

# **Lexical Engineering: Theory, Practice and Proposals for Zambian Languages**

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## **Abstract**

*The article shows how a Zambian or Zambian languages can be lexically developed so as to become intertranslatable in all academic disciplines, including science and technology, with languages of developed and emerging countries. It does so after discussing the main tenets of the theory or terminological research and illustrating how lexical engineering, that is, terminological development, has been achieved in a various countries, mainly, but not solely, developed countries. The article emphasizes that for terminological development to be useful at national level, it must be achieved as part of a country's language planning (LP).*

**Keywords:** Term, terminology, terminological development, terminography, terminotics, lexical engineering, language planning, language status planning, language corpus language planning, lexical expansion, intrasystemic sources, extrasystemic sources, borrowing, loanword, nativization, language board, language academy.

## **1. Introduction**

Premised on the fact that no Zambian language is, at the moment, lexically developed enough in science and technology, this paper sets out to show how Zambian languages can be lexically developed.

Developing the vocabulary of a language is the subject matter of a linguistic discipline known as terminology, or terminological research, which is part of both applied linguistics and language planning, the former being partially and the latter being wholly, part of sociolinguistics.

This article shows how lexical engineering, that is, terminological development, of Zambian language can be achieved, drawing upon theoretical terminology as well as experiences elsewhere, mainly, but not solely, in developed and emerging countries.:

## **2. Terminology as Part of Language Planning**

It is common knowledge that language plays a prominent role in any organization, any community and, indeed, any country. The measure or measures taken deliberately and the activity or activities deliberately conducted by an organization, community or country regarding a language or languages to be used on its territory is part of what is known as language planning. In the sociolinguistic literature, language planning (LP) is divided into two streams, which follow each other in that order, namely:

- Language status planning (LSP): and
- Language corpus planning (LCP).

Language status planning (LCP) is concerned with the functions of languages, which involve two processes, following each other in that order: (a) the choice of a language, language variety or

languages to be used as official language or languages and (b) the promotion of the language, language variety or languages chosen as official language or languages.

Language corpus planning (LCP) is concerned with the structure of a language or languages in terms of such linguistic areas as orthography, vocabulary and style. Two points have to be made here. First, in sociolinguistics the term ‘language development’ is often used to refer to language corpus planning and not to what the same term refers to in psychology or sociolinguistics. Second, as pointed out above, LCP comes after LSP. Third, LCP is not necessary and, therefore, does not take place if the language chosen, in the context of LSP, is already ‘developed’. Last, but not least, terminological development, the subject matter of this article, is part of LCP.

However, in practice these two types of LP are but two sides of the same coin. It is not viable to think of corpus and status planning as clearly separate activities. Indeed, a modification made to the structure of a language/languages is not an end itself: the result of the modification made to a code or to codes, which is an instance of language corpus planning (LCP); it is intended to be put in use in language status planning (LSP).

On orthography corpus planning, it is important to distinguish between (a) *orthography standardization*, which is a body of decisions or/and recommendations on spelling in one language, and (b) *orthography harmonization*, a body of decisions or/and recommendations on spelling across two or more languages or on a language spoken in more than one country.

### **3. Terminology as a Discipline**

#### ***3.1 Term, terminography, terminology, terminotics***

Gouadec (1990)<sup>1</sup> offers an excellent theoretical account of terminology. The author discusses the following seven terms:

- (a) term;
- (b) terminology;
- (c) terminologist;
- (d) terminography;
- (e) terminographer;
- (f) terminotics; and
- (g) terminotician.

The author begins by dealing with ‘term’ since all the other words are concerned with terms. The explanations of the above-mentioned terms are wholly based on Gouadec (op. cit.).

### 3.1.1 *Term*

A term is a linguistic unit designating a concept, an object or a process. The term is the unit of designation of elements of the perceived or conceived universe.

### 3.1.2 *Terminology, terminologist*

#### **(a) Terminology**

Terminology is either the discipline or science which studies terms, their formation, their uses, their meanings, their evolution, their relationships to the perceived or conceived universe, or the product of of such a study, that is, the set of terms collected or produced.

#### **(b) Terminologist**

The terminologist defines the object of the science or discipline of terminology, analyzes the relationships between the designations and the elements designated, analyzes the principles of formation

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1 Gouadec’s publication is in French. All these defintions as used in this paper are a translation/paraphrase of this writer

and of evolution of terminologies, studies the correlations between terminological sets, defines the principles and steps which will have to be followed by terminographers – particularly through codification and standardization – to influence language uses and, most importantly, inform those who are responsible for taking decisions regarding linguistic policies and attempt to enforce those decisions.

### *3.1.3 Terminography, terminographer*

#### **(a) Terminography**

Terminography is the activity consisting in compiling, constituting and disseminating terminological data.

#### **(b) Terminographer**

The terminographer designer is, literally, the agent who compiles the elements contained in lexicons, glossaries, inventories, dictionaries, files, databanks or other records of “specialized vocabularies”.

### *3.1.4 Terminotics, terminotician*

#### **(a) Terminotics**

Terminotics is nothing but the marriage between terminology and computer science. Strictly speaking, the term ‘terminotics’ covers the set of operations involved in the stocking, management and retrieving of terminological data using information technology (IT). Initially it applied to the constitution of indexed or databases, to the management of databases, and to the definition of retrieval procedures. Nowadays terminotics has found new scopes in the designing of translation or writing aids; on-line dictionaries, software replacing terms contained in a text in language X by their equivalents in language Y, translation “machines”,

etc. Terminotics may be simply defined as computer-assisted terminography.

## **(b) Terminotician**

*A terminotician is a specialist in terminotics*

### *3.1.5 Summary*

To sum up, the terminologist identifies and proposes principles of analysis, constitution, management and dissemination of terminological data which the terminographer collect “in the field” and which the terminotician processes, for quite different purposes, using IT means.

### *The nature of terminological research*

It is also worth noting that since modernization of Zambian languages should not be a mere academic exercise, any terminological research carried out by a government agency with a view to modernizing Zambian languages must be followed by implementation, i.e. the teaching and use of the terms and expressions agreed upon. However, this step is outside the province of the paper.

Terminological research may be categorized as in (1), below, in three ways.

- (1) Classificatory criteria of terminological research
  - a. Coverage;
  - b. Number of languages involved; and
  - c. Methodology.

#### *3.2.1 Classification of research based on coverage*

The term ‘coverage’, as used here, refers to the number of terms dealt with. Following (Célestin et al. 1984, Dubuc 1985), a primary classification of terminological research based on

coverage as thus defined is shown in (2):

- (2) Set of classificatory criteria of terminological research based on coverage
  - a. Punctual terminological research; and
  - b. Thematic terminological research.

Punctual terminological research deals with one term or notion only or a limited number of terms or notions, each belonging to any semantic field, while thematic terminological research is concerned with entire semantic fields, for example organic chemistry.

In addition to punctual and thematic research, a third category based on coverage has been recognized, viz. punctual thematic research. This is a punctual research in which a limited number of terms or notions belonging to the same semantic field are investigated (Célestin et al. 1984: 17-18). Hence, following Célestin *et al.* (op. cit.), a comprehensive classification of terminological research using coverage, as defined above is as follows:

- (3) Revised set of classificatory criteria of terminological research based on coverage
  - a. Punctual terminological research;
  - b. Thematic terminological research; and
  - c. Punctual thematic terminological research.

Given the above dichotomy punctual/thematic/punctual thematic research, what kind of research is needed to modernize Zambian languages? The answer to this question is of necessity determined by the goal of the modernization of Zambian languages, namely to enable people to talk about mathematics, chemistry, linguistics etc. in Zambian languages. Such a goal necessitates a systematic terminological research. Hence the need for a thematic approach rather than a punctual one, although in the process the punctual and punctual thematic approaches may be resorted to.

### ***3.2.2 Classification of research based on the number of languages involved***

It is worth noting that the classificatory criterion ‘number of languages involved, is, like the first criterion, ‘coverage’, discussed under 3.2.1, above, with, however the following difference: In 3.2.1, what is discussed is the coverage in terms of the number of terms involved, while in 3.2.2 the coverage discussed is in terms of the number of languages involved:

Based on the number of languages involved, a distinction is made, as follows:

- (4) Classification of research based on the number of languages involved
  - a. Monolingual, or unilingual, terminological research, in which only one language is involved;
  - b. Bilingual terminological research, in which two languages are involved; and
  - c. . Multilingual (or, rarely, plurilingual) terminological research, in which more than two languages are involved

The easiest and practically the only way of modernizing a language is to take thematic lists of terms from another language which, like English, is terminologically developed and then try and find existing equivalent terms in language being modernized and, if such equivalent terms do not exist, create new terms (intrasystemic source) or borrow from another language (extrasystemic source). Such an approach is bilingual since it involves two languages. Owing to the fact that in Zambia, of all full-fledged languages, English is not only the language with which Zambians are most familiar but a major source of existing borrowings in Zambian languages, the working lists, I suggest, should be taken from it and should be used as the major source of borrowing in the



modernization of Zambian languages. To use technical terms, English should be the source language (SL) and each Zambian language to be modernized would be a target language (TL). It is the view of the writer that if English is chosen as the SL, then terminological research aimed at modernizing the seven Zambia's regional official languages (ROLs) at the same time should be both multilingual and bilingual. Multilingual mainly in the sense that a set of general principles and conventions to be applied to all the ROLs should be agreed upon, for example to avoid a situation where some languages would systematically borrow from English while others would create new terms from intrasystemic sources only and presented in the same way. Once such general principles and conventions are agreed upon, the research should be bilingual, English being used as the SL and each ROL being a TL.

### ***3.2.3 Classification of research based on methodology***

The third and last type of classification of terminological research is that based on methodology. According to this criterion, there are two opposing approaches as shown in (5):

- (5) Methodology-based classification of terminological research
  - a. The semasiological approach; and
  - b. The onomasiological approach.

The adjectives 'semasiological' and 'onomasiological' are derived from the nouns 'semasiology' and 'onomasiology', respectively. The term 'semasiology' refers to a lexicological study going from a notion, or concept, to the term, while onomasiology, also a lexicological study, goes from a term to a notion, or concept denoted. In Saussurean terms, this can be expressed in summary form as follows:

- (6) Explanation of the methodology-based classification of terminological research

- a. Semasiology goes from signified (=notion concept) to signifier (= phonological shape); onomasiological approach.
- b. Onomasiology goes from signifier (=phonological shape) to signifier (=notion, concept)..

The following questions in (7) illustrate the two approaches, as applies to monolingual research:

(7) Illustrative questions for semasiology and onomasiology

a. *Semasiology*

- i. How shall I call in Lozi a morpheme preceding a verbal prefix?
- ii. Is there any term in English used to refer to a morpheme preceding a verbal prefix in Bantu?

b. *Onomasiology*

- i. What is an 'extension' in the Bantu verbal system?
- ii. What is meant by 'Chomsky-adjunction'?

### 3.3 *Lexical expansion*

There are two opposing types of sources of new lexical intake, namely what Samuels (1972:61) has referred to as (a) the *extrasystemic source*, i.e. external borrowing, and (b) the *intrasystemic source*, i.e. the morphological and other sources of the very language being modernized.

Both types of sources have consciously been used to create technical terms. It is worth noting that purists and xenophobes systematically avoid borrowing and prefer to create new terms using intrasystemic sources. However, in the modernization of languages, borrowing should be prescribed.

All speech communities do borrow terms and other language material from other speech communities and most borrowings

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in many languages have been made unconsciously, i.e. not by any terminologist but naturally through language contacts. For example, according to Glathorn et al. (1971: 25), out of the entire English vocabulary only fifteen to twenty percent of words came from Anglo-Saxon, the ancestor language, about half originated from Latin and about half of the Latin-derived words came into English through French.

It is well known that some of the ‘naturally’ – borrowed words and expressions clash with existing words, i.e. they are synonymous with existing words (Ohly 1977:21). Such a situation is to be avoided when modernizing a language since borrowing must be justified. Hence again, the need to research for existing terms before borrowing from other languages or creating new terms.

### ***3.3.1 Intrasystemic sources***

Adopting the semasiological approach, one can create new words (neologisms) with only resources of the language being developed. As we have seen, such resources have been termed by Samuels (1972:61) intrasytemic sources as opposed to external borrowing (extrasystemic source).

Undoubtedly, the most productive intrasystemic sources in all natural languages are derivation and compounding. Therefore, a thorough study of derivation (deverbal nouns, de-adjectival nouns, etc) and compounding is needed. (see, for example, Bauer 1983: 22-41).

In English and other terminologically developed languages, in addition to cases where a lexeme is derived from another single lexeme (e.g. a noun, a noun, from an adjective, a verb from a noun), and cases of obvious compounding where a lexeme is formed by combining two lexemes, there are special types of derived lexemes and compound lexemes, as illustrated in (8), below:

- (8) Some special' derived lexemes, compound lexemes and word-formation processes
- a. **Acronym:** a word formed from the initials of two or more words, e.g. 'radar' from 'radio detecting and ranging'
  - b. **Blend,** a compound that is less than a compound (Fromkin and Rodman 1988:139). I.e. A compound in which the components are reduced, e.g. 'brunch' from 'breakfast', and 'lunch'
  - c. **Back-formation:** a process whereby a shorter word is, by analog with other forms, derived from a longer one by deleting an imaginary affix, e.g. 'edit' from 'editor' (Crystal 1991:35);
  - d. **Lexicalized abbreviation:** e.g. 'nark' from 'narcotics agent', 'bus' from 'omnibus' which no longer used
  - e. **Metonymy,** e.g. The name of an inventor is used to refer to the product, e.g. 'robot'.

All these processes can also be used to expand the vocabulary of Zambian languages.

Besides derivation, compounding and the other devices mentioned above, to solve some specific terminological problems one can resort to **semantic extension**, i.e. the extension of the meaning of an existing word. For example, let us take the word tafule 'table' in Lozi. This word has been borrowed from English (table) only in the sense 'a piece of furniture with a flat top supported by one or more upright legs' (Longman Dictionary of Contemporary English). The meaning of tafule can be extended to cover other meanings of the English word table, e.g. the meaning it has in table of contents.

### ***3.3.2 Extrasystemic sources***

When two languages are in contact, they influence each other

through bilinguals in lexis and, in situations of extensive and prolonged bilingualism, in sound and grammar (Gumperz 1972: 123). It is a commonplace that there is more borrowing from the language of greater prestige (politically, etc) into the language of lesser prestige than the other way round (Samuels 1972:103).

Initially, borrowing takes place as a means of filling semantic gaps: a new concept or object is introduced in a speech community and the speech community nativizes the foreign word for this concept or object. However, in cases of widespread and prolonged bilingualism, there are borrowings that are not motivated in this way so that one finds loan words that are synonymous with native words and the speakers of the language may, as time goes by, forget the indigenous word, a situation which, Hill and Hill (1977) have called 'relexification' and, if widespread, is referred to as, or is a sign of, language decay. When modernizing a language, one must avoid duplication since the objective of language modernization is to fill gaps (Glatthorn 1972):94)

### ***3.3.3 Types of borrowing***

Observation of the borrowing process has led to recognition of several types of borrowing and the main of which are the following:

#### **(9) Typology of loan words**

- a. **Loan word:** both form and meaning are borrowed with partial or total adaptation or, less commonly, without adaptation to the system of the languages;
- b. **Loan blend:** a native constituent is combined with a borrowed constituent, as in co-worker in which co-is from Latin (cum 'with') and worker is native Hartmann and Stork 1972:134); and
- c. **Loan translation, or calque** (a French word sometimes used in English as well); the constituent parts of a word

or phrase of a language are literally translated in another language.

Loan translations are more complex than loan words and loan blends in two respects. First unlike loan words and loan blends, loan translations involve translation (as the term suggests) in addition to borrowing. Second, while loan words and loan blends always involved only two languages, loan translations may involve three languages, as well be shown. Consider the following examples in (10) and (11):

- (10) a. English  
    i. Hydrogen  
    ii. Oxygen
- b. French glosses  
        i. hydrogène  
        ii. oxygène
- c. German glosses  
        i. Wasserstoff  
        ii. Sauerstoff
- (11) a. English  
        Skyscraper
- b. French gloss  
        gratte-ciel
- c. German gloss  
        Wolkenkratzer<sup>2</sup>

We know from the history of chemistry that the term for H<sub>2</sub> and O<sub>2</sub> as well as most other chemical elements were coined by

2 Wolken = 'clouds'; Kratzer = 'scrapper' (from kratzen 'to scrape')

Laurent Lavoisier (1743-1794), revered as ‘the father of modern chemistry’. The term for H<sub>2</sub> was coined as hydrogène and that for O<sub>2</sub> was coined as oxigène in 1783, changed to oxygène in 1787. A number of European languages, including English, systematically borrowed the French chemical terms, as shown in the table below.

*Table 1:* ‘Words for ‘hydrogen’ and ‘oxygen’ in some languages

French	English	Italian	Portuguese	Spanish
hydrogène	Hydrogen	Idrògeno	hidrogénio	hidrógeno
oxygène	Oxygen	Ossígeno	oxigénio	oxígeno

Note that while the English, terms in (10), above, must be considered to be reflexes of, i.e. derived from, the French terms in (10), namely hydrogène and oxygène, respectively, the German terms in (10) are not. The German terms in (10) are compound nouns: Wasser = ‘water’, Stoff = ‘stuff/material’, Sauer = ‘From a phonological point of view, i.e. on the basis of pronunciation, these German terms are not borrowing from French. A semantic comparison between these German compound nouns and the equivalent French nouns in terms of the Greek elements they are composed of shows that they are, indeed, borrowings from French. Both hydrogène and oxygène in French are made of two morphemes that are adaptations of Greek elements. The element, -gène means ‘something that generates’ while hydro – mean ‘water’ and oxy – means ‘something acid’. Thus, literally, hydrogène means ‘something used to generate water’ and oxygène literally means ‘something used to generate acids’. Thus, instead of simply borrowing hydrogène and oxygène from French and changing the pronunciation, or the pronunciation and the spelling, as has been done, for instance, in English, Italian, Portuguese and Spanish, the Germans only borrowed from French the way hydrogène and oxygène were coined by Lavoisier. They translated into German the Greek elements: Wasserstoff literally means ‘material for water’ (Wasser = water; Stoff = material) and Sauerstoff literally means ‘material for acid’ (Wasser = water; Stoff = material). So,

the German terms have the same meanings as in French in terms of the Greek elements they are composed of.

This kind of borrowing made of a literal translation has also been used in other languages as well (e.g. Dutch) and is known as ‘loan translation’ or ‘calque’, a phenomenon also involved in (10), above. Both the French term and the German term for skyscraper are loan translations, or calques, of the English term: the French elements *gratte-* and *-ciel*, mean ‘scraper and ‘sky’, respectively, and the German elements *Wolken-* and *-kratzer* mean ‘clouds’ and ‘scraper’, respectively. Note, however, that the Germans have translated sky craper as *Wolkenkratzer* (‘cloudscraper’) instead of \**Himmelkratzer* (‘skyscraper’).

As shown below in (12) and (13), borrowing is not limited to single words (SL= source language, TL = target language):

- (12) (a) SL: FRENCH ‘mariage de convenance,  
TL: ENGLISH ‘marriage of convenience’
- (b) SL: FRENCH *ça va sans dire*  
TL: ENGLISH that goes without saying
- (13) (a) SL: ENGLISH ammonium chloride  
TL: SWAHILI *ammonia kloraidi*
- (b) SL: ENGLISH ascorbic acid  
TL: SWAHILI *asidi askobi*

The English phrase in (12a) and the English sentence in (12b) are loan translations of the French phrase in (12a) and the French sentence in (12b), respectively. Note, however, that a translated sentence is to be considered as a loan translation only if it is an idiomatic expression. Thus, ‘that goes without saying’ is a loan translation because both it and the source sentence *ça va sans dire* are not to be understood literally but are idiomatic expressions meaning ‘that is obvious’.

Each Swahili phrase in (13) is made of two simple loan words



with, however, a change in word order of the source phrase, which is an instance of syntactic nativization (see 3.2.2.2. below).

### 3.3.2.2. *Nativization*

Using the genesis of borrowing as a classificatory criterion, one distinguishes between, on one hand, those forms that are introduced in a language through deliberate efforts to modernize it and, on the other, those forms that are introduced in a language ‘naturally’, so to speak, that is, not as a result of deliberate efforts aimed at modernizing it. For want of better words, I will refer to the former as ‘artificial borrowings’ and to the latter as ‘natural borrowing’.

It is a commonplace that natural borrowings tend to adapt to the system of the host language at all levels of linguistic analysis (phonology, morphology, syntax, etc). Such adaptation is known in the linguistic literature as ‘nativization’, ‘naturalization’ or ‘indigenization’. Logically, nativization can be null, partial or total at every level of linguistic analysis. In reality, however, only at the phonemic level (including pronunciation) can adaptation be null since at each of the other levels every borrowing must fit somehow in the grammatical system of the host language. At the phonemic level, adaptation is null if the borrowing retains all the phonetic features of the SL including those that do not exist in native forms.

As pointed out by Lovins (1975:36), the ‘foreignness’ of loan words in any TL varies considerably due to a number of factors that can be isolated but may combine. One such factor is the extent of bilingualism within the receiving speech community (Lovins 1975: 38, Kashoki 1990: 30). When a sizeable number of TL speakers are sufficiently familiar with the SL, phonic adaptation will tend to be either null or partial. A distinction was made above between ‘natural’ borrowings and ‘artificial’ borrowings but no explanation was given as to how this was relevant to the

subject matter of the paper. I therefore, now wish to explain its relevancy. I have just pointed out that natural borrowings tend to adapt to the system of the TL, though at the phonemic level adaptation may be null. In the modernization of languages, the kind of borrowings we have are ‘artificial borrowings’, as defined above. A terminologist trying to modernize a language has, when adopting artificial borrowings, to answer such questions as:

- How am I going to nativize the borrowings at the phonemic level?
- Since the TL is Bantu, in what Bantu nominal class(es) am I going to incorporate loaned nouns?
- What English verb form (infinitive without ‘to’ or -ing form?) shall I take as source form?

Obviously, no answer to any of such questions should be arbitrary. What the terminologist must do is look at the ways in which most natural borrowings have been incorporated in the TL and use these ways as rules for nativizing artificial borrowings. Therefore the study of natural borrowings is a prerequisite to any attempt at modernizing a language by adding to it artificial borrowings.

### ***3.3.3 Summary of devices that are used for lexical expansion***

Let us assume that a terminologist and native speaker of Bemba is working on colour terms in Bemba. He might decide to borrow the English term ‘green’ simply because he does not know that in Bemba there already exists a term used to translate ‘green’. The first thing a terminologist has to do is to carry out a terminological research aimed at identifying existing terms pertaining the subject matter. It is only when he is satisfied, after consulting all available sources, that there is no term for the concept, object etc for which he wants to find a term that he/she can use devices such as borrowing.

The main devices used in lexical expansion include the following:

- (14) Reminder of some main devices for lexical expansion
  - a. The semasiological approach; and
  - b. The onomasiological approach.
    - i. Borrowing
      - Simple borrowing;
      - Loan translation;
    - ii. Semantic expansion of existing terms;
    - iii. Neologism: creation of new terms using the grammatical resources of the language itself (derivation, compounding, etc).

### 3.4 Language boards

Most developed and emerging countries and some developing countries, worldwide have government-created or government-approved bodies, acting as language regulators, tasked with all matters pertaining to language planning, especially corpus language planning. In English, the two most widespread terms to refer to such a body is academy and language board. Some countries have one single such body, with may be part of a larger organization, such as an academy. Others have more than one. Below are some examples.

*Table 2.* Examples of ‘language boards or similar bodies:

<i>Ser. No.</i>	<i>Language</i>	<i>Language Regulator</i>
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<b>1</b>	<b>Afrikaans</b>	<i>Die Taalkommissie (South Africa), (a permanent commission of the South African Academy for Science and Art) attends to spelling rules and other matters of standardization</i>
<b>2</b>	<b>Arabic</b>	<i>Academy of the Arabic Language (Egypt, Iraq, Jordan, Morocco, Syria)</i>
<b>3</b>	<b>Aragonese</b>	<i>Academia de l'Aragonés (Spain)</i>
<b>4</b>	<b>Bangla/ Bengali</b>	<i>Pascimbanga Bangla Academy (Kolkata, West Bengal) or Bangla Academy (Dhaka, Bangladesh)</i>
<b>5</b>	<b>Bulgarian</b>	<i>Institute for Bulgarian Language at the Bulgarian Academy of Science (Bulgaria)</i>
<b>6</b>	<b>Chinese</b>	<i>State Language and Letters Committee of the PRC<sup>1</sup> (China). Mandarin is also regulated by the Mandarin Promotion Council (China)</i>
<b>7</b>	<b>Czech</b>	<i>Czech Language Institute (Czech Republic)</i>
<b>8</b>	<b>Danish</b>	<i>Dansk Sprognævn (= Danish Language Board) (Denmark)</i>
<b>9</b>	<b>Dutch</b>	<i>Nederlandse Taalunie (= Dutch Language Union) (Netherlands)</i>
<b>10</b>	<b>French (France)</b>	<i>Académie française (= French Academy)</i>
<b>11</b>	<b>French (Quebec)</b>	<i>Office québécois de la langue française française (= Quebec Bureau for the French Language)</i>
<b>12</b>	<b>Irish</b>	<i>Foras na Gaeilge (Ireland)</i>
<b>13</b>	<b>Latvian</b>	<i>Valst Valodas Centrs (= Latvian State Language Center) (Latvia)</i>
<b>14</b>	<b>Lithuanian</b>	<i>Valstybine lietuviu kalbos omisija (= State Commission of the Lituanian Language) (Lithuania)</i>
<b>15</b>	<b>Norwegian (traditional)</b>	<i>Det Norske Akademi for Sprog Literatur (= Norwegian Academy for Language and Literature)</i>
<b>16</b>	<b>Norwegian (Bokmål and Nynorsk)</b>	<i>Sparåkrådel = Norwegian Language Council)</i>
<b>17</b>	<b>Russian</b>	<i>Russian Language Institute at the Russian Academy of Science (Russia)</i>
<b>18</b>	<b>Swahili</b>	<i>Baraza la Kiswahili la Taifa (= State Bureau of Kiswahili)</i>

19	Urdu	<i>National Language Authority (Pakistan)</i>
20	Wolof	<i>Centre de linguistique appliquée de Dakar (= Centre of Applied Linguistics of Dakar) at the Cheikh Anta Diop University in Dakar</i>

The French Academy (Académie Française) is probably the oldest language regulator in the world. Although its rulings are not binding on the nation, most francophone countries adopt its recommendations. On the French Academy, Wikipedia, the free encyclopedia, says:

“L’Académie française, or the French Academy, is the pre-eminent French learned body on matters pertaining to the French language. The Académie was officially established in 1635 by Cardinal Richelieu, the chief minister to King Louis XIII. Suppressed in 1793 During the French Revolution, it was restored in 1803 by Napoleon Bonaparte (the Académie considers itself having been suspended, not suppressed, during the revolution). It is the oldest of the five académies of the Institut de France.

The Académie consists of forty members, known as immortels (immortals). New members are elected by the members of the Académie itself. Académiciens hold office for life, but they may be removed for misconduct. The body has the task of acting as an official authority on the language; it is charged with publishing an official dictionary of the language. Its rulings, however, are only advisory; not binding on either the public or the government.”

For African languages in Sub-Saharan Africa, the most famous and, undoubtedly, most effective and serious, language body is Tanzania’s *Baraza la Kiswahili la Taifa* (= **State Bureau of Kiswahili**).

## 4. Developing Zambian Languages

### 4.1 *Are the Zambian languages underdeveloped?*

Ferguson (1968) has discussed “three dimensions relevant for measuring language development”, namely:

- (a) **Graphization**, “the reduction to writing”,
- (b) **Standardization**, “the choice or development of a norm which overrides regional and social dialects”, and
- (c) **Modernization**, “the development of intertranslatability with other languages in a range of topics and forms of discourse characteristic of industrialized, secularized, structurally differentiated ‘modern’ societies”.

The seven Zambian Regional Official Languages (ROLs), to which I will confine myself, meet the first two criteria: they all have been reduced to writing (criterion (a)) and for each of (criterion (b)), which is taught in schools and used in formal situations.

Modernization (criterion (c)) is the only criterion that is not met by all Zambian languages, in their present form, lack most of the terms used in modern science and technology as well as the modes of discourse associated with them.

### 4.2 **Is there any need for developing Zambian languages?**

The general lack in African languages of scientific and other technical terms any language needs for it to be suitable “for coping with the exigencies and vicissitudes of modern life” (Kashoki 1984: 1871) has always been one of the main reasons for continuing to use as official languages the languages of the former colonial masters (Mateene 1980: 12, 25-26, Inter-African Bureau of Languages 1984: Kashoki 1990: ix).

Other reasons include, among others, the perceived political danger of promoting ‘tribal’ languages in multilingual countries. However, there is inconsistency in the case of Zambia, in the sense that, despite the official pronouncements concerning the use and promotion of indigenous languages, in addition to English, little is being done by the Zambian government to promote them.

Any attempt to promote indigenous languages can only have a limited effect if these languages are not lexically developed to meet scientific, technical and other needs of the modern world

Zambia is an exoglossic state, that is, a state which has chosen a foreign language as its national official language (NOL). In addition to the NOL, English, seven indigenous languages (Bemba, Kaonde, Lozi, Lunda, Luvale, Nyanja, Tonga) have been chosen as regional official languages (ROLs). An official language is a language used in business of government legislative, executive and judicial (UNESCO 1951:689). Zambian languages, like other African languages, are far, from being suitable for use in most areas because of, as already pointed out, the general lack of technical terms and standardized modern forms of discourse. As a matter of fact, the business of government encompasses all areas of human knowledge and activity. In all areas, the languages of the industrialized world have developed modes of discourse many of which are not found in African languages and have created technical terms with no equivalents in African languages. The so-called Zambian regional official languages are, therefore, official in theory only.

From the foregoing, it is obvious that, if Zambian ROLs are to fully perform the function of official languages in respective zones, they must develop their terminological infrastructure and the necessary modes of discourse characteristic of the ‘westernized’ world. As a result of such developments the

seven Zambian languages would be intertranslatable (Ferguson 1968:28) with English and other languages of the developed world.

There are many other reasons for developing Zambian languages including the following:

- (a) Since Zambians, like any other nation, have a right to use their languages and to ensure efficient use of their languages in all spheres of modern life, their languages must be modernized.
- (b) English is, constitutionally, the sole official language of Zambia, but most Zambians either do not know the language at all or have not mastered it sufficiently enough and, consequently, have no access to much of the vital information.

Having established that the Zambian languages are underdeveloped and that there is need for developing them, I now proceed to the main part of my paper, namely to show how Zambian languages can be lexically developed.

### **4.3 How Zambian languages can be lexically developed**

The failure or inability of many Zambians to express in their native languages certain scientific and other technical concepts is not only due to the lack in Zambian languages of the necessary terms but also, in some cases, to the ignorance of existing terms in their languages. Principally, this ignorance stems from the following two factors:

- (a) inadequate exposure to native languages and cultures among town dwellers; and
- (b) lack of dictionaries of Zambian languages, which together with proper teaching of these languages, would compensate for (a) above.

This being the case, any effort to modernize a Zambian language should be preceded by terminological research aimed at



systematically collecting existing scientific/technical terms in the language in order to know which scientific and technical concepts have no names in the language.

## **5. Summary and Recommendation**

### *5.1 Summary*

This paper argued that all Zambian languages are underdeveloped for them to be used in science and technology and (b) that there was need for lexical expansion of Zambian languages. There is need for introducing in Zambian languages new lexical items as well as new modes of discourse to ‘enable foreign material (in such areas as science, medicine, or consumer society) to be translated in a consistent way’ (Crystal 1987: 417).

All Zambian languages are underdeveloped in the sense that they display very limited intertranslatability in a wide range of topics (science, consumer society, etc.) with languages of the ‘westernized’ world which is considered to be the ‘modern world’ (Ferguson 1968:28). The need to develop the seven Zambian regional official languages (ROLs) is obvious: being ‘official’, they ought to be capable of serving in all the spheres of the business of government-legislature, executive and judicial – as well as in science and technology. Furthermore, all the Zambian languages should, in fact, be developed since every Zambian has a right to use his/her ‘mother tongue’ in all spheres of human endeavour.

That all Zambian languages are underdeveloped cannot be questioned. But it is also true that they, like any other languages, can be developed (Mateene 1980:25, Kashoki 1990b: 152). The various means used in language corpus planning are of two sorts: (a) the intrasystemic source, and (b) the extrasystemic source, that is, external borrowing. Both types of sources should be resorted to in developing Zambian languages although, as I have suggested, the extrasystemic source should be tapped more in order to facilitate intertranslatability and the learning of Zambian languages. However, before borrowing, creating new terms or

extending the meaning of some existing word can be considered, a thorough investigation of the lexical stock of Zambian languages should be carried out with a view to identifying existing scientific and technical terms.

## 5.2 Recommendations

Currently, some work is under way in the field of language corpus planning at the Curriculum Development Centre (CDC) and the University of Zambia, but the CDC's efforts alone cannot solve the problem. Terminological development research should involve as many stakeholders as possible. To this effect, the following recommendation is made:

### Recommendation

To establish an independent government-approved or government-created broad-based body, composed of representatives of all stakeholders, managing all matters related to the country's language planning and language policies, including lexical engineering. Such a body is to be called either Language Board of Zambia (LBZ) or Zambia Language Academy (ZLA), but not Language Academy of Zambia, as the acronym would be LAZ, which is also an acronym for Law Association of Zambia. The body thus established must be really independent in the sense that it is not under any government ministry. To implement this recommendation, that is, the whole of Recommendation 1, some constitutional amendment or amendments, might be necessary.

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