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The Optimization of Semantic Efficiency: A Philosophical
Framework for the Orthographic Assimilation of *Nsibidi* Ideograms

by

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Dedication

I dedicate my dissertation work to my family and friends. A special debt of gratitude to my loving parents, Chief and Mrs. Dan Ibekwe whose words of advice and push for excellence never escape my memory; to my siblings Ken, Chioma, Ezinne, Uzoamaka and Uju; and to my uncles Austen and Fidelis and their families; not forgetting my cousins Esther, Chika and Uloma for all their love and support.

Abstract

This thesis calls into question the silently-held presumption that the Latinization (i.e. the use of Latin alphabets in transcription) of indigenous languages in southeastern Nigeria is both necessary and sufficient for their orthography. The arguments presented herein aim to demonstrate the fact that Latinization has systematically excluded an entire realm of symbols and meanings which facilitate the inter-subjective transfer of ideas; realms that cannot always be navigated by relying upon transcription by way of Latin alphabets. In order to adequately address several of the weaknesses identified in the Latinized scripts, the thesis will argue for an expanded orthography that is more inclusive and representative of the *sociofacts*, *mentifacts* and artifacts that are peculiar to southeastern Nigeria.

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Abbreviations

AI – Artificial Intelligence

ANN – Artificial Neural Network

GIA – Generally Intelligent Agent

NELL – Never-Ending Language Learning

SPILC - Society for Promoting Igbo Language and Culture

Introduction

Nsibidi is “an ancient system of graphic communication indigenous to the Ejagham peoples of southeastern Nigeria and south-western Cameroon in the Cross River region. It is also used by neighboring Ibibio, Efik, and Igbo peoples” (Kreamer, Roberts, and Harney 83). Scholars believe that the symbols are several centuries old. Various forms of the script have been identified on excavated pottery and also on ceramic stools and headrests from the Calabar region, dated between 400 and 1400 CE. There are thousands of symbols in *Nsibidi*, but so far about 1,400 have been recorded. Since the ideograms could not capture the entire linguistic dynamics of the Igbo language, a new movement began to tinker with the idea of the neo-*nsibidi* project: an attempt to radically modify Igbo orthography by way of the assimilation of the many ideograms into an already alphabetized system. Though still in its infancy, the project poses a strong challenge to the *Onwu*¹ orthographic system which has dominated the writing of Igbo language since the early 1960s. However, the glaring lack of an animating orthographic philosophy threatens to smother neo-*nsibidi* in its wake.

The central objective of this thesis will be the development of a philosophical justification, in support of the neo-*nsibidi* project, for the replacement of *Onwu* orthography. Although there are at least two realms of meaning for the *nsibidi* symbols, this thesis will focus attention on the pedestrian and widely accepted meanings of each symbol. Throughout this thesis, the definition of notion of ‘writing’ will be taken to be “a system of human intercommunication by means of conventional visible marks” (Coulmas 15).

The main body of this thesis is partitioned as follows. Chapter One contains a brief literature review, analyzing academic and non-academic sources for both the *nsibidi* ideograms and the *Onwu* orthographic system. Chapter Two investigates the notion of *semantic efficiency*. Proceeding by making use of an analytic model of a multi-lingual

¹ Named after Mr. S.E. Onwu, who chaired a government-backed committee charged with developing an orthography.

language-game, Chapter Two takes seriously the examination of language-games as games that are amenable to the methodologies of Game Theory. Chapter Three articulates a philosophical framework that is geared toward the animation and sustenance the project of ideographic assimilation. Chapter four re-engages the multi-lingual language game, this time with the goal of abandoning orthographic prescriptivism and embracing orthographic description. Chapter five concludes by performing a reflexive critique of this thesis, noting the implications of an expanded orthography on the areas of the philosophy of education and the philosophy of history, and laying the foundations for further endeavors in this arena. The general approach in this thesis is to adopt a phenomenological attitude to the examination of language, and to remain as analytic as possible.

Chapter One: Literature Review and Relevant Queries

1.0 Introduction

In this chapter, I conduct a literature review both of the *nsibidi* writing system and the situation of contemporary *Onwu* orthography. The ultimate objectives here include both the synthesization of ideas and the identification of conceptual gaps in all the works that constitute the corpus of the review. I am of the opinion that this task is fully justified when it is borne in mind that any philosophy worth its name must engage dialectically with other related systems of enquiry. Both spoken-language and the orthography of language are dense realities. This denseness arises in view of the fact that human beings, while persisting in a perpetual exercise of *noesis*², frequently express themselves in a language that encapsulates *noema*³. Problems usually arise when orthographically-expressed *noema* are to be interpreted. Inquiries in the field of hermeneutics have, in various ways, demonstrated that the interpretation of an orthographically expressed *noema* does not always lead back to the author's *noesis*; for indeed the *noesis* of the interpreter becomes an obstacle that needs to be skillfully navigated. On a similar note, Gottlob Frege has already observed that one cannot account for the meaningfulness of an orthographic work by merely appealing to the denotations of its constituent terms, for "such an [orthographic work] is often saturated with feeling [and] the clarity of its separate parts varies and oscillates" (Frege 59). In other words, orthographic meaning is to be worked out through the interplay of the orthographic term-wise truth-values and the myriad of thoughts expressible through the use of each orthographic term. Consequently, it can be said that within the inner-workings of orthography are to be found convoluted, intricate and possibly intractable entities and processes that are difficult to capture by means of solely *a priori* analysis.

² The act of knowing.

³ The content of knowledge.

The arguments present in this thesis can be viewed as an implicit hetero-phenomenological critique and appraisal both of spoken-language and of orthography. By hetero-phenomenology, I mean refer to a phenomenological attitude which concedes that perhaps no singular individual or group has the final word on the interpretation of any phenomenon, especially on a phenomenon as varied and dynamic as human language. By being implicitly hetero-phenomenological, I maintain the position that any attempt to examine an orthographic system using the techniques of highly exclusive *lone-wolf*⁴ auto-phenomenology risks degeneration into an exercise in futility. An appropriate critique of such an exercise is pertinent here:

Lone-wolf auto-phenomenology, in which the subject and experimenter are one and the same person, is a foul, not because you cannot do it, but because it is not science until you turn your self-administered pilot studies into hetero-phenomenological experiments (Dennett 5).

The rest of this chapter is structured as follows. First, I briefly present and examine a number of academic and non-academic sources on the *nsibidi* writing system. Second, I endeavor to identify gaps in this set of sources, highlighting the underlying philosophical problems wherever possible. Third, I engage the contemporary status of Igbo orthography. Fourth, I embark upon a critique of Igbo orthography, placing emphasis upon the prejudices that led to its development and contemporary status.

The ideas and arguments that run through this thesis will be grounded upon attempts to fill the gaps identified in the philosophical machinery that are currently behind both *nsibidi* literature and Igbo orthography. Now, I also contend that this thesis is equally applicable to the languages of other groups in southeastern Nigeria that are not Igbo-speaking. This is not

⁴ A grossly inadequate phenomenology of any given set of phenomena.

an imperialistic contention. Rather, it is owing to the historical fact that southeastern Nigeria was a linguistic and cultural melting pot. As already noted in the introduction, several tribes used these symbols in different modes of orthographic communication. Since the symbols constitute a multi-ethnic realm of shared meaning, it is easy to imagine other ethnic groups fabricating an orthography that also includes *nsibidi* ideograms. I have chosen, however, to enter into this dialectic from the door of the Igbo language, since it is the southeastern Nigerian language that I am most conversant with.

1.1 Sources on *Nsibidi*

Nsibidi existed for centuries in Southeastern Nigeria as a form of ideographic writing that was used for “cultural exchange with [ethnic and linguistic] groups” (Slogar 19). After struggling in vain to locate the origins of *nsibidi*, an early scholar concluded its origins must indeed be “so old as to have become the subject of [folk tales]” (Macgregor 201) .

An ideogram is a “type of transcription in which meanings are expressed by graphic signs [...] whereby complex complete meanings are symbolized synthetically by a single conceptual sign” (Bussmann 532). Many primary sources still abound, and these symbols are to be found on a large number of items, from palm tree stems to bowls made of bronze and clay. It is also to be found as tattoos on human skin. In fact, there are elderly people who still carry faint-looking *nsibidi* tattoos, coming from an era when the symbols were part of a fairly common writing system. These tattoos remain important primary sources, their persistence on the bodies of living elders point to the fact that *nsibidi* is still extant and not a relic from an ossified past.

Some of the major settlements and towns that were *nsibidi* literate include Ikom, Abiriba, Calabar and Arochukwu. *Nsibidi* could be written vertically, horizontally or even obliquely. The influence of the symbols waned significantly with the advent of Western education and colonization. At least two realms of meaning could be discerned for each

nsibidi symbol: a pedestrian (or public) meaning and an esoteric meaning (guarded by the *Ekpe* secret society).

Although the accounts of its origin remain mired in controversy, *nsibidi* is generally thought to have been articulated from within the *Ekpe* (leopard) secret society. This society was:

The no-nonsense community police, with the power to discipline and, as a measure of punishment, to confiscate the property of a community member who disobeyed the law.[...] *Ekpe* was a school for esoteric teachings regarding the human life as a cyclic process of regeneration, with the eventual reincarnation of [dead] being[s] (Miller and Ojong 2).

The earliest academic reference to the *nsibidi* ideograms was made by J.K. Macgregor in the year 1909. Macgregor recounted an experience through which his interest in the study of the ideograms was kindled:

In a class I was teaching, a pupil deeply resented the statement that the civilization of the people in Nigeria was primitive because they had no writing. He declared that they had a writing called *nsibidi*. This happened in 1905. As I was at the beginning of the new term, I set myself to find out all I could about *nsibidi*. People smiled when I asked for information and declared that they knew nothing about it (Macgregor 210)

Eventually, Macgregor was able to catalog about ninety-eight symbols. Being an outsider, however, he had to rely on a Quinean notion of *radical translation*, meaning that he had little option but to depend completely upon information the natives gave to him. Macgregor equally had to face his deeply embedded hermeneutical baggage (whether in the form of

enabling or blinding pre-judgments), which included the unquestioned belief that there were no writing systems in sub-Saharan Africa.

In 1911, Elphinstone Dayrell followed up the work of Macgregor. In a paper published in the *Journal of the Royal Anthropological Institute of Great Britain and Ireland*, he notes that:

In studying *nsibidi*, [...] it will be found that there are several different kinds. The various societies which play *nsibidi* have many of their own particular signs, which strangers belonging to another society would not understand. There are, however, a large number of signs common to all the societies (Dayrell 521).

Dayrell's efforts led him to catalog about three hundred and sixty-three symbols, some of which were already cataloged by Macgregor two years previously.

Slogar's work, published in 2007, focused on the interpretation of artworks excavated around the region of Calabar in Southeastern Nigeria. These artworks were found to be richly decorated with *nsibidi* symbols. Slogar's concerns focused on uncovering the meaning of these symbols, but the import of his concerns become more glaring in the face of the hermeneutical temptation to impose a twenty-first century understanding upon such a collection of ancient art. Indeed, given that the economic system of ancient southeastern Nigeria was not one that revolved around the twenty-first century definition of money (and bedeviled by problems of monetary value), the big struggle for the modern interpreter is to downplay the baggage of modern economics that might impinge on his interpretive exercise. To downplay the influence of such modern baggage, in my opinion, there is a need to suspend judgment and to merely ascribe newly excavated symbols into the catalog of known symbols. The main question becomes: *why did the ancient artists devote so much time and*

energy in the meticulous decoration of arts? What message were they trying to convey?

Slogar noted that *nsibidi* can be considered:

one of the indigenous African scripts, [...] [it] records, transmits and conceals various kinds of information using a wide, fluid vocabulary of geometric and naturalistic signs placed on objects including calabashes, brassware, textiles [...], masquerade paraphernalia, and wood sculpture and on surfaces including the ground, the walls of buildings and even human skin. Yet little is known of the history of *nsibidi* prior to the early twentieth century, when it caught the attention of colonial officials (Slogar 18).

Another scholar has compared the *nsibidi* ideograms to a “partial writing system of graphic symbols that can be used to convey only some thought” (Obidiebube 51), this stands in contrast to a “full writing system of graphic symbols that can be used to convey any and all thought” (51).

In recent times, a blogger (<http://nsibiri.blogspot.co.uk>) sharing his ideas online, has made remarkable effort as he continues in highly spirited attempts to bring the *nsibidi* ideograms back to life. He frequently refers to his efforts as constituting part of a neo-*nsibidi* movement and sub-culture. Although the blog is not a strict academic source, I contend that the ideas located therein can be exhaustively explored by those involved in academia.

1.1.1 Gaps in *Nsibidi* Literature

Apart from non-academic efforts of the internet blogger, the rest of the sources cited so far tend to treat the collection of symbols as a forgotten archive which is good to recall once in a long while. They fail to recognize that many Nigerians of southeastern origin still think in these symbols. The *Ekpe* secret society still exists and is very much active. For instance, Figure 1 depicts a 1988 funeral procession by members of *Ekpe* society, revealing each

member's wrapper richly decorated with *nsibidi* symbols, in addition to the symbols inscribed using white chalk on their torsos.



Figure 1: Members of the Ekpe society during a funeral procession (1988)

Moreover, more than 1,400 *nsibidi* symbols have been isolated so far (this claim can be verified by examining the publications of Macgregor, Dayrell and the budding neo-*nsibidi* project). It is thought that many more are yet to be discovered. The big challenge for the literature remains the development of a framework not only for semiotic, hermeneutical and linguistic analysis, but also for the systematic codification and modernization of the symbols. Such a much-needed framework is one that should not be cast in stone, but be ready to embrace the philosophical indeterminacies involved in the articulation and utilization of spoken and written language. In other words, the framework should be able to evolve alongside the complex linguistic milieu of southeastern Nigeria.

The literature so far has not produced a comprehensive dictionary of symbols, not in their esoteric sense but in their pedestrian use. All that exists are fragments that, though present in one publication, are markedly absent in others. The articulation of such a morphological dictionary is invaluable to the holistic study of this writing system, as it will allow for a more

comprehensive comparative analysis and cataloging of the various symbols and their myriad combinations. The dictionary will also allow for the precipitation of the rules of orthographic grammar, as it will also engage in the analytic description of the many constituent symbols. There is also an obvious dearth of efforts aimed at incorporating *nsibidi* symbols into mainstream thought. This last point is of relevance because the phenomenon of human thought was in existence and use long before the invention of the Latin alphabet. A cursory look at the history of the Latin alphabet reveals that it came into existence around the year 700BCE. Indeed, writing in the year 1921, Ege notes that "the form of our [alphabetic] letters [...] reached their full development two thousand years ago" (Ege 4). In the course of this thesis, I engage the notion, now generally unquestioned, that human thought proceeds by closely emulating the alphabetical reduction of speech first into phonemes, then into alphabets.

1.2 The Contemporary Status of Igbo Orthography

It has largely been forgotten that Igbo orthography was mired in controversy for thirty-two years, beginning from 1929 and ending in 1961. Initially, Igbo orthography was based on the Lepsius method of orthography. Lepsius himself described his overall project by writing that:

The need of a fixed system of orthography induced several of the missionary societies of London [...] to agree upon Rules of reducing unwritten languages to alphabetical writing in Latin characters. These Rules, though imperfect, have been already applied with success to several African languages (Lepsius iii).

Lepsius' approach was to enumerate as many phonetic symbols as possible, then apply these symbols in the written articulation of language. However, as events unfolded:

By 1929, the Lepsius orthography was abandoned for the Africa orthography designed by the International Institute of African Languages and Culture (IIALC). This was because of the enactment of a decree by the colonial authorities which adopted the Africa orthography. This led to the now famous great Igbo orthography controversy that lasted for 32 years (Agbo 117).

This enactment of an orthographic system by way of a government decree increasingly borders on the *ad bacculum* fallacy. This fallacy arises in view of the fact that the appeal to state-backed legalistic force essentially shuts down the discourse in such a way that any dissenting voice risks offending the all-powerful state. Thus, the '*rightness*' of the state on this orthographic debate is plausible only because of the potential punishments that may be directed by the state, in one form or another, toward any voice of dissention. I shall return to this point in the critique of contemporary Igbo orthography. Suffice it here to bear in mind that the long-drawn orthographic controversy heralded:

A setback for the development of a standard Igbo orthography. The resolution of this controversy came about in 1961, when the then Eastern Nigerian Government adopted a standard orthography, popularly known as the Onwu orthography (Agbo 117).

Identifying the *ad bacculum* process which gave *de jure* status to Onwu orthography helps in the raising of further questions: did the Onwu-led committee perform an adequate phenomenology of the Igbo *dasein* in particular, and the southeastern Nigerian *dasein* in general? Does Onwu orthography not assume that Igbo people (and all southeastern Nigerians) think just in the same manner as Westerners do, with identically contrived categories of understanding? What were the philosophical and hermeneutical biases behind

the Onwu script? Does the effectiveness of Onwu script not weaken as new ideas continue to emerge and to be uncovered, especially in the 21st Century?

1.2.1 Gaps in Igbo Orthography

The first thing to note at this juncture is that the Latin alphabets of the Onwu orthographic system arrived simultaneously with Christian missionaries and colonial powers. This fact leads to the question of how Igbo orthography would have been articulated if, for instance, Islam (with an emphasis on Arabic alphabets and script) had become the dominant religion in southeastern Nigeria. This last point follows from the realization that orthographies presume “background linguistic systems” (Black 229); such backgrounds being “composed of patterns that [should remain] meaningful to the [users]” (229).

The findings of both Macgregor and Dayrell can be used to establish the fact that an ideographic form of communication was already present in Igbo land long before the arrival of colonial powers; even though further examination reveals that this form of communication was not sufficient to orthographically transcribe all Igbo words. At least one implication of this is that the Igbo people used words but did not necessarily reduce words to strings of alphabets. The objective of any alphabetic system is to break language down to its smallest meaning-unit, and then proceed to construct a linguistic superstructure on the basis of these meaning-units. I shall henceforth describe this as a *reductionist* approach to the problem of orthography and scripting.

This alphabetic reductionism proceeds by assuming “the teleological position [...] that there [...] [was] a constant improvement in the historical evolution of writing, in which the alphabet would be the pinnacle of perfection, regarded as both the cause and effect of a high degree of civilization” (Baroni 129). On the basis of this assumption, the conclusion is further made by Baroni that “any deviation [from the use of alphabets] [...] is [...] an aberration or an imperfection; non-alphabetic systems are therefore deemed to be inferior to alphabetic

ones and opaque⁵ orthographies inferior to shallow⁶ ones” (129). The Onwu script attempted to create a shallow Igbo orthography in which there was a strong correlation between the spelling of a word and its pronunciation. However, given the fact that both words and pronunciations vary widely across Igboland, it is not surprising that the orthographic project came up against strong criticism. I find it prudent, therefore, to leave room for the possible contrivance of an opaque orthography of the Igbo language, and to see how this opacity responds to the many criticisms leveled against contemporary Igbo orthography.

Going further, it is good to note that this reductionist approach had already been critiqued by a Linell who labeled it the ‘Written Language Bias’. According to this scholar, “despite the fact that linguists, with few exceptions, claim the primacy of speech and spoken language over writing and written language” (Linell 29), nevertheless:

We can talk about a paradox in modern linguistics: one claims the absolute primacy of spoken language, yet one goes on building theories and methods on ideas and experiences of a regimented, partly made-up language designed for literate purposes and overlaid with norms proposed by language cultivators, standardisers and pedagogues. All this amounts to a deeply ingrained contradiction based on a veritable reversal of priorities (29).

Onwu orthography represents an attempt to create a “full writing system of graphic symbols that can be used to convey any and all [Igbo] thought” (Obidiebube 51). This position runs into problems when it is noted that the articulation of written language is a philosophically indeterminate exercise. Indeed, indeterminacy is quite characteristic of many things that have to do with the use and codification of language. I will return to this problem

⁵ In an opaque orthography, “the correspondence between spoken words and written words cannot be reduced to a set of rules” (Baroni 129).

⁶ In a shallow orthography, “given a set of rules, it is always possible to read and write a word, even an invented one” (Baroni 129).

of indeterminacy on several occasions in the argumentations contained herein. Interestingly, while indeterminacy remains a problem, it also holds the key to the unlocking of many gates of opportunity that have hitherto remained closed to the efforts aimed at the codification of spoken languages.

The reductionist approach of Onwu orthography is carried out with the unquestioned assumption that Latin alphabets are both necessary and sufficient for the description of the inner workings of the Igbo language and its many dialects⁷; this has resulted in a phenomenon that can be described as a pervasively blind exercise in Latinization. Another presumption is that Igbo-speaking peoples think using the same categories as the originators and users of the Latin alphabets. Such beliefs are difficult to justify either empirically or purely conceptually owing to the fact that an empirical investigation will require the individual debriefing of millions of Igbo people, while a purely conceptual investigation stands the risk of wallowing in speculation and possibly unfounded assumptions.

Besides, the adoption of these Latin scripts by dint of government fiat does not help in resolving the issue at hand, as the recourse to governmental authority increasingly embraces the weakness represented by the *ad verecundiam* fallacy. Since there is no necessary connection between the Igbo language and Latin alphabets (or any language for that matter), it can be extrapolated that “[Onwu orthographic] conception of language is deeply influenced by a long tradition of analyzing only written language, and that modern linguistic theory [...] approaches the structure of spoken language with a conceptual apparatus [a hermeneutical prejudice]” (Coulmas 13).

⁷ By ‘*dialect*’ is meant a variant of a given language that is distinguished from other variants of the same language by features of phonology, grammar, and vocabulary, and by its use by a group of speakers who are set off from others geographically or socially.

Going further, it can be seen that the use of Latin alphabets necessarily brings with it the inheritance of the problems associated with (and precipitated by) the use of Latin alphabets. One consequence is that the importation of foreign words into Igbo language must also entail the importation of the historical and cultural baggage that stands behind such words. This is in agreement with a coherentist epistemology, because the search for the meaning of an imported word necessarily leads to the examination of the baggage that accompanies the foreign word. A cursory look at an English dictionary will reveal, for example, that the definitions of words are circular in nature; meaning that word Z is defined using words P and Q. Therefore, importing word Z into the Igbo language will somehow entail the indirect importation of words P and Q and so on.

Now, such circularly-defined baggage will typically be found to be foreign to Igbo land, translating to the challenge of unpacking this foreign baggage using peculiarly Igbo categories. Failure to do so will continue to present problems to the exercise of comprehensive cross-linguistic translation. This is not a new problem in philosophy, as it resembles the kind of puzzle described by Quine's thesis⁸. According to Quine's thesis, Onwu orthography silently presumes that "each statement [composed of Latin alphabets], taken in isolation from its fellows, can admit of confirmation or infirmation at all" (Quine 41). The implication is this: given any word in Igbo language, the full meaning of this word, as much as possible, depends upon ideas and concepts located within the Igbo world view. If there is a need to borrow ideas and concepts from a foreign culture, such imported ideas and concepts should be expressible in native terms, where and if possible. Now, I foresee a possible critique of efforts to express imported ideas in native terms; a critique that might accuse such efforts of fomenting an extreme form of cultural isolationism. My response to this critique is to accuse it of embracing an insufficient phenomenology of culture. In other

⁸ This thesis holds that it is impossible to critically examine a scientific hypothesis in isolation, because an empirical test of the hypothesis necessarily includes one or more auxiliary assumptions. See (Quine 42).

words, such a critique arises from an epistemic attitude that quickly settles for a foundationalism which is typically too eager to stop raising relevant questions.

Also, this Latinization exercise did not take into adequate consideration the fact that Igbo-speaking peoples had been thinking in symbols that are not necessarily Latin alphabets, or symbols that can always be effectively and efficiently reduced to Latin alphabets. Many questions arise from this point. For instance, *has the Latinization led to a frozen Igbo vocabulary?* New words and concepts that need to be translated into Igbo language must pass through the chambers of the European linguistic apparati, even though such apparati were not articulated with the prejudices of the Igbo socio-linguistic milieu in mind.

In a like manner, it can be argued that Onwu orthography has “stripped [Igbo language] of [its] historical dimension” (Coulmas 10). In order not to do a terrible disservice, any articulation of Igbo orthography must be inclusive of the worldview of the Igbo, together with their history and peculiar circumstances. Of particular relevance is that of the existence of many dialects of Igbo. It is estimated that there are about twenty Igbo dialects in existence. Onwu orthography, for instance, does not cater for the phenomenon of nasalization⁹ and aspiration¹⁰ of vowels in several of the dialects. Now, *which dialect in particular was standardized by Onwu orthography?* As an example, the word for ‘wine’ is written and pronounced /mmanya/ using the Onwu script. However the Owerri¹¹ dialect refers to ‘wine’ as /mii/, the whole word being nasalized. Further, the pronunciation /mii/ signifies something other than ‘wine’ to many non-speakers of the Owerri dialect; in fact it may refer to the verb ‘to sink’. Many such examples abound.

⁹ Producing a vowel by allowing air to escape through the nose and the mouth.

¹⁰ Producing a sound by releasing a strong wave of air.

¹¹ Owerri is a large section of Enugu state in southeastern Nigeria.

Onwu orthography has systematically left out an entire realm of symbols. At the most fundamental level, it can be critiqued as being an attempt to articulate a narrow Igbo vocabulary using Latin alphabets. Its focus on linguistic reductionism has brought about a symbolic blindness, especially as it is applied to a group of people who, from the look of things, continue to communicate non-alphabeticly. Onwu orthography fails to realize that the art of alphabetic writing is “not an end in itself and therefore not the fundamental object of hermeneutical effort” (Gadamer 395). By not recognizing its own strong alphabetic bias, the Onwu scripting system has orthographically alienated many of the people that it sought to empower.

The problem remains that choosing to Latinize one Igbo dialect while systematically excluding the others also becomes disrespectful and almost oppressive of the *daseins* that are not in full control of their own *thrownness*. This issue was also at the heart of the great orthographic controversy. Achebe, as quoted in Emenanjo (1995), argued that “we must free our writers to write in whatever dialect they know and speak. Children in schools, in particular, must be encouraged to write in the [Igbo] dialect they speak” (Emenanjo 215). My arguments are in line with Achebe’s views, though I propose a methodical management of the orthographic chaos that might precipitate as a result.

Going further, when faced with dense ideas, languages like English run to Greek or some other extinct language to formulate a new word. On the other hand, when the Igbo language is faced with new and complex ideas, it has nowhere to run to. Instead, it resorts to describing them with a reductionist-inspired description. Such a description, typically long and convoluted, makes it hard to sustain a written script that efficiently handles complicated ideas; a certain lack of brevity and aptness beclouds the Latinized Igbo orthography. I have chosen to label this as a form of translation fatigue that is present in Igbo writing as informed by Onwu orthography. This point is pertinent, given that Igbo language must now operate in

a global village animated by the information age, constantly generating new buzzwords and engaging ever more complicated ideas.

Given the ubiquity of ever more complicated contemporary ideas, the questions must be raised: can ideograms preserve more meaning in the orthographic engagement of new ideas? A case that comes to mind is taken from the troubled past of humanity. If an English speaker pays attention to his or her feelings when a swastika is described as “a cross with arms of equal length, each arm having a continuation at right-angles and all four continuations extending either clockwise or counterclockwise” (“Swastika”), and if the same English speaker beholds a picture of a swastika, the feelings evoked will tend to be markedly different. It is this difference-in-interior meaning that was lost when Onwu orthography sought to apply an all-pervading linguistic reductionism to Igbo orthography. It can be argued that a swastika is not part of the corpus of *nsibidi* ideograms, but a similar comparison can be made, because the phonetic decomposition of an *nsibidi* symbol never really conveys the same meaning as the original (non-alphabetic) symbol in itself.

The challenge remains that Igbo orthography needs to be updated in such a way that “the thoughts of the reader are stimulated and held in productive movement” (Gadamer 394). A great deal of meaning, therefore, stands to become lost in presuming that *nsibidi* symbols can be Latinized merely with a string of alphabetic descriptions. In this matter, the whole is greater than the breakdown of its parts. I shall dwell upon this whole-part dynamic in chapter three.

A certain loss of meaning occurs in the movement from thought to speech; and further from speech to writing. One problem that persists arises from the fact that:

All writing is a kind of alienated speech, and its signs need to be transformed back into speech and meaning. Because the meaning has undergone a kind of

self-alienation through being written down, this transformation back is the real hermeneutical task (Gadamer 394).

To address this loss of meaning, the arguments presented in this thesis proceed with the objective of “[emancipating] graphemics¹² [as manifested in the contemporary codification of southeastern Nigerian languages] from phonology” (Baroni 127). Yet another grand objective is the development of a philosophical framework that will move beyond the present state of affairs in which the Onwu orthographic system continues to remain “a language for describing sound-patterns”(Wittgenstein 3).

1.3 Conclusion

On a reflexive note, this thesis intends to critique the Latinization of Igbo orthography, but this critique is articulated using English alphabets. To address this critique, I respond by maintaining that English alphabets are used as a meta-language with which to express my thoughts on this matter. It is my hope that the meta-language will be sufficient for outlining the foundations that are necessary for the expanded orthography of a non-European language. It is also my hope that conceptual progress will be made at the end of this exercise.

Finally, each of the arguments presented in the preceding sections can be equally applied, after adequate modifications are made, to all the languages in use in contemporary southeastern Nigeria, with special focus on those groups that have historical connections to the *nsibidi*. Southeastern Nigeria is highly multi-lingual, and the multi-lingual language game that is at the heart of language orthography is the focus of the next chapter.

¹² Graphemics (or graphematics) is the linguistic study of writing systems and their basic components.

Chapter Two: Investigating Semantic Efficiency in Multi-Lingual Language Games

2.0 Introduction

In chapter one I examined literature (academic and non-academic) dealing with both the *nsibidi* ideograms and the Latinization of the Igbo language. My arguments in that chapter revealed a certain loss of meaning incurred by the reductionist approach of Latinization. In this chapter I further investigate the implications of the Latinization of the Igbo alphabet, this time bearing in mind that the Igbo language operates within the inter-ethnic, multi-cultural dynamics of the area that is popularly described as southeastern Nigeria, an area that is also populated by other language groups.

The structure of this chapter is as follows. First I explicate ‘*semantic efficiency*’. Second, I present the socio-linguistic context of southeastern Nigeria, dwelling upon its implications for the use of any form of language. Third, I construct an analytic model of multi-lingual language games by using a combination of probability and game theory. Fourth, I apply this analytic model to the context of southeastern Nigeria in which all the constituent languages have been duly Latinized. This application will enable the analytic appraisal of the concept of semantic efficiency. Fifth, I contend that the expansion of southeastern language orthography to include *nsibidi* symbols can analytically be shown to improve semantic efficiency to a high degree.

2.1 The Idea of ‘*Semantic Efficiency*’

Both spoken language and written language are ultimately expressions of human thought processes. Some scholars argue that a hierarchy can be conceived which puts thoughts first, speech second and writing third. Coulmas, for instance, maintains that “[...] things exist. You think about them, then you speak, then you write. The phenomenal world precedes cognition which precedes language which in turn precedes literacy” (Coulmas 3). Whatever be the case, any form of linguistic communication involves at least two individuals,

an originator and a *receiver*. The originator encapsulates his or her thought in language (spoken or written) while the receiver hermeneutically interprets the encapsulated thought. The focus of this thesis is on written communication and the hermeneutic search for orthographic meaning.

Now, the *effectiveness* of such communication is deemed to be high when the encapsulated thought of the *originator* is perfectly uncovered by the hermeneutical exercise of the *receiver*. I will henceforth refer to this effectiveness-in-communication as the ‘*semantic efficiency*’ of such a communicative exercise. In other words, the term *semantic efficiency* aims at discovering how much of the sender’s meaning is transmitted to the receiver via a written exercise in communication. This will imply that if the receiver totally misses the encapsulated thought of the originator, such an exercise in communication will be said to have a very low semantic efficiency. On the other hand, semantic efficiency increases whenever the receiver’s interpretation comes close to uncovering the originator’s encapsulated thoughts or ideas. Since it is a measure of effectiveness, semantic efficiency will remain a dimensionless scalar quantity.

One challenge that must be broached here is the acknowledgement of the fact that the receiver’s meaning is radically subjective and will continue to be beyond the reach of any external exercise of analysis and determination. This is owing to the challenge that any analysis of the objective event of the receiver’s perusal (in order to be more comprehensive) needs to be augmented by the psycho-logical investigation of subjective events taking place in the mind of the receiver. A response to this is first to admit the inscrutability of this radical subjectivity, then to examine *external conditions* that might create an enabling environment for the optimization and maximization of the transfer of meaning from the sender to the receiver by way of a written script. The study of such external conditions must borrow ideas from probabilistic thinking. This means that the analysis of semantic efficiency can safely

divert its attention to the quest for the *optimization of the probability of meaning-transfer*. This quest can reasonably be made within the bounds of human reason and sensory limitations. Due to the fact that the semantic efficiency depends heavily on the choice of spoken or written language used to encapsulate thought, it immediately becomes clear that semantic efficiency can be affected immensely by the contents of the linguistic medium of communication. Meaning is precipitated by mental apparati that are essentially in process. It follows that orthographic semantic efficiency results from the articulation of meaning that is in process. Bearing this in mind, I proceed to describe the linguistic context as it exists in southeastern Nigeria.

2.2 Multi-Lingual Language Games in Southeastern Nigeria

Wittgenstein's' ruminations upon the use of language in human societies led him to coin the phrase *language-game*, by which he signified "[all human activities] consisting of language and the actions into which it is woven" (Wittgenstein 5). In consonance with this notion that humans communicate by engaging in language-games, the context of southeastern Nigeria can be described as being a massive, multi-lingual, perpetual language-game engaged in by about forty-five million people. The figure below contains a linguistic map of this region:



Figure 2: Linguistic map of southeastern Nigeria.

(Source: "Linguistic Groups". <http://www.learnnc.org/lp/multimedia/8820>. Accessed 25 August 2014)

While this map depicts the present-day state of affairs, many historical sources also reveal that a similar state of affairs existed many hundreds of years ago. For instance, in a 1906 publication, a British army officer who spent ten years in southeastern Nigeria noted that:

It will be absolutely impossible for me [to classify the principal tribes of southeastern Nigeria] . . . We have the Efik [...], the Kwa, [...] the Ekoi, [...] the Uwet, the Okoyon, and Umon tribes [...], the various sections of the Igbo race, the chief of whom are the Aro (Leonard 17)

From this map, and from other historical sources, it can be deduced that the Igbo sub-group does not exist in a linguistic and cultural vacuum, but has co-existed for centuries with other ethnic groups. I will concentrate on three of these ethnic groups: the Efik, the Ibibio, and the Anang. Each ethnic group represented on this map speaks a completely different language (which is further composed of various dialects). Consequently, this sub-region of Nigeria is comparable to an extended tower of Babel. Furthermore, within the Igbo sub-group, there are as many as twenty different dialects, although the level of inter-dialectic understanding is quite high.

It should also be borne in mind that serious attempts have been made by missionaries and colonial authorities to Latinize all of the languages in this region. This means that, at present, all contemporary orthography in southeastern Nigeria is based upon the set of Latin alphabets. For example, "the [Efik] alphabet consists of twenty [Latin] letters, or including various powers of the vowels [...], of twenty-eight letters" (Goldie 4).

The scope of the language game in this thesis is restricted to orthographic communication. This reduction in scope will imply that the speaker-hearer dynamic already introduced can be conveniently reduced to a writer-reader dynamic. In other words, "linguistic behavior can be viewed as a series of language games, [...]. In each game a

number of participants [at least a writer and reader] come together in a shared context” (Steels 321).

Returning now to the idea of *semantic efficiency* as presented in section 2.1 (and looking back into pre-colonial southeastern Nigeria), philosophical questions can be raised as to how these four ethnic groups communicated within and between each other, given that there was no Latin script to fall back upon. Indeed, Macgregor made mention of the use, in some communities, of *nsibidi* signs that “far more powerful than any constable” (212). It is against the background of orthographic communication in the absence of a Latinized alphabet that the usefulness of ideograms can be better appreciated, for “*nsibidi* could [...] transcend potentially divisive ethnic and linguistic boundaries” (Slogar 19). I infer (from the ability of *nsibidi* symbols to transcend ethnic boundaries) that the assimilation of the symbols into the already Latinized orthographies might be able to re-create a certain level of inter-ethnic cohesiveness that might have declined due to the proliferation of Latin-based orthographies. This is not a wishful nostalgia for a possibly utopic past, but a quest for a more comprehensive engagement of cultures. Slogar further argues that, within southeastern Nigeria, “*nsibidi* should not be likened to the contents of a printed book passed from hand to hand, but viewed as a pool of symbols having different meanings and different contexts of use in time and space” (Slogar 19).

Orthographic semantic efficiency, further, must be recognized as being a composed reality. Insofar as realms of meaning can be isolated in any form of orthographic communication, then allowance must be made for the evaluation of semantic efficiency within each realm of meaning. Paraphrasing Steels, I concur that:

The [orthographic language] game has many dimensions: There is a communicative dimension, for example, the [writer] wants to draw attention to

a particular object. There is a linguistic dimension because [writer] and [reader] negotiate about which expressions should be part of their language. There is a social relation between the agents that is implied and may be reinforced through language (Steels 321).

Another interesting reflection arising from this scenario is the interwoven relationship between religion, government and orthography. While Hobbes sought to found a society on the basis of an all-powerful *Leviathan*, the question arises as to how any powerful *Leviathan* could have emerged from the complicated lingual dynamics of pre-colonial southeastern Nigeria. One big puzzle that such a *Leviathan* must deal with is: *in what language shall I address the people whom I govern?* I daresay that the more linguistically diverse a community is, the less the probability that social cohesiveness can be realized.

Centralized governmental constructs always try to contrive a level of social cohesion among the governed. It comes as no surprise, therefore, that such a linguistically complex region had a highly decentralized system of government, alongside the various manifestations of the *Ekpe* secret society, a society which sought to exercise imperial power by appealing to metaphysical entities. I argue that the various manifestations of *Ekpe* managed to implement only certain forms of sub-group cohesiveness.

2.3 Probabilistic Model of Semantic -Transfer in Orthographic Communication

The objective of all orthographic communication is the transfer of meaning (semantic-transfer) from a writer to a reader, or a set of readers (all done within the constraint of the radical privacy of meaning). With this last point in mind, I will now proceed to develop a probabilistic model of orthographic communication that is an extension of the ideas developed by Steels, who maintained that “a conversation involves two participants: a speaker [or writer] and a hearer [or reader]” (Steels 324). Borrowing Steels’ notation, I shall

denote the writer using the symbol ‘s’ and the reader using the symbol ‘h’. Steels further argued that:

Language is an autonomous adaptive system that forms itself in a self-organizing cultural process.[...] A language is viewed as an adaptive system in the sense that it has to allow its users to express an open-ended, ever growing or changing set of meanings with an open-ended but finite set of building blocks and combinations of building blocks (Steels 319).

This model is philosophically justifiable, given its correspondence with the observation that a good part of modern literature on human communication systems points to their profound complexity and mysteriousness. The model will enable a disciplined confrontation of linguistic complexity and a demythologized view of the linguistic mysteriousness. Steels’ position resembles that of Heidegger as it applies to the philosophical problems about Being. For Heidegger, it makes no sense to go on ruminating about *Being* without first exhaustively ruminating about the “*dasein*” (182) from whom the question of *Being* arises in the first place. Similarly, for Steels, it is meaningless to go on analyzing language in the abstract without peering deeply into the modus operandi of the humans that use language in widely varying contexts, for "language is a[communally] shared set of conventions for mapping meanings to utterances [or writings]" (319).

Given these considerations, the following terms can be isolated as hermeneutic and linguistic *fore-havings* that both the writer and the reader bring to the orthographic conversation:

{ **L**^s } = the set of symbols (written or unwritten) that comprise the writer’s language;

{ **M**^s } = the set of meanings existing in the mind of the writer, associated with each symbol;

The writer's complete language is thus a set comprising the mapping ($\{ \mathbf{L}^s \} \times \{ \mathbf{M}^s \}$) which is not necessarily a one-to-one mapping.

$\{ \mathbf{L}^h \}$ = the set of symbols (written or unwritten) that comprise the reader's language;

$\{ \mathbf{M}^h \}$ = the set of meanings existing in the mind of the reader, associated with each symbol;

The reader's complete language is thus another set comprising the mapping ($\{ \mathbf{L}^h \} \times \{ \mathbf{M}^h \}$) which is not necessarily a one-to-one mapping. With these fore-havings in mind, I note here that, in order for the analysis to proceed, I have frozen other variables that might be at play in the orthographic exercise, even though their effects can be subsumed within the effects of other more dominant variables. I emphasize only the context of this exercise, in other words, the linguistic pragmatics within which the reader and the writer operate.

Every attempt at orthographic communication can be modeled as a series of probabilistic events, and matters of linguistic and philosophical interest begin to arise in the analysis of these events. In an orthographic exercise, a writer attempts to make a given symbol, \mathbf{L}_i^s correspond to a given meaning, \mathbf{M}_j^s . The correspondence here mentioned can be modeled with the logical bi-conditional operator, such that the writer can be said to intend the following relation to hold:

$$\mathbf{L}_i^s \leftrightarrow \mathbf{M}_j^s \quad \dots (1)^{13}$$

Now, since there is no necessary deterministic connection between the symbol \mathbf{L}_i^s and the meaning \mathbf{M}_j^s , it can be argued that the writer's attempt at enforcing correspondence will be successful at a probabilistic level. Further, taking $\mathbf{P}()$ as the probability operator (which takes values from the interval $[0,1]$), the writer's effort can be stated in probabilistic terms:

¹³ \leftrightarrow is the logical biconditional operator. The subscripts i and j represents individual elements taken from the sets $\{ \mathbf{L}^s \}$ and $\{ \mathbf{M}^s \}$ respectively.

$$P (L_i^s \leftrightarrow M_j^s) \quad \dots (2)$$

The reader, on the other hand, attempts to conjure a correspondence between the writer's given symbol, L_i^s , and one (or more) elements taken from his (the reader's) own meaning set, say M_k^h . This hermeneutical exercise of the reader can be broken down into two steps. First, the reader tries to locate the writer's given symbol within his (the reader's) own set of symbols:

$$L_i^s \in \{ L^h \} \quad \dots (4)$$

Second, if the membership relation in (4) holds, the reader attempts to conjure yet another correspondence between the writer's given symbol and his (the reader's) own set of meanings. The mechanics involved in these two steps can be formalized as the following probabilistic exercise:

$$P ([L_i^s \in \{ L^h \}] \& [L_i^s \leftrightarrow M_k^h]) \quad \dots (5)^{14}$$

Since the writer's orthographic exercise and the reader's interpretive exercise occur independently of each other (for indeed the reader may choose not to engage in the exercise of interpreting the symbols given by the writer), it becomes possible to combine relations (2) and (5) in order to evaluate the probability of both events occurring as:

$$P(\text{Writing \& Reading}) = P (L_i^s \leftrightarrow M_j^s) * P ([L_i^s \in \{ L^h \}] \& [L_i^s \leftrightarrow M_k^h]) \quad \dots (6)^{15}$$

Relation (6) is able to account for the use of a single symbol, and it can be interpreted as probability of the occurrence of efficient semantic-transfer. In reality, typical exercises in orthographic communication involve the use of a myriad of symbols. Consequently, (6) has to be modified as a summation of terms, in order for it to account for a large number of

¹⁴ The subscript k is used to represent an individual element taken from the set $\{ M^h \}$. '&' is the logical conjunction operator.

¹⁵ * is the symbol for multiplication.

symbols used in written scripts. This modification gives rise to the relation that indicates the efficiency of the writer's script, by summing individual probability values:

$$\text{Semantic Efficiency} = \sum_i \sum_j \sum_k P(L_i^s \leftrightarrow M_j^s) * P([L_i^s \in \{L^h\}] \& [L_i^s \leftrightarrow M_k^h]) \dots (7)^{16}$$

Equation (7) helps to determine the summation of the probabilities of effective transfer of meaning. It is now possible to talk about a script that is semantically efficient: this will be the script that ensures a maximal (or at best, an optimal) value for equation (7).

At this juncture, I will return to the discourse (raised in Section 1.2.1) regarding the controversy surrounding the Onwu system of orthography. The problem at the root of the controversy becomes clearer when it is examined side-by-side with the relation in (7). It can be said that this controversy is rooted in a certain inefficiency of the Onwu script. This inefficiency is hinged upon the term $[L_i^s \in \{L^h\}]$ which is a component of relation (7). The semantic efficiency of a script begins to degrade whenever the reader is unable to locate the writer's symbols within his (the reader's) own set of symbols. In symbolic terms, the value of script efficiency degrades whenever the relation below begins to proliferate:

$$\exists i (L_i^s \in \{L^h\}) = \text{FALSE} \dots (8)^{17}$$

Of course, the worst case of semantic inefficiency occurs when:

$$\forall i (L_i^s \in \{L^h\}) = \text{FALSE} \dots (9)^{18}$$

If the symbols of the Onwu orthographic system are taken as members of the set $\{L^h\}$, then it becomes clearer why the 20 dialects of Igbo language cannot all be efficiently transcribed: the membership operation $(L_i^s \in \{L^h\})$ fails in several instances as one moves from one dialect to another. Relations (8) and (9) are simply analytic models that help in rendering an

¹⁶ Σ represents summation over the elements of the sets involved.

¹⁷ \exists is the logical existential operator.

¹⁸ \forall is the universal quantification operator.

account of this phenomenon. A critique of the expanded orthography might argue that persistent use of the Onwu orthographic system could indeed lead to an increase in the efficiency of the script. I concur that this is a possibility, but it is a possibility that begins to fade when it is realized that the value of a script's efficiency can plateau at a given value, so that the script reverts to being perpetually inefficient as language evolves in human society. It is a trivial affair to imagine decreasing levels of efficiency when the orthographic exercise involves Igbo speakers attempting to communicate with non-Igbo speakers in southeastern Nigeria, and vice versa.

2.4 Modal Rendering of the Probabilistic Model

Given that the semantic efficiency of a given script is hinged upon probabilistic occurrences, I show in this section that the methods of modal logic can equally be used in the analysis of the orthographic transfer of meaning. I restrict this modal rendering to System K.¹⁹

If the probability operator, $\mathbf{P}()$, is replaced with the modal possibility operator, \diamond , then the relation in (6) can be re-written as:

$$\diamond (\text{Writing \& Reading}) = \diamond (L_i^s \leftrightarrow M_j^s) \ \& \ \diamond ([L_i^s \in \{L^h\}] \ \& \ [L_i^s \leftrightarrow M_k^h]) \quad \dots \ (10)$$

Relation (10) can be seen as a *meta-argument* (or an ever-present hermeneutical claim) for all attempts at orthographic communication. In other words, every exercise of orthography silently involves a presumption that the reader can easily stumble upon the writer's meaning, as encoded in the script. A modal argument thus arises which is of the form:

$$\diamond (L_i^s \leftrightarrow M_j^s) \ \& \ \diamond ([L_i^s \in \{L^h\}] \ \& \ [L_i^s \leftrightarrow M_k^h]) \quad \dots \ (11)$$

I now proceed to showcase the radical instability of any form of orthography by analyzing the truth-tree for relation (11). This truth-tree is depicted in the figure below.

¹⁹ Analysis in other modal systems will lead to similar outcomes.

$$\neg [\diamond (L_i^s \leftrightarrow M_j^s) \& \diamond ([L_i^s \in \{L^h\}] \& [L_i^s \leftrightarrow M_k^h])]]$$

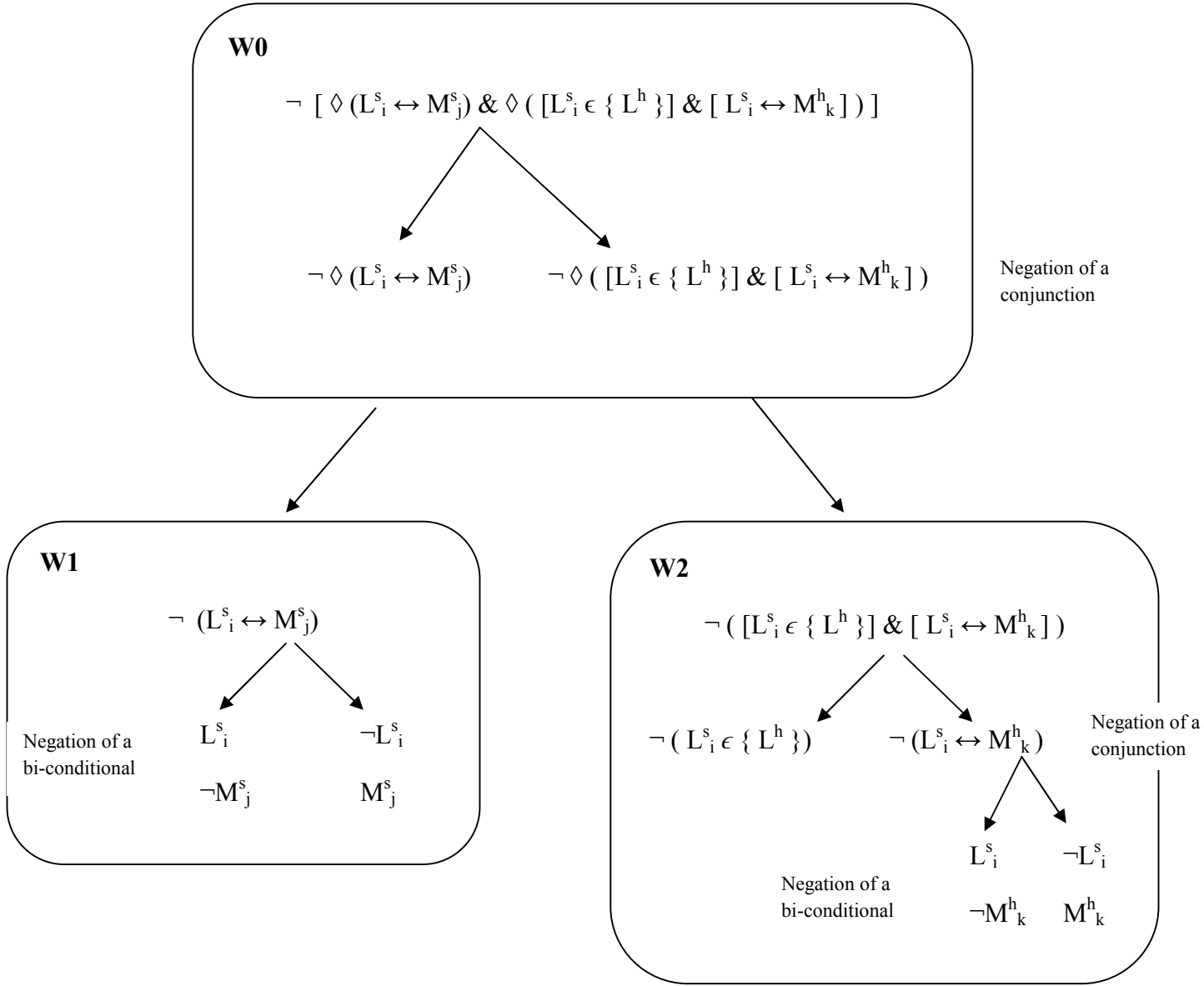


Figure 3: Truth-tree analysis of the orthographic meta-proposition

It is noteworthy that the truth-tree analysis of the meta-proposition eventually leads into three possible worlds: **w0**, **w1** and **w2**. The meta-proposition is radically invalid; this is supported by the observation that the truth-tree remains open after decomposition within each possible world. This radical invalidity brings to light the many unresolved controversies that remain relevant within mainstream ruminations upon textual hermeneutics. In the lower

branches of this tree, it can be seen that the possible world **w1** contains the writer's orthographic struggle with the attempt to link the signifier L^s_i with the signified M^s_j , a struggle fraught with logical instability. Indeed, the struggle within the writer's world betrays the "ancient metaphysical lament that to describe is necessarily to falsify" (Black 231). On the lower-right, the possible world **w2** models the activity of the reader as she attempts to make sense of the writer's significations; an effort again fraught with logical instability.

Two challenges which are to be addressed by the project of the optimization of semantic efficiency are thus identifiable. The first is that of minimizing the logical instability present in **w1** and **w2**. The second arises from treating **w0**, **w1** and **w2** as ontological entities: is it possible to minimize the semantic distance between these three possible worlds? I contend that the descriptive development of any orthographic system must sooner or later come up against these two challenges.

2.5 Lowered Semantic-Transfer: Pathway to the Evolution of Language

Inasmuch as the main aim of thesis is the optimization of semantic efficiency, I intend to show, in this section, that low levels of semantic efficiency have a role to play in the evolution and growth of human language, and to the general increase in orthographic semantic efficiency. The analysis in this section remains analytic and linked to the analysis in Section 2.4. The optimization project, consequently, must be ready to take advantage of low levels of semantic efficiency and to turn an apparent orthographic weakness into strength.

As already noted, in engaging an actual orthographic communicative exercise, both the writer and the reader operate by making use of members of the sets $\{L^s\}$ and $\{L^h\}$ defined in Section 2.4. Within any given exercise in orthographic communication, these members can be modeled as follows:

m^s = "the meaning that the writer [intends to communicate]" (Steels 324);

\mathbf{m}^h = “the reader’s anticipated meaning” (324), this includes and represents the Gadamerian hermeneutical prejudice with which the reader peruses the writings of the writer.

\mathbf{m}^c = “the meaning identified [in actuality] by the reader at the end of the writer’s [orthographic] communication” (325).

Now, it should be borne in mind that the anticipated meaning, \mathbf{m}^h , will always be a member of the reader’s larger meaning-set $\{\mathbf{M}^h\}$. In symbolic, set theoretic, terms: $\mathbf{m}^h \in \{\mathbf{M}^h\}$.

On the other hand, the *meaning-picked-up* by the reader (\mathbf{m}^c) will not always be a member of his or her larger meaning-set $\{\mathbf{M}^h\}$ though it may be added to this meaning-set whenever communication is successful. I will return to this point in a later section. An analysis of the terms \mathbf{m}^s , \mathbf{m}^h and \mathbf{m}^c can be shown to enable the evaluation of the effectiveness of the communication between the writer and the reader. This analysis leads me back to the concept (introduced in section 2.1) labeled the *semantic efficiency* of the writer’s projected thought and the reader’s interpretation of the writer’s projected thought. Now, the communication between the writer and the reader can be said to be successful when the meaning intended by the writer is effectively picked up by the reader. That is to say, when the following relation holds:

$$\mathbf{m}^s \approx \mathbf{m}^c \quad \dots (12)^{20}$$

Relation (12) can be seen as an analytic rendering of an event in which the same symbol means the same thing to two different people, a sort of meaning-replication event. In other words, the communication between the writer and the reader is successful whenever a *meaning-replication event* occurs between the writer and the reader. However, realizing inter-subjective meaning-replication in the face of the radically personal origins of meaning

²⁰ \approx is the approximation symbol.

remains a challenge for semantic transfer. Consequently, to buttress the fact that the transfer of meaning in human communications is hardly ever a crisply segmented process, I contend that the identity denoted in (1) can and should be logically fuzzified. Fuzzification takes into account the fact that any form of linguistic communication does not always function by inheriting Aristotelian bivalent logical terms. Linguistic communication between humans is a radical process of searching for meaning under gross and deeply pervasive uncertainty. I contend that any modeling of this process must take such uncertainty into account. Indeed, I further contend that approaching inter-human communication with the prejudice of Aristotelian logic is grossly inadequate, incongruent and rather disrespectful of the notorious complexity of the human mind-brain complex.

I will account for this uncertainty by creating a *semantic efficiency operator* (say E) which can provide a description of the level of communication that has transpired in any given speaker-hearer interaction. The return-value of E, however, will not be a taken from the crisp true-false dichotomy but rather will be taken from an expanded range of values between logical truth and logical falsity. In other words, this expanded range of values will contain “semantic set for expressing [different levels of semantic efficiency]. [We] choose the following set of terms {NNN, LLL, [LLM], LMM, MMM, [MMH], MHH, HHH, VHH} where NNN = *None* , LLL= *Low* , LMM= *Low_ to_Medium*, MMM= *Medium*, MHH= *Medium_ to_High*, HHH= *High*, and VHH=*Very_High*” (Arfi 44) .

This operator will take two arguments, and I present its signature use as:

$$\textit{Semantic Efficiency} = E(m^s, m^c) \dots (13)$$

The values of the identity in (2) are taken from the finite set: {NNN, LLL, LLM, LMM, MMM, MMH, MHH, HHH, VHH}.

Furthermore, because \mathbf{m}^s and \mathbf{m}^c are co-dependent on other sets, the semantic efficiency operator can also be modeled as a four-argument operator:

$$E(\mathbf{m}^s, \mathbf{m}^c) = E(\{\mathbf{L}^s\}, \{\mathbf{M}^s\}, \{\mathbf{L}^h\}, \{\mathbf{M}^h\}) \dots (14)$$

Once again, the values of the identity in (3) are taken from the finite set: {NNN, LLL, LMM, MMM, MHH, HHH, VHH}.

In the idealized case of communication between writer and reader:

$$E(\mathbf{m}^s, \mathbf{m}^c) = \text{VHH} \quad \dots (15)$$

I will end this sub-section by focusing on the parameter modeled as \mathbf{m}^c which is used to signify “the meaning identified by the [reader] at the end of the [writer’s] communication” (Steels 325). Interestingly, it can be argued that upon this manipulation of this parameter lies the evolution of language between the speaker and the hearer.

How does the evolution of language occur, given this game-theoretic dynamic? First, the *meaning-identified* by the reader, \mathbf{m}^c , will not always be a member of the reader’s own meaning-set, $\{\mathbf{M}^h\}$. This non-belongingness is crucial to the growth of the reader’s meaning-set, because \mathbf{m}^c is immediately added to $\{\mathbf{M}^h\}$ whenever the reader understands what the writer intended to put down in written script.

A similar dynamic applies when the positions of the writer and the reader are swapped. This is in tune with ideas expressed by Steels:

Language spontaneously becomes more complex. The development and evolution of language toward greater complexity is primarily driven by the need to optimize communicative success and handle the very strong constraints that hold for open-ended real-world languages, namely limited

time to communicate, limited time to process the utterance, weak and error-prone acoustic transmission, limited feedback about success, constraints of the vocal apparatus, and so forth (Steels 319).

Expanding the language game now to include the over forty million people that populate southeastern Nigeria, it is possible to ruminate on the large-scale semantic efficiency of public writing. Such a large scale semantic efficiency can be examined by investigating the number of southeastern Heideggerian *daseins* that derive the same meaning (or closely-related, fuzzified meaning) from observing the same set of orthographic symbols. Once again, since meaning is radically subjective, such an exercise can be carried out by examining (and improving) the external factors that may contribute to the optimal articulation of meaning. The analysis must rely on probabilistic approaches and also upon modal categories of analytical thought.

To conclude, it is clear that the reflections in this sub-section can be utilized to strengthen the argument for orthographic expansion. The main justification being that the very existence of orthographic controversies is, *a fortiori*, both an indicator of the logical fuzziness upon which orthography rests and an opportunity for the growth and development of language. As a result, I push for the careful management of the temptation to fall into still more rigid orthographic prescriptivism.

2.6 Game-Theoretic Dynamics *vis-a-vis* the Latinization of Southeastern Languages

In this section I examine the factors that contribute to the semantic efficiency (or lack thereof) during the course of orthographic communication among Anang, Efik, Ibibio and Igbo peoples. To make this possible, I invoke the model developed in Section 2.3 and re-work it to account for the rather complicated state of linguistic affairs among these four ethnic groups. Given that there are four ethnic groups in this analysis, it is therefore possible to exhaust all the possible coalitions by stating that there will be sixteen possible linguistic

coalitions between these ethnic groups, assuming that communication takes place in pairs of ethnic groups. The pair-wise treatment of the orthographic exercise helps in the simplification and examination of the model under consideration.

I will now concentrate on a scenario of orthographic communication between two *daseins* taken randomly from any two of these four distinct ethnic groups. If the *efficient* transfer of meaning is taken as the goal of such a communication, then game theoretic pay-off matrix can be imagined, as displayed in Table 1. In this matrix, each *dasein* has the option of orthographically communicating via the use of Latin alphabets alone (as applied to his or her own language), *nsibidi* ideograms alone, or a combination of Latin alphabets (as applied to his or her own language) and *nsibidi* ideograms. Note that other orthographies can be contrived between *daseins* A and B, but I have chosen to restrict this analysis to Latin alphabets and *nsibidi* ideograms. In this analysis, the mapping ($\{ L^A \} \times \{ M^A \}$) is used to model the communicative apparatus of *dasein* A, while the mapping ($\{ L^B \} \times \{ M^B \}$) is used to model the communicative apparatus of *dasein* B.

		<i>Dasein A</i> ($\{ L^A \} \times \{ M^A \} $)		
		Latin Alphabets	<i>Nsibidi</i>	Latin Alphabets and <i>Nsibidi</i>
<i>Dasein B</i> ($\{ L^B \} \times \{ M^B \} $)	Latin Alphabets	E ₁₁	E ₁₂	E ₁₃
	<i>Nsibidi</i>	E ₂₁	E ₂₂	E ₂₃
	Latin Alphabets and <i>Nsibidi</i>	E ₃₁	E ₃₂	E ₃₃

Table 1: A 3x3 semantic pay-off matrix for orthographic communication

The elements of this semantic pay-off matrix can be taken to represent the semantic efficiency of the orthographic communicative exercise. In the next few paragraphs, I engage each element of this matrix with a view to uncovering its constituent semantic components. The pay-off function is arguably linked to the effectiveness of the communicative exercise between A and B. It is clear that the relation labeled (7), which is a summation of probability

figures, this time applied to the communicative apparatus of *daseins* A and B. Taking $P()$ as the probability operator, this pay-off function is stated as:

$$\text{Semantic Efficiency} = \sum_i \sum_j \sum_k P(L^A_i \leftrightarrow M^A_j) * P([L^A_i \in \{L^B\}] \& [L^A_i \leftrightarrow M^B_k]).$$

.. (16)

In the following paragraphs I perform a term-by-term analysis of the elements of the pay-off matrix in Table 1.

The value of E_{11} depends on the effectiveness of linguistic translation in the communicative exercise modeled here. Besides, E_{11} must equally deal with the reality of having different dialects in the same language group. One challenge that rears its head here is that:

Having to rely on translation is tantamount to two people giving up their independent authority. Where a translation is necessary, the gap between the spirit of the original words and that of their reproduction must be taken into account. It is a gap that can never be completely closed (Gadamer 386).

In this scenario (where *daseins* A and B originate from very different ethnic groups, and communicate using Latin alphabets) the communication must face the problem of the cross-cultural and cross-lingual transmission of ideas and thoughts. In other words, ideas articulated in A's culture need to be orthographically expressed in B's culture and language, and vice versa. Now, the articulation of any idea is inevitably linked to the articulation of certain other supporting ideas, according to a coherence theory of truth and meaning. If, for instance an idea is articulated by the use of a set of symbols $\{L_a L_b L_c\}$, then it will usually be the case that a deeper exploration of the symbols $\{L_a L_b L_c\}$ will resort to articulating another set of ideas, say $\{L_d L_e L_f\}$, which in turn might be seen to depend upon $\{L_g L_h L_i\}$ and so on. This implies

that the originally articulated idea must be located within a possibly convoluted web of beliefs in worlds occupied by both *daseins* A and B. Sticky problems begin to arise when these networks of ideas are difficult to holistically translate from one *dasein*'s world to the other via the medium of written language. Depending upon an interpreter in this scenario is also problematic for the transmission of meaning, as Gadamer would say:

Having to depend on an interpreter's translation is an extreme case that doubles the hermeneutical process, namely the conversation: there is one conversation between the interpreter and the other, and a second conversation between the interpreter and oneself (Gadamer 387).

Within the same language group, this scenario also brings to light the existence of dialects and their effects upon written communication. A dialect is essentially a linguistic forehaving that must be dealt with by anyone engaging in the act of interpretation. If, for instance, *dasein* A speaks one dialect of Igbo, while *dasein* B speaks a different dialect, then there will be a number of words common to both dialects. Unfortunately, the words that are not shared by both dialects will negatively affect the transmission of meaning. Gadamer aptly described this scenario:

Nothing is more difficult than a dialog in two different languages in which one person speaks one and the other person the other, each understanding the other's language but not speaking it. [...] One of the languages always tries to establish itself over the other as the medium of understanding (Gadamer 386).

It must be concluded that the semantic efficiency of E_{11} will tend to be low because of the heavy reliance on translation that will be found to pervade the exercise. The reliance upon translation begs the question of understanding, for "to understand a foreign language means that we do not need to translate it into our own" (Gadamer 386). It can also be shown that

Latinization of orthography lies at the root of the attenuation of semantic efficiency in this scenario. For one, Latinization leads to disjoint sets: although languages share the same set of Latin alphabets, their individual words typically diverge and form disjoint sets. This disjointedness provides veritable ground for the loss of semantic efficiency and foments mutual orthographic alienation for both the writer and the reader, for Latinization creates unbridgeable islands of meaning.

E₁₂ depicts a scenario of near impossible transmission of meaning, for *dasein* A communicates solely with ideograms while *dasein* B communicates with a Latinized alphabet. Barring any additional aid to the communicative exercise, such a transaction is hermeneutically and semantically doomed *ab initio*.

E₁₃ represents the case where *dasein* A communicates with both Latin alphabets and also with ideograms, while *dasein* B communicates only with Latin alphabets. It is easy to imagine that *dasein* A will communicate a certain surplus of meaning which *dasein* B has no mechanism of grasping.

E₂₁ resembles **E₁₂** in terms of semantic efficiency, only that the roles of the *daseins* involved have been reversed.

E₂₂ represents a very pre-colonial case where both *daseins* communicate only with *nsibidi* ideograms. The selection of the realm of meaning of the ideograms (whether from the pedestrian realm or from the esoteric realm) will considerably affect the semantic efficiency in this scenario. The lack of phonemes in the ideograms will also mean that a realm of phonetic meaning is systematically ignored by such a communication, and thus one can judge the level of semantic efficiency in this case to be highly variable.

The scenario modeled by E_{23} has *dasein* A communicating with both Latin alphabets and *nsibidi* ideograms, while *dasein* B uses only *nsibidi* ideograms. Again a whole realm of phonemic meaning will be lost to *dasein* B and this will negatively affect the transmission of meaning.

E_{31} resembles a reversed case of E_{13} , with the commutative roles of the *daseins* reversed. The semantic efficiency here will tend to decrease also.

E_{32} resembles a reversed case of E_{23} , with the commutative roles of the *daseins* reversed. The semantic efficiency here will tend towards a low value.

E_{33} will appear to implement the case where semantic efficiency is optimized. This is due to the fact that the intersection of the language sets used by each *dasein* A and B will experience a peaking effect: Latin alphabets intersect and ideograms also intersect during the communication process. In set-theoretic notation:

$$[(\{L^A\} \times \{M^A\}) \cup (\{L^B\} \times \{M^B\})] \text{ is maximal} \quad \dots(17)$$

Further, there will be many values of 'j' for which

$$\exists j (L^A_j \in \{L^B\}) = \text{TRUE} \quad \dots (18)^{21}$$

The frequent satisfaction of relations (17) and (18) helps to facilitate conversation, thereby enabling the external conditions requisite for the optimal transmission of meaning. For instance, whatever meaning is not transmitted through Latinization can be recovered via the use of an ideogram. In what amounts to the same thing, whatever meaning that is lost in Latinization can be transmitted via the ideogram.

²¹ \exists is the logical existential operator. L^A_j refers to any member of the set $\{L^A\}$.

Now, the philosophical question arises: *when and where did A and B learn the meanings of the ideograms?* Rather than grapple with infinite regress here, I make do with the observed fact that both *daseins* have already been *thrown* into societies where these symbols have evolved out of the deep-seated human need to communicate. In these human societies, finite humans communicate about a finite world using finite means. The riddle of infinite regress thus becomes irrelevant to the orthographic problem that is to be examined in this case.

2.7 Is Optimal Semantic Efficiency Equivalent to the Nash Equilibrium Point?

Since I have ventured into the domain of game theory, I find it difficult to evade one of the most useful ideas that pervade the analysis of all types of games. Described as the ‘*Nash Equilibrium*’²², it is the point at which “no player [in the orthographic language game] can profitably [change his strategy], given the [strategies] of the other players” (Osborne and Rubinstein 15). Speaking about strategies, it is arguable that every controversy concerning orthography is resolvable into a disputation about the best orthographic strategy.

At the Nash equilibrium point, it follows that all the players in the orthographic language game see no need to marshal more symbols into their orthographic activities, given that each player has already dug deep into his symbolic reservoir. I conclude, therefore, that this Nash equilibrium point is indistinguishable from the point where relations (17) and (18) hold true. My arguments are applicable to ideal scenarios, but I can apply them to the reality of language use by holding that the more relations (17) and (18) is realized in practice, the closer the orthographic language game comes to the Nash equilibrium point. Both optimal semantic efficiency and Nash equilibrium become asymptotic points of the orthographic language game: they describe the limiting behavior of the expanded orthography whose

²² Named after the American game theorist John Nash (born June 13, 1928).

semantic efficiency is not only far greater in magnitude than that of the Onwu orthographic system, but also measurable using the pay-off function described in relation (16).

2.8 Conclusion

The investigations contained in this chapter have revealed the route by which an expansion of orthography will extend Igbo writing to include hitherto excluded realms of meaning. Also, this expansion has been shown to be able to heal the many rifts in southeastern language games and orthography, rifts that have been modeled in the sections above. The continued improvement of semantic efficiency will be a reward unto itself, for it will also provide the grounds for an accelerated and sustained evolution of linguistic and orthographic acumen. The arguments in the next chapter engage the philosophical machinery that will drive the movement for the assimilation of *nsibidi* ideograms.

Chapter Three: Philosophical Framework for an Expanded Orthography

3.0 Introduction

In section 2.4 of the previous chapter I showed that the conditions that maximize the semantic efficiency of an orthographic-communicative exercise between two *daseins* who speak markedly different languages will tend to an optimal value when both of them make use of a combination of Latin alphabets (or at least Latin-like alphabets) and ideograms. In this chapter I will pursue this idea further and present a conceptual framework for the orthographic combination of a set of Latin-derived alphabets and ideograms. This proposed expansion is coherent with the recommendations of several scholars, some of whom have argued, in recent times, that “suitable scripts should be provided for [...] African languages for their preservation and development” (Obidiebube 50) and that “borrowed scripts used for African languages should be adapted to suit the African languages” (50). This chapter includes a certain push to articulate a set of hermeneutical enabling biases that will aid the intellectual assimilation and pragmatic implementation of the expanded script.

The analysis of written language has been able to isolate a writing system (whether it exists in potentiality or actuality) which has been labeled a *semanto-phonetic* writing system. In such a system:

The symbols used [...] often represent both sound and meaning. As a result, these scripts generally include a large number of symbols: anything from several hundred to tens of thousands. In fact there is no theoretical upper limit to the number of symbols in some scripts (“Semano-Phonetic System”).

The expanded orthography argued for in this thesis is based on the modification and enhancement of a semanto-phonetic writing system.

Now, since my proposal is to combine both ideograms and alphabets derived from the Latin culture, the need arises to search for any historical antecedents to this endeavor. A historical antecedent that comes to mind here is the role that the Rosetta stone played in the academic attempts to decipher Egyptian hieroglyphs. The Rosetta stone is a granite tablet etched with an ordinance promulgated by King Ptolemy the fifth at Memphis, around the year 196 BCE. The ordinance was etched in three forms: the first form is in Ancient Egyptian hieroglyphs, the second form is in Demotic script, and the third form is in Ancient Greek. Since the same text is essentially translated into three languages, this stone tablet became the basis for the modern mapping and translation of the Egyptian hieroglyphs. I shall return to this stone, and the lessons learnt from its decoding, in a later section. The example of the Rosetta stone is a classic manifestation of the philosophical indeterminacy that is at the root of all orthographic enterprise. This philosophical indeterminacy, interestingly, opens the gates for further exploration and the solution of many orthographic hang-ups and puzzles, including the relatively new movement to assimilate *nsibidi* ideograms into southeastern language orthography.

The remainder of this chapter is organized as follows. First, I propose and discuss a high-level model for the expanded orthography. Second, I briefly reflect upon a thorny issue: whether there exists *a language of human thought*. Third, I engage the role of the ideas surrounding structuralism in the generation of ideograms, with a view to augmenting the prescriptivist-descriptivist orthographic tension. Fourth, I conduct an exercise in the phenomenology of *nsibidi* with the objective of demonstrating that the building blocks of a writing system can be construed as being a set of *glyphs*²³, a term that will henceforth be used to describe both alphabets and ideograms in this thesis. Fifth, I address eight foreseen conceptual bottlenecks.

²³ Within the context of orthography, a glyph is any symbol meant to represent a readable character for the purposes of writing, consequently expressing thoughts, ideas and concepts.

3.1 High-Level Anatomy of the Expanded Script

Once more, alluding to ideas borrowed from set theory, I propose that Igbo orthography (together with the orthographies of other southeastern Nigerian languages that used *nsibidi* in the past) should be modified by way of expansion, assimilating the ideograms in this expansion process, thereby contriving an orthographic sub-structure that is at the same time a large reservoir of symbols. Since I am more familiar with the Igbo language than with other language groups, I shall enter into this discourse via the door of Igbo language.

If the constituent elements of the Onwu orthographic system are taken as elements of a set, then the expanded script will take the form of a superset, so that Onwu orthography simply becomes a subset of this superset. The boundary between these two sets, however, shall remain porous, allowing for some level of transferability. This is depicted in the diagram of figure 4.

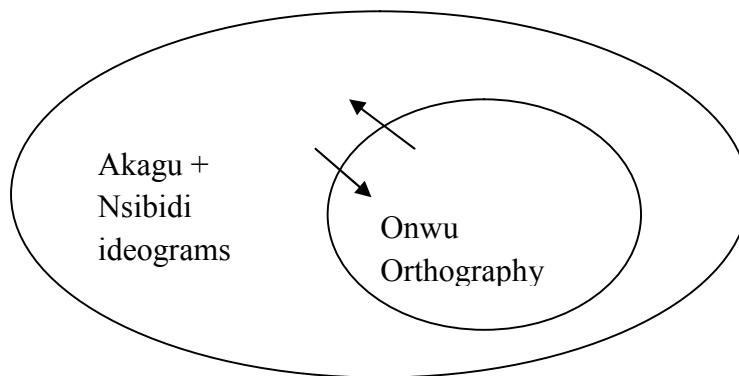


Figure 4: Set-theoretic model of the expanded orthography

By way of introduction and definition, the *Akagu*²⁴ script is a set of alphabets derived from Latin alphabets, but well adapted to the peculiarities of the phonemes that are to be found in the various dialects of the Igbo language.

Existing essentially as a superset of glyphs, this expanded orthography will necessarily inherit several properties already existing in the Onwu script, both enabling and otherwise. For instance, the already articulated rules of Igbo grammar can be carried along in the transition from the subset to the superset. Rules pertaining to the parts of speech, punctuation, sentence-structure and so on can be generally maintained, though slight modifications might need to be made. A dynamic is thus precipitated: in moving from the subset out to the superset, certain rules and frameworks (for example, parts of speech, some laws of grammar and so on) are carried along though they may need to be modified. On the other hand, in moving from the superset into the subset, certain rules and entities need to be out-rightly dropped, basically reverting to the linguistic mechanics of the Onwu orthographic system. Some of these symbols are depicted in Appendices 2 and 4.

3.2 A Reflection on the *Language of Human Thought*

Let me begin this section by adopting Kant's architectonic of the human thought process. In Kantian analysis, all thinking begins with mental cognition, and for Kant, "[mental] cognition may refer to objects" (Kant 71) but such cognition needs intuition, "[intuition being] that by which a cognition refers to objects directly" (71). Going further, intuition is affected by a certain sensibility of the mind, which refers to "the capacity (receptivity) to acquire presentations as a result of the way in which we are affected" (72). In summary:

²⁴ *Akagu* is an Igbo word meaning "the claw of the leopard". It was coined in deference to, and recognition of the *Ekpe* leopard society.

By means of sensibility objects are given to us, and it alone supplies us with intuitions. Through understanding [...], objects are thought and from it arise concepts. But all thought must, by means of certain characteristics, refer ultimately to intuitions, whether it does so straightforwardly [...] or circuitously; and hence it must refer ultimately to sensibility (72).

Against this Kantian background, I assert that the widespread philosophical position that human language (whether spoken or written) is the expression of human thought has brought in its wake a certain occlusion of the nature of thought itself. The excessive focus on the '*expression of thought*' has led to the forgetfulness of the inner workings of human thought. This philosophical position, by means of a mechanism of unquestioned biconditional implication, has somehow necessitated the corollary conclusion that human thoughts equally take place in the medium of human language, written or spoken. A type of reversible thought-to-language dynamics is presumed here.

This dominant philosophical position runs into problems when it is recalled that human thoughts long existed before the formulation and global adaptation of both spoken and written language. The puzzle also arises regarding people who are born deaf and dumb: *in what language do they think?* This last point begs the questions: *what constitutes the essence of human thought? What is human language expressing whenever it claims to express human thought?* I demonstrate the relevance of these questions to the formulation of a philosophical framework for the expanded orthography in the succeeding sections of this chapter.

At this juncture I am inclined to paraphrase Heidegger's notion that there is no presuppositionless expression of thought. It comes as no surprise, therefore, that exercises in cross-language translation always result in the degradation in the quality of semantic efficiency. Less surprising also is the realization that, the written (or spoken) expression of a

thought in language L_1 is never quite the same as the written (or spoken) expression of the same thought in language L_2 . Both languages L_1 and L_2 are animated by certain subterranean structures that remain elusive to the mechanics of translation.

In the attempt to formulate philosophical machinery for the animation of an expanded orthography, it should be kept in mind that all thought is culturally, geographically, physiologically, historically and temporally conditioned. There is little doubt that these conditionings rear their heads in all expressions of thought that are typically labeled '*language*'. It is against this background that the tyranny of modern alphabetic writing systems must be engaged, especially in the context of African languages. This is all the more justifiable in view of the markedly observable differences between African thought and non-African thought; I take up this *structuralist* underpinning in Section 3.3.

3.3 Structuralist Justifications: the Appearance of *Nsibidi* in the Caribbeans

The structuralist position, when imported into the realm of orthography, will necessarily maintain that all linguistic pursuits are outcomes of deeply embedded structures that pervade the human subconscious. Take the case of the seemingly unconnected notion of the Hobbesian *Leviathan*. Hobbes made a strong case for the emanation of his *Leviathan*: a strong, Platonic philosopher-king to whom all members of a linguistic community must submit, voluntarily or by means of coercion. It is not surprising to note that any communities built upon the Hobbesian model, if initially diverse and multi-cultural, will gradually gravitate towards cultural and linguistic homogeneity. By implication, the fact that linguistic homogeneity may manifest in such a society can be said never to have been construed *a priori*. Rather, such homogeneity can be traced to the overbearing influence of a central authority figure to whom violence and social coercion are not strangers.

Coming to Africa, Hobbes' *Leviathan* must contend with radically multicultural, multi-ethnic and multi-lingual communities, southeastern Nigeria being a prime example of this. The tribes in southeastern Nigeria, much unlike Hobbes, sought for pseudo-democratic secret societies that governed through apparent control of the supernatural and the paranormal; the force of a governmental command being usually backed by metaphysical imperatives.

One effect is that the search for a *Leviathan* in the midst of radical multi-culturality can rapidly degenerate into multi-ethnic conflicts mostly based on a desire for ethnic hegemony. The resultant impacts of these conflicts on language (and on the primacy placed upon secrecy-for-the-sake-of-dominance) cannot and should not be ignored by any linguist who studies the evolution and use of languages in multi-lingual settings. The structural undercurrents in a multi-lingual society are far more convoluted than those in a linguistically homogeneous society; this convolution must be taken into adequate account.

Based upon structuralist ruminations, it comes as no surprise that *nsibidi* symbols appeared in the Americas, in places like "Salvador, Bahia, Brazil; Matanzas and Havana [in] Cuba"(Miller 194), as a by-product of the trans-Atlantic slave trade. In the prolonged, forced movement of peoples from southeastern Nigeria to the Americas, it is not unlikely that a good number of *Ekpe* initiates would have been captured and transported, not counting others who (though not initiates) may have been knowledgeable about *nsibidi* to some extent. While the slave dealers may have implemented all sorts of policies geared toward the cultural assimilation of the slaves, one persuasive argument remains: the slave trade could not (and did not) completely erase the memories of the millions of Africans that were victims. Indeed, the *Ekpe* leopard society was re-established in many parts of the Americas, and it is presently named *Abakua* in Cuba. Miller's research led him to conclude that:

Abakua is derived from the leopard societies of West Africa, which are ubiquitous throughout southeastern Nigeria [...] [and] *Abakua* is at least six decades older than the Cuban nation (Miller 195).

In examining the vast collection of ideograms used by peoples of African descent in the Americas, it would appear that “the term *nsibidi* apparently was lost [during the Atlantic slave trade]” (Thompson 252) and “in its place emerged three creole terms: signs (*anaforuana*), signatures (*gando*) and revelations (*ereniyo*)” (252). Myriad publications can be found dwelling upon *anaforuana* and *veve* symbols (which are clearly derivatives of *nsibidi* ideograms), now originating from within the company of initiates of the *Abakua* society (and indeed other *Ekpe*-derived communities in the Americas). The continued study of these symbols in the diaspora will further aid the taxonomic exercise presented in Section 3.4.1, besides serving as possible historical primary sources.

Furthermore, the structuralist approach fuels the contention that the formulation of languages and writing systems are deeply affected by the persistent and unseen interplay between the myths of a given culture and the modes of reasoning peculiar to that culture, among other things. This is in agreement with the view that “articulate utterances [and writings] [...] must continue to rely [...] on mute acts of intelligence” (Polanyi 70). With this in mind, it can be argued that language must consist of phonemes as well as subterranean mythemes²⁵ that animate the culture which in turn produces the language. Upon the springboard of this *phoneme-mytheme-language* dynamic the observation that “the simple opposition between mythology and history [...] is not at all a clear-cut one, and [...] there is an intermediary level” (Levi-Strauss 40) continues to gather momentum

²⁵ In the field of mythology, a *mytheme* is the fundamental building-block of a myth.

3.4 Whole-Part Dynamics in the Phenomenological Profiles of *Nsibidi* Ideograms

An ideogram can stand for a complex idea (or stand for a collection of very complex ideas) whose decomposition into alphabetic words typically leads to an attenuation (and/or distortion) of meaning. Although a lot can be learnt from the phonetic and analytic decomposition of an idea, this semantic attenuation exposes an imperfection in the exercise of phonetic-alphabetic decomposition of ideas. This tension between the whole (i.e. the idea) and the parts (i.e. the breakdown of the idea into alphabetic words) was discussed by Aristotle in his discourse ‘*On the Soul*’, and Aquinas paraphrased him by maintaining that “there is a twofold operation of intellect, one which is called the understanding of indivisibles by which the intellect apprehends the essence itself of a thing, the other operation of intellect [consists of] composing and dividing” (Aquinas 456). While I disagree with Aquinas that the human intellect can always reach “the essence itself of a thing” (456), the point remains that whatever is grabbed by the intellect is not always identical with the outcome of “composing and dividing” (456).

This tension between the essence of a thing and constituent-parts-of-a-thing is equally reminiscent of the Husserlian notion that phenomena are given to the human mind both in parts and in wholes. Transposing this tension into the discourse on the philosophical problem of ‘*meaning*’ in written language, I am inclined to conclude that the determination of orthographic meaning must also struggle with reaching a semantic equilibrium between the phonetic parts of a written idea and the semantic whole of the same idea.

This tension between the phonetic part and the semantic whole renders orthography suitable for phenomenological inquiry. The imperative of the phenomenological method becomes more glaring when it is noted that the orthographer must also deal with his or her own biases as he or she engages the activity of putting a spoken language down into writing,

or interpreting a written script. This is relevant because of the claim of the phenomenological technique:

to reach past various interpretations of reality to ‘the things themselves’ in the light of the view that human knowledge is language bound and that ‘the things themselves’ are of course not ‘things’ physically impressed upon the knower’s retina and mind but the result of an active process of classification and ‘naming’ (Willis 1).

I return, in Sections 3.5.6 and 3.5.7, to this whole-part dynamics, demonstrating its relevance to the expanded orthography, specifically to the contrivance of rules for the formation of new words.

3.4.1 A Discourse on the Taxonomy of *Nsibidi* Ideograms

It is easy to classify *nsibidi* ideograms in two broad groups. Slogar has already described the set of symbols as:

A fluid system containing hundreds of signs. Some are pictographic (manila, leopard, mirror), while others are abstract (arc, cross, grid, circle, spiral). It has both public and private components. Some signs are established within popular usage and are widely understood [...] By combining arcs, different sorts of personal relationships and activities may be described (Slogar 19).

Some of these symbols are depicted in Appendix 2. Taking a cue from Slogar’s description, the first group of symbols can be said to be *pictographic*, while the second group can be said to be *abstract*. Following from this, it becomes clear that meaning can be signified in *nsibidi* writings in several ways: via the use of individual pictograms or combinations of pictograms, or via the use of the individual abstract symbols or combinations of abstract symbols, or via

the combination of abstract symbols and pictograms. The ideas engaged in this thesis will wrestle more with the consequences of combining Akagu alphabets with abstract symbols and pictograms taken from the *nsibidi* system.

One implication of the Akagu-nsibidi combination on the philosophical problem of meaning is that meaning must end up being understood as being not only concatenated but somewhat *conjurable* in the use of these combined symbols. Unlike purely alphabetical systems, however, concatenated and conjured meanings will not merely be derivable from the realm of phonemes that appear in writing. The expanded script, as a result, will not hold too tightly to any of the mainstream theories of meaning. Indeed, it may have to uphold one main semantic theory, while making allowance for others. Before proceeding further in this discourse, I present an altered view of orthography in the following section.

3.4.2 An Essential Theme: Orthography as Manipulation of Glyphs

In this section I argue for a certain change of nomenclature which is demanded by the aims and objectives of this thesis. Henceforth, orthography is considered to be the art and science of the manipulation of glyphs, where the signifier ‘glyph’ will stand for the entire set of symbols composed of alphabets and ideograms. The term ‘glyph’ henceforth is taken to refer to any symbol that is capable of conveying literary meaning, in whatever realm of meaning. In linguistic jargon, it follows from my argumentation that if a *word* (in the expanded orthography) is composed of glyphs, then morphology (which is the study of words) can be translated directly into the study of glyphs. The indeterminacy and underdetermination at the heart of all orthography allows for this possibility. Insofar as alphabets are sufficient for representing sounds, they should be retained. Insofar as alphabetic decomposition sometimes lacks expressive brevity and therefore cannot always guarantee the efficient transmission of an idea, then allowance must be made for the assimilation of other symbols. All parts of speech will be prime candidates for alternate forms of representation,

including those many concepts in African languages that are practically impossible to alphabetize.

The Latinized Onwu orthography can (following the arguments in section 3.2) be described as an *orthography at the speed of sounds*, for its processes have to wait for thoughts to be converted into sounds before they are written down. It is not difficult to see how this form of orthography can run into serious problems when there are no sounds to express a concept that is presently in the mind of the language user. This apparently little orthographical defect amplifies into a huge stumbling block for the continued evolution and growth of the Igbo language.

The *nsibidi* ideographic system, on the other hand, can equally be described as orthography *at the speed of thoughts*. However, some of its weakness have been identified as including, “the high premium placed on its secrecy” (Obidiebube 47), “its unsystematic mode of recording and interpretation” (47), “it[s] many variations” (47) and so on. In dealing directly with thought and bypassing speech, it can be argued that this ideographic writing system is more in contact with the Chomskyan idea of a *universal grammar*²⁶ that underlies the ability of all humans to use language and to learn new languages.

The expanded orthography, I further argue, must find creative ways to combine both of these systems, with the hope that the weakness of one system will be augmented by the strengths of the other system, both systems working toward the optimization of semantic efficiency. This expanded orthography, therefore can be aptly described as *orthography at the combined speeds of sounds and thought*. It can help in the gradual evolution of new Igbo words, because a symbol can immediately be introduced, while the perpetually moving wheels of human language games churns out a word that can be articulated as a string of

²⁶ This theory contends that the capability to learn grammar is neurally encoded into the human brain

alphabetic phonemes. The expanded script, therefore, must constitute a form of “writing that comes to the aid of [both] thought [and speech]” (Gadamer 394). However, the challenge continues to remain as to how to fashion suitable mechanisms for the hermeneutical “art of understanding” (394) such a form of writing, because the fact remains that:

All writing is a kind of alienated speech [and thoughts], and its signs need to be transformed back into speech and meaning. Because the meaning has undergone a kind of self-alienation through being written down, this transformation back is the real hermeneutical task (Gadamer 395).

3.5 Eight Components of the Enabling Philosophical Machinery

Alphabetic systems are closed to further growth, but ideographic systems remain open to expansion and deepening. This expansion and deepening facilitate the formation of novel ideographic vocabularies for hitherto non-existent ideas or for culturally alien ideas that have somehow been imported.

Ideographic expansion can also be assisted by the Quinean blurring of the boundary between analytic and synthetic concepts. In line with this blurring, it will be seen that both sensory experience and mental ideas precede the articulation of words. Since ideographic systems focus a lot on ideas, it becomes relatively easy for the engagement of ideas to possibly lead to the generation of new words and therefore to the growth of the language. An ideographic system can be viewed as “[a] symbolic reservoir” (Slogar 20); all that is needed therefore, is a consistent and systematic reflection on the contents of this reservoir.

3.5.1 *Written-Speech and Written-Thought as Enablers of Expansion*

One motivating idea behind a Latinized alphabet is that (most, if not all) human communication typically originates from thought. Thoughts are converted into speech, and speech is converted into writing via the vehicle of phonemes and alphabets. Ideographic

writing, on the other hand, tends to proceed directly from thought to writing, bypassing the phonemic decomposition of speech. It can be said that an alphabetic writing system goes from *thought-to-speech-to-writing*, while an ideographic writing system goes from *thought-to-writing-to-speech*. The alphabetic transition from *thought-to-speech* necessitated the articulation of phonemes while the ideographic transition from *thought-to-writing* necessitated the articulation of both abstract and iconic symbols used in the composition of scripts²⁷.

It can be seen that the common denominator between alphabetic and ideographic writing is the shared objective that thoughts need to be written down. This dynamic further opens the way, in addition to the signified-signifier connection, for the expansion of the Onwu orthographic system by way of the assimilation of ideograms. Rather than place a conceptual wedge between ideographic and alphabetic writing systems, the expansion project will attempt to build a bridge that will, in a way, conceptually reconcile the two.

3.5.2 A Problem of Aesthetics

One of the first challenges that must be faced is related to philosophical aesthetics. The combination of Latin alphabets (as they are presently composed) and the *nsibidi* ideograms will not be aesthetically pleasing, as can easily be imagined. The question arises, then, of *how can people know which orthography is aesthetically pleasing and which is not?*

My answer to this is to begin by out-rightly rejecting the position that aesthetic beauty is totally intangible, because if it were so then no one will have any conception of aesthetic beauty in the first place. I am in agreement, rather, with the Aristotelian school of aesthetics which maintains that insofar as orthography is a form of art, its construction and its reception

²⁷ It is tempting to counter this argument by referring to onomatopoeia and mnemonics, but these two elements are the result of sensory perceptions that have been thought about. They are rare examples in which the *noesis* closely resembles the *noema*.

can be seen to be modes of understanding. In this school of aesthetic thought, beauty is, at the same instance and with regard to the same object, partly objective and partly subjective. The objective invades the subjective just as much as the subjective invades to subjective. Any attempt to compartmentalize the two will not adequately take into consideration the human subject whose baggage must always interfere in his or her interpretation of any expression of art.

Furthermore, to use the Latin alphabets straight out of the box is to once again inherit several problems that have plagued their use in orthography. A move has already been made to provide a new set of symbols to be used as replacement for these Latin alphabets, while at the same time addressing a number of problems. This move, already initiated by cultural enthusiasts, holds that:

The most significant difference between *Akagu* and the Latin alphabet Igbo currently uses is that *Akagu* will be able to be used alongside the ancient indigenous semi-logographic script known popularly as *nsibidi*, [...]. The *nsibidi* logographs can be used interchangeably with *Akagu* for words, this allows users to easily identify the semantics of a word in a language that has multiple homonyms²⁸ (“Akagu Alphabet”).

As it stands, however, *Akagu* remains a work in progress. In fact, modifications to its structure continue to be made as recently as the year 2010. Its full codification also must include the generation of unique numbers for each of its symbols. This will further enable its use on the internet and in popular word processors. Both the modern internet and word processors depend heavily on the use of language, seeing that they are both manifestations of

²⁸ Words that have the similar sounds and similar spellings are called *homonyms*. There are many homonyms and near-homonyms in Igbo language.

an inter-subjective space utilized primarily for communication, which takes them into the middle of the convoluted dynamics of Wittgensteinian language games.

3.5.3 Re-Thinking the Properties of a Good Orthography

In order to proceed, the expanded orthography must base itself upon a re-thinking of the properties of a good writing system. Among nine such properties outlined by Zandisile, two such properties will need to be confronted squarely.

The first property maintains that a good orthography must consist of an “alphabetic [system] where ideally each phoneme is independently represented by a different symbol” (Zandisile 47). My critique specifically targets Zandisile’s dream of elaborating all phonemes, thereafter embarking upon some form of orthographic hibernation. Zandisile’s conceptualization of an *ideal*, I maintain, is founded upon widespread cultural conditioning. The expanded orthography, by calling into question this widespread cultural conditioning, must ditch this property; indeed it must modify it to suit the task at hand. I am not condemning outright all forms of cultural conditioning in this exercise. Rather, I aim to demonstrate that much orthographic process can be made by rendering rigid mental attitudes (and habits of thought) more flexible.

The second property to be rethought is in line with the argumentations in this thesis. Zandisile’s rendering of the property reads: “a writing system [must be] able to accommodate more than one dialect” (47). Applying this to the Igbo language scenario, it becomes clear that the so-called standardization of the Igbo language is backed by curious assumptions. *Whose standards are being applied in this standardization exercise?* The failures of Onwu orthography in moving beyond an imagined *standard* Igbo paves the way for further work in the codification of Igbo language.

This re-thinking exercise, I further argue, must be careful not to lean excessively upon the pillar of prescriptivism. One central idea that must run through the expanded orthography is the fact that all “reading universally involves the mapping of written graphs to units of language” (Perfetti *et al.* 142). The re-thinking of the properties of a good orthography will enable the expanded script to deal with the possible emanation of a certain semantic and hermeneutical anarchy.

3.5.4 Expansion as Tension between Prescriptivism and Descriptivism

I have already demonstrated that the use of the Latin alphabets by the Onwu orthographic system is borne out of a prescriptivist frame of mind. These central tenets of this point of view can be summarized as follows:

A prescriptive [approach to] grammar is an account of a language that sets out rules (prescriptions) for how it should be used and for what should not be used (proscriptions), based on norms derived from a particular model of grammar (McArthur 286).

Prescriptivism, in other words, entails a spirited attempt to impose an *a priori* linguistic structure upon Igbo language, trying very hard to tell the Igbo language how to behave, and to instruct Igbo people on how to speak and write their own language. The prescriptivist approach betrays an attitude toward written language which is grounded upon ideas that are hailed to be “correct” by those tainted by a bit of cultural imperialism; an attitude that has generally been transmitted to many teachers of Igbo orthography, and also to many teachers of other languages in southeastern Nigeria. This frame of mind is also characterized by a considerable level of disregard for the way a community uses language in day to day living. The cultural imperialists who stand behind this movement tend to

unconsciously found all orthography as a decomposition of language into alphabets and phonemes.

The descriptive approach to orthography, on the other hand, tends to suspend judgment upon the use of language. It proceeds by observing the principles that are seen to describe the way that language is actually spoken, and possibly written. The objective of the descriptive approach is a description, strongly based upon the phenomenological attitude, and knowledge of rules (principles) of how the language is actually spoken. This approach is wary of all forms of philosophical dogma and mental projection that constitute the weakness of the prescriptive approach. “A descriptive grammar is an account of a language that seeks to describe how it is used objectively, accurately, systematically, and comprehensively” (McArthur 286).

It is hard to say what the expanded orthography will eventually embrace; though it is likely not to be a descriptive prescriptivism. Furthermore, whether it will be a prescriptive descriptivism or whether it will remain a forum for the perpetual dialectic between prescriptivism and descriptivism is an issue that will be ironed out in the course of time and usage. My vision is that the expanded orthography will embrace both prescriptivism and descriptivism, and hold both points of view in dynamic philosophical tension.

3.5.5 An Expansion Aided by the Signified-Signifier Connection

Yet another enabling element in the formulation of an expanded script is the Saussureian view that every symbol used in the writing of language can be decomposed into two sub-elements: one which is signified and the other which does the signification. In other words, every symbol systematically breaks down into a signified and a signifier. It is easy to see how this concept applies both to *Akagu* alphabets (which include and improve upon Latin

alphabets) and *nsibidi* ideograms, irrespective of the levels of meaning that the ideograms might possess.

Against this backdrop, it can easily be argued that any concatenation of Akagu alphabets and *nsibidi* ideograms can indeed be interpreted by examining the concatenated meaning that is implied. Therefore, provide a string of signifiers, and a meaning can be extracted by examining the juxtaposition of the things signified. This poses a great challenge to the unexamined position, taught for many years in southeastern Nigerian schools, that every written language must necessarily be composed of phonemes.

3.5.6 Crafting an Expanded Script with a Modified *Rebus Principle*

It can be said that the expanded orthography is an exercise in the combination of Akagu letters, symbolic ideograms and iconic ideograms. This combination is reminiscent of the *Rebus Principle*. A rebus, originally, is “a message spelled out in pictures that represent sounds rather than the things they are pictures of” (Allen 3). This original *Rebus Principle* must be adopted, explored, extended and modified extensively and put at the service of the generation of an expanded orthography.

The prejudice that considers the ideogram as merely a silent representation of an idea will need to be addressed in such a way that the silent idea that is represented may (or may not) be given a phonological value. However, the phonological value, if any is given, must not necessarily embrace the phonetic reductionism that is at the heart of alphabetic systems. In other words, the idea of a spoken but non-alphabetic symbol must be embraced and fleshed out. The ideogram must either provide a sound or stand for an idea, or provide a sound *and* stand for an idea at the same time. Once more, subscribing to linguistic jargon²⁹, the modified

²⁹ Some linguistic terms are defined in Appendix 1.

rebus principle permits the creation of as many lexemes³⁰ as are necessary. This creation process, however, is made possible via the concatenation of *free morphemes* and *bound morphemes* to the root lexemes. An example of this is contained in Appendix 3, in which some Igbo personal names are transcribed using a combination of *Akagu* and *nsibidi* ideograms.

3.5.7 An Expanded Script based upon a Unified Theory of Meaning

The discourse about the meaning of *meaning* is an old and convoluted one. It would appear that the more work is done in attempting to figure out the meaning of meaning, the more the idea of meaning runs into conceptual turbulence. Indeed:

Our conception of meaning has become increasingly fragmented, along with much else in the increasing ‘postmodernization’ of our worldview. The trenches run deep between different kinds of meaning theories: mentalist, behaviorist, (neural) reductionist, (social) constructivist, functionalist, formalist, computationalist, deflationist... And they are so deep that a rational debate between the different camps seems impossible (Zlatev 253).

Perhaps these mutually conflicting theories of meaning remain an ever beckoning invitation to a deeper phenomenology of meaning. *Could it be that perhaps each theory is a reflection of one profile of the idea of meaning? Can meaning be said to involve a weighted combination of each theory of meaning?* One foundation that remains unshaken in the midst of this semantic turbulence is the pragmatic notion of *the context-sensitivity of meaning*. Therefore, rather than pitch my tent in one particular school of meaning (and face the temptation of initiating an ideological warfare against the other schools of meaning), I

³⁰A lexeme is a basic unit of meaning, and the headwords of a dictionary are all lexemes. Technically speaking, a lexeme is an abstract unit of morphological analysis in linguistics, that roughly corresponds to a set of forms taken by a single word.

propose that the expanded orthography adopts a unified theory of meaning in which “meaning (M) is the relation between an organism (O) and its physical and cultural environment (E), determined by the value (V) of E for O” (Zlatev 255). In order to throw more light on the ideas present in this sub-section, I now carry forward some notations from Chapter Two which I deem relevant to the explication of the role of the unified theory of meaning in the expanded orthography. In the analysis which follows, I restrict myself to working out modalities for the formation of new words by the use of glyphs, as earlier noted. Suppose the writer concatenates a string of glyphs in an orthographic exercise:

$$\{L_1^s L_2^s \dots L_n^s\} \dots (19)$$

Taking into consideration the tendency of the writer to determine the meaning of the entire set of glyphs in (19) by concatenating the meaning of the constituent glyphs represented in (19), the following relation holds between the string of glyphs and its meaning:

$$\{L_1^s L_2^s \dots L_n^s\} \leftrightarrow \{M_1^s M_2^s \dots M_n^s\} \dots (20)$$

In other words, relation (20) presumes to determine the meaning of the string of glyphs in (19) by simply juxtaposing the meaning of its individual glyphs. I contend that this simplistic concatenation of meaning needs to be made into a slightly more sophisticated process if an expanded orthography is to be made possible. I now apply the orthographic meta-argument, expressed in relation (10) to the string of symbols idealized in relation (19).

First, letting symbol φ^s represent the writer’s concatenation of symbols $\{L_1^s L_2^s L_3^s \dots L_n^s\}$, then the orthographic meta-argument in this scenario becomes:

$$\diamond (\text{Writing \& Reading}) = \diamond (\varphi^s \leftrightarrow \{M_1^s M_2^s \dots M_n^s\}) \ \& \ \diamond ([\varphi^s \in \{L^h\}] \ \& \ [\varphi^s \leftrightarrow \{M_1^h M_2^h \dots M_n^h\}]) \dots (21)$$

I now focus on both the writer’s concatenated meaning (represented by $\{M_1^s M_2^s \dots M_n^s\}$) and the readers concatenated meaning (represented by $\{M_1^h M_2^h \dots M_n^h\}$). First, the

modified rebus principle helps to render the determination of meaning more sophisticated, as I argued for in Section 3.5.6. Second, in line with the objective of maximizing semantic efficiency, one way to minimize the semantic distance between $\{M^s_1 M^s_2 \dots M^s_n\}$ and $\{M^h_1 M^h_2 \dots M^h_n\}$ is to systematically ensure that both strings of meanings are derived from the same superset (or set of supersets). I further contend that these supersets must somehow include the mentifacts, artifacts and sociofacts that are to be found in the worldviews of both the writer and the reader. By artifacts I mean "things made by [members of that society], whether tangible [...] or intangible" (Kowalski 258). By sociofacts I signify "the actions and interactions of [members of that society], including verbal and nonverbal communication, customs and rituals" (258). By mentifacts I refer to "the thoughts, beliefs, values and attitudes that underlie the [creation of the artifacts and sociofacts]" (258). The problem reduces to the maximization of the intersection of six sets. Taking $\{\text{mentifacts}\}$, $\{\text{sociofacts}\}$ and $\{\text{artifacts}\}$ as sets that are identifiable within the realms of meaning, then the following maximizations become objectives of the exercise in orthographic expansion:

$$\max(\{M^s_1 M^s_2 \dots M^s_n\} \cap \{\text{mentifacts}\}) \quad \dots(21)$$

$$\max(\{M^s_1 M^s_2 \dots M^s_n\} \cap \{\text{sociofacts}\}) \quad \dots(22)$$

$$\max(\{M^s_1 M^s_2 \dots M^s_n\} \cap \{\text{artifacts}\}) \quad \dots(23)$$

$$\max(\{M^h_1 M^h_2 \dots M^h_n\} \cap \{\text{mentifacts}\}) \quad \dots(24)$$

$$\max(\{M^h_1 M^h_2 \dots M^h_n\} \cap \{\text{sociofacts}\}) \quad \dots(25)$$

$$\max(\{M^h_1 M^h_2 \dots M^h_n\} \cap \{\text{artifacts}\}) \quad \dots(26)$$

Within this unified framework, the meaning of any random concatenation of glyphs is to be worked out by the participants in the midst of the orthographic language game. This is good for a language like Igbo with its many proverbs and idioms whose meaning can never

be articulated at face value. As a consequence of the unified theory, meaning will be articulated in the transcendental interplay between the phonetic and semantic value of a sequence of glyphs. This will continue to reflect the part-whole tension in the phenomenology of the expanded orthography. In phenomenological parlance, therefore, the interpretation of a string of glyphs based on the expanded orthography will depend upon the phenomenological idea of the sedimentation of meaning. By sedimentation of meaning is meant:

A consolidating process of linguistic conceptualization, in the course of which the evident cognitive structures originally given in embodied sense-experience have certain “persisting linguistic acquisitions” superimposed on them [...]. In particular, through sedimentation, linguistic concepts become more and more an immediately available, unquestioned [...] element of the language user’s conceptual repertoire (Woelert 119).

The unified theory of meaning, when combined with the modified rebus principle, will prove to be a powerful tool in the creation of new words, an activity that resolves to the concatenation of glyphs. This activity will be targeted at the large majority of people who are not *Ekpe* initiates, they will focus on the pedestrian meaning of the *nsibidi* symbols, leaving the *Ekpe* society and its esoteric realm intact. However, *Ekpe* initiates that intend to communicate orthographically may choose to do so by embracing the pedestrian realm of meaning.

Introducing the hermeneutical concept of *realms of meaning* into this discourse, it becomes possible to conjure a set of realms denoted by { **r** } from which the meaning of symbols are derivable. In other words, the relation in (20), which is an abstraction of a set of symbols put forward by a writer, can be recast as

$$\{ L^s_1 L^s_2 \dots L^s_n \} \leftrightarrow \{ M^{sr1}_1 M^{sr2}_2 \dots M^{sr3}_n \} \quad \dots(27)$$

where the set of symbols $\{r^1, r^2, \dots, r^n\}$ are members of the set containing the realms of meaning, $\{ \mathbf{r} \}$, that are available to the writer. Relation (27) throws the rebus principle into analytic relief while at the same time appealing to the unified theory of meaning. While alphabetic reductionism has sought to lock the orthographic exercise into one realm of meaning (the phonetic realm), the adoption of the rebus principle will enable the concatenation of glyphs but allow for the navigation of multiple realms of meaning.

On the reader's side, the interpretation of the set of glyphs will involve another attempt to resolve the writer's symbols into yet another realm of meaning, this time belonging to the reader. This exercise has already been modeled in relation (5). Including the reader's own realm of meaning yields the relation:

$$\{ L^s_1 L^s_2 \dots L^s_n \} \leftrightarrow \{ M^{h\mu1}_1 M^{h\mu2}_2 \dots M^{h\mu n}_n \} \quad \dots(28)$$

Where the set of symbols $\{\mu^1, \mu^2, \dots, \mu^n\}$ are members of the set containing the realms of meaning, $\{ \boldsymbol{\mu} \}$, that are available to the reader. Once again, the orthographic challenge becomes a race to ensure that the following relation holds as much as possible:

$$\{ M^{h\mu1}_1 M^{h\mu2}_2 \dots M^{h\mu n}_n \} \approx \{ M^{sr1}_1 M^{sr2}_2 \dots M^{sr3}_n \} \quad \dots(29)$$

In relation (29), the idea of the *equality* of two sets is taken to translate to the equality of the members both sets both in quantity and individual magnitude. Now, the problem of semantic efficiency rears its head once more, for one of the conditions that must guarantee the realization of relation (29) has to do with the *equality* of the realms of meaning both of the writer and of the reader, such that:

$$\{ r \} \approx \{ \mu \} \dots (30)^{31}$$

From relation (30) can be neatly deduced one of the deep seated causes of the orthographic controversy that has continued to bog down Onwu orthography. The point is this: even in the realm of phonology, the twenty dialects of Igbo language do not share the exact same set of sounds. Consequently, attempting to coerce a shared set of sounds necessarily led to controversy and disagreement. In order to deal with this controversy, recognition of the disjointedness of the realm of sounds must be accompanied by stringent efforts at the unification of the realms of meaning, as modeled in relation (30). The realm of meaning is a multi-dimensional realm, and this will be the one of the central tenets of the expanded orthography.

The sedimentation of meaning, the rebus principle, and the maximal utilization of sociofacts, *mentifacts* and *artifacts* are exercises that will be of great service in ironing out those “pre-linguistic advantages” (Polanyi 70) that surreptitiously foster the use of language in human societies. I further engage some of these surreptitious enablers in the succeeding section.

3.5.8 Engagement of both Noosphere and Sonosphere

By noosphere is meant the realm of thought, even sub-conscious thought in which all human beings partake. The noosphere has been described as:

The place of symbolic interdependence of the activities characteristic of the human species, activities that include the interdependent proliferation of the technical, institutional, aesthetic and other forms that characterize culture (Levy 68).

³¹ Once again, the *equality* of two sets is taken to translate to the equality of the members both sets both in quantity and individual magnitude.

By sonosphere, on the other hand, is signified the realm of sounds made by humans, as studied and codified by phonetics. Now, alphabetic systems have focused largely upon the sonosphere, all the while presuming that the study of the sonosphere is more-than-sufficient for the engagement of the noosphere. I have already challenged this assumption using the high-level argumentations in Section 3.5.6 and Section 3.5.7, maintaining that the expanded script (due to its myriad combination of its glyphs) will provide veritable grounds for the orthographic manifestation of entities flowing from both the noosphere and the sonosphere.

3.6 Conclusion

A pervasive form of historicism has so far prodded the study of orthography to go on presuming that writing systems somehow evolved from ideographic-pictographic systems to alphabetic systems; the implication being that ideographic-pictographic systems are somewhat primitive and in dire need of abandonment. The question that was never asked is this: *whose evolution is under scrutiny?* Popular linguistics has long taken a diachronic standpoint in its study of language, and on this diachronic stance must be laid the blame of the inadequacies of popular linguistics.

The arguments in this chapter have revealed an elaborate set of conceptual tools that will be needed to articulate and evolve an expanded script. The arguments favor a more synchronic study of southeastern Nigerian languages, proceeding by freezing them in a phenomenological *epoche*. At the *epoche* point, overbearing habits of thought (in this case regarding orthography) are bracketed and not allowed to interfere with the inquiry at hand. This bracketing, further, facilitates the suspension of judgment regarding the dominant narrative on question of orthographic evolution, as this dominant narrative leads to a certain dimming of conceptual vision.

I have shown that the expanded script must tread a fine line between orthographic prescriptivism and orthographic descriptivism. This is not to admit of orthographic anarchy, but it is an approach that must not strive to impose hardcoded structures upon a language that is as diverse as the Igbo language, and upon the many other languages that are presently in use in southeastern Nigeria. In the next chapter, I will re-engage the language game analyzed in chapter two, though on a very different level.

Chapter Four: An Applicative Recourse to a Generally Intelligent Agent

4.0 Introduction

Up to this point, I have examined gaps in orthographic literature of southeastern Nigeria in Chapter One. I went on to investigate semantic efficiency by modeling multi-lingual language games in Chapter Two. In Chapter Three, I formulated philosophical machinery aimed at animating the realization of an expanded orthography. In this chapter, I return to the language game already modeled and analyzed in Chapter Two, but I engage this language-game from a different perspective. While the analysis in Chapter Two focused on micro dynamics, the analysis here present concentrates more on the macro dynamics of the human language-game.

I begin by admitting that the overall project of orthographic expansion is an arduous one because “understanding the mechanisms underlying human [linguistic] cognition is an extremely complex problem; constructing models of this [linguistic] cognition even more difficult” (Taylor and Hartley 2411). It comes as no surprise that the logistics involved in the assisted-evolution and dissemination of the expanded script will be bound to be deeply involving. Consequently, I intend to marshal the techniques of artificial intelligence and android epistemology to facilitate the creation and codification of such a repository of glyph knowledge. Crucial to the arguments presented in this chapter will be the attempt to articulate an artificial agent that is meant to become a reference tool, among possibly many other reference tools, for the new expanded orthography. Being artificial and not biological, it will be resistant to the peculiar human problems of memory-loss, vagueness, death and an evolutionary process that renders language and meaning extinct. This artificial agent ultimately must be made to contend with humans as they engage in their language game, yet

it will possess the capacity to learn (in an artificial manner). This learning capacity prevents it from becoming an enabling cause for the freezing of human language.

I deem this return to the realm of the language game to be absolutely necessary if this agent is to remain relevant to the context and use of human language in peculiarly human ways, and to be effective as an aid in the descriptive study of grammar. Moreover, this return will necessarily precipitate a new type of game involving a machine-human interaction, preferably on a very large scale and in a very African context.

The remaining portions of the chapter are structured as follows. The first section provides six justificatory arguments for the recourse to the philosophical methods that are grounded in artificial intelligence and cognitive science. The second section of this paper proceeds by arguing for a hybridized form of causality in the use of language that will be adopted in the process of elucidating the workings of this artificial agent. The fourth section involves itself with several arguments that serve as a prolegomenon to the realization of this artificial agent. I grapple with several ideas within the sub-sections of this fourth section, especially the ideas dealing directly with the philosophical choices that must be made within the architectonics of the artificial agent. The fifth section deals with the possibility of expanding the study using the framework of chaos theory, seeing that language use is wedded to radical complexity. In the sixth section, I evaluate the role of this artificial agent in the enablement of the conditions that contribute to the optimization of semantic efficiency in southeastern Nigerian language-games.

4.1 Justifications for Using an Artificial Agent

The first justification is the need for the pragmatic application of all the transcendental engagements of the preceding chapters. In other words, I contend that all the philosophical ruminations of the preceding chapters must face the test of application, if they

are to be worth being labeled veritable *ruminations* in the real sense of the word. On a hermeneutical note, while the previous chapters have emphasized mainly “the inner fusion of understanding and interpretation [of the expanded orthography]” (Gadamer 306), this chapter concentrates more on “the third element in the hermeneutical problem [:] application” (306). I maintain that these ruminations would remain conceptual hot air if they are abandoned in the transcendental realm, available only to arm-chair philosophers and dreamy-eyed speculators and theorists. Philosophical ideas about language and its use, however lofty, must ultimately be tested in the furnace of human inter-subjective communication. This applicative drive proceeds by recognizing the fact that human languages evolve in the realm of application. It also recognizes the need for the arguments in this thesis to eventually abandon the ivory tower of speculative reasoning and descend into the murky waters of everyday living.

It is very tempting, for instance, to rest on orthographic oars by over-depending upon the ideas contained in Chapter Three, especially upon the modified *Rebus Principle*, outlined in section 3.5.6. There is a strong intellectual pull to install this principle as the *supreme arbiter* that will enable the generation of syntactically and semantically meaningful sentences using the expanded orthography. Tapping from the warehouse of linguistic lived-experience, however, it can be shown that this principle (insofar as it is a grammatical principle) comes under scrutiny when instances are identified (in other languages) where syntactic correctness does not necessarily correspond to semantic correctness. In other words, syntactic correctness does not necessarily translate to semantic efficiency. A popular example here, taken from the English language, is the string of glyphs: "colorless green ideas sleep furiously" (Chomsky 15). This string, while being syntactically impeccable, is obviously semantically nonsensical to the users of English language. Myriad counter-examples of a similar kind serve as a great warning to the overarching temptation to yield to the conceptual tyranny of academic, grammatical rule-setting exercises. Consequently, the modified *Rebus Principle* must be

relegated to the status of a first-level prescription that will be in continual need of descriptive support. This last point must equally be reconciled with section 3.5.4, within which I argued for an orthographic prescriptive-descriptive tension that must be placed at the service of the use and interpretation of the expanded script.

While the *Rebus principle* will no doubt remain as a high-level framework for the concatenation of glyphs, at the heart of my arguments in this chapter is the need to approach the articulation of an expanded script using philosophical ideas that are befitting to the 21st Century, as well as holding prescriptivism and descriptivism in complex balance. These fairly recent philosophical ideas challenge the ideological and linguistic naiveté that has been the bane of the study of many African languages, especially the languages to be found in southeastern Nigeria.

The second justification arises from the need to evolve beyond not only southeastern Nigerian linguistic orality, but to synthesize a framework aimed at the sustained, well-thought, evolution of southeastern Nigerian language forms. This justification can be countered by pointing to already-existing Latinizations that are fairly well documented, but the inadequacies of Latinization have already been well presented in the previous chapters, so that this counter-argument does not hold. The persistence in allowing all the components of culture to subsist only in the realm of orality (or in realms that are not very far removed from the realm of orality) spells danger for any ethnic group. The implications are dire, because all that is needed to truncate the existence of the group's culture is the death or dispersion of the custodians of oral culture. The immediate result is non-transmission of knowledge, forever throwing the rest of the ethnic group back into an epistemic pre-history from which they might never escape.

Third, there is a need to meet the consequences and challenges occasioned by the widespread phenomenon of rural-urban migration. This migration has resulted in the loss of native language writing skills among many. The foreseeable cultural effect is devastating and one solution to this problem is to take the native language to the urban areas, rather than wait for parties that might be interested in returning to the rural areas where the native languages are spoken. A former president of Nigeria commented on this phenomenon when he mentioned that:

We [Nigerians] got caught up in the conflict of culture, trying to graft the so-called sophistication of the European society to our African society. The result so far has been an abysmal failure. We are betwixt and between. ("Kirkos Chronicle").

The GIA (Generally Intelligent Agent) alluded to in this chapter will be of immense help in the provision of tools that will aid in addressing this challenge. Being a modern scientific-philosophical construct, it can be made to function by aligning the study of African languages with the peculiarities of the information age, an age which has held many African youths spellbound for decades now. A whole new linguistic revolution can be precipitated, hopefully kindling the interest of the youth on this matter.

The fourth justificatory argument targets a problem that the expanded orthography must internally contend with. Furnas *et al* refer to this problem as '*the vocabulary problem*'. At the root of the vocabulary problem, the fact can be discovered that myriad possibilities exist for the combination of 36 Latin-based alphabets (in the case of the Igbo language) with 1400 ideograms. In what amounts to the same thing, another fundamental expectation is that "[orthographic communicators tend to] use a surprisingly great variety of words to refer to the same thing" (Furnas *et al.* 964). In effect, the number of unique words produced using

the expanded script will tend to increase as the vocabulary of the new script is worked out. New words (taken to be concatenations of glyphs), therefore, must of needs be grappled with as more ideograms are discovered both in inter- and intra-cultural dialogue and archaeological investigations. That this will lead to an extreme case of the vocabulary problem does not need to be argued for. The effects of an expected explosion of vocabulary will need to be cushioned with the application of techniques of artificial intelligence, while the human agents involved slowly evolve to master the combinatorial mechanisms that are expected to emanate from this exercise. The vocabulary problem has been described as a “troublesome impediment in computer interactions both [...] simple and complex” (Furnas *et al.* 964).

Fifth, the agent will serve as a didactic tool for a re-generated form of orthographic education that is less divorced from the societal reality that the student faces daily. The hope is that the re-generated education system will also tackle considerable levels of *linguistic cognitive dissonance*. By linguistic cognitive dissonance, I signify the highly pervasive scenario in which students leave the classroom with a retinue of Latinized phonemes, but return to their homes and come face-to-face with a barrage of seemingly unending ideograms. Besides, this expanded orthography can be seen as an exercise of retrofitting knowledge; as such it is in dire need of crisp and efficient constructs and mechanisms.

The sixth justification has to do with a deeper phenomenology of language. So long as humans “take [linguistic] signs as referring to items in [some] world” (Mensch 1), the question continually arises as to “how [...] [linguistic signs] accomplish this reference” (1). The answer to this question drives the need not to “limit our inquiry to the signs themselves” (1), so that this same question “merges with the question of how we come in contact with the world [of phenomena]” (1). It is my hope that the GIA will be of use in the performance of a

deeper study of the phenomenological profiles of the expanded script. The deeper study is justifiable in the face of bewildering complexity.

4.2 Hybridizing Causal Learning in Language Acquisition and Use

In order to engage the architectonics of causality in the use of language by humans, I will adopt two models of causal learning in this chapter, and put them into an applied dialectic. The first model is the Aristotelian model which holds that: for person X to move from being a potential user of language to being an actual speaker of language, he needs person Y, who already speaks the language to assist him. Person Y will be deemed to be in actuality when it comes to the use of the language in question. One problem with this model of causation is that it begs the question of infinite regress; the question must be asked: *where did person Y learn to use the language?* An epistemic infinitist might be comfortable with saying, for instance, that person Y learned from person P, P learned from R and so on *ad infinitum*. However, I do not find such an infinitist response to be appealing because infinite regress never exposes the point at which learning began.

In order to address the quagmire of infinite regress, the Aristotelian view of causal learning will be augmented with a more modern view indirectly produced by the work of Kohonen. In Kohonen's view, the brain of a human language user engages in a lot of *unsupervised learning*. Therefore it is not universally true that person X always needs Y to actively engage in transferring knowledge about language use. For Kohonen, the human brain is a self-organizing and self-priming neural network. In sum, then, the model of causal learning adopted in this chapter, while agreeing with Aristotle that humans need an active agent for the acquisition of language, also agrees with Kohonen that the self-organizing features of the human cognitive apparatus enables both the learners and teachers of language to engage in ever more intricate manifestations of linguistic encounters, largely because the human brain contains both self-starting and self-priming neural sub-structures.

4.3 Artificial Agent: a Prolegomenon to an Eavesdropping Cognitive Machine

When I make reference to an eavesdropping cognitive machine, I am faced with the apparent contradiction of using the word ‘machine’ together with the words ‘eavesdropping’ and ‘cognitive’. Common human experience continues to struggle with the possibility of *machines that can cognize*. To address this struggle, I must appeal to uncommon human experience. If, for example, the mechanics human epistemics is naturalized, then the possibility of implementing “strong AI [artificial intelligence]”(Pollock ix) continues to increase. Indeed, artificial neural networks (ANN) have been shown to replicate the effects of human epistemics to fascinating degrees. One example is Kohonen’s implementation of a ‘Self-Organizing Map’, that is able to "discover semantic relationships in sentences" (Kohonen 1464).

The possibility of a cognitive machine is further enabled by the realization that, by means of mimicking a naturalized epistemics, "one can construct [an agent] (a thing that literally thinks, feels and is conscious) by building a physical system endowed with appropriate artificial intelligence" (ix). Henceforth, by ‘cognitive machine’ I refer to an artificial construct that has been endowed with the ability to replicate (and possibly improve) a naturalized human epistemics. I now put the philosophical debate about cognitive machines to rest.

The artificial agent must be inserted into the ever-changing universe of human language games. Since the focus in this thesis is upon an orthographic language game, it follows that a path must be provided that will grant this artificial agent access to the orthographic communication between human agents. Incidentally, any machine that contends with the realm of human language must in one way or the other inherit the challenges that typically accompany the use and evolution of human language. This prolegomenon is

intended as a high-level blueprint for philosophical inquiries into the pragmatics of a language-game that is based upon the expanded orthography.

The next subsection puts forward a schematic of the architectonics of this interaction, and proceeds to flesh out the relevant philosophical loose ends that must be tied up.

4.4 Architectonics of the Human-Machine Orthographic Language Game

The diagram in Figure 3 outlines a schematic blueprint for the realization of the objectives set in this chapter. In terms of ontology, seven entities can be clearly identified. These entities will be analyzed in the succeeding sub-sections. One striking characteristic of this schematic is the closed path originating from the human language game, passing through the never-ending language learning of the GIA, down through the learning outputs and terminating in the human language game. One contention in this chapter is that this closed loop will play a crucial role in the prescriptive-descriptive tension that is needed for the sustenance of an expanded orthography that manifests an ever-growing vocabulary.

The entity labeled (A), which has to do with priming the GIA, is not part of the closed loop, but its role is vital for this prescriptive-descriptive linguistic exercise. The agent must enter into the language game with its own set of artificial orthographic, linguistic and hermeneutical biases. That is to say, the GIA will not be expected to enter into human discourse without its own set of codified presuppositions that have been gleaned from the study and documentation of human language use. Accordingly, the situation can be imagined where the GIA is primed with Latin alphabets, together with their corresponding *Akagu* components, and finally with some already-known symbols from the ever-increasing set of *nsibidi* ideograms. Whereas the whole of Chapter Two was dedicated to the examination of the complicated universe of human language games, the next section focuses on never-ending language learning (NELL).

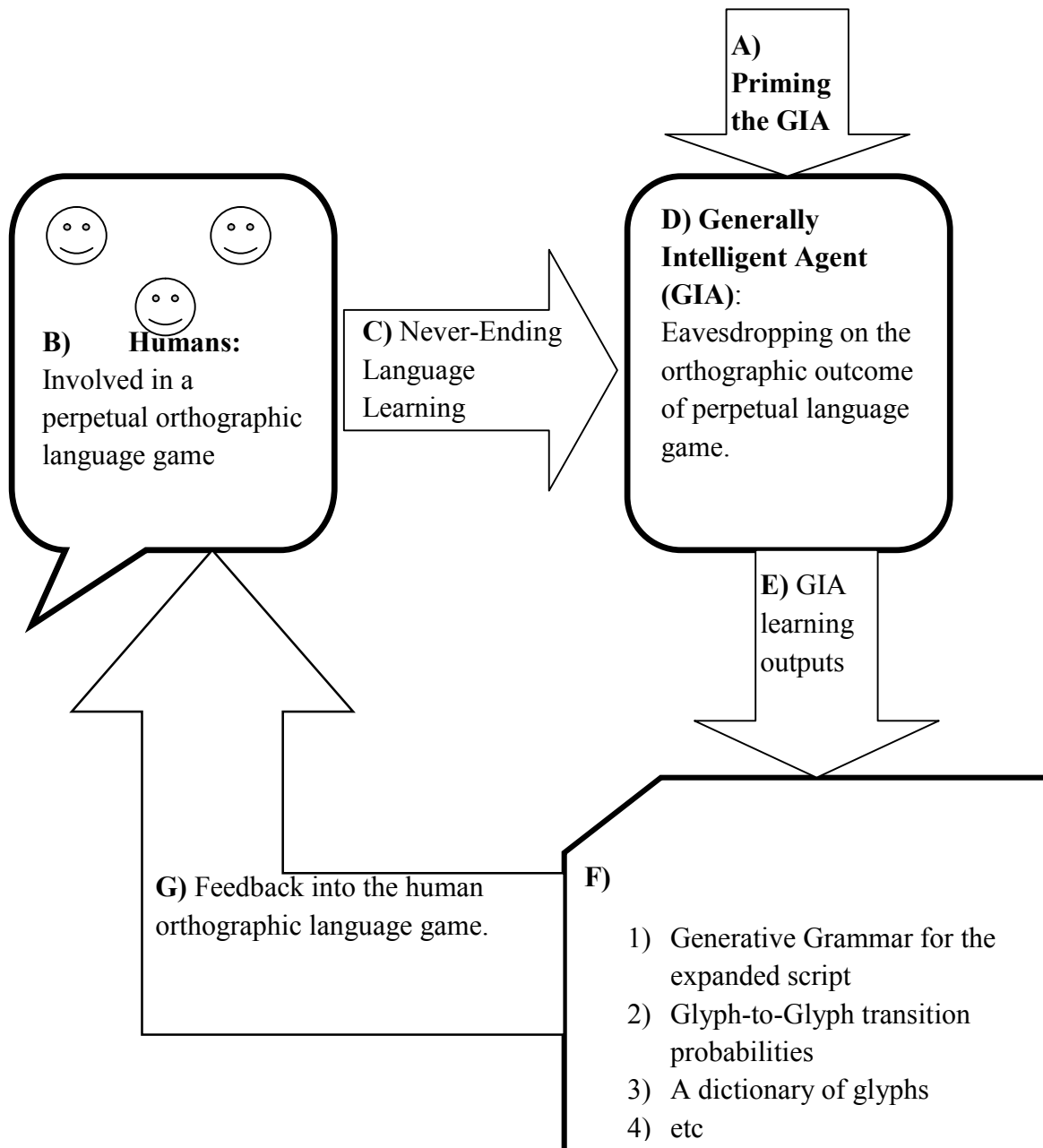


Figure 5: Schematic of the Human-Machine Language Game

4.4.1 Never-Ending Language Learning (NELL)

This sub-section dwells upon the entities labeled (B), (C) and (D). Human language-games go on in perpetuity. It follows that any machine that is intended to linguistically interface with humans must have the capacity to engage language in perpetuity. Mitchell *et al* have labeled this capacity as an artificial manifestation of *never-ending language learning*. The artificial agent, consequently, will be perpetually presented with the orthographic

communication derived from the perpetual language games of humans. The task of NELL is derived from this interaction, and can be broken into two sub-tasks:

i) A "reading task" (Mitchell *et al.* 1), which entails “extract[ing] information from [the human language game] to further populate a growing knowledge [created by priming the GIA]” (1).

ii) A "learning task" (1), which entails “[the GIA] learn[ing] to read [the communication based on the expanded script] better each day than the day before” (1).

An argument against (ii) immediately arises: *how can a machine be said to learn?* The philosophical biases behind this question are many. One bias is the presumption that all learning machines are constructed on the basis of the Von-Neumann machine architecture, an architecture that focuses on the perpetual execution of instructions. In terms of causality, the Von-Neumann model relies only upon the competence of an external agent who is already in actuality with respect to the epistemic domain in question.

In contrast to this architecture, the literature abounds with astounding performance of machines built by imitating the neural architecture of the human brain. By utilizing artificial neural networks (ANN) it has been demonstrated that good quality replicas of the human brain are realizable. These ANNs are invaluable to the phenomenology of language and the phenomenology of human linguistic cognition, inasmuch as they bring the philosopher closer to the brain of the cognitive agent: a brain that remains one of the central objects of his or her investigations. One such inquiry on the use of ANNs to model the human brain proceeded by aiming at “[simulating] elements of natural language, symbol grounding and planning” (Belavkin 2312).–

Other tasks derivable from these two broad NELL tasks include the automatic segmentation of sentences into constituent glyphs and the fleshing-out of an unsupervised machine-learning algorithm. I deem this move toward a hands-on, eclectic approach to the study of language to be better than purely hand-waving speculations about the nature and use of human language. The GIA assisted, hands-on, approach is indeed invaluable for the growth of the speculative enterprise; for speculation will be fed with reliably empirical findings taken from the real world.

4.4.2 Confronting Indeterminacy in Glyph Description

Every glyph is, in the final analysis, a shape. The question naturally arises: *what is a shape?* This seemingly trivial question has dogged philosophers for many centuries. Plato had a difficult time in his attempt to define shape (which he referred to as *‘figure’*). In his dialogic work, *Meno*, he wrote, “I define [shape] figure to be that in which the solid ends; or, more concisely, the limit of solid” (Plato 106). Such a definition, evidently, is of no practical importance to the descriptive study of glyphs, which constitute the elements of the expanded script. This gets more complicated in the face of the realization that glyph descriptions must be codified if they are to be *understood* by the artificial agent. Thus, the question arises as to the best method of codifying these glyphs. It is deceptively simple to suppose that the artificial agent will deal merely with the codification of *images of glyphs*. Incidentally, the idea of *images of glyphs* can be expanded to reveal two realities, leading to two realms of descriptions:

- a) “Insofar as it is an image of a shape, this image needs to be described” (Ibekwe 5).
- b) “Insofar as there is a shape in the image, this shape also needs to be described” (5).

4.4.3 Human-Machine Game as a Deterministic Pathway to a “Generative Grammar”³²

By “generative grammar” is meant any conceptual framework that is capable of generating well-formed-sentences (using the glyphs, not limited to alphabets) and rejecting ill-formed sentences. The generative grammar is the first item in the learning outputs (in module F) of the GIA. In other words, this human-machine orthographic language game will deterministically provide a pathway for the precipitation of a *generative grammar* for the expanded orthography. Determinism is certainly a welcome conceptual development in this venture, for it is philosophically tortuous to engage radically random linguistic phenomena. In agreement with the work of Chomsky in this area, the GIA in this language game will be required to produce the two components that make up the generative grammar of the expanded orthography.

The first component is the “phase-structure component”³³. This component is an aid in the abstraction of generic patterns from the proliferation of sentences based upon the expanded orthography. The phrase-structure component thereby enables the exercise of pattern recognition and classification, taking sentences as its inputs. The isolation and classification of patterns in orthographic scripts becomes easier to realize once the GIA is in contact with a large corpus of sentences that have been generated by humans as they engage in orthographic language-game. The possibility of pattern-recognition, and multi-dimensional analysis of the glyphs that have been encoded means that the GIA is able to produce high-level rules, not from the rarified field of abstraction, but from the interrogation of everyday use of language.

The second component is the *lexicon*. This constitutes the dictionary of the extended orthographic system. The simultaneous and spontaneous extraction of glyphs from the

³² The term “Generative Grammar” was popularized by Noam Chomsky in the late 1950s.

³³ “Phrase-Structure Components” were first proposed by Noam Chomsky in 1957.

sentences obtained from the never-ending language game also deterministically facilitates this. Handling the size of the dictionary will also pose a huge challenge. As has already been stated, the number of possible sentences in this game will tend towards infinity. The issue of linguistic competence also renders a human language-user capable of understanding and producing new sentences and glyph combinations that are historically unique. This is not surprising, since it has become clear that language cannot simply be learned by imitation but acquired by the application of principles of abstraction. If an orthographic construct is taken to be just a repetitive (or iterative) occurrence of glyphs, then there is no upper limit to the length of sentences involved, as has already been demonstrated.

Granted that the artificial agent is primed with a certain grammatical structure, it was shown in section 4.4 that no amount of codification of grammatical structure is sufficient to describe a language as it is used and as it evolves. To address this, the prolegomenon includes a scenario where the artificial agent is engaged in an eternal cycle of producing a generative grammar and feeding it back into the human language game. The neural architecture of the GIA will also enable it to encode and develop a form of artificial linguistic competence. This will be in imitation of humans, so that the GIA can be able to generate sentences without an over-reliance on grammatical rules. The danger being that these rules, based upon the philosophical framework in Chapter Three, might become so inflexible as to stifle the exercise of expanding the orthography.

4.4.4 Glyph-to-Glyph Transition Probabilities at the Service of a Descriptive Grammar

The human-machine language game proposed in this chapter faces the challenge of providing a *descriptive grammar* for the expanded orthography. Chomsky has argued for a certain innatism that is behind all human understanding and production of language. For Chomsky, the automatic understanding and production of language requires that the inner

structure of words be known. Frequently referred to as the concept of a *universal grammar*, Chomsky insists that:

The grammar of a particular language [...] is to be supplemented by a universal grammar that accommodates the creative aspect of language use and expresses the deep-seated regularities which, being universal, are omitted from the grammar itself (Chomsky 6).

The GIA, for obvious reasons, does not benefit from this Chomskyan innatism, although I can argue that the GIA realizes its own artificial innatism as it goes on strengthening its synaptic connections. Whatever be the case, the GIA must go about its own linguistic engagements using a very different route. One approach is to treat written language as a generative enterprise that also involves recursion. Recursion involves the re-use and re-arrangement of glyphs; this exercise of re-use and re-arrangement can be further encoded by a determination of the glyph-to-glyph transition probabilities. Basically, this set of probabilities will help to answer the simple question: *which glyphs are typically to be found in the neighborhood of which other glyphs?* This set of probabilities is determined by way of an *a posteriori* exercise, so that the exercise fits in nicely with the intended objectives of a descriptive grammar.

4.5 Prescriptive-Descriptive Tension as Path to a Chaos-Theoretic Linguistics

The analysis of the human-machine language game in this chapter further opens the way to yet another philosophical approach to the study of the expanded orthography. In the attempt to extract deterministic entities from the inherently unpredictable interactions of humans in an orthographic language game, it can be seen that language is highly dynamic and inherently non-linear. Furthermore the use of the expanded orthography involves the interplay of “many different subsystems [such as] phonology, morphology, lexicon, syntax, semantics, pragmatics” (Ahmadi 293). These properties *a fortiori* render the study of such a

writing system amenable to the techniques of chaos theory. A language game is, at its very core, a chaos game because it is mildly deterministic and inherently unpredictable. Thus, any technique that is proficient at the management of chaotic complexity will definitely be of great service here.

The study of randomness in this language game will further aid the clarification of the categories with which southeastern Nigerians reason. This will be veritable counter-exercise that will challenge one of the unquestioned assumptions³⁴ that have been behind the uncritical Latinization of languages.

4.6 Re-visiting Semantic Efficiency

At this juncture, the question must be raised: *how does all the architectonics hitherto presented improve the semantic efficiency of an orthography based on the expanded script?* The answer to this question lies in the closed path that was alluded to in section 4.4. The beauty of the artificial agent lies in the fact that it produces documents which are fed back into the dynamics of the perpetual human orthographic language game. This feed-back mechanism enables humans to perform corrective tasks. These corrections are further learned by the NELL mechanism of the artificial agent, and so the orthographic exercise will tend to be self-critiquing and self-correcting.

This self-critiquing, self-correcting and self-updating aspects that underlies the architectonics deliberated upon in this chapter will go on to improve the conditions that enable the optimal transmission of subjective meaning among human agents involved in the perpetual language game. Improved conditions, furthermore, will increase the chances for optimal transfer of meaning.

³⁴ Some of these assumptions are examined in Section 1.2.1.

4.7 Conclusion

My objective has been to descriptively engage the use of language in southeastern Nigeria by insisting on the return to the orthographic language game. In this chapter, I have presented a philosophical blueprint for evacuating the realm of Latinized orthography. While in the previous chapters I focused on the *why* behind the project of orthographic expansion, in this chapter I extended the *why* question to include the *how* question. By adopting the philosophical techniques peculiar to artificial intelligence and machine learning, I have aimed at enriching the dialog by moving for the abandonment of purely speculative exercises on the philosophy of language, more specifically in the realm of orthography.

Chapter Five: General Conclusion, Related Ramifications and Further Work

5.0 Introduction

In this chapter I conclude my arguments for an expanded orthography in southeastern Nigeria. I also present a case for the further evolution of the ideas outlined in this thesis. Basically, this chapter attempts to answer the question: *what next for the proposed expanded orthography?*

The succeeding sections of this chapter are structured as follows. Firstly, I conduct a reflexive review of my arguments by examining the way and manner in which this thesis has addressed the gaps identified in the literature review conducted in Chapter One; this is outlined on a point-counterpoint basis. Secondly, I dwell upon the implications of a revised orthography for the philosophy of education, the philosophy of history and some aspects of linguistic anthropology. This is in line with the realization that any attempt to tamper with orthography eventually translates to tampering with the cognitive categories and world-views of an entire group of people.

5.1 Revisiting Gaps in *Nsibidi* Literature

I had identified the shortfall, that most of the academic literature on *nsibidi* is bogged down on the swampy terrains of historico-archaeological inquiry and analysis. I had also mentioned that the largely unknown neo-*nsibidi* movement lacks both academic rigor and sound philosophical justification. It has been my task in this thesis to address these two shortfalls. On the one hand, the philosophical arguments in Chapter Three provide conceptual grounds for the escape from the overly historical and archaeological bent of current academic literature. On the other hand, I have endeavored in this thesis hopefully to provide academic rigor and ideological³⁵ justifications (in other words, enabling Gadamerian prejudices) that will enable the continued growth and sustenance of the neo-*nsibidi* movement, a movement

³⁵ This is meant in the Gadamerian sense

that presently appears to be the turf of a few orthographic enthusiasts. Furthermore, by adopting a unified theory of meaning, in creative interplay with the sedimentation of meaning, I have struggled to demonstrate that the observed lack of a systematic and consistent framework for semiotic, hermeneutical and linguistic analysis can be adequately addressed.

In Chapter Four, I presented a framework, befitting of a twenty-first Century analysis, for the descriptively-derived and comprehensive dictionary of glyphs, together with the all important Chomskyan generative grammar. This modernized framework was worked out by inserting an artificial agent into the dynamics of the complicated language game that is perpetually in progress in southeastern Nigeria. By adopting a *never-ending-language-learning* epistemic model, I argued that this artificial agent will actualize a linguistic inquiry that is phenomenologically equipped to embrace the philosophical indeterminacies involved in the evolution and utilization of spoken and written language.

5.2 Revisiting Gaps in Igbo Orthography

I observed that Onwu orthography proceeded by making the silent assumption that southeastern Nigerians think using the exact same mental categories as those who originally contrived the set of Latin alphabets. I have responded to this presumption by way of recognizing the structuralist³⁶ underpinnings that have influenced the use and spread of *nsibidi* ideograms; as structuralism provides a pathway to identifying and itemizing the (largely undocumented) categories that remain peculiar to southeastern Nigerians. In addition, the short-comings arising from these presumptions were further countered by arguing for an orthographic expansion that (being aware of cultural baggage carried by all those involved in the orthographic inquiry) does its best to suspend judgment, adopting truly a phenomenological attitude as much as is possible.

³⁶ These structuralist underpinnings were discussed in Section 3.3

The proximate and remote causes of orthographic controversy, I further explained, could be linked to the silent presumptions about the satisfactoriness of alphabetic reductionism. I have argued in this thesis that such presumptions are addressable by recognizing the fact that Igbo language is not determined *a priori* to use Latin alphabets. This last point further opened the way for a deeper orthographic engagement of the language. Going further, the realization that borrowing the Latin alphabets inexorably leads to the inheritance of problems associated with their historical and cultural development was discussed under the umbrella of a ‘written language bias’. This bias is one that has been brought to the front burner in this thesis, and its continued critique will contribute to the evolution of written language.

I also noted that Latinization might have contributed to a certain freezing of orthographic vocabulary. This is partly due to the fact that Latinization treated the so-called unconventional elements of the Igbo language as generally ungrammatical and possibly non-linguistic. The question that was never answered remains: *who exactly sets the orthographic convention?* This unanswered question remains a great obstacle to the growth of any language, an obstacle that must continue to be confronted in the orthography of languages in southeastern Nigerian.

5.3 Butterfly Effects of an Expanded Orthography

In this section, I intend to demonstrate how orthographic expansion is coherently intertwined with other aspects of life and how this coherence impacts the answer to the question: *what next for the expanded orthography?* Language is inseparable from society; in fact society plays itself out in language, just as language is also the architect of a human society. It follows that paying insufficient attention to a local language will not augur well for many other aspects of the society.

It is possible to raise the question as to the social status of the GIA mentioned in Chapter Four. Being obviously non-human, what role will the GIA play in the hierarchy of entities that orchestrate the use and evolution of language in human society? This question was implicitly addressed in Section 4.3, in which the GIA was shown to be, in the final analysis, an eavesdropping cognitive machine. Perpetually engaged in a *listen-and-learn* paradigm, it is never really admitted into human society as a user of language, but as a possible repository of symbols at the service of human society. The GIA's role will be largely as a didactic tool, because the hallways of experience indeed reveal that it is difficult to recover from the cycle of reversal that materializes whenever the language of a society is didactically marginalized. In the following sub-sections, I concentrate upon two philosophical off-shoots that I deem to be simultaneous with respect to the widespread adoption of an expanded orthography.

5.3.1 An Inward-Looking Philosophy of Education in Southeastern Nigeria

Certain perennial questions continue to haunt the philosophy of education in all its ramifications: *What should be the aims and purposes of education? Who should be educated? What role should the state play in education? What should be taught? What is knowledge?* These questions remain relevant to the context of southeastern Nigeria as myriad forms of art, laden with decorations rich in *nsibidi*, continue to be ignored by the dominant educational system³⁷.

There is no doubt that the outcomes of the human-machine language game in Chapter Four will be of immense use in the teaching of language in southeastern Nigeria. The teaching of the expanded orthography will necessarily challenge the silent assumption that *development of culture* is synonymous with the progressive *Westernization of culture and*

³⁷ On a similar note, the rise of the *Boko Haram* terrorist group can be linked to the existence of an educational system (in Northern Nigeria) which has essentially refused to evolve beyond the pre-medieval mindset of the founders of Islam who lived in the Middle East.

covert forms of cultural imperialism. It is my conviction that, by questioning the bias behind widespread orthographic practices in southeastern Nigeria, new questions can be raised and addressed; questions that will be seen to be very relevant to the educational context of that region of Nigeria. Since orthography continues to be an important medium for the transmission of knowledge in institutions of education, I am convinced that far-reaching positive consequences can be realized in this exercise.

An example that comes to mind is based upon the fact that the world view of the *Ekpe* society points to an esoteric universe that begs to be explored. The fact that such knowledge is sometimes couched in the vocabulary of myth should not be taken as a disadvantage by mainstream science. Rather it remains an invitation to delve deeper into the search for meaning, and for the ultimate substructures that underlie the universe. The methodical exploration of such so-called myths might open the way to a different approach to the study of nature and science. This comes against the background of a strong need to cushion the environmentally unfriendly consequences of mainstream science and technology.

In effect, the widely held, dominant position that mainstream science has somehow reached its zenith may indeed be found to be seriously mistaken. The ideograms offer us two realms in which our investigations can flourish. While in this thesis I have focused on the linguistic-orthographic realm, the possibility remains that the esoteric realm might open the way to a different form of consciousness that will definitely lead to a renewed outlook on the physical universe.

Adorno and Horkheimer warn philosophers about the dangers of claiming to separate *myth* from its so-called anti-thesis: *reason*. The central thesis of their work being that "myth is already enlightenment, and enlightenment reverts to mythology" (Adorno and Horkheimer xviii). Their apt observation being that all such exercises in the frenzied

compartmentalization of myth and reason usually involve yet other deeply entrenched (and often dangerous) *myths*. It follows that the myths to be found in African cultures are not to be disdained with mechanistic panache, but seen as veritable opportunities for more research and inquiry. An expanded orthography, incorporated into the educational climate of the region, will help to deepen the local knowledge of the southeastern Nigerian student, so that he or she is equipped with a Gadamerian bias that does not go in search for sources of new knowledge by over-emphasizing generally imported, underdetermined ideas. By underdetermination, I refer to the ubiquitous occurrence in science that “for any hypothesis [...] the evidence will always be compatible with more than one explanation” (Baggini and Fosl 273). In the light of underdetermination, therefore, opening up the possibilities of enquiry usually enriches the discourse.

5.3.2 A Deepening of the Linguistic Anthropology of Southeastern Nigeria

By *linguistic anthropology*, I refer to the " [the multi-disciplinary field] that offers a set of concepts and tools for undertaking [the] challenge [of examining] language as used in real-life social contexts" (Ahearn xi). If human society is composed of human beings that are in perpetual communication with each other, then it makes sense to adopt the philosophical view of *society-as-language-in-motion*. The inductive nature of this philosophical view begins to gather strength when it is realized that every human society necessarily interacts with the use of language. This point of view has highly charged implications as it manifests in the study of linguistic anthropology. One implication is the re-thinking of any culture as basically a system of signs which co-operate with each other in a continuous movement of sameness and alterity. This idea is a summarized form of the Sapir-Whorf hypothesis. To engage this hypothesis (and its relation with the expanded orthography pushed for by this thesis) I begin by citing from both Sapir and Whorf. According to Sapir, every human society is:

Very much at the mercy of the particular language which has become the medium of expression for their society. It is quite an illusion to imagine that one adjusts to reality essentially without the use of language and that language is merely an incidental means of solving specific problems of communication or reflection. [...] We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation" (Sapir 69).

This thesis, much in agreement with Sapir, has maintained that the predominant orthographic practices in southeastern Nigeria have largely ignored certain fundamental portions the language-habits of those that use those same languages. The new task of the intelligentsia, therefore, is to rediscover and reclaim those language-habits that have been rendered invisible by an all-too-Latinized writing system, because a lot of information can be revealed by conducting such an exercise systematically. Furthermore, citing from Whorf's rendering of the hypothesis, it can be said that:

We [human societies] dissect nature along lines laid down by our native languages. The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face; on the contrary, the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds - and this means largely by the linguistic systems in our minds (Whorf 213).

It is interesting that Whorf isolates the "categories and types that we isolate from the world of phenomena" (213). This last point lays a good foundation for the questioning of the universality of Aristotle's *categories*, which are in dire need of critical assessment by way of deep thought and socio-cultural analysis.

In the light of the Sapir-Whorf hypothesis of linguistic relativity, it can be said that the history of any group of people can be shown to consist of a perpetual and peculiar generation of artifacts, sociofacts and mentifacts, as described in Section 3.5.7. The practical ramifications of this section are huge. At once it becomes clear that many of these artifacts, mentifacts and sociofacts have been efficiently ignored by all those attempting to contrive the so-called ‘Standard Igbo’. The orthographic symbols of Standard Igbo, when subjected to the analysis of Chapter Two, will be seen to fall desperately short of the very desirable game-theoretic Nash Equilibrium point, thereby exhibiting many characteristics of semantic inefficiency.

My suggestion, therefore, is that further work on this expanded orthography must strive to codify each of the 20 dialects of Igbo language, while holding off the strong temptation to conjure (*a priori*) a ‘standard’ language that, when scrutinized, will be found to be unrepresentative in one way or another. It is not impossible, for instance, that the orthographic peculiarities of a given Igbo dialect can help to enrich the language games continuously played by users of other Igbo dialects. In other words, the attempt at ‘standardization’ should no longer take center stage, for it distracts from cultural peculiarities that enrich dialogue and deepen thought. A deepened thought process typically enables the sedimentation of enabling prejudices which are crucial to the crafting of a richer historiography.

5.3.3 Historiography with an Indigenous Bias

I begin this section by assuming the position that the term *history* is best described as the phenomenology of the past. Now, if the ‘past’ is taken as ‘*the times that have gone by*’, then history immediately inherits all the metaphysical puzzles that have to do with the meaning and nature of time itself. I will not go into these puzzles in this thesis. I proceed,

rather, by recognizing that the typical historian is never in touch with '*the past*' as he or she conceptualizes it.

I maintain that it is more realistic to claim that the historian is in touch with 'the past' only insofar as it 'exists' in the individual and collective memory of the *daseins* that had something to do with 'the past', and is *manifestable* therefrom. Within the manifestations of these memories can be located information about artifacts, *sociofacts* and *mentifacts* which the historian intends to study. The artifacts themselves have the bewildering property of being neutral and always in need of interpretation. The *sociofacts* of any group tend to remain opaque to non-members of that group and therefore stand a high risk of gross misinterpretation. The *mentifacts* of the group, insofar as they are mental processes, are the most elusive of the three and, as such, must remain the subjects of perpetual enquiry and rumination. The GIA, in performing its never-ending language-learning, participates in a small way in the exercise of perpetual rumination on the physical manifestation of *mentifacts*.

Against this background the question must continually be raised: *what exactly is brought to the table with every historical claim about southeastern Nigeria?* The dominant narrative about the history of southeastern Nigeria has been an exercise of the phenomenology of the past, performed by historians wearing European lenses. This does not diminish the usefulness of such historical accounts, but it is clear to many that these European lenses have efficiently filtered out many details. The narrative of history depends upon language, and it will be interesting to discover how the history of southeastern Nigerian society will appear when the European lenses are taken off by the exercise in orthographic expansion. The outcomes of the human-machine language-game in Chapter Four will serve as historical tools, ever becoming a more comprehensive repository of symbols, since these outcomes delve deeper into the memory of many *daseins* instead of imposing content, and effectively telling *daseins* what to remember and what to forget.

5.4 Conclusion

In this thesis I have dwelt upon the improvement of orthographic semantic efficiency through the systematic and consistent assimilation of *nsibidi* ideograms. Further work must be done by engaging in orthographic exercises; and the only way to engage in orthography is by doing orthography, forever returning to the orthographic language game. This entails a return to the mechanics of everyday life and communication, accompanied by the silent reflections that analyze these mechanics. My main contribution is a set of tools for the gauging of the effectiveness of any orthographic strategy chosen, ever realizing that a thin line separates any orthographic strategy from the realm of reasoning under uncertainty.

I have worked towards developing a philosophical framework. Further improvements can be made either by way of refining this philosophical framework, or using the framework as a blueprint for the re-examination of orthographic endeavors. Whatever be the case, a pathway has been opened in this thesis for a fresh and exciting re-engagement of the myriad untapped nuggets of human cognition and evolution, both within southeastern Nigeria and beyond.

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Appendix 1³⁸

Some linguistic terms

Artifacts: " things made by [members of a society], whether tangible [...] or intangible" (Kowalski 258).

Bound Morpheme: A morpheme (or word element) that cannot stand alone as a word..

Free Morpheme: A morpheme (or word element) that can stand alone as a word.

Grapheme: Distinctive unit of a writing system. Variants of any given grapheme are called *allographs*. In general, graphemes are considered the smallest distinctive units of a writing system. In alphabetic writing systems, graphemes are a written approximation of phonemes.

Lexeme: Basic abstract unit of the lexicon on the level of langue (*langue vs parole*) which may be realized in different grammatical forms such as the lexeme write in writes, wrote, written.

Mentifacts: "the thoughts, beliefs, values and attitudes that underlie the [creation of the artifacts and sociofacts]" (Kowalski 258).

Morpheme: Theoretical basic element in structural language analysis, analogous to phoneme: the smallest meaningful element of language that, as a basic phonological and semantic element cannot be reduced into smaller elements, e.g. book, three, it, long. Morphemes are abstract (theoretical) units.

Mytheme: The essential kernel of a myth, an irreducible, unchanging element. A minimal unit that is always found shared with other, related mythemes and reassembled in various ways or linked in more complicated relationships. (see Levi-Strauss, *The Jealous Potter*, Chicago, 1988, pp 144-46).

Sociofacts: "the actions and interactions of [members of that society], including verbal and nonverbal communication, customs and rituals" (Kowalski 258).

³⁸ Some these terms are derived from: Bussmann, Hadumod. "Ideogram." *Routledge Dictionary of Language and Linguistics* 1996.

Appendix 2
Some *nsibidi* radicals



Source:

<http://nsibiri.blogspot.co.uk> , Accessed: 4 July 2014

Appendix 2a

Some more *nsibidi* ideograms

#	glyph	key	reading	translation
0005		C	éze	king
0006		MMF	mikpologwu	root
0007		MMF	ákúkúkú	leaf, paper, book
0008		O	mmini	water
0009		O	nsogbu	problem, palaver
0010		MF	ágwọ	snake
0011		MMF	áhiá	market place
0012		O	mádu	human, person
0013		MF	úfọ	house
0014		O	òpiá	sword
0015		O	okpóló	rod
0016		O	aguba	razor
0017		MMF	nzá	support, help
0018		O	ótù	one
0019		O	abuọ	two

#	glyph	key	reading	translation
0020		O	átọ	three
0021		N	omọ	tender palm frond
0022		O	ńche	guard (n.)
0023		O	égbé	gun
0024		N	zu	train, raise
0025		O	[nwa]anyi	female
0026		O	oke	male
0027		O	anọ	four
0028		C	okpuru	under, below
0029		MM	ofíá	bush, woods
0030		S	ánwú	sun
0031		N	tú	impregnate, germinate, cause
0032		O	ise	five
0033		O	ishii	six
0034		O	asaa	seven

Source: <http://nsibiri.blogspot.co.uk>, Accessed: 4 July 2014

Appendix 3

Some Igbo personal names transcribed using *nsibidi* and *akagu* symbols

Adaeze	𐄂𐄂𐄂	Chinasa	𐄂𐄂𐄂𐄂	Nkechi	𐄂𐄂
Adanna	𐄂𐄂𐄂	Chinedu	𐄂𐄂𐄂𐄂	Nkechinyere	𐄂𐄂𐄂𐄂𐄂𐄂
Adannaya	𐄂𐄂𐄂𐄂	Chinonso	𐄂𐄂𐄂𐄂	Nkem	𐄂𐄂
Akachi	𐄂𐄂	Chinwe	𐄂𐄂	Nkiru	𐄂𐄂
Amadi	𐄂𐄂	Chinweike	𐄂𐄂𐄂	Nkiruka	𐄂𐄂𐄂
Amaka	𐄂𐄂𐄂	Chinwendu	𐄂𐄂𐄂𐄂	Nnamdi	𐄂𐄂𐄂
Amara	𐄂𐄂	Chinyere	𐄂𐄂𐄂𐄂	Nneka	𐄂𐄂
Amarachi	𐄂𐄂𐄂	Chioma	𐄂𐄂𐄂	Nnenna	𐄂𐄂
Azubuike	𐄂𐄂𐄂	Chizoba	𐄂𐄂𐄂	Nnenne	𐄂𐄂
Chiamaka	𐄂𐄂𐄂𐄂	Chuks	𐄂𐄂𐄂𐄂	Obinna	𐄂𐄂
Chibueze	𐄂𐄂𐄂	Chukwudi	𐄂𐄂𐄂	Ogechi	𐄂𐄂
Chibuiké	𐄂𐄂𐄂	Chukwuemeka	𐄂𐄂𐄂𐄂	Oluchi	𐄂𐄂𐄂
Chibuzo	𐄂𐄂𐄂	Chukwuma	𐄂𐄂𐄂	Onyeka	𐄂𐄂𐄂
Chidi	𐄂𐄂	Ebere	𐄂𐄂	Onyekachi	𐄂𐄂𐄂𐄂
Chidiebere	𐄂𐄂𐄂	Ekele	𐄂𐄂	Onyekachukwu	𐄂𐄂𐄂𐄂𐄂
Chidiebube	𐄂𐄂𐄂	Ekeledirichukwu	𐄂𐄂𐄂𐄂𐄂	Uche	𐄂𐄂
Chidimma	𐄂𐄂𐄂	Ekwueme	𐄂𐄂𐄂	Uchechi	𐄂𐄂𐄂
Chidubem	𐄂𐄂𐄂𐄂	Emeka	𐄂𐄂𐄂	Udo	𐄂𐄂
Chiemeka	𐄂𐄂𐄂	Enyinnaya	𐄂𐄂𐄂	Ugo	𐄂𐄂
Chijindum	𐄂𐄂𐄂𐄂	Ikenna	𐄂𐄂	Ugochukwu	𐄂𐄂𐄂𐄂
Chika	𐄂𐄂	Kelechi	𐄂𐄂	Ugonna	𐄂𐄂
Chike	𐄂𐄂	Kelenna	𐄂𐄂	Uzo	𐄂𐄂
Chikere	𐄂𐄂𐄂	Ndidi	𐄂𐄂𐄂	Uzochi	𐄂𐄂𐄂
Chima	𐄂𐄂	Ngozi	𐄂𐄂𐄂	Uzoma	𐄂𐄂𐄂

Source: <http://nsibiri.blogspot.co.uk>, Accessed: 4 July 2014

NOTE: The expanded orthography is an opaque orthography: there is no strong correlation between the sound of a word and its orthographic transcription.

Appendix 4³⁹

Some *Akagu* Alphabets



NOTE: One promise of the *Akagu* script is that of providing a grapheme for the transcription of nasalized and aspirated sounds (see the discourse in Section 1.2.1, page 16).

³⁹ Source: "Akagu Alphabet", <http://www.scribd.com/doc/117116336/Mu-ta-Akag%E1%BB%A5-Brief-for-the-Akagu-Alphabet>, Accessed 4 July 2014.