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Editorial

This issue of the *Journal of Linguistics and Language in Education* (Volume 8, Number 2 (2014)) brings to our esteemed readers articles covering discourse analysis, general linguistics and applied linguistics.

In the first article, Hala-hala and Kalobe employ the Content Analysis approach to investigate negative representation of the National University of Lesotho (NUL) in the Weekly Newspaper, *Lesotho Times*. Their analysis demonstrates overt and covert stereotyping of the NUL that is aimed at cultivating a perspectival projection among the Basotho.

In the second paper, Harvey examines epenthesis in relation to the adaptation of loan words into Swahili. He identifies the nature of the vowels that are inserted in loan words and explains their various phonetic realizations. In his conclusion, he notes, among other things, that some of the etymon vocalic materials are lost but others remain after the epenthetic process. He also identifies some suppletive forms that are not bound by the constraint on crossing from one side of the stressed vowel to another.

The third article by Mapunda and Mafu discusses errors made by students in three Tanzanian universities. The authors classify the errors into writing mechanics, logic, grammar, language transfer, and unclear expression. They also recommend that the universities review their communication skills curricula and other pedagogical processes and offer a diagnostic English language test for identifying students' problems which, after being identified, should be addressed.

In their article, Busari, Tatira, and Madzudzo explore the use of the Mother Tongue in teaching science. They are of the view that the Mother Tongue can make the teaching of science effective and suggest that a standard indigenized scientific terminology for school science teaching be developed.

The last article by Taji and Mreta investigates different strategies for establishing concord with conjoined noun phrases in Chiyao. The authors argue that concord with conjoined noun phrases is achieved through the use of default agreement markers, agreement markers of the nouns closest

to the verb, agreement markers of human nouns in cases where human and non-human nouns co-exist, and compound sentences.

We hope that the five articles in this issue will be both informative and instructive to our readers. Finally, the editorial committee and the advisory board are grateful for your continued support in terms of article submission and subscription to the Journal.

Dr Abel Y. Mreta
Chief Editor
December 2014

An Investigation of Negative Representation in Media: A Case Study of Scrutator

Mokhoele A. Hala-hala* and Maboleba A. Kolobe**

Abstract

The aim of this paper was to investigate negative representation of the National University of Lesotho (henceforth NUL) by the Scrutator in the weekly newspaper, the Lesotho Times. With a view that negative representation is a form of the media framing which seems to be increasingly taking up different dimensions worthy of attention for further conceptual understanding, we set out to examine the phenomenon. We set out with an assumption that the findings of the study would shed light on media operation, in general, and also help the media audiences observe how one of the local print media houses, the Lesotho Times, represents certain groups of Basotho society. The concept of negative representation is probably one of the phenomena which have drawn much attention from scholars of different disciplines within the social sciences, linguistics and communication studies. Adopting Content Analysis as a research instrument in selected issues of the Lesotho Times from 2010 to 2011, we investigated the Scrutator's negative representation of the NUL community in this particular newspaper. We, therefore, observe that negative representation is a perspectival projection of the newspaper; it is probably a strategic tool of manipulating people and making them develop a certain attitude towards the University as well as the University community despite its role as a leading tertiary institution in the Kingdom of Lesotho.

Keywords: *media production, negative representation, framing, agenda-setting, gate-keeping, manipulation*

Introduction

This paper aims at investigating negative representation of the NUL community by *the Scrutator* in the weekly newspaper, *the Lesotho Times*. We approached the analysis from the perspective that the concept of negative representation is one of the most pervasive phenomena which have drawn much attention from scholars of different disciplines within social sciences, linguistics and communication studies. In this light, we decided to critically examine the manner in which *the Lesotho Times* as one of the media houses tends to represent the NUL, one of the higher learning institutions in the Kingdom of Lesotho. In order to conceptualise

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media production, and indeed the media as *the Fourth Estate* institution which performs different functions in society (O'Shaughnessy & Staddler, 2002), we looked at some theoretical frameworks of the media as shown in the following sections.

Media Production

The nature and the role of media production have attracted the attention of many scholars not only in media circles, but also across the spectrum of academic scholarship. The media, also known as the mass media, can be described positively as being able to forge solidarity with ordinary people. The concept also comprises such catchwords as mass movement, mass action and mass support (McQuail, 1987, in Steinberg, 2007). The concept of mass media involves multiple and mass production of messages which are designed for very large, anonymous, amorphous and indistinguishable audiences. The mass media communication also involves mechanical and technological electronic devices and social institutions such as newspapers, radio, TV, film, the Internet and so on. As the extension of interpersonal communication, the mass media are a mediated rather than being a face-to-face communication. Here, the audiences are far in time and space from the mass communicator (Steinberg, 2007; Fourie, 2007). Besides, the mass media are considered an ideal and a very powerful tool used to influence people's thoughts and opinions; they are a propaganda instrument which reflects attitudes, thoughts and values of writers (*The ABET Trainer Series, 1997*). As will be shown below, different theories are put forth regarding this type of communication.

Gate-keeping

Associated with the mass media is the notion of gate-keeping. Gate-keeping is con- sidered a filtering process and involves a team of different people who engage with different, but work-related categories. In this view, the team exercises power to select, reject, interpret and change as well as influence the content intended for the general public. This team usually includes, among others, boards of directors, managers, editors, reporters, layout artists, photographers, law, ethics, economics; that is, advertisers, and other stakeholders all of whom jointly produce media texts (*The ABET Trainer Series, 1997*; Steinberg, 2007).

Agenda-setting Theory

As the gate-keeper, the media also set agenda for public attention. The theory of agenda- setting is concerned with what the media consider to be of public interest. On many occasions, the media select what the public should know and think about rather than report and comment on everything happening around them. In their agenda-setting, the media

consider as news worthy, for public consumption, such topical issues as crime, rape, AIDS, corruption and/or any other bad news in a particular situation. For example, on one occasion in 2001, the media considered four anthrax reports as a newsworthy item, and even associated those particular cases with terrorism, following *the September 11, 2001* (O'Shaughnessy & Staddler, 2002).

Framing

Also typical of media production is framing. The concept of framing is one of the most important features in news making by the mass media. Framing procedures include selection, emphasis, exclusion and elaboration of a particular news item, making it salient and worthy of reporting (Steinberg, 2007). Frames may be viewed as the schematic interpretation through which individuals are able to locate, perceive, identify and label issues and events. As interpretative schema, frames make sense of and discuss, as well as simplify complex issues, usually transferring abstract issues into concrete aspects. With frames, journalists often craft interesting and appealing news reports and make prominent certain considerations and arguments over others. People use words as triggers and frames to negotiate meaning through the lens of existing cultural beliefs and worldviews. Frames are also invoked in terms of negative attributes of certain groups or individuals in society, be they, gangs, politicians, financiers, or new laws. Frames help communicate why an issue might be a problem, who or what might be responsible and what should be done. Once resonating with a particular audience's interpretative schema, framed messages often influence the public. As such, frames result in different responses, depending on terms used to describe the problem or visual context in messages (Fourie, 2001).

Furthermore, frames' perceptual lenses or world views, which include religious beliefs, political partisanship, or ideologies, are acquired through a long-term socialisation process or other types of social learning. In order to better understand the concept of framing, one would observe the role of the media in influencing the audiences, policy makers and other societal actors, in terms of shaping their judgments and decisions (Nisbet, n.d.). In this way, media reports and comments are usually intended to promote a particular news angle or slant for public consumption. Most importantly, framing, and indeed, interpretation of reality by the media, purports to cultivate a particular attitude on the part of their audiences towards selected topical issues in society at large; framing is therefore, a feature of meaning construction which is tantamount to cultivation theory (Steinberg, 2007).

Representation

As the interpretative schema of meaning making, the concept of framing is also closely linked to the media representation. According to Greer (2008: 38), the "media content nearly always reflects values and ideology (a framework of ideas and beliefs) of the communicator", in media representation. From the critical media perspective, the concept of representation involves different ways in which people are collectively thought of, usually in negative overtones by the media. In this view, representation can be understood in two main ways: how the media re-present or portray certain events and groups of people in a particular society (cf. Branston & Stafford, 1999, cited in Fourie & Karan, 2001).

The media representation of specific people and groups is, itself, a terrain of stereotyping. Fourie & Karan (2001: 480) define a stereotype as "a prejudiced, generalised, simplified conception of a person and/or a group which could be either negative or positive, but which usually implies negative consequences". In Greer's view, stereotyping denotes a shorthand method of representing different groups of people (Greer, 2008). Stereotyping has been studied from different theoretical perspectives, which include cognitive psychology, sociolinguistics, anthropology and sociology. In Greer's (2008) view, non-westerners are described as barbaric, savage, wild and primitive, uncivilised, animal-like, servants and so on. Stereotyping has, since the 16th and 17th centuries, been a guiding principle of categorising people by the Western theologians. According to this view, people's groupings were continental: Europe was the place for Joseph's children; Asia for Shem's children, and Africa, the place for Ham's children, and it was considered to be the place for slaves. In addition, from Hegel's perspective, Africans were also considered as having no history. Hegel's stereotyping theory has been very influential over the past decades.

The concept of stereotyping which is associated with Levi-Strauss' theory of binary opposition, can be examined from the mythical perspective in that it constructs two oppositional entities at a time. For Levi-Strauss, the most important oppositional dichotomies are good *vs.* bad, rich *vs.* poor, order *vs.* chaos, intellect *vs.* emotion and so on. He regards every society as possessing different symbolic forms, typifying diverse worldviews, behaviours and values. For him, media reports and editorials, which include a political content, are often constructed by means of manifest and/or latent stylistic devices to reflect such dichotomies.

The binary opposition, therefore, represents different groups: the "us" and "we" victims, and "them" and "they" criminals. In this view, the former in each pair of the above dichotomies, is usually stereotyped in positive overtones, and the latter in negative overtones. The case in point is the

Apartheid South African discourse during the White minority government (Fourie, 2007). Drawing on Barthes' theory of social myth, the socially constructed stereotyping was universalised and imposed by one group on others. Here, the popular culture of the status quo was portrayed as if natural or as a way of life by the media. At the time, the Afrikaners were stereotyped as capable and hardworking, on the one hand. The Blacks were framed as incapable and lazy, also being labelled as thieves, labourers, servants and murderers, on the other hand (Fourie, 2007).

Elsewhere, studies were also conducted on media stereotyping. The media sociologists of the Glasgow University Media Group (GUMG) studied the news content surrounding industrial relations between the government and the unionists in the 1980s in Britain (Glasgow Media Group, 1980). The GUMG found the media stereotyping in which the employees were portrayed negatively, with the employers being portrayed positively in their industrial relations, at the time. The similar study was also conducted by Lobban who analysed female gender stereotyping by the mass media (Haralambos and Horlborn, 1991). Equally significant were the studies conducted by van Dijk which focused on racist discourse in mainstream sources such as the press, political speeches, school textbooks, scientific and corporate discourses (van Dijk, 1987, 1991, 1996).

The studies conducted by van Dijk examined lexical items which were used to frame minority ethnic groups in terms of "us" and "them" polarity. Observations made by the studies revealed that, the groups, be they, immigrants, were often marked as outsiders. While those descriptions were sometimes factual and accurate, the chosen positive painting of European-born children and negative painting of those of the other non-European communities or immigrants purported to influence the perceptions and attitudes of the readers. For example, the British TV tended to stereotype Nigerians as an invading army thereby invoking the fear of and resistance to such immigrants on the part of the locals. Similarly, *the Sun* represented outsiders in criminalising terms, the stereotypical frames which reflect a particular ideological stance (Cameron, 2001). While the literature reviewed informs this study in a number of ways, it remains to be observed how the local media represent certain groups in the context of Lesotho. In this light, we analysed the column, *the Scrutator* in the *Lesotho Times* for any stereotyping of the NUL.

Media Context in Lesotho

The *Lesotho Times* is part of the mediascape, more especially the print or the press, in the Kingdom of Lesotho. The print media are dated as early as 1863, with the introduction of the Sesotho publications, *the Leselinyana, the Little Light*, and *the Moeletsi oa Basotho, the Advisor* in 1922, both of

which are under the auspices of two main Christian mission churches in Lesotho respectively (Gill, 1994; Weisfelder, 1999. As noted above, *the Lesotho Times*, the English weekly, published from the Capital, Maseru, forms part of the growing media pluralism and diversity in the country of about 1.8 million people (*Bureau of Statistics*, 2010). Like any other print media, *the Lesotho Times*, is probably one of the very important role players as conveyors of information or educators, news interpreters as well as entertainers of the general public in the Kingdom. Using this newspaper, as a readily available public discourse, for purposes of data collection, we adopted content analysis, and encountered no ethical challenges. In the next section, we look at the NUL as a research context for the study.

The National University of Lesotho

The origin of the NUL can be traced to the 8th April 1945, when the Catholic University College was founded at Roma by the Roman Catholic hierarchy of Southern Africa. The College was established to provide both academic and moral needs of post-matriculation students, following the decision made in 1938 by the Synod of Catholic Bishops in South Africa. The University, which started as Pius XII University College, then University of Bechuanaland, Basutoland and Swaziland (UBBS), and University of Botswana Lesotho and Swaziland (UBLS), is situated at Roma, some 35 kilometers southeast of Maseru, the Capital of Lesotho. The University site, which is approximately 90 hectares, is almost encircled by rugged mountains, the features which make the population of about 12, 000 enjoy relatively temperate conditions throughout the year in the Roma Valley.

Having started conferring the first degree courses in 1967 as UBBS, and UBLS offering the first-five degree courses, 11 diploma and certificate courses and four postgraduate courses in 1974 respectively, the NUL is growing and striving towards meeting the needs of Lesotho, Southern African region and the world. With the additional campuses based in Maseru and other districts to cater for more educational demands, the NUL is currently offering various programmes at certificate, diploma, undergraduate and postgraduate levels under the following faculties: Education, Humanities, Law, Social Sciences, Science and Technology, Agriculture and Health Sciences. The NUL, which at present has a student population of about 10,000, has as its mission and vision to serve as a leading African university for learning, teaching and research (*National University of Lesotho Calendar*, 2006). Having examined the literature on the concept of media production, and briefly sketched the background of the research context, we turn to the methodology of the study in the next section.

Methodology

In this study, we adopted qualitative content analysis. Content analysis (CA) is a research tool which is designed to analyse, among others, propaganda of the textual content which includes documents such as letters to the editor in newspapers, advertisements, political speeches, annual reports and editorial statements. The term also refers to "words, meanings, pictures, symbols, themes or any other message that can be communicated" (Mouton, 2001: 165). As a more specialised tool with its qualitative design, CA investigates recurrent patterns, themes, chronological aspects of data as well as descriptive statistics. Qualitative content analysis is also particularly useful for any research which involves large volumes of text with underlying meanings of the phenomena under investigation (Mouton, 2001). The tool is, therefore, used to unpack denotative, latent and ideological meanings of media texts.

Many studies used CA for analysing the media content. For example, Furnhen and Farragher's (2000) study found sex-role stereotyping in advertisements greater in New Zealand than in British TV (Wimmer and Dominick, 2006). In another study, it was discovered that the impact of agenda-setting, for example, prominent political issues covered by the radio and TV was on the increase among the daily media users (Kim, Scheufele, and Shanahan, 2002, in Wimmer and Dominick, 2006). The GUMG sociologists used the CA to study news reporting on industrial disputes in the 1980s (Glasgow Media Group, 1980). Using the CA, van Dijk also analysed racist discourse in the mainstream sources such as the press, political speeches, school textbooks, as well as scientific corporate discourses (van Dijk, 1987, 1991, 1996). With the CA, all these studies examined the lexis used to frame majority vs. minority ethnic groups, in terms of "us"-"them" dichotomies. Considering the previous studies, we used the CA to examine selected texts under *the Scrutator*, for stereotyping, with a focus on qualitative aspects of negative representation by *the Lesotho Times*.

Using only the qualitative content analysis for textual aspects of the phenomena rather than covering the whole story, our study may be criticised for being methodologically inadequate. However, we have been able to unpack the supposedly deep perceptions of *the Lesotho Times* and their attitudes towards the NUL. As van Dijk (1997) observes, attitudes and perceptions are not often easily uncovered with other methods. The qualitative content analysis, has, therefore, highlighted a stereotypical representation of the NUL community by *the Scrutator* during this particular period. Perhaps, the issue of considering other instruments, be they, interviews, observations or mixed methods as well as the effects of stereotyping on audiences and the NUL community, could be worth

researching in future. As Vuuren, Maree and de Beer (1998) suggest, the manner in which replication of any study could be carried out is by applying different methods and theories to address the same phenomenon, the feature which is particularly true about the mass media.

The Lesotho Times Background

The *Lesotho Times* is owned by *the South African Holdings*, which is based in Johannesburg, South Africa. The newspaper was established in 2008 and merged with another weekly, *the Mopheme*, which later adopted the Sesotho insert within the English written *Lesotho Times*. This English publication targets Sesotho-English bilinguals and other English speakers in Lesotho and beyond its borders. It is an A3-size paper, the tabloid format which has been criticised for its sensationalist and promotional tone. The paper bears different categories of articles which include news reports, features, opinion pages as in comment and analysis, letters, cartoons, entertainment, advertisements, sports, as well as the column known as *Scrutator*, which was analysed in this study. As a mouth piece of the collective media organisation, *the Lesotho Times* clearly has an exclusive access to and control over a public discourse which possesses the symbolic power to categorise different groups in society. With the *Scrutator*, the newspaper stereotypically represents the NUL community in certain ways. While it may be difficult to attribute this representation to any individual source, given this typical mass media production, it suffices to use the name *Scrutator,* or the *Newspaper* interchangeably throughout this article. As Greer (2008:38) observed, the concept of media representation suggests that, "media content nearly always reflects values and ideology (a framework of ideas and beliefs) of the communicator."

The Scrutator

Typographically, *the Scrutator*, as a genre, is an opinion article found on page 12 of *the Lesotho Times*. It is positioned separately from the opinion pages under the label: *Column.* The column has no *byline, dateline* and *lead* most probably because of its editorial character, rather than a news story. The *Scrutator* is also reported to be coming from Qacha's Nek, the most southern district, about 200 km from the Capital, Maseru. *The Scrutator* is the *persona* who is represented by the third person pronoun *She* throughout the extracts from this column. The column mainly bears the top banner headline with a large font-size across the page. Below it is the reduced label *Scrutator* in a blue-shaded bar to attract readers' attention. Its large headings, headlines and word choices are some of the most significant devices used to show the interests and values of *the Scrutator* in this newspaper. As *the ABET Trainer Series* (1997) observed, the layout of the paper is value-laden and can significantly influence the meaning of an article in a given context. Other typographical features

include serial sub-headed comments ordered consecutively within the rectangular box. Within this box, are contact details: physical address, telephone and facsimile numbers, a mission statement, and the names of the two tabloids: *the Lesotho Times* and *the Sunday Express,* the Thursday and Sunday editions respectively.

Sampled Texts

Like any other genre, *the Scrutator* is a text in form and meaning which represents a social act or a social practice in Fairclough's terms (Fourie, 2007). It is a discursive practice based on a particular historical, social and cultural context. It is premised on social and power relations within the orders of discourse across the media organisation. With their exclusive access to and power over discourse, *the Lesotho Times* through *the Scrutator* could be seen as setting the agenda about framing, and stereotyping the NUL both covertly and overtly. The column apparently popularises its agenda from a particular ideology and policy of *the Lesotho Times* as a corporate media house. We set out with an assumption that *the Lesotho Times* subtly devalues the intellect of the NUL graduates and categorises the NUL community: students, lecturers, administration in certain overtones as demonstrated below. We selected some Thursday editions published during the period from 2010 to 2011 focusing on only those covering the NUL in the column. Our purpose was to find out about any stereotyping by the newspaper and its extent or trend over these two years. We examined linguistic features which consist of key words, phrases and sentences with semantic and thematic relationships, and indeed the ideology of the newspaper. Attention was mainly drawn to the nouns, verbs, adjectives and adverbs as key/content aspects of the selected texts. Drawing on GUMG's and Lobban's content analyses of the media coverage of the then industrial relations and gender stereotyping of females, we found the following stereotypes from the selected extracts. As noted earlier, our analysis drew attention to the qualitative aspects, thus unpacking textual meanings of the themes observed from the extracts in this particular study.

Findings and Discussion

Our attention was drawn to a systematic pattern or a set of related texts, ideological significance of surface textual features and the silences all of which hint at and presuppose prejudice and stereotyping of the groups under review. On this premise, we assumed that any lexical pattern is not just accidental; instead, it involves a systematic choice of overtly ideological attributes of the phenomenon, in this particular case, the NUL as an institution. We considered these lexical patterns as, therefore, deliberately chosen to foreground and purport to naturalise certain attributes of the NUL giving a particular view or reality about the

institution. In the next sections, we present the findings which include a systematic choice of different lexical patterns reflecting a certain stereotyping of the NUL.

In the first place, *the Scrutator's* framing involves challenging the moral behaviour and intellectual capability of the NUL students in a very stereotypical manner. This dominant metaphor frames the students as indulgent of taking *booze from the watering hole* [the public bar]. The behaviour is, further, exaggerated, trivialised and metaphorised by labelling the students as *standard 7 pupils,* and *half-baked graduates* who are just *dumped onto the market* (sic). The above metaphors, for example, …*watering hole, standard 7 pupils and half-baked graduates*, evoke McLuhan's (1969) view that words and concepts are metaphors used to translate sense experience into vocal and visual symbols as a useful means of understanding a new or problematic situation in terms of already familiar situations. The graduates are, further, negatively labelled as the *demystified bunch of graduates, so-called* graduates, failures who *don't understand.* They are deemed as having *nothing of substance, but half-baked graduates,* and *dunderheads* who *cannot construct [a] coherent argument*.

In the case of law graduates, the NUL is dehumanised with animalistic traits as in *giving birth like a pig to piglets and spewing out lawyers*. These graduates are economically challenged as follows: Here, *the Scrutator's* framing evokes a ridiculing categorisation of these graduates. The graduates are stereotyped as *poor,* thus deserving a *charity fund*. This framing is heightened with the following attributes: *poor lawyers can't afford M500, miserable lot, wretched lawyers, reduced vagabonds, a swarm of mostly incompetent lawyers* who *invaded Lesotho,* without any *market-value competence*. Note that the frame not only evokes incompetence and low standards of the NUL products, but it also purportedly devalues the NUL graduates; in Fowler's (1991) terms, the framing trivialises and marginalises the actions and objectives of the graduates rendering them senseless and irrational, though some people might consider the NUL and its graduates highly valued.

The immorality frame is carried further, and coupled with corruption among the NUL students. They are stereotyped as *perennially drunk students, immature,* [with] *vitriolic comments, and hurling insults.* These students are labelled as the *bitter ignoramus [es]* who *cling on to a destroyed legacy.* They are also associated with such "immoral" acts as attending the *bizarre contest[s]* which are typical of *moral debauchery,* and [a] *shrine of decadence,* at which they wear *barely long skirts,* with *barest bottoms, bulky bottoms and* [a] *skinny bottom.*

Equally striking is *the Scrutator's* stereotypical frame of students in terms of *irrational, intolerant and violent behavior* (sic). Here, the students are portrayed as having such attributes as in *offended, accusatory,* those who *threatened violence,* and likely to *strip naked, protest* as well as people who are just *churned.* Besides, they are depicted as having an *astounding vim, the battalion of misdirected graduates lynching their reputation*; they are considered *illiterate and bitter* with *low standard* and are *allergic to criticism*.

On the other hand, the NUL staff is another category of predominantly negative framing by *the Scrutator*. Typical abstractions include such descriptive attributes as *incompetence, disorder, nepotism, laziness* and *underqualifications*. For example, the academics are also framed as *those spoiled brats, indolent educators,* and *lazy lecturers;* they are teachers who *ganged-up,* with *vitriolic comments, and the bitter ignoramus* with a *discredited notion. The Strutator*, further, downgrades and jeers at the NUL's career structures and employment policies in that: *teachers canvass for deanship or headship positions,* and those lecturers are *given plum jobs without suitable qualifications and knowledge*. This stereotyping goes as far as seeing lecturers as having *embarrassingly few books and scarce academic papers*.

Moreover, the dominant frame continues to dehumanise the NUL, and considers it responsible for its sub-standards and collapse. Here, *the Scrutator,* categorically positions *the NUL* as having *plunged to the lowest levels, run itself aground,* and *deteriorated with the poor management,* which is typified by *unending bickering and lack of vision.* Also noted are such other stereotypical labels as*: mess, chaos, pathetic embarrassment, ineptness, mediocrity and laziness*. The Institution is considered as *dubious, the national embarrassment,* and *"famine" of analytical thinking,* and is compared to the sick and helpless patient in *the intensive care unit.*

Furthermore, in the following extract, *the Scrutator* trivialises the status of the NUL in predominant metaphors. This denigration is achieved through a systematic choice of the following phrases: the NUL is *a school, high school masquerading as university; that school…that high school, the high school in Roma,* welcome to *the high school, madam, their college, mess at college, college gone to the dogs, de facto kindergarten.* Apparently, *the Scrutator's* framing is intended to appeal to the sentiments of the economic and biblical authorities. The NUL, therefore, is labelled as a *spendthrift and hypocrite* who *gobble[s] hundreds of millions of taxpayers' money every year.* The Institution is implicitly accused for *hypocrisy killing our beautiful Kingdom* and *relentless sinning*.

Equally notable is *the Scrutator's* systematic dichotomy which involves *us* and *them* and *our* and *their* polarity. To construct this categorisation, *the Scrutator* uses personal pronouns which evoke some degree of a social distance between the newspaper and the NUL. This negative stereotyping significantly appears to give *the Scrutator* a prerogative and comfort to distance herself from and clearly disown the NUL, and probably from the regular and/or potential readers of the newspaper also by positioning them as out-group members with *the Scrutator*. The following third person pronouns, possessive and demonstrative determiners or adjectives are illustrative: *their* NUL, *their* college, *their* university with such gusto, *that* institution. *They* attribute *their* failure to the government. Such is the hypocrisy that is killing *our* beautiful Kingdom. *The Scrutator will, forever*, *criticize* (sic*) it*. While *the Scrutator's* positioning of the NUL may be ambivalent, it clearly depicts the *us* and *them* polarity, and subtly instills into the audiences (readers), a negative perception of the Institution. This divisive ideology or attitude in which *the Scrutator* apparently alienates the NUL; that is, *the Scrutator is* associating the NUL with the *them* or *they, thus* putting the Institution in a bad light. This conceptual category is consistent with the Afrikaans mainstream press during the Apartheid era in South Africa, in the 1990s where the *African National Congress* was negatively represented and *the National Party* positively represented (Fourie 1991, in Ooithuizen, 2001).

Besides, *the Scrutator* may be interpreted as systematically representing the NUL graduates as incompetent and intellectually challenged. This stereotyping covertly belittles or demeans the ability of the NUL graduates, seen as being unable to cope with the professional challenges facing Lesotho. This categorisation also evokes a particular class of people with otherwise little knowledge and irrelevant technical skills despite their academic experience. The categorisation may also suggest a resourceless community who are not ready to resolve developmental challenges facing the nation. *The Scrutator,* further, foregrounds the "NUL graduates' problem frame", thereby invoking negative overtones and perceptions about the Institution, the NUL community as well as its alumni. In the final analysis, *the Scrutator's* descriptive overtones bring into focus the "arrogant" and "ignorant" behaviour of the NUL, thereby positioning the Institution as having to transform itself so as to be relevant to the needs of the country. The Institution is seen as needing a *total shake-up to be relevant*. While the effects of such stereotyping may be a subject for another study, it could be argued that, this media representation probably demonstrates the *Lesotho Times'* attitude towards and perception of the NUL. We may wonder whether through this foregrounded representation, *the Scrutator* strives towards cultivating, constructing or popularising a

certain reality or promoting a preferred meaning, as pointed out Hartley (1982) in the Kingdom of Lesotho.

Conclusions

In this paper, we have looked at the ways in which the media constructs versions of reality that purport to construct people's identities. We have realised how the media representation not only mirrors cultural practices, but how it also creates cultural practices and ways of thinking, thus creating any "reality TV", hence print media texts, into a new, mediated-form of "reality". The stereotyping of the NUL by *the Lesotho Times's* through *the Scrutator* may be seen as both overt and covert. *The Scrutator* presents the "NUL graduates problem frame" thereby invoking negative overtones and perceptions about the whole institution. We have observed how the NUL graduates are intellectually challenged, devalued overwhelmingly and viewed as incompetent and incapable of coping with the challenges facing Lesotho. Even equally intriguing is the way in which the academics are also stereotyped, being considered resourceless in their workplaces and redundant for the nation at large.

Arguably, we may wonder whether the University has not had any successes and achievements for which the newspaper could commend over the past years. Instead, we have observed the ideological reality construction being foregrounded thereby probably exposing a high degree of prejudice towards the NUL on the part of *the Scrutator*. *The Scrutator* could not only be interpreted as naturalising a particular reality of the NUL, but she also appears to be cultivating a perception of general incompetence of the institution, the institution which, in their coverage, merely offers programmes which are irrelevant to the national needs. Moreover, the *Scrutator* also essentialises the NUL community, confining their identity to the NUL working environment ignoring whatever 'positive' roles they each play in society at large. As such, this overwhelmingly stereotypical discourse is subtly meant to appeal to the sentiments of the populace, calling for their reasonable response and legitimate action to redress this supposedly problematic situation. The systematic metaphorical and hyperbolic lexis and other trivialising and dichotomising devices used to stereotype the NUL in the selected texts may make one wonder whether, *the Lesotho Times* as the Media house, has any conspiracy theory intended to instill a particular endemic view of this Institution. While *the Scrutator's* stereotypes may be conspiratory, they are consistent with Wood's (2009) view. For Wood, stereotypes are predictive generalisations about people and situations as they may be accurate or inaccurate based on facts which are generally true of a certain group. In his view, stereotypes are sometimes based on prejudice or assumptions without considering individualistic traits or characteristics

even if one is part of the group so typified. Therefore, it is unethical to just generalize or stereotype groups in communication. In fact, in as much as generalisations may be useful, they tend to be misleading in some respects (Wood, 2009). On this basis, we argue that while *the Lesotho Times*, like any other media, may be informative about the NUL, it is inclined towards misrepresenting or framing the NUL in order to cultivate a particular negative perception of and attitude towards the Institution among the Basotho.

Recommendations

As a result of the study like this, we could, without necessarily being exhaustive, recommend as follows: It is worthwhile for media workers to consider changing stereotypes as a way of being self-critical of their own representations. Media workers should, therefore, be seen to be feeling for others. Employment policies by media organisations should also constitute mixed staff members. Furthermore, the media should give their audiences a right to reply and have such responses placed in the same conspicuous pages as the criticisms or stereotypes made by the media concerned. Even more importantly, media organisations should have their own individual and collective codes of conduct, the instrument which could help them guard against any stereotyping, and any other anomalous forms of media representation. For language practitioners, the paper highlights, among others, what Dalton-Puffer (2007), labels "discourse in content and language-integrated learning". The language use in this particular context marks aspects to which learners, at different levels, should draw attention for a socially situated language, stereotypical media discourse, in this particular case. In the final analysis, both the media organisations and their audiences should be familiar with different forms of media representation including such stereotyping as one unpacked in this particular column of *the Lesotho Times*. On the whole, we hope, the analysis will be one of the ice-breaking pieces of work on which future studies will draw in the Mountain Kingdom of Lesotho.

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Epenthetic Vowels in Swahili Loanwords

*Andrew Harvey**

Abstract

When loans are adapted into Swahili, a series of vowels are inserted, resulting in forms that differ from those in the source languages (etymons). This paper 1) identifies the nature of these inserted vowels, and 2) develops an explanation of the system behind the various phonetic realizations of these vowels. The vowels examined here are (as the title suggests) epenthetic rather than excrescent. Typically, when Swahili loanwords are adapted via epenthesis, features cannot cross from one side of the stressed syllable (which in Swahili is the penult). Therefore, word-final epenthetic vowels must appropriate features from adjacent consonants. Consonant spreading coronal features will result in a coronal epenthetic vowel [i], consonants spreading labial features will result in a labial epenthetic vowel [u], and consonant spreading pharyngeal features will result in a pharyngeal vowel [a]. Dorsal consonants do not contribute a feature, and the feature [coronal] is inserted by default. In pre-stress environments, both vocalic and consonantal material is available for Feature-Spreading. Features of vowels spread more freely than features of consonants, so vowel-vowel feature spreading is more prevalent. Several idiosyncratic forms exist in which vocalic material that existed in the etymon seems to have survived in the realization of epenthetic vowels. A handful of suppletive forms exist which seem to break the constraint on crossing from one side of the stressed vowel to the other.

Keywords: *epenthesis, vowels, Swahili, loanwords, feature spreading*

Introduction

When loans are adapted into Swahili, a series of vowels are inserted, resulting in forms that differ from those in the source languages (etymons). This paper 1) identifies the nature of these inserted vowels, and 2) develops an explanation of the system behind the various phonetic realizations of these vowels.[1]

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[1] Thanks are due to Carrie Dyck, Lutz Marten, and an anonymous reviewer for their suggestions and comments which led to several improvements to the work. Thanks to the kids of Kilimahewa for being my first exposure to Swahili and to its marvelous loans.

Following an explanation of the data collected, the first objective of this study is to provide evidence determining the nature of the vowels concerned. The conclusions drawn by Hall (2006) will help us to show that the vowels examined here are (as the title suggests) epenthetic rather than excrescent. Expanding upon these conclusions, observations are made based on the collected data, ascribing the trio of Swahili epenthetic vowels (namely [i], [u], and [a]) to three characteristic environments. Given that most languages usually avail of only one vowel for epenthesis, an examination of the phonetic implementation of this vowel trio has been undertaken. If we appeal to the notions of Feature-Spreading and Domains, we can show that these multiple epenthetic vowel forms are a result of a vowel-vowel feature-spreading phenomenon word-medially, and a combination of consonant-vowel feature-spreading as well as coronal feature-insertion word-finally. It will be argued that, since features cannot spread beyond the stress-carrying syllable (the penult), word-final epenthetic vowels must use features from consonants, whereas word-medial (pre-stress) epenthetic vowels may appropriate features from vocalic elements, as well as occasionally from consonants. Idiosyncratic forms will be examined, and comments will be made on the remaining suppletive forms.

Epenthetic Vowels in Swahili Loanwords

Methodology and Data

Swahili, a Bantu language spoken in central and eastern Africa by more than 50 million people, has been in contact with a wide variety of different languages for hundreds of years. In his examination of Swahili as it emerged as a national language, Whitely 1969 notes that "its coastal habitat has brought it into contact with Arab, Portuguese, Indian, British, and German traders and colonizers, so that its lexicon, like that of English, has been enriched by many hundreds of loan-words" (8). Current estimates place the amount of Arabic loanwords that have passed into Swahili at 30 per cent of the entire lexicon, with a considerable wealth of English borrowings, and lesser contributions from languages such as Portuguese, Hindi-Urdu, and Persian (Baldi, 2005).

For this paper, approximately 180 words that have passed into Swahili were collected from previous scholarship (Baldi, 2005; Batibo, 1996; Schadeberg, 2014) and compared with their etymons[2]. Vowels that have been inserted (i.e. that occur in environments where no previous vocalic material had existed) were highlighted for further evaluation. Within the data, vowels have been inserted in a variety of environments (i.e. following

[2] The full list is included as an appendix.

a near exhaustive range of sounds, as well as word-initially, word-finally, and word-medially). Below is a series of selected loanwords and their etymons[3]:

(1) a. Ar. kaid [kaid] -> Sw. kaidi [kaid**i**] 'disobedient'
b. Ar. iarab [iara:b] -> Sw. irabu [irab**u**] 'vowel'
c. Pr. barf [barf] -> Sw. barafu [bar**a**f**u**] 'ice'
d. Ar. lauh [lauh] -> Sw. laha [lah**a**] 'sheet of paper'
e. Ar. huzn [huzn] -> Sw. huzuni [huz**u**n**i**] 'grief'

Exrescence or Epenthesis? An Examination of Inserted Vowels

In Hall's (2006) cross-linguistic analysis of vowel insertion, the major division was drawn between excrescent and epenthetic vowels. Excrescent (intrusive) vowels are labeled as 'phonologically invisible' in that they seem unable to play a role in the repair of illicit structures. Epenthetic vowels, on the other hand, are 'phonologically visible' and participate in the phonology by "repair[ing] structure[s] that [are] marked, in the sense of being cross-linguistically rare. The same structure[s] [are] also likely to be avoided by means of other processes within the same language" (Hall, 2006:391).

Swahili tolerates syllables consisting of (V) *u-* of ***u**tu* 'character', (CV)*–ki* of *ha**ki*** 'right', (N) *m-* of ***m**tu* 'person', (NC) *–nda* of *pe**nda*** 'to love' and CGV pwa- of ***pwa**ni* 'coast'[4](Ashton 1947). The vowel may be either monomoraic (short) – consisting of one timing unit, or bimoraic (long) – consisting of two timing units. This makes Swahili a language in which syllabic quantity is contrastive (Batibo & Rottland, 1994). Indeed, this long-short differentiation is crucial for such minimal pairs as *kanga* 'guinea-fowl' and *kaanga* 'to fry'[5].

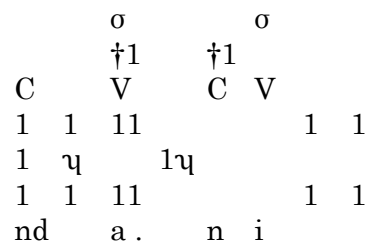
With this said, approximately 15 per cent of the data collected displayed instances of consonant clusters. The bulk of this data comes from research conducted by Batibo (1994) into consonant cluster tolerance. While Batibo claims that such clusters are entering Swahili, many of the words he examines come from fields such as schooling, bureaucracy, and mechanized technology[6] – domains so recently introduced to the East African context

[3] Throughout this paper, all inserted vowels are bolded. Names of languages are abbreviated in examples as follows: Arabic (Ar.), Chinese (C.), English (Eng.), Hindi-Urdu (HU), Persian (Pr.), Portuguese (Pt.), and Swahili (Sw.).
[4] Where: V = vowel, C = consonant, N = nasal, and G = glide
[5] For more on contrastive vowel length in Swahili, see (Batibo, 1990)
[6] See such loans as *masta* 'master', *deski* 'desk', and *petrol* 'petrol' for example.

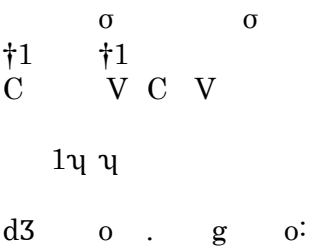
that I would contend that most of these words simply have not been around long enough to have undergone complete nativization.

Accepting these ideas, I can posit that Swahili has a(C)V syllable structure, where V may hold the value of one timing unit (ɥ) or two timing units (ɥɥ). The (native) words *ndani* [ndani] 'inside' and jogoo [d3ogoː] 'rooster' would be syllabified as follows[7]:

(2) a.

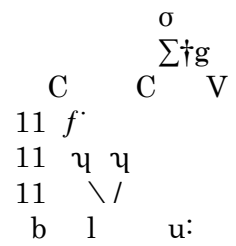


b.



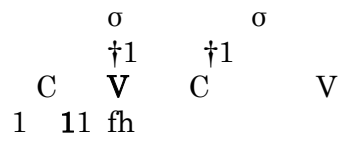
The main insight to draw from this model is that Swahili (with some very rare exceptions) requires open syllables with simple onsets (usually made up of one and only one consonant phoneme each). This information should be sufficient to determine whether the inserted vowels to be examined are excrescent or epenthetic. Consider the following:

(3) a. Eng. [blu^{w}] 'blue'



In English, the word [blu^{w}] is a one-syllable word, consisting of a complex onset [bl]. The nativization of the word from English into Swahili requires the superposition of this word upon the Swahili syllable structure.

b. Eng. [[blu^{w}] 'blue'-> Sw. ?



[7] This paper's analysis of prenasalized consonants follows that of Mwita (2007). As such, the /nd/ of *ndani* will be analysed as one unit (analogous to [tʃ]). However, not all such combinations parse as such. For example, the /mb/ of *mtoto mbaya* 'a bad child' would be analysed as two separate phonemes. The /mb/ of *nyumba mbaya* 'a bad house' would be analysed as one (ibid.:59).

```
1   ɥ   1    ɥɥ
1   11     \ /
 b      ?  .  l       u^w
```

As illustrated, since Swahili does not allow consonant clusters, one way to deal with this structural mismatch is to insert a vowel, thus effectively breaking up the illicit [bl]- cluster. In the case of [blu^{w}], this is exactly what occurs, resulting in the Swahili [b**u**luː][8]

.

c. Eng.: [blu^{w}] -> Sw.: [b**u**luː] *buluu* 'blue'

```
                σ            σ
                †1          †1
     C          V           C          V
1   11 fh
1   ɥ   1    ɥɥ
1   11     \ /
 b      u  .  l       uː
```

Of epenthetic vowels, Hall (2006) further states that "the same structure is also likely to be avoided by means of other processes within the same language." This is the case with Swahili consonant clusters, a significant amount of collected data exhibiting what Batibo (1996) refers to as "extrasyllabic consonant truncation":

(4) Eng. [pIktʃə˞] 'picture' -> Sw. [pi_tʃa] *picha* 'picture, photograph'
k ->Ø

In this section, evidence was presented for viewing inserted vowels in Swahili loanwords as phonologically visible and thus epenthetic. We shall now examine these epenthetic vowels of Swahili loanwords in depth.

Analysis of Epenthetic Vowels Present in the Data.

In the 178 tokens collected, approximately 186 instances of vowel epenthesis were observed. Of these, 1 instance occurred word-initially[9], while 30% of epenthesis was word-medial, and just under 70% word-final. Examination will be centered on word-final and word-medial epenthetic forms.

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[8] Since the (bimoraic) sound /u^{w}/ does not exist in Swahili, it is adapted to /uː/, thus preserving the bimoraic quality of the vowel.

[9] [**u**sukan**i**] *usukani* 'rudder' from Ar. [sukːaːn] 'rudder'.

Word-Final Epenthesis

Of these examples of word-final epenthesis, there are 84 cases of epenthetic [i], and 31 cases of epenthetic [u]. Epenthetic [a] accounts for 9 of these cases, and [e] and [o] appear in one and two casesrespectively[10]. The main discussion will therefore be centered on the epenthetic vowels [i], [u], and [a]. The following are examples of word-final epenthesis.

(5) a. Eng. [stæmp] 'stamp' -> Sw. [stɛmp**u**]*stempu* 'stamp'

b. Ar. [am:] 'uncle' -> Sw. [am**u**] *amu* 'paternal uncle'

c. Ar. [baqu:l] 'bowl' -> Sw. [baku**li**] *bakuli* 'bowl'

d. Eng. [gaun] 'gown' -> Sw. [gaun**i**] *gauni* 'gown, dress'

e. Ar. [wasah] 'pus' -> Sw. [usah**a**] *usaha* 'pus'

f. Ar. [lauh] 'sheet of paper'-> Sw. [lah**a**] *laha* 'sheet of paper'

In the case of word-final epenthetic [u], it was observed that, in all but two cases, the [u] was preceded by a labial consonant. Word-final epenthetic [i] displayed a slightly more disparate distribution, sometimes appearing after a vowel or a guttural, but appearing most reliably following a consonant that is coronal in nature. Word-final epenthetic [a] most reliably appeared following sounds that are pharyngeal. But given that [a] appeared in a (comparatively) smaller number of instances, a generalization should not be made without some degree of reservation.

(6) a. Word-final epenthetic [u] preceded by a labial consonant

i. Ar. [aawa:m] 'inception' -> Sw. [awam**u**] *awamu* 'inception'

ii. Eng. [nIb] 'nib' -> Sw.: [nib**u**] *nibu* 'nib'

b. Word-final epenthetic [i] preceded by a coronal consonant

i. Ar. [bud:] 'alternative' -> Sw.: [bud**i**] *budi* 'alternative'

ii. Eng. [ko^{w}t] 'coat' -> Sw. [kot**i**] *koti* 'coat'

c. Word-final epenthetic [a] preceded by a pharyngeal consonant.

i. Ar. [wasah] 'pus' -> Sw. [usah**a**] *usaha* 'pus'

ii. Ar. [lauh] 'sheet of paper' -> Sw. [lah**a**] *laha* 'sheet of paper'

[10] [tareh**e**] *tarehe* 'date' from Ar. [tarikh] 'date', [dʒaʃo] *jasho* 'sweat' from Ar. [dʒa:ʃ] 'sweat', and [taulo] 'towel' from Eng. towel.

This pattern has been well-documented for Swahili (see Lodhi (2000) specifically as it pertains to loanwords from Indic, and Batibo (1996) as it applies more generally). Mwita (2009) states that "it is possible to predict what kind of vowel will be added in word-final position during epenthesis. Words […] which end in a consonant acquire vowels whose type is determined by the nature of the final consonant; after labials, [u] or [o] is added, and after coronals and dorsals, [i] or [e] is added" (55). For the purposes of this paper, the Mwita generalization will be updated to appear below:

(7) Word-Final Epenthesis in Swahili
[coronal], [dorsal] = [i]
[labial] = [u]
[pharyngeal] = [a]

There are, however, exceptions to this generalization (7):

(8) a. ([coronal] triggers [u])

Eng. [spejd] 'spade' -> Sw. [sep**e**t**u**] *sepetu* 'spade, shovel'

b. ([labial] triggers [i])

Ar. [maɣrib] 'the west' -> Sw. [mag**a**rib**i**] *magaribi* 'the west'

c. ([pharyngeal] triggers [i])

Ar. [al.subh] 'morning' -> Sw. [asub**u**h**i**] *asubuhi* 'morning'

Given that, Swahili makes use of three different vowels according to the environment in which they occur, the central challenge thus lies in a phonological description. Why does this multiplicity of forms exist? Before we examine the mechanics of this phenomenon, word-medial data are considered.

Word-Medial Epenthesis

Of the data collected of word-medial epenthesis, the distribution of vowels seems more equal: 11 instances of [i], and 15 cases of [u]. [a] was epenthesized word-medially 22 times and [e] was epenthesized 5 times. [o] was epenthesized once. Word-medial epenthesis is exemplified below:

(9) a. Ar. [aql] 'intelligence' -> Sw. [ak**i**l**i**] *akili* 'intelligence'

b. Pr. [harqi] 'type of grain' -> Sw. [har**a**gwe] *haragwe* 'bean'

c. HU. [godro] 'mattress' -> Sw. [god**o**ro] *godoro* 'mattress'

d. Ar. [kibri:t] 'match' -> Sw. [kib**e**rit**i**] *kiberiti* 'match'

e. Ar. [qidr] 'jug' -> Sw. [gud**uli**a] *gudulia* 'jug'

In addition to word-medial epenthesis showing less of a marked distribution than word-final epenthesis, individual epenthetic vowels show less of a trend with regard to the type of consonant they directly follow. However, if we expand our analysis to include both vowels that preceede as well as vowels that follow the epenthetic form[11], a clearer pattern emerges. That is, word-medially, epenthetic vowels are generally realized as copies of nearby vowels. As a counterpart to (7), we can describe word-medial epenthesis as follows:

(10) Word-Medial Epenthesis in Swahili

When an epenthetic vowel is inserted word-medially, it is realized as a copy of a nearby vowel. Epenthetic [i] is variable in its occurrence, epenthetic [e] less so.

(10) should not, however, be taken as a "rule", but rather as an imperfect generalization. Exceptions are quite common, as shown below:

(11) a. Ar. [markab] 'ship' -> Sw. [mer**i**keb**u**] *merikebu* 'ship'

b. Eng. [fIlm] 'film' -> Sw. [fil**a**m**u**] *filamu* 'film'

c. Ar. [sifr] 'zero' -> Sw. [sif**uri**] *sifuri* 'zero'

As different as (7) and (10) appear, it will be demonstrated that, by appealing to Feature-Spreading and Domains, the realization of epenthetic vowels is largely systematic and predictable.

The Phonetic Implementation of Swahili Epenthetic Vowels
Swahili possesses the following five vowels:

(12) **[i] [u]**
[e] [o]
[a]

The most important detail here is that that the featureless [ə] does not exist in Swahili. If the choice of a featureless form is not available, vowels can only be realized (i.e. pronounced) with features. Epenthetic vowels must therefore acquire features.

[11]In both cases, a consonant often intervenes.

It has already been established that this process is affected by adjacent sounds: word-finally, these are consonant sounds that directly precede the epenthetic vowel; word-medially, these are vowel sounds that may precede or follow the epenthetic vowel, usually with a consonant intervening.

Evidence for adjacency-triggered change is widespread. Clements (1985) cites work by Ladefoged that draws attention to three different English articulations for the sound [t], all seemingly affected by the following sound's place of articulation (Clements, 1985:236). Below are different articulations for English [t].

(13) a. "eighth" -[θ] [eʲt̪θ] -[t] is interdental

b. "cheer" -[ʃ] [tʲʃɹ] -[t] is palatalized

c. "tree" -[ɹ] [ʈɹiʲ] -[t] is retroflex

[t] is composed of a set of different features: [+consonantal], [-sonorant], [coronal], [+anterior], and [-distributed]. Each of these features exists upon a structured schema, each structured schema being unique for each separate sound (Kenstowicz, 1993). Clements' (1985) main argument is that during phonological processes of assimilation, feature bundles pass some of their features to nearby feature bundles, a process by which the nature of the recipient feature bundle is changed. Therefore, when the [t] of "eighth" is pronounced, place features from the nearby [θ] are acquired, resulting in a [t] that is interdental, or [+distributed]. Assimilation as feature-spreading (e.g. "eighth") is illustrated below:

(14) [t] -> [t̪] / ___ C [+distributed]

[t]		[θ]
[coronal]		[coronal]
~~e~~**O**eu		
[+anterior]	[-distributed] **[+distributed]**	[+anterior]

Feature-Spreading and Swahili Word-Medial Epenthesis

When applied to vowel-vowel interactions, a similar mechanism applies. One well-known example is Turkish vowel harmony[12] (shown in (15)), where alternations found in allomorphs of several different types of suffix are realized as a result of assimilation.

[12] Turkish data are from Bubenik (1999).

(15) a. [ev] -> [evi] "bare accusative morpheme" [i]
b. [oda] -> [odayI] [i] -> [I] / V[low] ____
c. [gøz] -> [gøzy] [i] -> [y] / V[round] ____

Under a feature-spreading model, this can be explained as the spread of one vocalic feature to the vowel present in the accusative morpheme. Turkish vowel harmony as feature-spreading (e.g. gøzy) is shown below.

(16) [i] -> [y] / V[round] _____
[ø] [i]
[front] [front]
g E~~g~~
[+round] [-round]

Applied to Swahili word-medial vowel epenthesis, this process of feature-spreading has very good illustrative value, accounting for 72% of the data.

(17) a. Pr. [harqi] 'type of grain' -> Sw. [har**a**gwe] *haragwe* 'bean'
b. Ar. [huzn] 'grief' -> Sw. [huz**u**ni] *huzuni* 'grief'
c. Eng. [spejd] 'spade' -> Sw. [s**e**petu] *sepetu* 'spade, shovel'

Given that the Swahili syllable structure disfavours consonant clusters (3), the phonology inserts a featureless mora (ɥ) between consonants to repair the illicit structure. Since the absence of a featureless vowel in the Swahili vocalic inventory (12) requires that vowels have features in order to be pronounced, features must be appropriated (in this case, from a nearby vowel) to the mora. The mora is then realized as a "copy of a nearby vowel" (as per (9)). The process can occur from left to right, as in (18), or from right to left, as in (19). Word-medial feature-spreading is exemplified using *haragwe* 'bean' in (18) and *sepetu* 'spade, shovel' in (19).

(18) Pr. [harqi] 'type of grain' -> Sw. [har**a**gwe] *haragwe* 'bean'
[har**a**gwe]
[a] [ɥ]
1 ~~*(featureless)*~~
1 E
[feature set for [a]]
[ɥ] -> [**a**]

(19) Eng. [spejd] 'spade' -> Sw. [s**e**petu] *sepetu* 'spade, shovel'

[s**e**petu]
[ɥ] [e]
(*featureless*) 1
O 1
[feature set for [e]]
[ɥ] -> [**e**]

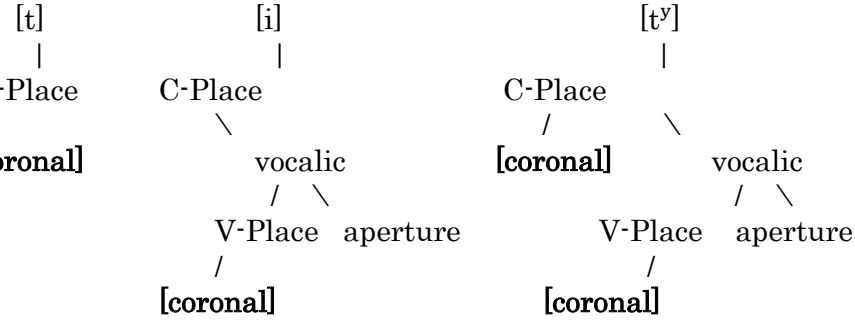
Feature-Spreading and Swahili Word-Final Epenthesis

According to Clements' 1991 analysis of Kirundi (86), the Feature-Spreading process is also active between vowels and consonants. [13] Examples of [i]+[e]-triggered palatalization in Kirundi (infinitive -> perfective) are given below:

(20) a. [raa**b**a] 'to look at' -> [raa**vy**e] 'looked at'
labial [b] -> labiodental (palatalized) [vy]
b. [te**k**a] 'to rule' -> [te**t^{s}**e] 'ruled'
dorsal [k] -> palatalized [t^{s}]

That these vowel-consonant (or, in the case of the Swahili word-final data which concerns us in this section, consonant-vowel) interactions should occur signals that certain features of vowels and of consonants are shared. In fact, Clements' (1991) work[14] posits that place features of consonants (C-features) and place features of vowels (V-features) are identical, and are simply present in different parts of the structured schema (ibid.:78).

(21)



[13] A similar process is productive in Swahili when deriving agentive nouns from verbs:
a) [tʃeka]*cheka* 'to laugh' -> [mtʃeʃi] *mcheshi* 'a funny person'
b) [pika] *pika* 'to cook' -> [mpiʃi] *mpishi* 'a cook'

[14] For the purposes of this investigation, a greatly simplified representation of Clements' (1996) "Place" will be used. But both higher and lower branching will be omitted.

The Swahili vowel inventory should be revised to appear with features as follows:

(22) Swahili Vowel Inventory (with Features)

[i] [coronal, +high] **[u]** [labial, +high]

[e] [coronal, -high] **[o]** [labial, -high]

[a] [pharyngeal, +low]

This claim is substantiated by research cited in Kenstowicz (1993) who notes that x-ray tracings from a number of languages (German, Canadian French, Russian, and Hungarian) indicate that "front vowels (when compared with the corresponding back vowels) are articulated with a raising of the front of the tongue toward the hard palate" (466), which seems to indicate a coronal quality of front vowels. This appears to be corroborated by the regular occurrence of word-final epenthetic [i] following coronal consonants in the Swahili data.

(23) a. Ar.: [bud:] 'alternative' -> Sw.: [bud**i**] *budi* 'alternative'

b. Ar.: [ja:su:s] 'spy' -> Sw.: [dʲasus**i**] *jasusi* 'spy'

c. Eng.: [ko^{w}t] 'coat' -> Sw.: [kot**i**] *koti* 'coat'

(24) Word-Final Feature-Spreading of Coronality (e.g. *budi*)

Ar.: [bud:] 'alternative' -> Sw.: [bud**i**] *budi* 'alternative'

[bud**i**]

[d] [ɥ]

[C-Place] ~~*(featureless)*~~

1 E

[coronal]

[ɥ] -> [**i**]

[u] as a labially articulated vowel can be supported with historical data from Proto-Bantu. Clements (1991) notes that Proto-Bantu **tu* is realized as [fu] in many daughter languages. This change can be understood as spread of the vowel's labial articulation to the preceding consonant, displacing the original coronal articulator. The reverse of this process (i.e. the spreading of a [labial] feature from a consonant to a word-final epenthetic vowel) appears in the majority of relevant environments in the Swahili data.

(25) a. Ar. [aawa:m] -> Sw. [awam**u**] *awamu* 'inception'

b. Eng. [nIb] -> Sw. [nib**u**] *nibu* 'nib'

c. Eng. [sto^{w}v] -> Sw. [stov**u**]*stovu* 'stove'

(26) Word-Final Feature-Spreading of Labiality (e.g. *nibu*)

Eng. [nIb] -> Sw. [nib**u**] *nibu* 'nib'

[nib**u**]

[b] [ɥ]

[C-Place] ~~*(featureless)*~~

1 E

[labial]

[ɥ] -> [**u**]

Clements (1985:461) cites data from McCarthy on Syrian Arabic as evidence for a pharyngeal articulation for [a]. Word-final suffixal vowels are realized as [a] when following pharyngeals such as [h] and [ɣ]. In a majority of cases, word-final epenthetic vowels behave similarly.

(27) a. Ar.: [wasah] 'pus' -> Sw.: [usah**a**] *usaha* 'pus'

b. Ar.: [lauh] 'sheet of paper' -> Sw.: [lah**a**] *laha* 'sheet of paper'

(28) Word-Final Feature-Spreading of Pharyngeality (e.g. *lauh*)

Ar.: [lauh] 'sheet of paper' -> Sw.: [lah**a**] *laha* 'sheet of paper'

[lah**a**]

[h] [ɥ]

[C-Place] ~~*(featureless)*~~

1 E

[pharyngeal]

[ɥ] -> [**a**]

Feature-Insertion

Given that the palatal consonants [tʃ] and [dʒ] pattern as coronals, the only place of articulation yet to be examined is that located between the palate and the uvula: the dorsal place. According to Clements (1991), a vocalic realization of the dorsal place of articulation should be [a]. In the data, however, this occurs only once, and [i] is the most common realization.

(29) a. Eng. [o^{w}k] 'oak ' -> Sw.: [muok**i**] *muoki* 'oak'

b. Eng. [bu^{w}mə-æŋg] 'boomerang' -> Sw. [bumareŋg**i**]

bumarengi 'boomerang'

c. Eng. [plæstik] 'plastic' -> Sw.: [plastik**i**]*plastiki* 'plastic'

In this case, no features are being appropriated from nearby sounds. Instead, it appears as if a default set of features is being assigned to the mora. This last-minute operation is known as Feature-Insertion. Word-final feature insertion is illustrated below with the word *plastiki* 'plastic'.

(30) Eng. [plæstik] 'plastic' -> Sw.: [plastik**i**] *plastiki* 'plastic'

[plastik**i**]
[k] [ɥ]
[C-Place] (*featureless*)
1
[dorsal]
-no feature spreading, [coronal] inserted by default
[ɥ] -> [**i**]

Having [coronal] as the default feature is a common pattern and can be observed in Clements' (ibid: 461) Syrian Arabic data, in which "[e] and [i] variants arise by default rules filling in the empty vowel".

Segregation of the Phenomena
The system of Swahili epenthesis in loanwords appears thus far as follows:

(31) Word-Medially [ɥ] -> V_X / ____ V_X
/ V_X ____ via V-V Feature-Spreading

Word-Finally [ɥ] -> V_X / C_X____ via C-V Feature-Spreading
-> $V_{[coronal]}$ / $C_{[dorsal]}$ via Feature-Insertion
*Where X = a feature

Having formulated the generalizations as above, we will now examine why word-medial vowel epenthesis patterns differently from word-final epenthesis.

Consider the following:

(32) Eng. [skɹuw] 'screw' -> Sw. [s**u**k**u**rub**u**] *sukurubu* 'screw'

Given the current set of rules (31) for word-medial epenthesis, and assuming that some degree of adjacency applies when morae assimilate features, it appears that epenthetic vowels (namely the second **[u]**, having already been valued by the underlying [u]) can spread their own features to other epenthetic vowels (i.e. the first **[u]**). If this premise is accepted, the following loans could be (theoretically) realized in two ways:

(33) a. Pr.: [barf] 'ice'
-> Sw.:[bar ʯfu]
given: [ʯ] -> V_X / ____ V_X= Sw.: [bar**u**fu]
/ V_X ____ = Sw.: [bar**a**fu]
actual form = [bar**a**fu] *barafu* 'ice'

b. Ar.: [fahl]
-> Sw.: [fah ʯli]
given: [ʯ] -> V_X / ____ V_X= Sw.: [fah**i**li]
/ V_X ____ = Sw.: [fah**a**li]
actual form = [fah**a**li] *fahali* 'bull'

c. Ar.: [sahm]
-> Sw.: [seh ʯ mu]
given:[ʯ] -> V_X / ____ V_X = Sw.: [seh**u**mu]
/ V_X ____= Sw.: [seh**e**mu]
actual form = [seh**e**mu] *sehemu* 'place'

In fact, nowhere in the data does a word-final vowel (either epenthetic or inherent in the structure) appear to have contributed to word-medial epenthesis. Therefore, not only do the two environments display separate feature-valuation systems, but both environments appear segregated from each other into separate domains.

A possible solution to this "two-domain" system lies in Swahili stress patterns. Cross-linguistically, post-stress vowels are often of a low prominence (cf. Kaplan (to appear); Walker, 2014). Since stress in Swahili always lands on the penultimate syllable (and is thus carried by the penultimate vowel), it can be posited that, after the stressed vowel, vocalic features cannot be spread. This is not a property solely of Swahili loanwords, but of native words as well – Swahili vowel harmony operations have no effect on the final vowel (Marten, 1996).

(34) Post-Stress Segregation (e.g. *barafu*)
Pr. [barf] 'ice' -> Sw. [bar**afu**] *barafu* 'ice'
[bar**afu**]
[b] [a] [r] '[ʯ] || [f] [u]
1(~~*featureless*~~) || 1
1 W || 1
[feature set for [a]] || [feature set for [u]]

-feature spreading from [u] blocked by Post-Stress Segregation (| |)
-features spread from [a]
-[ʯ] -> [**a**]

This is particularly attractive for two main reasons. First, if it is accepted that features cannot spread across the stressed penultimate syllable, then features from the ultimate vowel will be unavailable for spreading as in (34). Secondly, if features preceding and including the penultimate vowel are unavailable for feature spreading, then this will explain why the ultimate (word-final) vowel must appropriate features from the adjacent consonant (the only other 'feature bundle' available to it) and not from the nearby vowel. The word *sehemu* 'place' is used below to exemplify post-stress segregation.

(35) Pr. [sahm] 'ice' -> Sw. [seh**e**m**u**] *sehemu* 'place'

[seh**e**m**u**]

[s] [e] [h] '[e] || [m] [ɥ]

1 ||[C-Place] ~~*(featureless)*~~

1 || 1W

[feature set for [e]] || [labial]

-feature spreading from [e] blocked by Post-Stress Segregation (||)
-features spread from [m]
-[ɥ] -> [**u**]

In the introduction to Clements (1991:77), it is stated that "place features of vowels and glides [...] spread more freely than place features of consonants". This serves as a good explanation as to why feature-spreading occurs mainly with vowels in the pre-stress environments (where vowels are present). Revisiting pre-stress (i.e. word-medial) data, we can note that a minority of data display vowels that result from C-V feature spreading. Pre-strees C-V feature-spreading is illustrated below:

(36) a. Ar. [alasr] 'afternoon' -> Sw.: [alas**iri**] *alasiri* 'afternoon'

b. Eng.: [bɹʊʃ] 'brush' -> Sw.: [b**u**raʃ**i**] *burashi* 'brush'

c. Ar.: [sifr] 'zero' -> Sw.: [sif**uri**] *sifuri* 'zero'

Idiosyncratic Forms

Three forms in the data are idiosyncratic in that the epenthetic vowel present cannot be explained synchronically, but diachronically.

(37) a. Ar. [ibd.adam] 'human being' -> Sw. [b**i**nadamu] *binadamu* 'human being'

b. Ar. [ibn.am] 'cousin' -> Sw. [b**i**namu] *binamu* 'cousin'

c. Ar. [urs] 'wedding' -> Sw.: [ar**u**si] *arusi* 'wedding'

In each of these cases, it can be posited that, in the underlying form, the characteristic vowel has remained from the etymon. Unrealized in its original position, the features are still present. Therefore, when epenthesis occurs, these are the features that are appropriated.

(38) Idiosyncratic Forms (e.g. *binamu*)
Ar. [ibn.am] 'cousin' -> Sw. [b**i**namu] *binamu* 'cousin'

~~[i]~~	[b]	[ɥ]	[n]	[a]	[m]	[u]
1	~~(*Featureless*)~~					
1W						

[feature set for [i]]
[ɥ] -> [**i**]
-Feature appropriation from residual etymon vowel.

Suppletive Forms
Following this description of the data collected, there remain several forms for which there is no satisfactory explanation.

(39 a. Ar. [uʃr] -> Sw. [uʃur**u**] 'tax'
b. Ar. [salib] -> Sw. [msalab**a**] 'cross'
c. Ar. [qahbat] -> Sw. [kahab**a**] 'prostitute'

The cases in (39) could constitute a set of features that have disregarded post-stress segregation, thus contributing to a relatively small list of suppletive forms.

Conclusion

Swahili loanword adaptation makes use of a series of different and sometimes conflicting strategies (cf. Batibo (1996), extrasyllabic consonant truncation, for example). Typically, when Swahili loanwords are adapted via epenthesis, features cannot cross from one side of the stressed syllable (which in Swahili is the penult). Therefore, word-final epenthetic vowels must appropriate features from adjacent consonants. Consonants spreading coronal features will result in a coronal epenthetic vowel [i], consonants spreading labial features will result in a labial epenthetic vowel [u], and consonants spreading pharyngeal features will result in a pharyngeal vowel [a]. Dorsal consonants do not contribute a feature, and the feature [coronal] is inserted by default. In pre-stress environments, both vocalic and consonantal materials are available for feature-spreading. Features of vowels spread more freely than features of consonants, so vowel-vowel feature spreading is more prevalent. Several idiosyncratic forms exist in which vocalic material that existed in the etymon seems to have survived in the realization of epenthetic vowels. A handful of

suppletive forms exist, which seem to break the constraint on crossing from one side of the stressed vowel to the other.

This study has examined the spread of features in Swahili loans by appealing to Feature-Spreading and Domains, and provided a data-driven account that corroborates well with the existing body of theoretical literature. The inability of features to spread beyond the stressed vowel is emerging as a common constraint cross-linguistically, and may benefit from some further research in both other Bantu languages and other languages in general.

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Appendix: Loanwords in Swahili						
Word (Origin)	**Phon. Realiz.**	**Swahili**	**Phon. Realiz.**	**Meaning**	**Nota**	**Source**
stamp (E)	[stæmp]	stempu	[stɛmp**u**]	"stamp"	* Word does not appear to be fully nativized.	Batibo 1996
stove (E)	[sto^{w}v]	stovu	[stov**u**]	"stove"	* Word does not appear to be fully nativized.	Batibo 1996
iblis (Ar)	[ibli:s]	iblisi	[iblis**i**]	"devil"	* Word does not appear to be fully nativized.	Baldi 2005
ibriq (Ar)	[ibri:q]	birika	[b**i**rik**a**]	"kettle"	* [k] realized as [q] in the etymon	Baldi 2005
adhuhr (Ar)	[adhuhr]	adhuhuri	[að**u**hur**i**]	"midday"		Baldi 2005
adh (Ar)	[adh]	ahadi	[ah**a**d**i**]	"promise"		Baldi 2005
urs (Ar)	[urs]	harusi	[har**u**s**i**]	"wedding"	* Case of "underlying feature-spreading"	Baldi 2005
milk (Ar)	[milk]	miliki	[mil**i**k**i**]	"property"		Baldi 2005
waqt (Ar)	[waqt]	wakati	[wak**a**t**i**]	"time"		Baldi 2005
amm (Ar)	[am:]	amu	[am**u**]	"uncle"		Baldi 2005
asquf (Ar)	[asquf]	askofu	[askof**u**]	"bishop"	* Word does not appear to be fully nativized.	Baldi 2005
ibd Adamu (Ar)	[ibd.adamu]	binadamu	[b**i**nadamu]	"human being"	* Case of "underlying feature-spreading"	Baldi 2005
aawam (Ar)	[aawa:m]	awamu	[awam**u**]	"inception"		Baldi 2005
ibn amm (Ar)	[ibn.am:]	binamu	[b**i**nam**u**]	"cousin"	* Case of "underlying feature-spreading"	Baldi 2005
iarab (Ar)	[iara:b]	irabu	[irab**u**]	"vowel"		Baldi 2005
taab (Ar)	[taab]	taabu	[tab**u**]	"trouble"		Baldi 2005

Appendix: Loanwords in Swahili						
ahd (Ar)	[ahd]	ahadi	[ah**a**d**i**]	"promise"		Baldi 2005
ammar (Ar)	[am:ar]	amiri	[amir**i**]	"begin"		Baldi 2005
al subh (Ar)	[al.subh]	asubuh i	[asub**u**h **i**]	"morning "		Baldi 2005
budd (Ar)	[bud:]	budi	[bud**i**]	"alternati ve"		Baldi 2005
iddaaa (Ar)	[id:aa:]	dai	[dai]	"demand"		Baldi 2005
ghass (Ar)	[ghas:]	ghasia	[ɣasia]	"confusio n"		Baldi 2005
hadd (Ar)	[had:]	hadi	[had**i**]	"until"		Baldi 2005
saffa (Ar)	[saf:a:]	safi	[safi]	"clean"		Baldi 2005
unwan (Ar)	[unwan]	anwani	[anwan**i**]	"address"		Baldi 2005
izz (Ar)	[iz:]	enzi	[enz**i**]	"power"		Baldi 2005
aib (Ar)	[aib]	aibu	[aib**u**]	"shame"		Baldi 2005
baia (Ar)	[baia]	bei	[bei]	"price"		Baldi 2005
kaid (Ar)	[kaid]	kaidi	[kaid**i**]	"disobedi ent"		Baldi 2005
naam (Ar)	[naam]	naam	[nam]	"certainly "		Baldi 2005
zaid (Ar)	[za:id]	zaidi	[zaid**i**]	"more"		Baldi 2005
waqf (Ar)	[waqf]	wakfu	[wakf**u**]	"endowm ent"	* Word does not appear to be fully nativized.	Baldi 2005
wafaq (Ar)	[wa:faq]	afiki	[afik**i**]	"to agree with"		Baldi 2005
aqd (Ar)	[aqd]	akidi	[ak**i**d**i**]	"to celebrate"		Baldi 2005
aql (Ar)	[aql]	akili	[ak**i**l**i**]	"intellige nce"		Baldi 2005
tarikh (Ar)	[ta:rikh]	tarehe	[tareh**e**]	"date"		Baldi 2005
yaqut (Ar)	[ya:qu:t]	yakuti	[yakut**i**]	"ruby"		Baldi 2005
akhar (Ar)	[akhar]	ahirisha	[ah**i**r**i**ʃa]	"postpone "		Baldi 2005
baht (Ar)	[bakht]	bahati	[bah**a**t**i**]	"luck"		Schadeber g 2014
ahl (Ar)	[ahl]	ahali	[ah**a**l**i**]	"family"		Baldi 2005
alasr (Ar)	[alasr]	alasiri	[alas**i**r**i**]	"afternoo n"		Schadeber g 2014
asl (Ar)	[asl]	asili	[as**i**l**i**]	"source"		Baldi 2005

Appendix: Loanwords in Swahili						
dajn (Ar)	[dain]	deni	[den**i**]	"debt"		Schadeberg 2014
fihris (Ar)	[fihris]	faharasa	[fah**a**ras**a**]	"index"		Baldi 2005
ghaasha (Ar)	[jaash]	jasho	[jaʃ**o**]	"sweat"		Baldi 2005
jasus (Ar)	[ja:su:s]	jasusi	[dʲasus**i**]	"spy"		Baldi 2005
maadin (Ar)	[maadin]	madini	[madin**i**]	"mine"		Baldi 2005
duud (Ar)	[du:d]	mdudu	[mdud**u**]	"insect"		Schadeberg 2014
raad (Ar)	[raad]	radi	[rad**i**]	"thunder"		Schadeberg 2014
barf (Pr)	[barf]	barafu	[bar**a**f**u**]	"ice"		Schadeberg 2014
family (E)	[fæmɪliʲ]	familia	[familia]	"family"	* Possibly an incorrect etymon: origin is more likely to be Pt. "família" [familia]	Schadeberg 2014
soup (E)	[suʷp]	supu	[sup**u**]	"soup"		Schadeberg 2014
harqi (Pr)	[harqi]	haragwe	[har**a**gwe]	"bean"		Schadeberg 2014
batata (Pt)	[batata]	mbatata	[mbatata]	"potato"		Schadeberg 2014
caroço (Pt)	[karoço]	korosho	[koroʃo]	"nut"		Schadeberg 2014
vinho (Pt)	[viɲo]	mvinyo	[mvinjo]	"wine"		Schadeberg 2014
coat (E)	[koʷt]	koti	[kot**i**]	"coat"		Schadeberg 2014
shirt (E)	[shɚt]	shati	[ʃat**i**]	"shirt"		Schadeberg 2014
socks (E)	[sɑks]	soksi	[soks**i**]	"socks"	* Word does not appear to be fully nativized.	Schadeberg 2014
burkuh (Ar)	[burkuh]	barakoa	[bar**a**ko**a**]	"veil"		Schadeberg 2014
bangli (HU)	[baŋgli]	bangiri	[baŋgiri]	"bracelet"		Schadeberg 2014
lenço (Pt)	[lenço]	leso	[leso]	"rag"		Schadeberg

Appendix: Loanwords in Swahili						
						2014
brush (E)	[bɹʊʃ]	burashi	[b**u**raʃ**i**]	"brush"		Schadeberg 2014
ski (E)	[skiʲ]	skii	[ski:]	"ski"		Schadeberg 2014
qufl (Ar)	[qufl]	kufuli	[kuf**u**l**i**]	"padlock"		Schadeberg 2014
saqf (Ar)	[saqf]	sakafu	[sak**a**f**u**]	"floor"		Schadeberg 2014
falg (Ar)	[faldʒ]	mfereji	[mfer**e**dʲ**i**]	"ditch"		Schadeberg 2014
spade (E)	[spejd]	sepetu	[s**e**pet**u**]	"spade"		Schadeberg 2014
oak (E)	[oʷk]	muoki	[muok**i**]	"oak"		Schadeberg 2014
lim (Ar)	[li:m]	limau	[lim**au**]	"citrus"		Schadeberg 2014
chenze (Ch)	[chenzə]	chenza	[chenza]	"citrus"		Schadeberg 2014
mikass (Ar)	[mikas]	mkasi	[mkas**i**]	"shears"		Schadeberg 2014
gond (HU)	[gond]	gundi	[gund**i**]	"glue"		Schadeberg 2014
gum (E)	[gʊm]	gamu	[gam**u**]	"glue"		Schadeberg 2014
axle (E)	[æks‚l]	ekseli	[eksel**i**]	"axle"	* Word does not appear to be fully nativized.	Schadeberg 2014
sledge (E)	[slɛdʒ]	sleji	[sledʲ**i**]	"sledge"		Schadeberg 2014
markab (Ar)	[markab]	merikebu	[meri**k**e b**u**]	"ship"		Schadeberg 2014
sukkan (Ar)	[suk:a:n]	usukani	[**u**sukan **i**]	"rudder"		Schadeberg 2014
langar (Pr)	[laŋgar]	nanga	[naŋga]	"anchor"		Schadeberg 2014
haraba (Ar)	[haraba]	haribu	[haribu]	"to destroy"		Schadeberg 2014
dara (Ar)	[da:ra]	dhuru	[dhuru]	"to damage"		Schadeberg 2014
sarf (Ar)	[sarf]	sarafu	[sar**a**f**u**]	"coin"		Schadeberg 2014
usr (Ar)	[ʔʃr]	ushuru	[uʃ**u**r**u**]	"tax"		Schadeberg 2014
wazn	[waz‚n]	uzani	[uzan**i**]	"to		Schadeberg

Appendix: Loanwords in Swahili						
(Ar)				weigh"		2014
mashriq (Ar)	[maʃriq]	masharikiki	[maʃ**a**rik**i**]	"the east"		Schadeberg 2014
magrib (Ar)	[magrib]	magharibi	[magh**a**rib**i**]	"the west"		Schadeberg 2014
salib (Ar)	[salib]	msalaba	[msalab**a**]	"cross"		Schadeberg 2014
mistara (Ar)	[mistara]	mstari	[mstari]	"line"		Schadeberg 2014
sifr (Ar)	[sifr]	sifuri	[sif**uri**]	"zero"		Schadeberg 2014
blue (E)	[blu^{w}]	buluu	[b**u**lu:]	"blue"		Schadeberg 2014
huzn (Ar)	[huzn]	huzuni	[huz**uni**]	"grief"		Schadeberg 2014
haqiqa (Ar)	[haqi:qa]	hakika	[hakika]	"certain"		Schadeberg 2014
qasd (Ar)	[qasd]	kusudi	[kus**udi**]	"intention"		Schadeberg 2014
hutba (Ar)	[hutba]	hotuba	[hot**u**ba]	"speech"		Schadeberg 2014
qartas (Ar)	[qartas]	karatasi	[kar**a**tas**i**]	"paper"		Schadeberg 2014
trombeta (Pt)	[trombeta]	tarumbeta	[t**a**rumbeta]	"trumpet"		Schadeberg 2014
malika (Ar)	[malika]	malkia	[malkia]	"queen"		Schadeberg 2014
qahbat (Ar)	[qahbat]	kahaba	[kah**a**ba]	"prostitute"		Schadeberg 2014
manara	[ma:nara]	mnara	[mnara]	"tower"		Schadeberg 2014
mahkama (Ar)	[mahkama]	mahakama	[mah**a**kama]	"court"		Schadeberg 2014
hukm (Ar)	[hukm]	hukumu	[huk**u**m**u**]	"judgement"		Schadeberg 2014
jail (E)	[ʤeil]	jela	[dʲel**a**]	"jail"		Schadeberg 2014
padre (Pt)	[padre]	padri	[padri]	"padre"		Schadeberg 2014
bicycle (E)	[bɑisikˌl]	baisikeli	[baisik**e**l**i**]	"bicycle"		Schadeberg 2014
sarkar	[sarkar]	serikali	[ser**i**kal**i**]	"government"		Schadeberg 2014
barwa (Ar)	[barwa]	barua	[barua]	"letter"		Schadeberg 2014

Appendix: Loanwords in Swahili						
musallan (Ar)	[musall an]	msala	[msala]	"toilet"		Schadeberg 2014
godro (HU)	[godro]	godoro	[godoro]	"mattress "		Schadeberg 2014
screw (E)	[skɹʊw]	sukuru bu	[sukuru bu]	"screw"		Schadeberg 2014
peppermi nt (E)	[pɛpəˑmɪ nt]	pereme nde	[pereme nde]	"candy"		Schadeberg 2014
film (E)	[film]	filamu	[filamu]	"film"	* Etymon most likely to include excrescence: [filəm], thus resulting in an [ə]->[a] adaptation	Schadeberg 2014
darba (Ar)	[darba]	dhorub a	[dhorub a]	"storm"		Schadeberg 2014
kibrit (Ar)	[kibriːt]	kiberiti	[kiberiti]	"match"		Schadeberg 2014
fahl (Ar)	[fahl]	fahali	[fahali]	"bull"		Schadeberg 2014
faras (Ar)	[faras]	farasi	[farasi]	"horse"		Schadeberg 2014
bagl (Ar)	[bagˌl]	baghal a	[bagh ala]	"mule"		Schadeberg 2014
gamal (Ar)	[ʤamal]	ngamia	[ngamia]	"camel"		Schadeberg 2014
ʔafiya (Ar)	[ʔafija]	afya	[afja]	"healthy"		Schadeberg 2014
wasah (Ar)	[wasah]	usaha	[usaha]	"pus"		Schadeberg 2014
baqul (Ar)	[baquːl]	bakuli	[bakuli]	"dish"		Schadeberg 2014
sahn (Ar)	[sahn]	sahani	[sahani]	"plate"		Schadeberg 2014
qidr (Ar)	[qidr]	gudulia	[gud ulia]	"jug"		Schadeberg 2014
djubun (Ar)	[ʤubun]	jibini	[dʲibini]	"cheese"		Schadeberg 2014
mihraz (Ar)	[mihraz]	mahar azi	[mah ara zi]	"awl"		Schadeberg 2014
gown (E)	[gɑun]	gauni	[gauni]	"dress"		Schadeberg 2014
sirwal (Ar)	[sirwal]	suruali	[surual i]	"trousers"		Schadeberg 2014

Appendix: Loanwords in Swahili						
boomerang (E)	[buʷməˑææŋ]	bumarengi	[bumareŋgi]	"boomerang"		Schadeberg 2014
gardjun (Pr)	[garʒun]	gurudumu	[gurudumu]	"wheel"		Schadeberg 2014
miskin (Ar)	[miskiːn]	maskini	[maskini]	"poor"		Schadeberg 2014
mushara (Ar)	[muʃahara]	mshahara	[mʃahara]	"wages"		Schadeberg 2014
sahm (Ar)	[sahm]	sehemu	[sehemu]	"piece"		Schadeberg 2014
al-fadjr (Ar)	[alfadʒr]	alfajiri	[alfadʲiri]	"dawn"		Schadeberg 2014
imam (Ar)	[ʔimam]	imamu	[imamu]	"imam"		Schadeberg 2014
danb (Ar)	[dʰanb]	dhambi	[dhambi]	"crime"		Schadeberg 2014
tasbih (Ar)	[tasbih]	tasbihi	[tasbihi]	"glorification"		Schadeberg 2014
lauh (Ar)	[lauh]	laha	[laha]	"sheet of paper"		Schadeberg 2014
kalbud (Pr)	[kalbuːd]	kalibu	[kalibu]	"model, mould"		Schadeberg 2014
beer (E)	[biaˑ]	bia	[bija]	"beer"		Schadeberg 2014
glass (E)	[glæs]	gilasi	[gilasi]	"glass"		Batibo 1996
station (E)	[steiʃˌn]	steshen i	[steʃɛni]	"station"	* Word does not appear to be fully nativized.	Batibo 1996
rough (E)	[rʊf]	rafu	[rafu]	"rough"		Batibo 1996
form (E)	[fɔˈm]	fomu	[fomu]	"form"		Batibo 1996
nib (E)	[nɪb]	nibu	[nibu]	"nib"		Batibo 1996
lab (E)	[læb]	lebu	[lɛbu]	"laboratory"		Batibo 1996
pump (E)	[pʊmp]	pampu	[pampu]	"pump"		Batibo 1996
jam (E)	[jæm]	jemu	[jɛmu]	"jam"		Batibo 1996
tape (E)	[teɪp]	tepu	[tepu]	"tape"		Batibo 1996
note (E)	[noʷt]	noti	[noti]	"note"		Batibo 1996
pass (E)	[pæs]	pasi	[pasi]	"passport"		Batibo 1996
tank (E)	[tæŋk]	tanki	[taŋki]	"tank"		Batibo 1996
bank (E)	[bæŋk]	benki	[beŋki]	"bank"		Batibo 1996
speaker (E	[spikaˑ]	spika	[spika]	"speaker"	* Word does not appear to be fully	Batibo 1996

Appendix: Loanwords in Swahili						
					nativized.	
hostel (E)	[hostəl]	hosteli	[hostel**i**]	"hostel"	* Word does not appear to be fully nativized.	Batibo 1996
spanner (E)	[spænəˠ]	spana	[spana]	"spanner"	* Word does not appear to be fully nativized.	Batibo 1996
master (E)	[mæstəˠ]	masta	[masta]	"master"	* Word does not appear to be fully nativized.	Batibo 1996
school (E)	[skul]	skuli	[skul**i**]	"school"	* Word does not appear to be fully nativized.	Batibo 1996
spare (E)	[spɛˈ]	spea	[spea]	"spare"	* Word does not appear to be fully nativized.	Batibo 1996
sister (E)	[sɪstəˠ]	sista	[sista]	"nun"	* Word does not appear to be fully nativized.	Batibo 1996
desk (E)	[dɛsk]	deski	[dɛsk**i**]	"desk"	* Word does not appear to be fully nativized.	Batibo 1996
plastic (E)	[plæstik]	plastiki	[plastik**i**]	"plastic"	* Word does not appear to be fully nativized.	Batibo 1996
settler (E)	[sɛtləˠ]	setla	[sɛtla]	"settler"	* Word does not appear to be fully nativized.	Batibo 1996
April (E)	[eipɹˌl]	aprili	[epril**i**]	"April"	* Word does not appear to be fully nativized.	Batibo 1996
grade (E)	[greid]	gredi	[gred**i**]	"grade"	* Word does not appear to be fully	Batibo 1996

Appendix: Loanwords in Swahili						
					nativized.	
flute (E)	[flut]	fluti	[fluti]	"flute"	* Word does not appear to be fully nativized.	Batibo 1996
petrol (E)	[pɛtɹəl]	petroli	[petroli]	"petrol"	* Word does not appear to be fully nativized.	Batibo 1996
clinic (E)	[klınık]	kliniki	[kliniki]	"clinic"	* Word does not appear to be fully nativized.	Batibo 1996
brake (E)	[bɹeik]	breki	[breki]	"brake"	* Word does not appear to be fully nativized.	Batibo 1996
train (E)	[tɹein]	treni	[treni]	"train"	* Word does not appear to be fully nativized.	Batibo 1996
census (E)	[sensʊs]	sensa	[sensa]	"census"	* Word does not appear to be fully nativized.	Batibo 1996
cent (E)	[sɛnt]	senti	[senti]	"cent"		Batibo 1996
change (E)	[ʧeinʤ]	chenji	[ʧendʲi]	"change"		Batibo 1996
puncture (E)	[pʊnkʧəɾ]	pancha	[panʧa]	"puncture"	* Word does not appear to be fully nativized.	Batibo 1996
bench (E)	[bɛnʧ]	benchi	[benʧi]	"bench"	* Word does not appear to be fully nativized.	Batibo 1996
baptize (E)	[bæptɑiz]	batiza	[batiza]	"baptize"	* Possibly an incorrect etymon: origin is more likely to be Pt. "batizar" [batizar]	Batibo 1996

Appendix: Loanwords in Swahili						
contract (E	[kɑntɹæ kt]	kondrati	[kondrati]	"contract"	* Word does not appear to be fully nativized.	Batibo 1996
picture (E)	[pɪktʃəˑ]	picha	[pitʃa]	"picture"		Batibo 1996
nylon (E)	[nɑilon]	nailoni	[nailoni]	"nylon"		Batibo 1996
towel (E)	[tɑʊl]	tauli	[taulo]	"towel"		Batibo 1996
psychology (E)	[sɑikolo dʒi]	saikolog ia	[saikolodʒ ia]	"psycholo gy"		Batibo 1996

Corpus-based Analysis of Academic Writing Errors by First Year Tanzanian University Students: Cases from UDSM, SUA and TUICO

Gastor Mapunda and Safari T. A. Mafu***

Abstract

The study looked into errors committed by first year university students in three universities in Tanzania. While errors can be indicative of a developmental stage in the learning of a second language, formal English language learning in Tanzania culminates at the secondary school level and, for some, at the university level. For many at the University level, a related subject is Communication Skills. As such, one would expect students at this level to learn advanced communication skills. Students' essays were analyzed, errors identified, and discussed. The findings show that, besides errors in writing skills in terms of the mechanics and logic, there were many other types of errors from improperly learnt structures, language transfer, and unclear expression. It is suggested here that something needs to be done regarding the content of curricula and pedagogical processes both in secondary and tertiary education. Since the errors made were from first year university students, they must have had their origin in secondary and primary schools where the students have come from. We are of the view that, when students come to the university, they should be subjected to screening to identify their communication skills problems so as to expose them to relevant remedial classes.

Key words: *errors, language transfer, fuzzy expression, tertiary education*

Introduction

The current study investigated the kind of errors students make when they write essays (a component of writing skills taught in the Communication Skills course in the respective institutions), considering the fact that English is the medium of instruction (MoI) in secondary and tertiary

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education in Tanzania. It involved 450 first year students from three Tanzanian universities, namely University of Dar es Salaam (UDSM), Sokoine University of Agriculture (SUA) and Tumaini University Iringa College (TUICO).

Since mid-1970s, a concern has repeatedly been voiced by both internal and external examiners at UDSM, and the then Faculty of Agriculture, Veterinary Sciences and Forestry (now SUA)) over the falling standards of students' English proficiency and the consequent effect on their inability to benefit fully from university studies. To curb this problem, a Communication Skills Unit (CSU) was established at UDSM in 1978. When SUA became a full-fledged university in 1984, a similar unit was established in 1987.

Tumaini University Iringa College (TUICO), like any other institution of higher learning in the country, had to offer a Communication Skills course to address similar concerns, just like the other institutions. The needs that forced these other universities were and still are also relevant to TUICO.

It is now more than 30 years since the CSU was first established at UDSM and more than 20 years since a similar unit was established at SUA. However, the concerns aired in the mid-1970s seem to persist today in spite of many efforts directed towards the alleviation of this problem right from primary school to university level.

Many studies have been conducted on the issue of Language of Instruction (LOI) in Tanzania. Many of these have focused mainly on the debate of which medium of instruction should be adopted as the MoI, mainly between English and Kiswahili. The debate has been raging ever since the publication of the Presidential Commission for Education (1984) (popularly known as the Makweta Commission). The debate has been swaying between these two language extremities without a clear MoI policy in the country. As a result, Tanzania has witnessed mushrooming of ***'English medium academies'*** right from kindergarten to secondary schools. The impact of these schools is yet to be established as far as English proficiency of the graduates from these academies is concerned when joining tertiary education.

With the powers of globalization, English seems to be winning the debate. However, while the debate is still raging, the reasons for establishing the CSUs at UDSM and SUA many years ago are still very relevant to date. Universities are now receiving students with even poorer proficiency as reported in this study. This calls for another look into the communication skills courses offered in these universities.

Rationale of the Study

In this paper we are showing that error analysis is instrumental in identifying the kinds of errors made, why they are made, and how this knowledge can help improve the teaching of communication skills in institutions of higher learning particularly in contexts where the language of instruction is a second language (L2). In Tanzania in particular, teachers and educators in general know that there are problems with the MoI, but there isn't a study so far that has analyzed errors across universities.

This study systematically addresses the actual errors which students make. The comprehensive appendix of the corpus is our invitation to scholars to pay more attention to the errors and come up with further analysis and help remedy the situation on the ground.

Conceptualising Error Analysis

Studying errors can be done on the basis of two theoretical orientations. One way of doing it is by the use of Contrastive Analysis (CA) theory. This theory is based on behaviourism, which views learning as a habit formation. Behaviourists hold that an already learned habit would have some effect on a newly learnt one (Johnson, 2001:59-60). CA received criticism from the Chomskyans that errors do not result from this simplistic perspective, but rather errors are mental processes. As such, interest in CA decreased by the end of the 1960s. This in fact became the emergence of error analysis, a perspective which considers a wider coverage of errors than the CA (Johnson, 2001:66). Nevertheless, CA is still popular and useful today as it is still true that some kinds of errors result from mother tongue influence.

The second orientation is *error analysis*, which we are adopting in this paper. This can be understood as techniques for systematically identifying and classifying unacceptable forms and meanings by a learner of a second language or a foreign language. These techniques are discernible as a multistage process with a series of activities. Els et al (1984:47) present what is involved in the process as successive steps: *identification of errors, description of errors, explanation of errors, evaluation of errors,* and *prevention* or *correction of errors*.

May be we also need to say at this stage what errors are rather than assuming that readers know what errors are. Cherrington (2000:198) distinguishes between mistakes and errors. She says:

> "… (mistakes) are performance errors, such as slips of the tongue, … (whereas true errors) are markers of where the learner is in terms of L2 **COMPETENCE**."

In this study we are not interested in mistakes because these are usually based on speech, and are of a temporal nature. Additionally, mistakes are not systematic, and therefore can be problematic to study. Mistakes can be caused by states such as tiredness, fear, or drunkenness. Errors on the contrary, are of interest because they indicate mastery of the second language, and are systematic.

It is also important to mention here that the errors we have identified in this paper are not specific to students' academic writing only; they are also observable in their speech. From time to time instructors have to intervene in students' speech both in lectures, seminars, and outside the classroom, trying to help where possible, and sometimes decide to let them go.

An analysis of errors can be both boring and interesting. It can be boring if the message being delivered cannot be understood well by the interlocutor. Sometimes one comes across very fuzzy and strange constructions to the extent of failing to even recognize what has been going in the mind of the writer. At times, however, errors are interesting in many ways. From time to time, as we were reading the essays we would stop and laugh at the way some of the students were trying hard to get their messages across. More importantly, errors carry with them an important value in *course design* and *evaluation* at different levels of education in connection with second or foreign language learning. This is also identified by Myles (2002), who remarks that "Although reading an error-filled text can be tiring and disconcerting, errors can help us identify the cognitive strategies that the learner is using to process information."

As we teach communication skills in our universities, we must bear in mind the fact that writing skills are nurtured, and should therefore not be regarded as incidental. Communication skills instructors can themselves reflect on what content and how much of it is given to students in relation to what and how much is expected of them in their assessment. Besides, instructors also need to evaluate their pedagogical strategies and see how useful they are and also how such strategies can be improved.

On the part of the students, this kind of analysis should serve as a roadmap which should help them find their own whereabouts in the process. It is a signpost that should tell them "you are here!" with regard to their learning journey.

Methodological Positioning

This is a qualitative study, describing and discussing errors from three universities. The study was conducted in three different universities by involving first year students who are doing communication skills courses. Initially we thought of working on the errors from each university separately, but in the course of identifying the errors it became apparent that this separation is counterproductive. The reason for this is that there were no differences in terms of the errors made between the universities.

In view of this truism we decided to discuss them together. Students across the three universities were given the same essay topic, and were asked to write an essay on it. On marking the essays all the errors committed by each student were recorded and later analyzed and grouped into different categories. We present only some of the errors here for purposes of saving space and practicality.

Findings and Explanation

In this section we are presenting the corpus and provide explanation alongside. In many of the sentences there are multiple types of errors including omission of articles, subject-verb confusion, singular-plural confusion, misspelling, and so forth, as will be apparent in the data. So, for example, within the sentences categorized under vocabulary transfer, there are also spelling errors, tense agreement, and many more.

Generally, the kinds of errors we have identified include improper use of adverbs, pluralizing nouns which are traditionally not to be pluralized, improper use of the *ing*-form of the verb, vocabulary and concept transfer, and spelling errors. The corpus is indicative of the horrendous magnitude of the errors which students in Tanzanian universities make in their academic writing.

Kinds of Errors

The data we are analyzing in this part comprise part of the full corpus which we have appended to the end of the paper. We decided to leave out some data in the discussion because what we want to show can well be explained with what we have. It is important to declare at the onset that our discussion of the errors is in no way exhaustive because there are just too many errors in one sentence. This made the task of discussing each error to be too difficult and unmanageable. In view of this, our discussion is based on errors we have decided to include under subheadings on the basis of the kind of error. This categorization gave us the freedom to leave aside other errors embedded in the same sentence.

We also wish to admit at this juncture that there are some errors which are completely difficult to categorize or account for. Possibly these can be considered as "mistakes", although this kind of labeling causes uncertainty as to whether our definition of mistakes can also accommodate errors in writing.

Our discussion is based on error categories provided by two scholars; Richards (1971) and Norrish (1983). Richards (1971) identifies four types of errors: *overgeneralization* (learners produce structures which deviate from the accepted structures on the basis of their experiences of other structures in the target language), *ignorance of rule restrictions* (failure to observe the restrictions of existing structures), *incomplete application of rules* (the occurrence of structures whose deviancy represents the degree of development of the rules required to produce acceptable utterances), and *false concepts hypothesized* (faulty comprehension of distinctions in the target language).

Another scholar who also provides categories of errors is Norrish (1983). This one is of the view that errors are caused by at least three factors: *carelessness* (mostly caused by lack of motivation), *first language interference* (takes after the CA tradition, that a habit that has been learned earlier affects what is learnt later), and *translation* (from the mother tongue or other languages learned earlier). What Norrish describes as first language interference is what Johnson (2002:59-60) describes as transfer. He says there are two types of transfer; positive and negative. According to him, *positive transfer* is where the two habits share common aspects, such that knowing one language will help in learning the other, whereas *negative transfer* distorts the learning, and is also called *interference*.

In essence, Richards' and Norrish's categories are not very different, except for the Norrish's first language interference which is typical of CA. This type of error category has also emerged in a work by Arabski (2006:12), which is *language transfer*. Language transfer according to Arabski can be understood as a habit through which "….learners carry over what they already know about their first language to their performance in their new language".

These categories are very important in the classification of errors in our corpus. All the types identified by these scholars are apparent in our corpus. We have categorized the errors as *language transfer* (under which there are concept transfer and vocabulary transfer), *overgeneralization*, *translation,* and *carelessness*. Under carelessness there are many sub-

types of errors, including improperly learned structures, erroneous vocabulary choice, and fuzzy expressions.

Language Transfer

This is the habit of carrying over features in the first language to the target language. In our corpus we have identified three types of transfer: concept transfer, vocabulary transfer, and direct translation. The differences between these types are not very significant.

Concept Transfer

Language is an expression of a people's total way of life, and people use language to formulate concepts, and configure their own world. It takes conceited effort to be familiar with another community's linguistic repertoire which is also an expression of their culture. This is not to say it is impossible. With motivation and effort, it can be learnt with very minimal errors. Nevertheless, what is apparent in our corpus is something different. What we are presenting in this subsection is a gist of the actual level of failure to learn the cultural concepts presented in a way that would be expected of people who have been exposed to the language for at least 12 years.

- *Then since AIDS spread loudly through out the country but much around the Lake zone and in high population such as Mwanza, Dar es Salaam e.t.c.*
  Spread loudly is a bit confusing. It may mean with force (as the Swahili expression "kwa sauti" (literally, with voice but semantically loudly) may be translated as "kwa kasi" or a bit far fetched meaning may be "spreading rapidly".
- *Drug abuse users and much drunk, this lead the human body to stimulate and need to participate in sexual habitual.*

Drug abuse here is transferred from the Kiswahili expression "madawa ya kulevya" which are illicit drugs such as heroin, cocaine etc.

- *This most played by the ladies when you found different areas that those ladies take place for selling their bodies, this may cause the stimulation of the diseases of HIV/AIDS.*

  Selling their bodies is transferred from Kiswahili to mean prostitution whereas stimulation of the disease of HIV/AIDS is a transfer for sexual arousal which may lead to contracting the HIV virus.
- *To loose time, others youth says that the preventions of using condoms that you loose time and taken long periods to wear condom.*

To loose time is used to mean to waste time, whereas long periods is used to mean a long time.

- *If your going to utilize this freedom given by the university in improper way, you will be a slave of sex.*

  In Kiswahili a person who spends most of their time in search of sexual pleasure from whoever comes their way is nicknamed "mtumwa wa mapenzi", which literally means a person who has been enslaved by love/sex, but it is a Kiswahili concept. The concept would preferably be explained with the phrase "sex maniac".

- *...through the governments which fails to give early money (Loans) to the students tends Lacking some needs.*

  Here there are two transfers give early money (Loan) and Lacking some needs. There are transferred from the Kiswahili phrase which means money given on time and Lacking some money which is taken straight from the Kiswahili clause "kupungukiwa na mahitaji"- which means to run short of important supplies. This would not be easy for a non-Swahili speaker to understand. This kind of transfer is what is referred to as interference or negative transfer.

Vocabulary Transfer

Vocabulary transfer is a common phenomenon in second and foreign language learning. It is done because, in the course of learning, learners already have a sizeable vocabulary in their own languages. Another reason which Arabski (2006:15-16) provides for transfer of lexical items is the emergence of new political and economical situations, technological developments, and life styles. To add to that, in cases where new significant social events emerge, it is also common that new vocabulary would be conjured up. This is apparent in the following examples from our corpus:

- *But according to the measurement through voluntary measurement or measuring statistics show that in 2007 33 millions of people are living with AIDS.*
  Measurement here is used instead of testing/ voluntary testing.
- *HIV/AIDS by long term it refer to the acquired immuno deficiency*
  Long term here is used to mean the full form. Long and full may have one word in Kiswahili but not in English in this specific context.
- *To loose time, others youth says that the preventions of using condoms that you loose time and taken long periods to wear condom.*
  In Kiswahili, there is one word "poteza" which may mean waste or lose (and not loose). Due to improper learning of the language the writer does not differentiate between waste time, which would be

suitable here, and lose which may mean slightly different things in this specific context.

- *Hence this led to girls looking for men such as Fatakis in order to get money.*
  The term Fataki is used to refer to amorous men who would go with any woman whom they see, ranging from school children to adults. It originates from a famous HIV slogan cum jingle in Tanzania.
- *Sometimes people charts and sending the sexual intercourse photograph in the internets.*
  The student is translating the physical action of doing sexual intercourse for pornographic photos or pictures. This is also a consequence of lack of the right lexical item to be used in the right place.
- *Foristance now days I heard from mass media (press) that Papa Benedict xvi has allowed the use of condoms.*
  Papa is the Kiswahili word for Pope. This is lack of awareness that Papa is a Kiswahili word, and that there is an English word for the word.

Direct Translation

This is direct translation from the mother tongue or from other languages learned earlier. As will be apparent in the corpus, this is not totally different from transfer.

- *Also to make the law which govern the prostitutors who use their bodies in order to get salary.*
- *In Tanzania AIDS was termed to be discovered in 1983.*
- *Thirdly is desire, this is among very serious and uncontrollable problem facing the ones that make to control spreading of HIV/AIDS.*
- *The first case for the presence of HIV/AIDS on the surface, reported early in 1980's.*
- *Many youth get that disease by using corruption for example when a youth need to get employment some institutions have people who need corruption of sexual intercourse*
- *To be aware of chacking filam, video, internate, magazine and other attractions which can contribute the youth to be not aware.*
- *Controversy arise a year later when the United States announces their scientist isolates a retrovirus that he claims is responsible for AIDS.*
- *The possible solution formular the youth to escape the problems occurred early faster to youth is that*
- *And this is reported by a certain grandfather in Bukoba who explained about his son sufering and died with the disease there now AIDS became in country wide*
- *Some of the students are users of drugs abuse*

Spelling Errors

There are many spelling errors in the data. Most of these are due to mother tongue phonological interference. Students who made these mistakes somehow know the pronunciations of the words but they have not made efforts to know how they are spelt.

However, several of these errors result from carelessness. Knowing that this is a second or foreign language, one would be expected to make efforts to learn how to spell the words correctly. Interestingly, some of the spelling mistakes are not just spelling, but the way these words have been spelt suggests that even in the pronunciation there would be significant deviations.

- *Student they brow's* (for browse) *through internet they watching pornography film.*
- *Government should make the law which may panish* (for punish) *the people who engaged in prostution* (for prostitution).
- *Most girls they wear short and tite* (for tight)*clothes which attract boys in doing sexual intercourse*
- *To be aware of chacking* (for checking) *filam* (for film)*, video, internate* (for internet)*, magazine and other attractions which can contribute the youth to be not aware.*
- *More over* (for moreover) *due to existance* (for existence) *of AIDS in high amount …….*
- *But the most way of solving this problem is by abstraining* (for abstaining) *from sex.*
- *Religion believes* (for beliefs*) is also a great problems as some Religion* (for religion) *believes* (for believe) *that it is illegal to use condoms*
- *Students should be trustfull* (for trustful) *in love.*
- *Students should have one partiner* (for partner) *not more than.*
- *Parnchality* (for punctuality) *can make the student to know where and what to due* (for do) *and observe its time and university regulation.*
- *Self displine* (for discipline) *and motivation also can make the performance of the student to be good.*
- *Every student should stick in his/her intension* (for intention) *of study and not on unnecessary leissures* (for leisure).
- *Everyone must put into emplementation* (for implementation) *the statement that "Graduate with A's not with Aids".*

Rule Overgeneralization

Students have overgeneralized rules pertaining to the application of the use of various suffixes such as *…ful*, *..er, ..or, … ness, …an*, and *… ment* together with the *..ing* form of the verb. This is typical of rule overgeneralization in children's speech. There are a number of these in the essays, and here we identified some of them:

- *It is happiful if all student graduate with A's.*
- *Promisecuting as the major means of spread of HIV/AIDS due to having more than one partner.*
- *And proudness is another reason which cause the youths to get HIV/AIDS.*
- *Also to make the law which govern the prostitutors who use their bodies in order to get salary.*
- *More over, for those graduaters who already has a family and graduate with A's have high ability to control their family.*
- *If a graduator is in marriage, one day in the future his/her family will be single parented.*
- *…since she is not having money to buy luxurian clothes and hair styles she decides to sell herself.*
- *Conducting sexual intercourse by using condoms shows unbelieveness.*
- *Graduate it is means that to cerebrate the final year for completement of your at certain course.*

Ignorance of Rule Restrictions

This is caused by failure to observe the restrictions of existing structures in the target language. This was the most common of all the errors identified. Essentially this ignorance is caused by improper learning possibly due to the reasons that are internal or external to the students. Such errors include errors in the use of adjectives, verb to be, use of past tense, tense agreement, vocabulary choice, use of prepositions and use of articles. We will categorize such errors according to their similarities:

Use of Adjectives

Here the observation is either the adjective is not in agreement with the noun it modifies or the wrong word has been used in the place of an adjective. In many cases nouns which could be changed into adjectives have been used erroneously as adjectives.

- *Difference group are good maner they for through your group it is simple to join with bad group*
- *Religion believes is also a great problems*
- *The fluid can be pass people in variety ways including, having un protected sex.*

- *Another big problem of control this disease is lack of obedient to the law of God which say stop sex before marriage.*
- *Also many student want prestige over other student.*
- *Generally this situation causes the spread of some diseases for example AIDS which is dangerously diseases.*
- *This disease getting into the human body, through sex intercouse, blood transfusion, sharing a sharp instrument,....*
- *That life make people to have more than one partiner and are not faithfully in their marriage.*
- *In Tanzania historical background it seems that 3 first cases was in 1983 at Kagera region at Ndolage Hospital which is in Muleba district by surgeon Nyamulyange: up to 1986 reported from difference regions*
- *At the first HIV/AIDS was identified in Tanzania in 1983*
- *This is because to sharing sexual intercourse between difference people it is high risk to be affected.*

The Use of the Verb to be

Here we are considering the auxiliary *be* as used in conjunction with its associates. There are many instances of errors which are to do with either combining the wrong subject with the wrong form of be or the wrong form of be in conjunction with the wrong number of object, thus causing concord anomalies.

- *That is occur when student graduate with AIDS*
- *The following are historical background of HIV/AIDS*
- *The disease are mainly caused by different ways example unsafe sexual intercourse*
- *Promiscuity in the society are the very big problem*
- *Graduate it is means that to cerebrate the final year for completement of your at certain course.*
- *Then in 1982 AIDS disease was emerged in European countries and in African countries*
- *This can be occur due to the mob cycology then it can appear read you affected*
- *The Tanzania government was distributed ARVs freely for those people who have HIV/AIDS*
- *The Tanzania government was establish the system of measurement, for those pregnancy mothers in order to help for them when they have Aids.*
- *Historically HIV/AIDS has been first discovered in 1981*
- *For example some can be HIV victims from when they have been born so they spread this disease just to die with others*

- *The virus is caused desease only in people*

The Use of the Present Tense

There are many instances of wrong use of the present tense. We are presenting some of these here:

- *We knows that in high education we are studying in way of doing what we want*
- *Some says that if you conduct sexual intercourse by the use of condoms means you are not believing each other.*
- *Some tribes believes that having many wives is the prestage and shows menhood.*
- *Also I do here that girls says you must be having three men so that if one will distort then you will going on.*
- *Some adults kidnappes youth by the use of money.*
- *Onother is drug abuse this can leads to a number of problem finally can cause the student to get HIV/AID*
- *Hence illiteracy contribute much in minimizing the rate of controlling HIV/AIDS*

Tense Agreement

In this category there were many instances of confused verb forms. They include the following:

- *They died because they didn't discovered it was what kind of disease*
- *The fluid can be pass people in variety ways including, having un protected sex.*
- *Now why these youths contracting the desease?*
- *Apart from that the government has been concentrate much on the manner how to reduce…*
- *The government and others institutions was not provided the education to the higher education students concerning about AIDS.*
- *At first they think the disease is cancer*
- *They have not belive the preachers the word of God*
- *Prostitution, many women and girls in town most probably plays this game of prostitution saying they are in job …*
- *Hence illiteracy contribute much in minimizing the rate of controlling HIV/AIDS*

The Use of Its

This was either confused for *it is* (it's), *it* or completely wrongly used.

- *From that period the AIDS was spread for another part in Tanzania, example up to 1983 three cases its was reported in Kagera religion*
- *Many youth they have not use condom when they have sex due to the reasons that to use condom is not good and then its not sweet when the action of sex continue.*
- *From that period the AIDS was spread for another part in Tanzania, example up to 1983 three cases its was reported in Kagera religion*
- *As they come in these institutes they meet with different people from different side of the world and every one has its own behaviour*
- *Government must play it's parts by ensuring the counselling management is improving day to day.*

Vocabulary Choice

Vocabulary choice was another area that featured throughout the data:

- *HIV/AIDS is more affective to youth*
- *It was first discovered in chimpanzee and it jumped to human race.*
- *Since the disease transmitted from Uganda through Lager to our country, the person who experienced with the infection the disease in our country was from Bukoba.*
- *Tanzanian government curb the spread of the disease by providing a HIV day 1/12 each year, people get education in that day and the number of HIV/AIDS is reduced.*

The Use of Prepositions

Wrong use of preposition was also a common phenomenon in the corpus:

- *Tanzania government also tries to emphasize on the makes choice to one partner you love so that to avoid the sharing of different partner may causes ease spread of HIV/AIDS*
- *Some of university students they believe that to the stage that have reached what decide in their brain is always right things example the decision of having partiner it may lead into a position of acquiring the HIV/AIDS disease.*
- *And at 1984 HIV/AIDS was began to be testing*
- *At worldwide HIV discovered at America in 1980's.*
- *At East Africa first reported at Uganda in 1981's.*
- *Tanzanian government curb the spread of the disease by providing a HIV day 1/12 each year, people get education in that day and the number of HIV/AIDS is reduced.*
- *The first case were reported at Kagera region*

The Use of Articles

Both definite and indefinite articles were very often wrongly used:

- *At the first HIV/AIDS was identified in Tanzania in 1983*
- *AIDS is the world pandemic but still is protected by either abstaining from sex, using condoms effectively or being faithful and staying with one faithfully partner and even those already infected they can manage to survive for all their life time.*
- *Tanzanian government curb the spread of the disease by providing a HIV day 1/12 each year, people get education in that day and the number of HIV/AIDS is reduced.*

The Use of Resumptive Pronouns

There are also errors related to the use of resumptive pronouns. In the corpus, this is also caused by ignorance of rule restrictions possibly due to improper learning. Examples of these from the essays are also many. They include the following:

- *Most girls they wear short and tite clothes*
- *Most of students from O-level or A-level they have been living there with some rules that rule the.*
- *Some of the students they are loose.*
- *Therefore these investigators they came up with the conclusion….*

Carelessness

Carelessness as explained by Norrish (op. cit.) is caused mostly by lack of motivation. There are at least two categories under this category: unedited words and fuzzy expressions. This is a significant source of the errors we have observed.

Unedited Words

The following are examples of unedited words found in the data:

- *The first part of AID discovered were in Kagera religion and continue to spread more for another parts in Tanzania*
- *Also leaving very far from their partners*
- *Some tribes believes that having many wives is the prestage and shows menhood.*
- *When after that catch a chimpazee he kill an animal from there blood get into cut or wounds to the spread of HIV/AIDS from chimpazee to human being during the late 19thC early 20thC (1915-1941).*

Fuzzy Expressions

These might in a way be caused by the influence of Kiswahili on the language or possibly by other unknown causes. It may also be the case that learners process language in Kiswahili and transfer it into English. From the corpus they include the following:

- *When after that catch a chimpazee he kill an animal from there blood get into cut or wounds to the spread of HIV/AIDS from chimpazee to human being during the late 19th C early 20th C (1915-1941).*
- *Due to the prevention of corruption can reduce the HIV/AIDS.*
- *Since the discovered of HIV/AIDS in 1981 to the reach of 1987 HIV/AIDS was reached all over the world.*
- *But according to the background held above was said that the first man, to be predicted to brought the HIV/AIDS in Tanzania was from Uganda.*
- *By conclusively most collier who is coming from poorer family such kind of people get AIDS/HIV*
- *The most of them (the youths) in the world and in Tanzania they are going to internet or TV to watch ponographic picture instead of other program which are very important to the learning subject to the school, college.*

Other Types of Errors

In addition to these lists, there are other types of errors which we could not provide in lists because of their volume. Some errors are apparent, and could be provided in lists but some are unclassifiable. For example, some of those which we couldn't provide in lists are conceptual issues but some are merely mechanical.

The conceptual errors include the non-use of cohesive devices such as transitional words (*e.g. as such, firstly, as a result etc.*) which would show both the flow of ideas and their logical order. This absence denies the reader the opportunity to see how ideas in the essays unfold and build up a connected whole. Consequently, most of the essays look fragmented and unrelated pile of sentences. We will present at least two paragraphs from one essay to exemplify what we mean here:

> *"AIDS is the acquired immune deficiency syndrome. Is the inability of body to resist different diseases due to weakening of immunity system.*
>
> *Poverty is the main cause of spread of disease because few fund or money do not meet some students need thus preshed to have many partners or even conduct prostitution to get*

> *enough money to satify their needs. So it is better to give them money accordingly."*

To say the least, the essay from which the above extracts were taken can be regarded as among the "good" ones. It is good because at least communicatively the ideas are accessible, regardless of the many formal errors. Nevertheless, technically, the paragraphs lack the flavour that would have been there had there been some of the ingredients mentioned above. The most important ones are the cohesive devices which would relate the paragraphs. As they are now, each paragraph looks unrelated to one another.

Another apparent error in writing is not addressing the question. Students were asked to write about "Graduating with A's not AIDS", but most of the responses were about general issues that lead to HIV/AIDS infections but not specific to matters relating to students in institutions of higher learning. The following is an example of the case in point taken from a paragraph in one of the essays:

> *Traditional beliefs; this refers to those societies which still believes in some deeds, and at the same time those deeds cause the HIV/AIDS to spread from one person to another. Example is some societies they do female genital mutilation which is illegal and they use the same cutting instruments for both, which simply spread the HIV/AIDS through blood transmission.*

Other errors observed are to do with haphazard mixing up of small and capital letters. This has featured in many of the essays. Examples of these include:

> *Although the Nation of Tanzania works through to Control the Spread of HIV/AIDS among students and communities there are hindrance factors.*
>
> *Also Traditional beliefs, there are some societies in Tanzania which practise Female genital Mutilation.*

There were also errors in noun number (singular and plural). This kind of error was prevalent everywhere in the corpus, and we will not cite them here.

Discussion

We are reminded that errors hold vital clues about the processes of foreign language learning. To start with, we can address the issue of errors in two different but related perspectives. One is the *formalist perspective* which treats language as a code – thus assessed against native speakers' command. The second is the *functionalist approach* which views language on the basis of its communicative function in different specific contexts (Myles, 2002).

While these two perspectives seem to focus on two different values, in a formal educational setting both are valuable. At the university level, both perspectives must go hand-in-hand. Indeed, ideas need to be communicated well both formally and communicatively. The aim is not to produce native-like users of a language, but users who can both understand and be understood correctly.

In the Tanzania's context, students are exposed to English since primary school level all the way to the university. By the time they are exposed to the university level, their exposure is of at least 11 years. This is a reason enough to believe that at the university level students would be proficient enough both formally and functionally but this has not been the case. Theoretically, the length of time of exposure is not an assurance of mastery, but if one is exposed to formal training for this entire time then low levels of mastery should attract attention. This is why we are arguing that the nature of errors we have identified need rethinking as to the effectiveness of the courses our universities offer. The courses being offered in communication skills classes should ideally be remedial of the gaps, but advance further communicative skills of all kinds.

The bad thing about such errors is that they do not only interfere with the students' internal morphological, spelling, and syntactic structure but at times they also affect how readers (and listeners) understand what they communicate. For example, from the essays the following text contains several levels of errors:

> *The HIV/AIDS in Tanzania was started or began in Kigoma around the year of 1983's and it caused by the businessman who move from Tanzania to another Central African countries.*

Leaving aside many grammatical errors from the text above, one is made to believe that the disease started in Kigoma (factual error) as its real origin, which is not the case. Secondly, by saying that it was caused by a businessman who moved from Tanzania to other Central African countries,

one is made to believe that Tanzania is one of the Central African countries, which is not the case again.

Our impression is that the teaching of communication skills does not address actual issues of communication, but it is there to just fill course unit vacuums. Effective communication skills teaching should be based on communication needs of learners, and course outlines should be based on such needs.

Conclusions

An important observation that can be made is that students lack skills, both in writing and in the other skills in general. Many errors in spelling, vocabulary choice, together with language transfer are indicative of serious problems even in other subjects. Nevertheless, as research on second language acquisition suggests (e.g. Flower, 1994), process approaches to writing instruction, which are least known in Tanzania, have the potential to provide learners with useful hands-on learning opportunities. Additionally, such learning opportunities can be interesting, involving, and reflective.

However, imported approaches come with their own challenges. One outright challenge for Tanzanian universities remains to be big numbers of students in communication skills classrooms. For example, it is not uncommon to find a class with 500 to 800 students. Such are not ideal classes for process-based approaches to learning.

It is our strong opinion that the secondary school level is the best avenue for this kind of teaching and learning. In these schools, at least in private secondary schools, the numbers of students are relatively manageable.

The repercussion of not having the right skills in the globalised world can be horrendous. This is more daunting for Tanzanians, particularly with the opening up of the job market accompanying the East African Community. In this kind of integration what matters is what one can do rather than what kinds of certificates one is holding. Language skills are the most immediate indicators of a person's intellectual capacity, even if these may not always be the right indicators.

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Teaching Science through the Mother Tongue: A Case Study of two Schools in Zimbabwe

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Abstract

The significance of the use of mother tongue in teaching science has been defended in several studies. While there is no doubt that there are studies that have revealed some positive effect of the use of mother tongue in teaching science on students' performance and attitudes compared to English, the fact still remains of the need to standardize scientific concepts in mother tongue within that culture, in order for the system to be able to develop an indigenised scientific terminology for school science teaching. Towards this end, therefore, a survey of "O" level students' translation of some perceived difficult scientific concepts into mother tongue was carried out in Zimbabwe. In the main study, a sample of eighty-eight "O" level General Science students in one urban and one rural public school was administered with a Scientific Terminology in the Mother Tongue Questionnaire (STMTQ) that contained forty terminology in General Science. Using frequency and percentages, the findings reveal that a low percentage of the students have local terminology for the scientific concepts while discrepancies also existed in the translation provided by the respondents. Moreover, some concepts that contextually mean different things in science have the same terminology in the Shona language. The linguistic implications of these translations on their acquisition of scientific concepts are discussed in this paper.

Key words: *mother tongue, scientific terminology, acquisition of scientific concepts*

Introduction

One would like to agree with Bruner (1990) who sees language as a cultural tool that shapes human action and social practice. Since science is a human action and socio-cultural practice, it has its own registers. These registers, according to Strevens (1976), are technical and non-technical.

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Agreeing with the fact that science is embedded in every culture, then, there should be registers for the science in that culture. The absence of or discrepancy in or inadequate mastery of language of science in a specific culture needed to organise such systems technologically could be a leading hindrance to exploring and exploiting indigenised resources by the people themselves. Often times, the obvious and common socio-political norms in the government and private sectors of such culture is to call on 'those outside that culture', who have mastered the language of science in their culture, to execute capital intensive technological projects. This consistent and persistent action can be de-motivating and even discourage the prospective scientists and technologists available in that country. To produce just scientists and technologists should not be the main vision of African educational policy but to ensure that those produced have indigenised scientific registers that would move for effective technological transformations using the resources in African culture. Thus, it is not an understatement to say that language is a powerful tool for such development.

Perhaps our present situation with respect to scientific and technological advances can be better explained by what Jayaweera (1986) observes. He posits that the world of sub-Saharan people has been sub-conjugated through language and education and he contends that there must be the development of cultural autonomy towards social responsibility.

Without language of science, we cannot make meaning of the world. According to Bruner (1990), the two ways of making sense of the world are the logico-mathematical and the narrative understanding. These two ways of acquiring scientific knowledge if expressed in foreign language to science learners pose some difficulties. Strevens (1976) enumerated problems of teaching and learning science using foreign language. So far, some Asian countries have made attempts to get out of these problems by maintaining English language and developing their own indigenous languages to become as technical as English (Rwambiwa, 2000). Countries, for example Malaysia, Singapore, and Japan, where mother tongue is used, have positive technological expressions to make and technological products to show the world.

The present indigenised technology in Africa could be an evolvement of the extent to which language of science in that Continent is developed and mastered while maintaining English and French. One can equally say of science teaching in African classrooms where English, their second language, is dominantly used. Students in Africa often make little sense of science curriculum content because of the conceptual language discrepancy between what the concept means in English and what it means in the

learner's mother tongue. Many researchers have responded to the call by Accra Workshop on language use in science classrooms in Africa (CASME, 1975). Such studies reveal positive effects of the use of mother tongue on students' achievement in science (Fafunwa, 1984: Bamgbose, 1994). In fact it has been shown that it is not only the science teachers and students who experience difficulties in using English language in science teaching-learning process, but also the English and Mathematics teachers as well as students (Jaji & Nyagura, 1989: Ayodele, 1988). It should be known that for an average African student, English language is a second language (L2). A deviation from this normal practice should be observed in science classrooms where multilingualism sets in, producing what Bamgbose (1984) termed the "englishes". This could be a result of the interferences that often create barriers for self-internalisation of scientific and technological concepts and restrict meaningful interactions with reading materials, nature and even in science classrooms.

If what Lyle (2000) discovered about how children make meaning in classroom settings is anything to go by, then, are there some science registers that are partially or completely inexistent in sub-Saharan African culture hindering meaning-making? Or do these registers exist in African culture but contextually mean something else? Or rather is there any need to standardise scientific registers in local languages for the purpose of making meaning from school science language? One of the important cultural advantages of a language is its sense of identity. What identities do Africans posse with respect to technology? Adequate command of language would not only help in general discourse of science but would help in the promotion of the application of its conceptual and substantive structures.

For the Anglophone countries in sub-Saharan Africa, another call for the use of mother tongue in teaching science, among others, has been made after two decades of the first call in 1975 (Accra declaration, 1996). African Ministers of Education conference in Accra, Ghana re-emphasised their deep conviction that the promotion and use of the African national languages in formal and non-formal education will ensure a greater efficiency in their learning in and outside school as well as a greater success in the training of human resources and consequently drawing fully on the potentials of African countries for endogenous, ecological, social, and cultural development. In words of Lyle (2000), narrative understanding of science is a key aspect of meaning making.

Some language reflections have been made in educational policies of some sub-Saharan African countries. Following these language policies in some sub-Saharan African countries, there are pieces of evidence indicating the

use of both L2 and L1 in science classrooms (Barnes, Britton & Rosen, 1969). Banes, et al (1969) have revealed that teachers sometimes forgot they were not communicating with the majority of the learners. However, there is a need to ensure for the adequacy, accuracy and precision of the local vocabularies and meanings of scientific terminology used by both teachers and students. While there is a need to develop our language technologically, two major aspects of language communication problems must be borne in mind and addressed urgently: (I) technical problem, that is how accurate are the symbols, logarithms, and the vocabularies translated into indigenous languages by both the students and teachers; and (II) semantic problem, that is how precisely do these translations convey the desired meanings (Rwambiwa, 2000). Moreover, the various studies conducted so far did not examine how much of these registers the learners possessed in their mother tongue before we now talk of its use as currently done in some Zimbabwean schools. The issue that standardised registers of scientific concepts are required is indisputable. It is in this context that these researchers attempted to uncover the adequacy and appropriateness of discrepancy of some scientific terminology that students could translate in their mother tongue and the corresponding meanings conveyed by the vocabularies. A further step would be taken to provide linguistic suggestions to these translations.

This paper explores students' local terminology of some scientific concepts in "O" level school science curriculum and determines the extent to which scientific terminology could be attained in local language. It further explains the possible interferences that could contribute to the students' translations and meanings given to some scientific concepts in local languages and suggests some linguistic local scientific terminology for teachers and students of science for standardisation.

Method

The study employed a simple comparative group survey design, in which a school each of two differentiated settings was randomly selected for the purpose of finding out the amount of vocabulary they possess in their mother tongue.

Sample

There are 10 educational regions in Zimbabwe. Two regions were randomly sampled. These were Mashonaland East and Harare. Harare is purely urban. It was purposively indicated that public schools in Harare and Mashonaland East be listed out for selection. One school was randomly picked for Harare region. The public schools in Mashonaland East were stratified into urban and rural. Only one school was randomly selected from the list of rural schools in the latter. Permission was sought from the

Education Districts of these two regions. One rural school and one urban school were randomly selected from the schools in the two regions because this study involved two systematic procedures of developing the instrumentation. For the pilot study only one hundred and seventy six learners in the two schools participated while for the main study, the entire 45 form IV ("O" level) General Science pupils of Murape Secondary School in Mashonaland East and 43 form IV "O" level General Science pupils of Mount Pleasant High School in Harare, whose mother tongue is Shona, participated in the study. Their ages ranged from 16 – 19 year.

Instrument

Two instruments were used in this study. The first one was named 'Language Difficulty Questionnaire' (LDQ) and the second one the 'Scientific Terminology in the Mother Tongue Questionnaire' (STMTQ). The LDQ was developed from a close observation of teachers' lessons for five weeks in each of the two schools. Mondays and Wednesdays were scheduled for classroom observations in Murape High School while Tuesdays and Thursdays were for Mount Pleasant High school. Cassette tape recordings were made of the three different teachers' lessons in each school for the purpose of extracting terminology recently taught and comparing notes when the learners' responses to LDQ are gathered. In all six arms participated in the observation and the LDQ. The LDQ, which contained two parts, served as a pilot instrument for developing STMTQ. From the tape recordings, 130 registers were extracted. The six arms of learners (176 learners) were asked at the end of the classroom observations to respond to the LDQ. Part A of five closed items asked for name of school, age, class, mother tongue, and school science subject. Part B consisted of 130 corpus classified as biological, physical, and chemical to which learners were to indicate level of understanding. The subject were to indicate their responses on a 5- point scale (very easy to understand = 1 point; easy to understand = 2 points; not sure = 3 points; difficult to understand = 4 points; and very difficult to understand (of 5 points). It took a maximum of three days to retrieve the LDQ from the students.

After the analysis the STMTQ was developed and contained two parts. Part A requested for the pupils' bio-data such as name of school, age, class, mother tongue, and parental occupation. Part B contained only one item that asked the students to translate 60 scientific registers, identified as very difficult by the majority and some few ones as very difficult when least expected by the minority, into Shona and define all these in English. The validation of the construct and content of the instrument was carried out by two university physical scientists and one biology secondary school teacher. All the questionnaires were completed and returned immediately in both schools with the assistance of their teachers. The responses of the

students were analysed by descriptive statistics and by means of critical reflection by science and language lecturers. The translations of the scientific concepts were pooled together and linguistic explanations were provided on the translations by the researchers.

Findings

Findings in this section are presented in two manners. The first covered results obtained from pilot study while the second covered report of the main study. The results of the pilot study are as follows;

The frequency and percentages of their responses were computed and are as shown in Table 1.

Table 1: Frequency of Responses and Percentages on Learning Difficult of Scientific Concepts in the Two Schools

S/N	Items	Very Easy	Easy	Undecided	Difficult	Very difficult
1	Tree	86 (48.9)	55(31.25)	19(10.8)	11(6.3)	05(2.8)
2	Growth	63(35.8)	71(40.3)	08(4.6)	14(8)	20(11.4)
3	Respiration	23(13.1)	47(26.7)	13(7.4)	72(41)	21(11.9)
4	Germination	28(15.9)	42(23.9)	50(28.4)	29(16.5)	26(14.8)
5	Plants	79(44.9)	54(30.7)	16(9.1)	21(11.9)	06(3.4)
6	Seedlings	23(13.1)	46(26.1)	14(8)	43(24.4)	50(28.4)
7	Health	76(43.1)	20(11.4)	48(27.3)	25(14.2)	07(4)
8	Diseases	85(48.2)	33(18.8)	23(13.1)	33(18.8)	02(1.1)
9	Stem	52(29.6)	79(44.9)	10(5.7)	25(14.2)	10(5.7)
10	Insects	65(36.9)	17(9.7)	43(24.4)	25(14.2)	26(14.8)
11	Tissue	22(12.5)	41(23.2)	42(23.9)	50(28.4)	21(11.9)
12	Cell	38(21.6)	37(21.0)	55(31.3)	22(12.5)	22(12.5)
13	Organs	72(41)	26(14.8)	31(17.6)	29(16.5)	18(10.2)
14	Erosion	13(7.4)	38(21.6)	24(13.6)	77(43.75)	24(13.6)
15	Starch	96(54.6)	57(32.4)	05(2.8)	12(6.8)	06(3.4)
16	Pollution	87(49.4)	42(23.9)	09(5.1)	29(16.5)	10(5.7)
17	Mosquito	103(58.5)	53(30.1)	10(5.7)	06(3.4)	04(2.3)
18	Environment	120(68.2)	43(24.4)	05(2.8)	08(4.6)	-(0)
19	Surrounding	86(48.9)	76(43.2)	02(1.14)	11(.6.3)	01(0.57)
20	Food	86(48.9)	71(40.3)	12(6.8)	05(2.8)	-(0)
21	Hybrid	24(13.6)	33(18.8)	13(7.4)	66(37.5)	40(22.7)
22	Seeds	41(23.3)	109(61.9)	20(11.4)	04(2.3)	02(1.1)
23	Fruits	19(10.8)	98(55.7)	13(7.4)	27(15.3)	19(10.8)
24	Pollination	110(62.5)	55(31.3)	11(6.3)	-(0)	-(0)
25	Reproduction	38(21.5)	26(14.8)	02(1.1)	65(36.9)	45(25.6)
26	Nectar	70(39.8)	65(36.9)	34(19.3)	06(3.4)	01(0.57)

S/N	Items	Very Easy	Easy	Undecided	Difficult	Very difficult
27	Capillary	75(42.6)	46(26.1)	31(17.6)	14(8)	10(5.7)
28	Soil	136(77.3)	40(22.7)	-(0)	-(0)	-(0)
29	Involuntary	12(6.8)	38(21.6)	11(6.3)	80(45.5)	35(19.9)
30	Cash	148(84.1)	24(13.6)	04(2.3)	-(0)	-(0)
31	Storage	111(63.1)	58(33.1)	07(4)	-(0)	-(0)
32	Flies	132(75)	40(22.7)	01(0.57)	02(1.1)	02(1.1)
33	Reflex	57(32.4)	34(19.3)	40(22.7)	36(20.5)	09(5.1)
34	Post-natal	83(47.2)	53(30.1)	28(15.9)	11(6.3)	01(0.57)
35	Budding	126(71.6)	37(21)	08(4.6)	03(1.7)	02(1.1)
36	Flooding	112(63.6)	51(28.9)	08(4.6)	05(2.8)	-(0)
37	Absorption	23(3.1)	29(16.5)	32(18.2)	56(31.8)	36(20.5)
38	Conservation	45(25.6)	87(49.4)	22(12.5)	20(11.4)	02(1.1)
39	Fertilizers	86(48.9)	73(41.5)	03(1.7)	11(6.3)	03(1.7)
40	Twins	145(82.4)	31(17.6)	-(0)	-(0)	-(0)
41	Variation	11(6.3)	28(15.9)	33(18.8)	65(36/9)	39(22.2)
42	Flower	120(68.2)	52(29.6)	-(0)	04(2.3)	-(0)
43	Worm	21(11.9)	80(45.5)	43(24.4)	20(11.4)	12(6.8)
44	Pulse	36(20.5)	111(63.1)	19(10.8)	28(15.9)	01(0.57)
45	Vertebrate	42(23.9)	64(36.4)	20(11.4)	17(9.7)	33(18.8)
46	Heat	160(90.1)	15(8.5)	01(0.57)	-(0)	-(0)
47	Condensation	48(27.3)	22(12.5)	14(7.96)	71(40.3)	21(11.9)
48	Compression	11(6.3)	20(11.4)	26(14.8)	52(29.6)	67(38.1)
49	Gaseous	41(23.3)	55(31.3)	05(2.8)	52(29.6)	23(13.1)
50	Mass	07(4)	27(15.3)	23(13.1)	42(23.9)	77(43.8)
51	Balance	53(30.1)	31(17.6)	02(1.1)	51(29)	39(22.2)
52	Attraction	61(34.7)	27(15.3)	33(18.8)	45(25.6)	10(5.7)
53	Oxygen	106(60.2)	38(21.6)	11(6.3)	15(8.5)	06(3.4)
54	Separation	115(65.3)	59(33.5)	02(1.14)	-(0)	-(0)
55	Burning	33(18.8)	12(6.8)	34(19.3)	55(31.3)	42(23.9)
56	Solution	40(22.7)	56(31.8)	04(2.3)	50(28.4)	26(14.8)
57	Liquid	18(10.2)	111(63.1)	14(7.96)	21(11.9)	11(6.3)
58	Equilibrium	11(6.3)	53(30.1)	89(50.6)	22(12.5)	01(0.57)
59	Suspension	62(35.2)	67(38.1)	26(14.8)	15(8.5)	06(3.4)
60	Air	100(56.8)	65(36.9)	11(6.3)	-(0)	-(0)
61	Ore	05(2.8)	106(60.2)	10(5.7)	34(19.3)	21(11.9)
62	Decompose	23(14.8)	104(59.0)	45(25.6)	03(1.7)	01(0.57)
63	Dissociate	15(8.5)	87(49.4)	30(17.1)	33(18.8)	11(6.3)
64	Malleable	10(5.7)	56(31.8)	66(37.5)	17(9.7)	27(15.3)
65	Crystallization	03(1.7)	26(14.8)	45(25.6)	82(46.6)	20(11.4)
66	Temperature	34(19.3)	70(39.8)	51(29.1)	34(19.3)	23(13.1)
67	Mixtures	98(55.7)	67(38.1)	-(0)	01(0.57)	-(0)
68	Compounds	101(57.3)	43(24.4)	02(1.14)	09(5.1)	21(11.9)
69	Chromatography	22(12.5)	30(17.1)	58(32.9)	29(32.9)	37(21)
70	Iron	41(23.2)	53(30.1)	24(13.6)	45(25.6)	13(7.4)

S/N	Items	Very Easy	Easy	Undecided	Difficult	Very difficult
71	Copper	60(34.1)	49(27.8)	21(11.9)	33(18.8)	13(7.4)
72	Salts	109(61.9)	57(32.4)	10(5.7)	-(0)	-(0)
73	Volume	68(38.6	22(12.5)	82(46.6)	03(1.7)	01(0.57)
74	Collision	40(22.7)	56(31.8)	36(20.5)	31(17.6)	13(7.4)
75	Particles	22(12.5)	15(8.5)	43(24.4)	67(38.1)	29(32.9)
76	Change	97(55.1)	57(32.4)	11(6.3)	05(2.8)	06(3.4)
77	Energy	52(29.6)	20(11.4)	47(26.7)	35(19.9)	22(12.5)
78	Matter	123(69.9)	28(15.9)	12(6.8)	23(13.1)	-(0)
79	Reversible	16(9.1)	12(6.8)	57(32.4)	34(19.3)	67(38.1)
80	Acids	68(38.6)	56(31.8)	19(10.8)	21(11.9)	12(6.8)
81	Metals	05(2.8)	45(25.6)	31(17.6)	62(35.2)	33(18.8)
82	Steam	58(33.1)	90(51.1)	07(4)	12(6.8)	09(5.1)
83	Expansion	34(19.3)	95(54.1)	22(12.5)	20(11.4)	05(2.8)
84	Standard	27(15.3)	23(13.1)	45(25.6)	55(31.3)	26(14.8)
85	Ionise	34(19.3)	21(11.9)	89(.50.6)	18(10.2)	14(8.1)
86	Colloids	51(29.1)	34(19.3)	52(29.6)	16(9.09)	23(13.1)
87	Constituents	32(18.2)	41(23.3)	45(25.6)	25(14.2)	33(18.8)
88	Constant	46(26.1)	45(25.6)	30(17.1)	42(23.9)	13(7.4)
89	Point	87(49.4)	56(31.8)	05(2.8)	23(13.1)	05(2.8)
90	Images	100(56.8)	45(25.6)	11(6.3)	20(11.4)	-(0)
91	Force	99(56.3)	34(19.3)	06(3.4)	12(6.8)	25(14.2)
92	Friction	22(12.5)	22(12.5)	11(6.3)	54(30.7)	67(38.1)
93	Object	32(18.2)	71(40.3)	29(16.5)	23(13.1)	21(11.9)
94	Gravity	12(6.8)	45(25.6)	06(3.4)	82(46.6)	31(17.6)
95	Heat	48(27.3)	20(11.4)	31(17.6)	54(30.7)	23(13.1)
96	Insulate	23(13.1)	19(10.8)	33(18.8)	48(27.3)	53(30.1)
97	Engine	07(4.1)	08(4.6)	10(5.7)	51(29.1)	100(56.8)
98	Current	26(14.8)	21(11.9)	12(6.8)	55(31.3)	62(35.2)
99	Scale	30(17.1)	37(21)	54(30.7)	36(20.5)	19(10.8)
100	Pressure	20(11.4)	33(18.8)	23(13.1)	57(32.4)	43(24.4)
101	Machine	40(22.7)	30(17.1)	12(6.8)	41(23.3)	53(30.1)
102	Illumination	06(3.4)	23(13.1)	05(2.8)	70(40)	72(41)
103	Density	63(36.1)	51(29.1)	22(12.5)	23(13.1)	17(8.1)
104	Velocity	59(33.5)	45(25.6)	07(4)	12(6.8)	53(30.1)
105	Speed	52(29.6)	38(22.1)	13(7.4)	23(13.1)	22(12.5)
106	Plug	110(62.5)	44(25)	09(5.11)	10(5.7)	03(1.7)
107	Circuit	28(15.9)	12(6.8)	20(11.4)	71(40.3)	45(25.6)
108	Measure	81(46)	60(34.1)	05(2.8)	23(13.1)	07(4)
109	Weight	30(17.1)	42(24.1)	23(13.1)	45(25.6)	36(20.5)
110	Quantity	56(31.8)	67(38.1)	23(13.1)	16(9.1)	14(8.1)
111	Upthrust	21(11.9)	25(14.2)	35(20.1)	42(23.9)	53(30.1)
112	Curve	99(56.3)	45(25.6)	01(0.57)	12(6.8)	19(11.1)
113	Motion	23(13.1)	77(44.1)	19(11.1)	20(11.4)	37(21)
114	Proportionality	98(56.1)	45(25.6)	01(0.57)	21(11.9)	11(6.3)

S/N	Items	Very Easy	Easy	Undecided	Difficult	Very difficult
115	Power	19(11.1)	45(25.6)	02(1.14)	66(37.5)	44(25)
116	Work	20(11.4)	23(13.1)	12(6.8)	82(46.6)	39(22.2)
117	Space	20(11.4)	22(12.5)	40(22.7)	57(32.4)	37(21)
118	Field	11(6.3)	23(13.1)	39(22.2)	56(31.8)	47(26.7)
119	Sound	23(13.1)	67(38.1)	23(13.1)	51(29.1)	12(6.8)
120	Potential	20(11.4)	34(19.3)	35(20.1)	45(25.6)	42(24.1)
121	Pull	95(54.1)	44(25)	21(11.9)	17(10.1)	09(5.1)
122	Kinetic	49(27.8)	56(31.8)	34(19.3)	22(12.5)	15(8.5)
123	Electron	41(23.3)	18(10.2)	24(13.6)	59(33.5)	34(19.3)
124	Humidity	90(51.1)	45(25.6)	22(12.5)	17(10.1)	02(1.14)
125	Shadows	57(32.4)	81(46)	05(2.8)	21(11.9)	12(6.8)
126	Oscillations	35(20.1)	15(8.5)	13(7.4)	43(24.4)	70(40.1)
127	Length	112(63.6)	23(13.1)	01(0.57)	05(2.8)	35(20.1)
128	Solar	79(45.1)	76(43.2)	11(6.3)	02(1.14)	08(4.6)
129	Distance	82(46.6)	45(25.6)	07(4)	23(13.1)	19(11.1)
130	Echo	30(17.1)	21(11.9)	24(13.6)	42(23.9)	59(33.5)

The scientific concepts were categorized as biological, physical and chemical terms. Table 1 shows that about 40 registers were found difficult especially when a respondent was undecided or found it difficult to learn. It was also found that some concepts that are fundamental in General Science were perceived as difficult by some of the respondents. Some of these are food, health, energy, quantity, to mention just a few. Some of these were listed along with the perceived difficult concepts for translation. Out of the sixty registers given, table 2 reveals the percentage of concepts by category that can be translated into Shona by the sample.

Table 2: Percentages of Concepts Available in Shona

S/N	Available A B C P		Non-available N A B C P	
Urban (130)	23(17.7) 11(8.5)	19(14.6)	22(16.9) (17.7) 32(24.6)	23
Rural (150)	41(27.3) 09(6)	35(23.3)	4(2.67) 34(22.7)	27(18)

The respondents could not translate twenty of the sixty concepts in the Shona language. These were electron, oscillations, potential, echo, current, gravity, friction, circuit, chromatography, crystallization, particles, organs, capillary, cell, reflex, malleable, pulse, variation, metal and standard. For the forty concepts translated, appropriate translations by pupils are in bold,

while inappropriate words are underlined and suggested alternatives are in italic.

Under measurement, general to all the three categories:

1. Density – **uremu, huremu**
2. Volume – **huremu uremu,** *ufemu, kufuta*
3. Mass – huremu, uremu, huwandu, *kurema*
4. Measure – kurera, kuyera, kupima, **era, yera**, *pima, chipimo*
5. Weight – kurema, uremu, huremu, *simba rekurema*
6. Balance – kuenzana, **chikero, sikero, chiyero**
7. Quantity – **huwandu, uwandu,** mwando
8. Distance – **chinhambwe, urefu, hurefu**

Under biological terms:

9. Germination – **kubuda, kumera**
10. Food – **zvekudya, chikafu, chekudya**
11. Absorb – kutora, kumedza. *Sveta*
12. Hybrid- mbeu yakanaka, mbeu, mbeu yapamusoro, mbeu hombe yakanaka *masanganiswa*
13. Health – **utano, hutano**
14. Respiration – **kufema**
15. Insect –**kapuka, kapukanana, chipukanana,** tupukanana
16. Seedling – mbeswa, mbesa, **nhondo**
17. Tissue – ganda, makanda, *tishu*
18. Involuntary – kuita chinhu pasina chinokudzivisa, pasina zvinokukanganisa. *Garukawaita*
19. Erosion – kukukurwa, kueredzwa, gukurahundi, **gukuravhu**
20. Burning – **kubvira, kupisa, kutsva.**
21. Attraction – kutorwa moyo, kuyevedza, kukwezva, *gwezvo, hwezvo.*
22. Reversible – kuchinjika, kudzokorodza, kudzokera. *Kudzosereka sezvazvanga zviri*

Under chemical terms:

23. Solution – **mhinduro**, *surudzo*
24. Liquid – **mvura-mvura,** zvisanganiswa, mvura, mumvura
25. Equilibrium – **kuenzana**, *mangange*
26. Gaseous – hutsi, muutsi, utsi, mweya, *mweya-mweya*
27. Suspension – kusanyura, kuzorodzwa, kumiswa, y*angararo*

Under physical terms:

28. Work – **basa**
29. Energy – simba, *masimba*
30. Sound – kutinhira, **mutinhimira,** ruzha, maungira, kutinhimira
31. Power- simba, masimba, *shandiso yemasimba*

32. Solve- **gadziridza**, kugadziridza, kunhadzirisa, *nhadzirisa*
33. Engine – muchina, **injini, hinjini**
34. Field – **munda,** *nharaunda, nzvimbo*
35. Condense – kubatanidza, kondenzi
36. Wind – **mhepo**
37. Insulate – chokuvharidzira, kubata, chekuvhara, *putira*
38. Upthurst – kufa chinhu, kuvimbika, chekuvhara, *simudzo*
39. Space – **nzimbo isina chinu, nenzvimbo**, *panhu*
40. Compress – kudzvanyirira, kukwiza, kukwizana, kumanikidza, pusha, *dzvanya*

From the analysis in Table 2, it shows that the respondents have difficulty in translating mainly the physical chemistry concepts into Shona. The same translation was given to some scientific concepts that contextually mean different things. Of the 40 concepts attempted only 60 percent were appropriately translated by the pupils.

Recommendations

Our recommendations in this paper are as follows:

- Science should be taught through the medium of indigenous language.
- Scientific terms should be standardised first.
- The corpus should be collected from schools by both science and language specialists, then decide which terms to use for science teaching.
- Where there is no equivalent term in the indigenous language, such terms should be adopted directly from the English words although this should be done sparingly.
- As far as possible, paraphrasing of terms should be avoided during translation, in order not to interfere too much with the syntax of science.
- The coinage of new terms should be given preference ahead of either paraphrasing or adoption.
- The use of indigenous language in science education should be done in phases, starting experimentally at junior high school.
- For further study, an enhanced instrument of interview would be needed for instance discourse on the concepts in order to assess the direction of understanding.

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Subject-Verb Agreement in Chiyao Conjoined Noun Phrases

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Abstract

This paper discusses different strategies for establishing concord with conjoined noun phrases in Chiyao (P.21), a cross-border Bantu language spoken by about three million people scattered in five countries of eastern and southern Africa. The findings reveal that various options are available in Chiyao for showing concord in conjoined noun phrases (NPs). These include the use of default agreement markers a- (class 2) for human nouns, and i- (class 8) for non-human nouns; the use of an agreement marker of the noun closest to the verb, as a default strategy for locative and post-verbal conjoined noun phrases; taking an agreement marker from a human noun in cases where the conjunct involves a human and a non-human noun; and opting for a compound sentence, thus avoiding the conjoined construction. The paper is organized into six sections. The first section introduces the problem and provides background information to the language and its speakers. The second section presents the methodological issues of the study. The third section discusses subject-verb agreement strategies in Chiyao. The fourth section presents a brief review of previous works on conjoined noun phrases in Bantu. The fifth section discusses different strategies for establishing concord with conjoined noun phrases in Chiyao, and the last section provides a conclusion.*

Key words: *Chiyao, conjoined noun phrase, concord*

Introduction

It has been observed by scholars that, in many Bantu languages, when nouns are conjoined to form a grammatical unit, the choice of the subject concord to be marked on the verb becomes difficult, especially when the

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* Abbreviations:

FV	Final vowel	NCP	Noun class prefix	PERF	Perfective
NP	Noun phrase	OM	Object marker	PRES	Present
PAST	Past	PASS	Passive	RECP	Reciprocal
SC	Subject concord	STAT	Stative		

two nouns belong to different classes (Maho, 1999; Katamba, 2003). Numerous studies have been conducted to examine this problem in some Bantu languages including Swahili (Marten, 2000), Mwera (John, 2010), Chichewa (Corbett & Mtenje, 1987), and Luganda (Wechsler, 2009). These studies have generally revealed that languages employ different strategies to establish subject concord with conjoined noun phrases. This paper discusses different strategies of subject marking in conjoined noun phrases in Chiyao.

Chiyao is a cross-border Bantu language which is spoken by about three million people scattered in five countries of eastern and southern Africa, namely Tanzania, Mozambique, Malawi, Zambia and Zimbabwe (Ngunga, 2002). The language has also been referred to as Ciyao (Ngunga, 2002), Ciyawo (Dicks & Dollar, 2010), and Yao. In Tanzania, where this study was conducted, the language is mainly spoken in the southern regions of Ruvuma (Tunduru District) and Mtwara (Masasi District). It is estimated that 416,802 people in these two regions speak Chiyao as their first language (LOT, 2009). In Guthrie's (1948) classification of Bantu languages, the language is grouped in zone P and is coded P.21 along with Shimwela (P.22) and Chimakonde (P.23). With the exception of a study by Whiteley (1966), there has not been any other serious linguistic study focusing on the Tanzanian variety of Chiyao. Largely, the existing literature on Chiyao is based on studies conducted in Mozambique and Malawi, where the language is used in the media and taught in schools. Therefore, the literature on the Tanzanian variety of Chiyao is still scanty and this calls for more systematic studies to examine different linguistic aspects of the Chiyao variety spoken in this country.

Methodology

Data for the study were collected through grammaticality judgment method. This is a technique whereby the informant is made to produce forms in his or her native language and then asked to decide which sentences are acceptable, which are not, and what exactly is wrong with those that are not (Vaux & Cooper, 1999). Through this technique, fifty sentences with conjoined NPs were constructed by the researcher and they were then presented to five informants who were asked to eliminate the ones which are acceptable from the ones which are not acceptable. They informants were also required to give reasons behind their judgments. Each of the five informants was consulted individually but the results were then merged for consistency. The five informants were from Lulindi village, a typical Chiyao speaking community in Masasi district.

Subject –Verb Agreement in Chiyao

The noun in Chiyao comprises two important elements: a noun class prefix (NCP), and a stem. Like in other Bantu languages, the NCP is a portmanteau morpheme which provides information about class, number, and person (Maho, 1999:55) as shown in example (1) below:

(1) ***chi-*** *teengu*
7NCP- chair
'A chair'

When the noun is used as a subject in a sentence, there must be a subject marker attached to the verb to show concord as shown in (2) below:

(2) ***chi-*** *teengu* ***chi-*** *tem-eche*
7-chair 7SC- break- PERF
'A chair is broken.'

The subject markers in Chiyao fall into two major categories, namely primary subject markers and secondary subject markers. Primary subject makers are those which copy the phonological shape of the noun class prefix. These are subject markers for classes 5, 7, 8, 11, 12, 13, 14, 15, 16, 17, and 18. On the other hand, secondary subject markers use an affix which does not resemble the noun class prefix. These include subject markers for classes 1, 2, 3, 4, 6, 9 and 10. Table (1) presents the Chiyao noun classes and the subject concord markers.

Table : Chiyao Noun Classes and Subject Concord Markers

Class	Prefix	SC	Example
1	*mu-*	*a-*	*mundu aiche* 'a person has come'
2	*va-*	*a-*	*vandu aiche* 'persons have come
3	*m-*	*u-*	*mpaamba unsomile* 'an arrow has pierced me'
4	*mi-*	*i-*	*mipaamba insomile* 'arrows have pierced me'
5	*li-*	*li-*	*lijela likutopa* 'the hoe is heavy'
6	*ma-*	*ga-*	*majela gakutopa* 'hoes are heavy'
7	*chi-*	*chi-*	*chipuula chikutema* 'the knife is sharp'
8	*i-*	*i-*	*ipuula ikutema* 'knives are sharp'
9	*N*	*ji-*	*njipi jikuluma* 'a louse is biting'
10	*N*	*si-*	*njipi sikuluma* 'lice are biting'
11	*lu-*	*lu-*	*lukongolo lutemeche* 'the leg is broken'
12	*ka-*	*ka-*	*katumbili kakulya imanga* 'a small monkey is eating maize'
13	*tu-*	*tu-*	*tutumbili tukulya imanga* 'small monkeys are

Class	Prefix	SC	Example
			eating maize'
14	*u-*	*u-*	*usavi ukuulaga vandu* 'witchcraft kills people'
15	*ku-*	*ku-*	*kulya kukwanonyela* 'he/she likes eating'
16	*pa-*	*pa-*	*apano pana lijoka* 'here, there is a snake'
17	*ku-*	*ku-*	*akuno kwana lijoka* 'in this direction, there is a snake'
18	*mu-*	*mu-*	*amuno mwana lijoka* 'here, inside, there is a snake'

No matter whether the noun takes a primary or a secondary subject marker, if it happens that there are two nouns making up a subject, especially when they are from different classes, problems arise with regard to the noun that should be marked on the verb. This complexity is shown in example (3) below:

(3) *chi- pula ni li- jela __tem- eche*
7-knifeand 5-hoe break-PERF
'A knife and a hoe are broken.'

In (3) above, the gap preceding the verb *tem- eche* implies that the choice of subject concord is not easy because the subject is made up of two nouns from different classes: *chipuula* 'a knife' (class 7), and *lijela* 'a hoe' (class 5). In order to get an appropriate agreement marker in situations like (3) above, a class-resolving strategy needs to be employed.

Class-Resolving Strategies in other Bantu Languages

Two common class-resolving strategies to handle coordination of unlike conjuncts have been suggested, namely resolution and partial agreement (Wechsler, 2009). The former involves deriving the agreement features of a coordinate noun phrase on the basis of the features of all the individual conjuncts while the latter involves taking agreement features of one conjunct and ignoring the other(s).

A distinction is also made between syntactic and semantic class resolution (Corbett, 1991). Syntactic class resolution operates according to the gender of the conjoined items irrespective of their meaning, while semantic class resolution involves reference to the meaning of the conjoined elements even if this implies disregard for their class. Both of these strategies are common among Bantu languages as discussed in the following section.

There have been a number of previous studies to explore class resolving strategies in different Bantu languages. A few languages for which we

have succeeded to secure some materials include Swahili, Chichewa, Ndebele, Luganda, and Sambaa.

Marten (2000) argues that, in Swahili, if the conjoined NPs belong to the same singular class, the complex NP typically will agree according to the corresponding plural class and if the conjoined nouns denote human beings, the complex NP will agree according to class 2 (human plural). In other cases, there are two strategies. First, the plural prefix of class 8, *vi-*, might be used as a sort of neutral class as shown in (4). Second, the last NP might trigger the agreement as shown in (5).

(4) *sabuni na ma-ji* ***vi****-ta-ku-saidi-a*
10 soap and 6-water 8SC-future-OM-help-FV
'Soap and water will help you.'

(5) *vi-kombe na zawadi* ***zi****-li-tol-ew-a kwa wa-shindi*
8-cups and 10-presents 10SC-PAST-give-PASS-FV to 2SC-winners
'Cups and presents were given to winners.'

In Chichewa subject verb agreement in conjoined NPs seems to be determined by both semantic and morphological factors. In this language, three types of agreement affixes are used, namely *a-, zi-,* and *ku-* (Corbett & Mtenje, 1987). Each of these affixes has a special context of usage: *a-* is used with human conjuncts (example 6), *zi-* is used with non human conjuncts (example 7), and *ku-* is used with infinitives (example 8).

(6) *m-kazi ndi mw-ana* ***a****- ku- yend-a*
1-woman and 1-child 1SC- PRES- walk-FV
'The woman and the child are walking.'

(7) *u-konde ndi chi-patso* ***zi****- ku- bvund-a*
4-net and 6-fruit 8SC- PRES- rot-FV
'The net and the fruit are rotting.'

(8) *ku-byina ndi ku-imba* ***ku****- ku- chitikira uko*
15-dance and 15- sing 15SC- PRES- take place there
'Dancing and singing are going on there.'

Furthermore, conjoined structures involving the locative classes are unacceptable, unless all are from classes 9 and 10 which use the forms *mu-* and *ku-* respectively, and that conjoined structures involving noun phrases denoting humans and non-humans are unacceptable.

The Chichewa case above does not differ much from Luganda where the common tendency is to use the corresponding plural agreement for conjuncts of the same noun class and, when the conjuncts differ in noun class, a noun class 1/2 is used as a resolution class for humans (example 9), while noun class 7/8 is used for non-humans (example 10). This applies irrespective of the noun classes of the conjuncts (Wechsler, 2009).

(9) *ek-kazi, aka-ana ne olu-sajja* ***ba****-alab-w-a*
5-fat woman 12-small child and 11-tall man 2SC- see –PASS-FV
'The fat woman, small child, and tall man were seen.'

(10) *en-te, omu-su, eki-be ne ely-ato* ***bi****-alab-w-a*
9-cow 3-wildcat 7-jackal and 5-canoe 8SC- see –PASS-FV
'The cow, the wildcat, the jackal, and the canoe were seen.'

Sambaa allows only two agreement strategies, namely the use of the corresponding plural class, and the use of default agreement marker (class 8) (Riedel, 2010). This is shown in the following examples:

(11) *Shimba na kuivi-i-lal-iye*
9-lion and 5-dog 8SM-PERF-sleep-PERF
'The lion and the dog slept.'

(12) *Shimba na kuiwa-i-lal-iye*
9-lion and 5dog 2SM-PERF-sleep-PERF
'The lion and the dog slept.'

Unlike most Bantu languages, Sambaa does not allow partial agreement, i.e. neither first nor second conjunct agreement is allowed (Riedel, 2010). So, examples (13) and (14) below are ill-formed because the first one takes the agreement marker from the first noun while the second example takes the agreement marker from the second noun.

(13) **Shimba na kuii-i-lal-iye*
9-lion and 5-dog 9SM-PERF-sleep-PRF
'The lion and the dog slept.'

(14) **Shimba na kuiji-i-lal-iye*
9-lion and 5-dog 5SM-PERF-sleep-PRF
'The lion and the dog slept.'

It seems clear from this brief review that languages employ different class resolving strategies with conjoined noun phrases, although some of the

strategies seem to be more common than others. The most common strategies are the use of the corresponding plural class and the default agreement class, while the use of the first or second conjunct seems to be more language specific. It is on the basis of these variations in class resolving strategies among languages that this paper is developed in order to uncover the strategies used in Chiyao since they might not be the same as the ones used in the languages reviewed above.

Class-Resolving Strategies Used in Chiyao

Chiyao employs several strategies to establish concord with conjoined noun phrases. For easy of analysis, we divide the conjoined noun phrases in Chiyao into five major categories, namely conjuncts denoting human entities; human and non-human entities; locative nouns; non-human nouns; and infinitives. Each of these categories is discussed here below.

Conjuncts Denoting Humans

These are conjoined noun phrases which are made up of human entities. In most cases, the human nouns are found in class 1. When these nouns are conjoined to form one NP, the class 2 subject marker *a-* is used to show concord as shown in (15) below:

(15) *m-kamusi ni mw-ali **a**-kw-aul-a*
1-patron and 1-initiate 2SC-PRES- go-FV
'A patron and an initiate are leaving.'

It is interesting to note that even when the conjoined NP is made up of human nouns from two different classes, the class 2 agreement marker is still used as a default agreement marker as shown in examples (16-18) below:

(16) *jwa-mkoongwe ni mw-enye **a**-kw-eend-a*
1a-woman and 1-chief 2SC-PRES-walk-FV
'A woman and a chief are walking.'

(17) *m-chanda ni va-nache **a**-li apala*
1-boy and 2-infant 2SC-be there
'A boy and an infant are there.'

(18) *li-velu ni jwa-wiyi **a**-ku-meny-an-a*
5-fool and1a-thief 2SC- PRES –fight- RECP-FV.
'A fool and a thief are fighting.'

This seems to suggest that, when nouns denoting human entities are conjoined, it is the semantic features of a noun which trigger verb concord, not morphological features.

Conjuncts Denoting Humans and Non-Humans

When a human noun is conjoined with a non-human noun to form an NP, there are three strategies which are commonly employed. The first strategy involves marking a human noun in the verb by using a class 2 agreement marker *a-*, ignoring a non-human noun (19-20). The second strategy involves the use of the class 8 agreement marker *i-* (21-22), and the third strategy involves avoiding a conjoined construction and opting for a compound sentence (23).

(19) *mu-ndu ni li-vaata* ***a****-ku-utuk-a*
1-person and 5-duck 2SC-PRES-run-FV
'A person and a duck are running.'

(20) *m-chanda ni ng'ombe* ***a****-kw-ik-a*
1-boy and 9-cow 2SC-PRES-come-FV
'A boy and a cow are coming.'

(21) *va-ndu ni ma-chungwa* ***i****-potel-e*
2-people and 6-oranges 8SC-get lost-PERF
'People and oranges are lost.'

(22) *mu-ndu ni ng'ombe* ***i****-ku-utuk-a*
1-person and 9-cow 8SC-PRES- run-FV
'A person and a cow are running.'

(23) *mu-ndu* ***a****-potel-e ni ma-chungwa* ***ga****-potel-e*
1-person 2SC get lost-PERF and 6-oranges 6SC get lost

PERF

'A person is missing and oranges are missing.'

These findings contrast the findings in Chichewa where Corbett and Mtenje (1987) observed that conjoined structures involving noun phrases denoting humans and non-humans are unacceptable and that, in such cases, speakers prefer to use comitative constructions.

Conjuncts Denoting Locative Nouns

Like in many other Bantu languages, locative nouns in Chiyao are found in classes 16 *pa-*, 17 *ku-* and 18 *m(u)-*. When nouns from these classes are

conjoined, the noun which is closest to the verb is the one which is subject marked on the verb. In (24) below, the NP is made up of a class 18 and a class 16 noun, but the verb contains a class 16 subject marker simply because it is closest to. The same is true with (25) where the class 18 noun is subject marked, leaving the class 16 which is far from the verb. In this case, the principle which I call 'adjacency to the verb' seems to apply. This contradicts the findings in Sambaa (Riedel, 2010) where a subject marker cannot be taken from one of the nouns in a conjoined noun phrase.

(24) *m-kati ni pa-asa **pa**-na chi-tukuta*
18-inside and 16-outside 16SC-there is 7-hotness
'It is hot inside and outside.'

(25) *pa-asa ni m-kati **mw**ana chi-tukuta*
16 outside and 18-inside 18SC-there is 7-hotness
'It is hot outside and inside.'

Conjuncts Denoting Non-human Nouns

If the subject is made up of two or more non-human nouns, there are three options for showing concord with the verb. The first option involves the use of a class 8 agreement marker *i-* (26–27). The second option involves the use of the corresponding plural class. This works for conjuncts containing class 9 animate nouns, whose corresponding plural is the class 10 agreement marker *si-* (28), and the third option involves the use of the agreement marker *ga-*. This is employed when conjoined nouns are from classes 5 and 6 (29).

(26) *chi-jiko ni m-eza **i**-tem-ech-e*
7-spoon and 3-table 8SC-break-STAT-FV.
'A spoon and a table are broken.'

(27) *lw-aau ni chi-puula **i**-pile moto*
11-net and 7-knife 8SC- burn-fire
'A net and a knife are burnt.'

(28) *m-busi ni n-gondolo **si**-ku-ly-a ma-saamba*
9-goat and 9-sheep 10SC-PRES-eat-FV 6-grass
'Goats and sheep are eating grass.'

(29) *ma-gombo ni ma-peeta **ga**-pi-ile*
6-banana and 6-yam 6SM-cook-PERF
'Bananas and yams are cooked.'

Conjuncts Denoting Infinitives

In Bantu, the infinitives are regarded as nouns because they can trigger concord with the verb just like other nouns. In Chiyao noun class system the infinitive nouns are found in class 15. When a conjoined noun phrase is made up of the infinitive nouns, a default class 8 subject marker *i-* is used as shown in (30–31) below:

(30) *kw-imba ni ku-tyala **i**-ku-salala*
15-sing and 15-dance 8SC- PRES- good
'Singing and dancing are good.'

(31) *ku-lola i-dewo ni ku-lya **i**-ku-n-nonyela*
15-watch 8-video and 15-eati 8SC-PRES-OM-like
'I like watching videos and eating.'

Agreement with Post-verbal Conjoined Noun Phrases

In some cases, the subject may be postposed to occur after the verb. In such cases, Chiyao employs only one strategy to establish concord; the verb has to agree with the first noun. Here again, it should be noted that the principle of adjacency to the verb is in operation. The first noun is made to agree with the verb simply because it the one which is closer to the verb. In (32) below, the verb takes a class 5 agreement marker *li-* from a class 5 noun *lisimba* which is closer to it, ignoring the class 7 noun *chisuvi*. When the sentence is twisted (33), the verb is marked with a class 7 agreement marker *chi-*.

(32) *li-w-ile li-simba ni chi-suvi*
5SC-die-PERF 5-lion and 7-leaopard
'A lion and a leopard are dead.'

(33) *chi-w-ile chi-suvi ni li-simba*
7SC-die-PERF 7-leopard and 5-lion
'A leopard and a lion are dead.'

Conclusion

It is clear from the foregoing discussion that Chiyao is particularly rich in class resolving strategies with conjoined noun phrases. Unlike other languages like Sambaa (Riedel, 2010) and Ndebele (Wechsler, 2009) which have only two strategies each, Chiyao has four strategies. The first strategy is the use of the corresponding plural class which in most cases include the class 2 agreement marker *a-* (for human nouns), and a class 8 agreement marker *i-* (for non-human nouns). These two are regarded as default agreement markers. The second strategy is the use of an agreement marker of the noun closest to the verb. This is used as a default

strategy for locative and post-verbal conjoined noun phrases. The third strategy involves taking an agreement marker from a human noun in cases where the conjunct involves a human and a non-human noun. Finally, in cases where all other strategies fail, Chiyao speakers opt for compound sentences, thus avoiding conjoined constructions.

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