>
<td>m</td>
<td>n</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trill</td>
<td></td>
<td></td>
<td>r</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tap or flap</td>
<td></td>
<td></td>
<td>r</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>δ*</td>
<td>s</td>
<td>z*</td>
<td>j</td>
<td></td>
<td>h</td>
<td></td>
</tr>
<tr>
<td>Affricate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lateral fricative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approximant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>l</td>
<td>j*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lateral approximant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>l</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Figure 6. Jill’s vowels
The total number of segment tokens in Jill’s 1-minute sample was 435, and the inventories based on Jill’s sample contained a total of 26 distinct segments between vowels and consonants, including 3 instances of [w] which do not appear on either chart above. Not counting the starred segments, her sample was composed of 21 segments, including two instances each of [ŋ] and [ɡ]. As in English, [ŋ] was never present unless immediately followed by [ɡ] or [k], and in four places in the entire sample. Also, as in English, this demonstrates nasal place assimilation, as the velar nasal [ŋ] was always followed by another velar: either voiced [ɡ] or voiceless [k].

<table>
<thead>
<tr>
<th>CONSONANTS (PULMONIC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilabial</td>
</tr>
<tr>
<td>Plosive</td>
</tr>
<tr>
<td>Nasal</td>
</tr>
<tr>
<td>Trill</td>
</tr>
<tr>
<td>Tap or flap</td>
</tr>
<tr>
<td>Fricative</td>
</tr>
<tr>
<td>Affricate</td>
</tr>
<tr>
<td>Lateral fricative</td>
</tr>
<tr>
<td>Approximant</td>
</tr>
<tr>
<td>Lateral approximant</td>
</tr>
</tbody>
</table>

Figure 7. Karen’s glossolalia consonants
Karen’s sample was the shortest, at about 400 total segment tokens in length. This was divided up amongst 25 segments in her vowel and consonant inventories. Excluding those segments occurring less than 3 times, her inventories total 16 distinct segments. Thus, she had the greatest number of rarely-appearing segments, at 9.

**Analysis**

I frame the bulk of the segment analysis using the aforementioned UPSID, (Maddieson, 1984, p. 105). We use it to consider how its exploration of “hypothesized phonological universals and universal tendencies” may apply to the current interpretation of our data.
**Inventories in Maddieson**

Of his inventory size data, Maddieson reports that 70% of the languages surveyed consist of inventories of between 20 and 37 segments. The three glosses in this study also fall in this range. The segment inventories of Charlie, Jill, and Karen consisted of 23, 26, and 25 segments, respectively. But, is this inventory size range of 20-37 an “optimum,” or perhaps *unmarked*, “range?” Maddieson doesn’t answer these questions specifically, but he does propose an answer to why the families of languages that trend as outliers persist that way: because “primary contact is with other languages trending in the same direction,” (p. 109). It is a considerable proposal, if one begging further analysis. In terms of our subjects, however, the “primary contact” for them is their native language—English, which would lie just outside of that “optimal range” at 40 or so segments. What then, if anything traceable, informs the simplification of these native English presets in our subjects to produce glossolalia that falls within the confines of the proposed optimal range? Unmarked segments play a central role in small phonetic systems, and it has been said that those more complex systems (i.e., larger inventories) have similar basic structures, but have adopted other distinct segments for whatever reason.
Consonants

We now turn from inventories to the individual segments. As for most the frequently used consonants (that is, non-starred consonants) shared by the three distinct glosses, there are six in common: three stops, two nasals, and one fricative. These are [t], [d], [k], [m], [n], and [s]. They are likewise frequently used consonants in English. In 1978, Mines, Hanson, and Soup found that /t, d, k/ rank in the top ten most commonly produced consonant segments (1978, p. 229). In fact, all six of the most frequent, common segments from our glosses are in the top ten ranking consonant segments from the frequency count data (p. 232).\(^5\) Regarding tendencies of segment preference in languages, Maddieson initially suggests a hierarchy of segments graded according to frequency. His generalizations are as follows: “a smaller inventory has a greater probability of including a given common segment than a larger one, and a larger inventory has a greater probability of including an unusual segment type than a smaller one” (1986, p. 110). One of the ways he proposes testing his predictions is to compare languages of different sizes to find the segments that they share in common. Maddieson

\(^5\) See Mines, et al., 1978 frequency count data in Figure 10.
created a consonant inventory of 20 of the most frequently used segments that are
common among languages with small inventories. This is also what we have done with
our three glosses’ inventories. All six of the most frequently used, common consonants
from our data ([t, d, k, m, n, s]) were also part of the 20 most frequently used
consonants in all the small inventory languages in UPSID ([p, b, t, d to, g, k, ?, f, s, š,
m, n, ŋ, w, l, r, j, h]). Maddieson considers a small inventory to be one with between
20 and 24 segments. This being the case, we can generally characterize all three glosses
as having small inventories. It should be noted that glossolalia of a certain inventory
size shares such a commonality of segments with ordinary human speech inventories of
similar size. It is also notable that there are no more than four consonants found in any
one of our data inventories that are not found in Maddieson’s 20 small inventory
consonants.

Vowels

In our data, there are five frequent vowels common to the samples of all three
speakers. Coincidently, these are also all five of Karen’s non-starred vowels (Figure 6).
They are [i], [a], [ɑ], [o], and [ə]. For the sake of comparison with ordinary human
speech, we turn again to Maddieson’s UPSID. The most frequent vowel inventory,
according to his analysis of the UPSID database, contains five vowels, the same size as
the vowel inventory for the data of this study. Maddieson’s vowel inventory differs
slightly: [i], [e], [a], [o], and [u], (1986, p. 115). Lindblom and Maddieson, 1988
focuses primarily on consonants and the authors make considerable statements about the
vowel systems of small inventories that are applicable to our current findings. Their
argument is framed in terms of *maximal distinction*. Simply put, this means that vowel
(and consonant) systems in small inventories trend in such a way as to preserve
articulatory simplicity while maximizing perceptual distinctiveness. In other words, the
vowels are spread out across the “phonetic space,” or possible vowel articulation
scheme so as to render them maximally distinct from one another. This is illustrated in
Figure 7 below, which shows the two sets of vowel inventories described above, as
arranged in the IPA vowel palette.
As mentioned above, notice the considerable phonetic space on the IPA vowel chart between the most common vowels in the glosses. As stated before, the demonstrations in Lindblom and Maddieson are framed in terms of maximal distinction, but we summarily interpret this principle as a facet of *nakedness*. Based on trends in their data, they conclude that “small paradigms tend to exhibit ‘unmarked’ segments, whereas large systems have ‘marked’ segments,” (1988, p. 70). In our current study, we consider this evidence for small segment systems of ordinary human speech to extend to the comparable phonetic systems of glossolalia, and we explore this at greater length in the upcoming section.
5. DISCUSSION

In this final section, I conclude that a typology of glossolalia segments exists, based on our data and analysis, before positing some recommendations for future research on the subject. The statements of typological classification will be framed in terms of glossolalia from native English-speaking glossolalists, as our subject and data pose such limitations.

Inventory

Based on the data, inventories for glossolalia favor simplicity over complexity, as defined by Maddieson (1986). That is, when the most frequently surfacing consonants are isolated within each inventory, the inventory is likely to contain either fewer than 20 segments, or contain on the lower end of the typical number of segments within inventories for ordinary human languages (20-37 segments). Following this thought, it is highly unlikely that a glossolalia inventory could contain enough consonants to be considered “complex” (more than 37).
Consonants and Native Language Influence

For this section, please refer to Figure 7, which contains data that has been organized from Mines, et al., 1978. Again, this article catalogues frequencies of phonetic segments in conversational English, ranking them beginning with the most frequently occurring. In my study, I use this data in order to reinforce the notion that the glossolalists’ native language may have considerable influence on the segments they employ within their glosses. Figure 7 below, taken directly from “Table 4b” from Mines, shows this ranking (p. 232).

![Table 10. English Consonant Frequency Ranking from Mines, et al., 1978](image)

Figure 10. English Consonant Frequency Ranking from Mines, et al., 1978
Additionally, refer to Table 4, which contains frequency count percentages for the consonant categories of the three speakers’ glosses in our data as well as percentages for English, as specified in Figure 10.

<table>
<thead>
<tr>
<th></th>
<th>“Karen”</th>
<th>“Jill”</th>
<th>“Charlie”</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops</td>
<td>35</td>
<td>51</td>
<td>54</td>
<td>17</td>
</tr>
<tr>
<td>Nasals</td>
<td>18</td>
<td>18</td>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td>Fricatives</td>
<td>26</td>
<td>14</td>
<td>7</td>
<td>15</td>
</tr>
</tbody>
</table>

If we account for the most common and most frequently used consonants contained within all three of the inventories from our subjects, the category of stops (i.e. /p, t, k, b, d, ɡ/) reveals as the most prominent segment category. Recall again that in our data, among the three glosses, each of the six stops listed above was represented at least once, but also recall that the most popular in our data set were [t], [d], and [k].

---

The stop [p] was the only one of these six stops that did not appear in all three glossolalia samples. Further, it did not appear in any of the samples with any frequency (that is, unstirred in the segment inventories, Figures 3, 5, and 7).
According to Figure 7 above, /t, d, k/ rank in the top eight most frequently used consonants in English. One could expect that stops would play a more formidable role in subsequent glosses, from native English speakers, than would nasals and fricatives, since this appears to be a trend in all three of the glosses in the collected data. This is also demonstrated in Table 4. Second, nasals appeared with telling frequency in the glossolalia samples, with [m] and [n] having close to an equal distribution. Though they are not as equal in distribution in Figure 10 above, they both rank in the top ten most frequently appearing consonants in English. We thus conclude that one may reasonably expect to encounter nasals in glossolalia inventories, taking the form of at least one of these two. Third, regarding fricatives, a given gloss will most likely contain either [ʃ], [s], or [h] from the category of fricatives, as they were the most prolific fricatives throughout my data. While other fricatives were present within my samples (i.e. [f], [v], [ð], and [z]), none of them emerged as frequently as [ʃ], [s], and [h]. If we consider the most frequent fricative, however, that is contained in the inventories of all three speakers in the data (that is, as we’ve defined our use of the term common), then [s] remains as the most likely fricative to emerge in the glosses of subsequent subjects. This is also seen in the data presented in Figure 7, where [s] is shown to be the third
most frequently appearing consonant, and the most frequently appearing fricative in English.

It has already been mentioned that the set of possible segments in a person’s gloss is limited by that person’s native language. More applicably, there were almost no non-English segments found in any of the three glossolalia language inventories of our study. The lone exception was [r]. This trilled /r/ was produced twice by Jill, therefore not with any significant frequency. Furthermore, [r] is a possible segment in some versions of English from the British Isles, although Jill has no experience travelling there. Lastly, the [r] is very close in articulation mechanics to other segments that are clearly present in American English phonetics (i.e. [ɾ] and [ɹ])7. It is also common enough to encounter this segment in many parts of Virginia, whether in public or through various modes of media.

Vowels

7 Anecdotally, I can remember being a child of 8 or 9 and laboring with great frustration and lingual fatigue, when my cousin tried to demonstrate to me how to “roll my tongue.” It took me a bit longer before I “acquired” the skill, but interestingly, there was no purpose in it other than acquiring the ability to make the noise. Others will identify with this and agree that [r] is readily accessible to North American, English-speaking tongues.
The vowels in this typology of glossolalia segments obey the structural descriptions in Lindblom and Maddieson (1988). As stated in the analysis section regarding the vowels of languages with small segment systems, they adhere to the maximal distinction principle. We could, therefore, expect that vowels in subsequent glossolalia inventories of comparable size will exhibit similar characteristics. They maximize distinction with regard to height, backness, and rounding, much like our most common, frequent vowels [i], [a], [α], [o], and [ə] from the data. This doesn’t mean that the future data will preserve or perpetuate this trend perfectly, but rather, that it is most unlikely, for example, that one would encounter [a], [æ], and [ɛ] with any significant frequency in the inventory for any given gloss.

Conclusion

This thesis has examined the glossolalic speech of three native English-speaking, Americans to compare them with regard to phonetic segments and segment inventories. I have attempted to look at them in light of phonological universals at play in ordinary human languages, in order to then extract the evident building blocks for a typology of glossolalia segments. The fact that all three samples of glossolalia adhered to all five universals from Table 2 in the first section is to be expected based on the hypotheses. I
expect that upon further investigation, including more new samples of glossolalia and more universals from ordinary human speech, we will discover even more support for the notion that ordinary human speech universals are evident in the phonetic constructs of glossolalia as well. Future work to this end will of course include the proper cataloguing of more transcribed glosses and inventories and will likely confirm the typological parameters asserted herein, if not expand them. More studies like Newberg, et al., 2006, which investigated the neurological differences in production of glossolalia, will supplement existing research by adding a physiological aspect. Impetus for future research in glossolalia phonetics will likely stem from a desire to understand more about the reach of linguistic universals, the influence of the native language on secondary language phenomena, and the potency of phonological nakedness constraints.
APPENDIX A

Subject Questionnaire

1) Where (city, state, country) and when (date of birth) were you born?

2) What is your native language (your first acquired language)?

3) List briefly all the places (city, state, country) where you’ve lived and for how long, if possible.

4) Do you speak any languages other than your native language? If yes, which language(s)?

5) Have you ever studied a language other than your native language? If yes, which language(s), and how long did you study each language?

6) Do you speak and/or pray in tongues, either audibly or internally? If yes, then for how long have you spoken or prayed in tongues?

7) Can you speak in more than one distinct spiritual language? If yes, how do you know that they are distinct? How many different spiritual languages do you speak?
8) Do you have the ability to interpret the utterances of your spiritual language in English? Or, when you pray in tongues, do you understand the meaning of the utterances in English (i.e. Can you explain in English what you say in your spiritual language?)

9) Relate the account of your first experience hearing someone speak or pray in tongues.

10) Relate the account of your first personal experience of speaking in tongues, with as much detail as possible.
APPENDIX B

IPA Transcription: “Charlie” (574 segments; 256 consonants; 139 stops; 63 nasals; 18 fricatives (most popular [s] = 9, [h] = 6)) w = 2

1. [pamanioukoutamlambsosikədada]
2. [kamadioukoutanlambsosikədodou]
3. [jaməsitoudiatahitamənononiandəlakita]
4. [tamadioukoutamlambəsikoutoudoudiandələkitatada]
5. [jamədoudoudiandəlakita]
6. [vididiooutouməsika'itadada]
7. [wamədoudoudiandəlakita]
8. [oukənouibadada<wamənououdouriandølakjata]
9. [zibədoudoudəjəksoumjamjandadadioundoulaməsikəbarou]
10. [jakətomlaməsikədoudoudiandəlaki:] 
11. [omənonooniandəlakitatada]
12. [mioukoutamlambosikoutoudiandəlakita]
13. [dʒioukoutanlambəousikoutoudiandəlakita]
14. [omənonooniandəlakitatada<amənonounou]
15. [ikəmənonounouitadadiatalamənou]
16. [ikəbadaradiatalakə:hihoo<ihambadadada]
17. [həhounjata:ibənonoikəbatodo]
IPA Transcription: “Jill” (435 segments; 197 consonants; 100 stops; 36 nasals; 27 fricatives (most popular $[$ʃ$] = 16, $[$s$] = 5)) $w = 3$

1. [hajatəɾəməʃiəndəɾəba]
2. [hajatədəməkədiətəroblesenkoreantai]
3. [ouwaʃondəɾəangiətəre]
4. [teleotəɾənanebokedeotərobatedekəsətədbə]
5. [aŋkəʃe-əkwəʃiəɾəməʃiandət]
6. [aʃətədəməkəʃiəteidəketiəta]
7. [aʃəɾəkəməʃiəɾəkoumədidjetidəkouməsədətei]
8. [eʃəŋənaməkədətəroknə:biendo]
9. [haŋkiətəɾəkleʃetədəməkədiəndərobadada]
10. [ha"biete-eikimiətərobaxiətəɾoumədiantou]
11. [aŋkakakakakamei"təɾəməstleatei]
12. [aŋəʃiəɾəbaːleandəloʊəkədeitei]
13. [mː koumietəɾə kulʃetədəkouməsilɔɲəkədiato]

IPA Transcriptions: “Karen” (401 segments; 184 consonants; 64 stops; 34 nasals; 48 fricatives (most popular $[$ʃ$] = 22, $[$s$] = 18)) $w = 0$

1. [aijəkətəʃusouʃəndətəməsouʃənda]
2. [aijəkotijəməʃəndətətijəməʃəndəteʃfəndo]
3. [aijokoutəʃuməʃəndədətəjokəʃətədiʃasouʃəndoʃoʃma]
REFERENCES


Motley, M. T. (1967). *Glossolalia: analyses of selected aspects of phonology and morphology* (Doctoral dissertation, University of Texas at Austin.).


BIOGRAPHY

Patrick Atkins received a Bachelor of Arts in History from Liberty University in 2009. He received his Master of Arts in English from George Mason University in 2014 and has worked as a teacher, ESL instructor, and promotional writer. He, his wife, and their li’l cat Ambit currently reside in Roanoke, Virginia.