A THEORETICAL MODEL FOR A FANG-FRENCH-ENGLISH SPECIALIZED MULTI-VOLUME SCHOOL DICTIONARY

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DECLARATION

I, the undersigned, hereby declare that the work contained in this dissertation is my own original work and that I have not previously in its entirely or in part submitted it at any university for a degree.

Signature: …………………

Date:……………………….

SUMMARY

The policy to preserve and implement mother tongues as medium of education in Gabon will lead to the establishing of a bilingual education system. This system will involve mother tongues and French, the official language. In many countries people are nowadays more and more aware of making provision for a multilingual education. In education this has been regarded as the new way and key to development over the last decades. It means that the implementation of a bilingual education system must also include a trilingual vision. Different and new approaches to the role of dictionaries, also in the context in Gabon, lead to diverse areas of particular concern, which are challenging for the metalexicographical research.

Accordingly, Part I of the dissertation first presents a comprehensive draft of the structural possibilities of the formulation and compilation of a new type of dictionary. This draft provides for the motivations for the formulation of a Specialized Fang-French-English multi-volume School Dictionary in Gabon, as a type of dictionary, which can fit into the current situation of the national languages and education in Gabon. This comprehensive draft is followed by a complete analysis of the intended target users, who are, among others, students, teachers, educational psychologists, experts in charge of the compilation of textbooks and other study materials, lexicographers and linguistics. This analysis includes the characteristics, the user situations and the user problems or needs of this heterogeneous intended target user group of the proposed dictionary.

The lexicographic functions to be executed in the proposed model are widely examined in this dissertation. Such a dictionary must make provision for relevant communication- and knowledge-orientated functions in order to be a powerful communicative, pedagogical and knowledge tool. The typological profile of the proposed model, which is a combination of types and type aspects of different dictionaries, will be discussed in depth. This discussion draws particular attention to the fact that it will be multi-volume, as the special field language of each subject will be dealt with in a specific volume or book. The identification and the formulation of the genuine purpose of the proposed

dictionary are developed in this dissertation. Due to the fact the identification and the formulation of the genuine purpose have major implications and direct impacts on the typology of a dictionary, the structure and the contents of the dictionary articles and the data distribution pattern, this development displays how the compilation process of the proposed dictionary should be steered.

One of the focal points in this dissertation, Part II, will be the discussion of the structural profile of the proposed model. This discussion will scrutinize the salient components of the central list. Accordingly, the collection of the equivalents in Fang of special field data for primary education for both the macrostructure and the microstructure will be discussed meticulously. The discussion of the central list will also revolve around the role of the microstructure in ensuring communicative, pedagogical and knowledge success through innovative and more comprehensive microstructural treatment and presentation. The examination of the user's search paths for user-friendly accessibility and retrieval of the needed information via the negotiation of the access structure, the addressing structure and the mediostructure of the proposed model will also constitute another aspect within the discussion of the central list. It is important that the lexicographer ensures that the users, more especially the young students and unskilled users reach the data they are looking for as swiftly as possible without any ambiguity and obstacles.

More integrated and innovative outer texts and their role in the proposed dictionary will also be extolled in Part III of this dissertation. As part of the front matter texts, integrated and innovative role of the tables of contents and a user' guide will be included. These texts will be regarded as relevant, useful or even compulsory due to the thematic ordering of the central list to lead the users along the search route in a friendly and prompt way. The Fang-French-English, the French-Fang-English and the English-French-Fang equivalent registers will dominate the back matter texts of this dictionary. The importance of registers in those texts will also be complete with the Fang-French-English, French-Fang-English and the English-French-Fang guide word equivalent registers. On the other hand a Fang-French-English and French-Fang-English pictorial illustration index will also be part of the inclusion of integrated and innovative back

matter texts. All together, these back matter texts will support the trilingual dimension of this model as much as they will also add powerful poly-accessibility and poly-functionality features to this dictionary. Finally, in this last part of the research, the role and the importance of the pictorial illustrations to be included in the envisaged model are discussed.

Originally, the initiative of the formulation of the proposed dictionary is for a specialized Fang-French-English multi-volume school dictionary for Primary education that can be used as an authoritative communicative, knowledge and pedagogical tool to assist in a bilingual education system with a trilingual vision. Ultimately, this vision is an extension to a dictionary for Secondary education. However, an adaptation of a study of existing literature, analysis of material from current dictionaries and study materials should, nonetheless, not only lead to criteria useful for dictionaries with Fang, French and English as treated languages. These criteria must also be regarded as relevant guidelines for the other Gabonese mother tongues. Furthermore, they must be considered relevant for other African countries as well as for the applicable procedures for the compilation of a monolingual dictionary. Yet, these guidelines must be regarded as appropriate for the compilation of dictionaries of the same type in other fields too like economics, law, administration, agriculture, health, etc. Lastly, the criteria given in this dissertation also provide valuable guiding principles for international specialized, pedagogical and bilingual with trilingual dimension lexicographic theories.

OPSOMMING

Die beleid om moedertale te beskerm en as onderrigmedium in Gaboen te gebruik, sal tot die totstandbrenging van 'n tweetalige onderwysstelsel lei. Hierdie stelsel sal moedertale en die amptelike taal, Frans, omvat. In baie lande is mense deesdae meer en meer bewus daarvan om vir meertalige opvoeding voorsiening te maak. Gedurende die laaste dekades is dit as nuwe manier en sleutel tot ontwikkeling in opvoeding beskou. Dit beteken dat die toepassing van 'n tweetalige opvoedingstelsel ook 'n drietalige visie moet insluit. Verskillende en nuwe benaderings ten opsigte van die rol van woordeboeke, ook binne die konteks van Gaboen, lei tot verskillende gebiede van besondere belang wat uitdagend is vir metaleksikografiese navorsing.

Deel I van die proefskrif gee dus eerstens 'n omvattende ontwerp van die strukturele moontlikhede vir die beskrywing en samestelling van 'n nuwe soort woordeboek. Hierdie ontwerp verskaf die basis vir die uiteensetting van 'n meerdelige gespesialiseerde Fang - Frans - Engelse skoolwoordeboek vir Gaboen as 'n soort woordeboek wat binne die huidige omstandighede van die nasionale tale en onderrig in Gaboen sal pas. Dié omvattende ontwerp word gevolg deur 'n volledige ontleding van die bestemde teiken- gebruikers wat onder andere studente, onderwysers, opvoedkundige sielkundiges, des- kundiges verantwoordelik vir die samestelling van handboeke en ander studiemateriaal, leksikograwe en taalkundiges is. Hierdie ontleding sluit die eienskappe, gebruikersituasie en gebruikersprobleme of -behoeftes van hierdie heterogeen bestemde teikengebruikers- groep van die voorgestelde woordeboek in.

Die leksikografiese funksies wat in die voorgestelde model toegepas moet word, word uitvoerig in hierdie proefskrif behandel. So 'n woordeboek moet voorsiening maak vir toepaslike kommunikasie- en kennisgerigte funksies om 'n kragtige kommunikatiewe, opvoedkundige en kenniswerktuig te wees. Die tipologiese profiel van die voorgestelde model wat 'n kombinasie van tipes en aspekte van tipes van verskillende woordeboeke is, sal grondig bespreek word. Hierdie bespreking vestig die aandag veral op die feit dat dit meerdelig sal wees, omdat die spesialeveldtaal van elke onderwerp in 'n spesifieke deel of boek behandel sal word. 'n Beskrywing en uiteensetting van die werklike doel van die

voorgestelde woordeboek word in die proefskrif verskaf. Vanweë die feit dat die beskrywing en uiteensetting van die werklike doel belangrike implikasies vir en direkte impak op die tipologie van die woordeboek, die struktuur en die inhoud van die woordeboekartikels en die dataverspreidingspatroon het, word getoon hoe die same-stellingsproses van die voorgestelde woordeboek gerig moet word.

Een van die fokuspunte van hierdie proefskrif, Deel II, sal 'n bespreking van die struktuurprofiel van die voorgestelde model wees. Hierdie bespreking sal die hoof-komponente van die sentrale lys noukeurig ondersoek. Die versameling van die ekwivalente in Fang van die spesialeveldgegewens vir primêre onderrig vir sowel die makrostruktuur as die mikrostruktuur sal in besonderhede bespreek word. Die bespre-king van die sentrale lys sal ook gaan oor die rol van die mikrostruktuur om kom-munikatiewe, opvoedkundige en kennissukses te verseker deur 'n vernuwende en omvattender mikrostrukturele behandeling en aanbieding. Die ondersoek van die gebruikersoekroetes vir gebruikersvriendelike toeganklikheid en herwinning van die benodigde inligting deur die benutting van die toegangstruktuur, die adresseringstruktuur en die mediostruktuur van die voorgestelde model sal 'n ander aspek in die bespreking van die sentrale lys uitmaak. Dit is belangrik dat die leksikograaf verseker dat die gebruikers, veral die jong studente en onervare gebruikers, so vinnig moontlik sonder misverstand en struikelblokke by die gegewens uitkom waarvoor hulle soek.

Meer geïntegreerde en vernuwende buitetekste en hul rol in die voorgestelde woordeboek sal ook in Deel III van hierdie proefskrif uiteengesit word. As deel van die voor-tekste sal hierdie aspek ondersteun word deur die insluiting van 'n geïntegreerde en vernuwende rol van die inhoudsopgawe en die gebruikersgids. Hierdie tekste sal as relevant, nuttig en selfs verpligtend beskou word vanweë die tematiese ordening van die sentrale lys om die gebruikers op 'n vriendelike en vinnige manier langs die soekroete te lei. Die Fang - Frans - Engelse en die Engels - Frans - Fang-ekwivalentregisters sal die grootste deel van die agtertekste van hierdie woordeboek uitmaak. Dié belangrike registers sal aangevul word met die Fang - Frans - Engelse, Frans - Fang - Engelse en die Engels - Frans - Fang-gidswoordekwivalentregisters. Daarteenoor sal 'n Fang - Frans - Engelse en Frans - Fang

- Engelse beeldillustrasie-indeks ook deel van die ingesluite geïntegreerde en vernuwende agtertekste wees. Al hierdie agtertekste sal die drietalige dimensie van die model ondersteun in dieselfde mate as wat hulle kragtige politoeganklikheids- en polifunksionaliteitseienskappe tot die woordeboek sal toevoeg. In hierdie laaste deel van die navorsing sal ten slotte die belangrikheid van die beeldillustrasies bespreek word wat in die beoogde model ingesluit sal word.

Die aanvanklike beskouing van die voorgestelde woordeboek was 'n gespesialiseerde meerdelige Fang - Frans - Engelse skoolwoordeboek vir primêre onderrig wat as 'n gesaghebbende kommunikatiewe, opvoedkundige en kenniswerktuig as hulpmiddel in 'n tweetalige onderrigstelsel met 'n drietalige visie gebruik kan word. Hierdie visie is uiteindelik die uitbreiding daarvan tot 'n woordeboek vir sekondêre onderrig. Die aanpassing van 'n studie van bestaande literatuur, 'n ontleding van die materiaal in huidige woordeboeke en studiemateriaal moet egter nie net lei tot kriteria nuttig vir woordeboeke met Fang, Frans en Engels as behandelde tale nie. Hierdie kriteria moet ook beskou word as toepaslike riglyne vir die ander Gaboenese moedertale. Verder moet hulle gesien word as relevant vir ander Afrikalande asook vir die toepaslike werkwyses vir die samestelling van 'n eentalige woordeboek. Hierdie riglyne moet daarby beskou word as geskik vir die samestelling van soortgelyke woordeboeke op ander terreine soos die ekonomie, regte, administrasie, landbou, gesondheid, e.s.m. Laastens verskaf die kriteria wat in hierdie proefskrif gegee word, waardevolle leidrade vir gespesialiseerde internasionaal geldige teorieë ten opsigte van 'n tweetalige opvoedkundige leksikografie met 'n drietalige dimensie.

ACKNOWLEDGEMENTS

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CHAPTER 1: INTRODUCTION

1.1. Background to the study

Many countries in Africa are turning their attention towards the capability of their national languages. This policy intends to preserve and promote those languages to be functional, beside European official languages, in higher echelons of politics, economics, sociology, science and technology. Used as basic languages of instruction and education, African languages can play an appropriate and key role in economic, scientific, social and technological development within a bilingual education system. This education system would include complementary and harmonizing co-existence between African languages and European languages.

Bilingual education usually consists of using a national language as first language and a European or international language as second language from primary to the secondary education. This enables students to be capable in their mother tongues, their European official language and in an international language if necessary after their secondary education. Besides being functional, the use of national languages in bilingual education ensures their preservation. The use of mother tongue and bilingual education has been acknowledged as one of the focal points in the development of Africa in general and has drawn the interest of researchers and also the attention of the African governments and international organizations. As Prah (2003:96) states, "no society in the contemporary world, which is scientifically advancing, is achieving this on the basis of a language foreign to its people ". The interest and the importance of the use of mother tongue in education and bilingual education are widely discussed by numerous researchers and constitute focal points for many international organizations. The bibliography of this dissertation presents some reference sources where various aspects regarding the attention and the significance of the use of mother tongue in education and bilingual education are examined: cf. Ansre (1978), Ministry of National Education of Gabon (1999), Ngueffo (2001), Ngugi wa Thiong'o (2003), Nzang-Bié (2001), Patrinos, Harry and Velez, Eduados (1996), States General of French teaching in French Subsaharan Africa (2003), UA (1997, 1999), UNESCO (1951, 1953, 1991), Vawda, Ayesha Yaqub and Patrinos, Harry Anthony, 1999.

On the other hand, the concept of globalization has been widely implemented. This worldwide interaction is regarded as the new way of development. To face this situation multilingual education is regarded as the key to enable people to express their thoughts and share their knowledge in their home languages a well as in international languages. Therefore, beside the mother tongue and the European official language, nowadays the basic knowledge of another international language could be recommended in education in African countries. This situation may lead many African countries like Gabon to establish a bilingual education system with a trilingual vision.

1.2. Research interest

The implementation of a bilingual education system with a trilingual vision will create numerous and interesting research for lexicographic works. The general research interest of this investigation is to show how the system of science-based theories of metalexicography can be applied to the practical planning and making of a model of a dictionary as one of the means which can fulfil the needs for a bilingual education system with a trilingual vision. This research interest also brings out the demarcation of specialized lexicography, within lexicography as a science-based theory to enable the practical planning and compilation of specialized dictionaries. This dissertation is an attempt among others to demonstrate that lexicography in general and specialized lexicography in particularly as discussed by Bergenholtz and Tarp (1995: 28-31) and Tarp (2000) is an independent science with an elaborate system of theories.

1.3. Research questions for the study

The formulation of a model of a dictionary within the situation of planning the implementation of a bilingual education system with a trilingual vision meets numerous questions in both theoretical and practical lexicographic aspects. Among others these questions can be as follows:

- Which exactly are the lexicographic needs and problems that arose in a bilingual education system with a trilingual vision?

- Who are the users that would be expected to consult a dictionary compiled for the purpose of this situation?

- How can the proposed model assist these users in satisfying their needs and solving their problems?

- How a model of a dictionary aimed at education purposes and which also deals with bilingual and trilingual dictionary requirements should be organized?

- How to deal with this study in the Gabonese lexicographic and linguistic situation?

These are some of the fundamental questions among others of both theoretical and practical importance that must be answered in order to formulate the planned model.

1.4. Motivation for the enquiry

The first motivation for this investigation is to enhance the compilation of reference sources by means of dictionaries in order to empower the national languages in Gabon. The current situation of general lexicography in Gabon presents some attempts at the production of bilingual dictionaries in numerous Gabonese languages by missionaries and colonial administrators.

On the other hand, some African countries have already experienced bilingual education involving national languages with French as their official language. The results are not successful enough, mainly because of the lack of adapted reference sources.

Therefore, the linguistic situation and policy in Gabon to turn national languages into functional languages beside European languages can create the needs for the compilation of new and appropriate types of dictionaries. These types of dictionaries must be designed to assist a bilingual education with a trilingual vision. As stated in States General of French teaching in French Subsaharan Africa (2003: 2), "the

establishment of the new type of educational system, bilingual or multilingual, in each country, must go hand in hand with measures related to the setting of teaching languages: elaboration of alphabet, decomposition of words, issue of pedagogic grammars, dictionary, etc…"

1.5. The importance of the study

For many centuries, dictionaries have ensured a well-established position in the field of instruments that convey the transfer of knowledge. This goes from the acquisition and correct usage of language to the acquisition of knowledge through the correct mastery of technical lexical items standardized and spread in dictionaries. The compilation of appropriate types of dictionaries to support and assist the establishment of a bilingual education system is of special importance. Suitable types of dictionaries could make available, standardize and authorize the usage of national languages as medium of education. Moreover, new and proper types of dictionaries can make provision for the needs for a bilingual education with a trilingual vision.
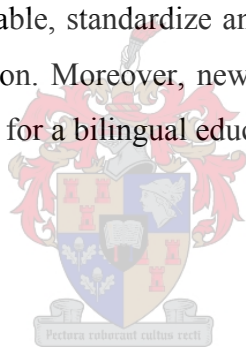
1.6. The aim of the research

This investigation is aimed at formulating a model for a **Specialized Fang-French-English Multi-volume School Dictionary for Primary education**. This model can be regarded as a point of departure for the formulation and the compilation of a new type of dictionary. Fang, as one of the national languages in Gabon, is the language to be dealt with as the first language. French as the official language is regarded as the language to be treated as the second language. English, as the other internationally used language, is the language selected in the trilingual dimension for the purpose of an education with a trilingual vision.

On the other hand, this dissertation is also intended to devise a model that can be adapted for the compilation of similar dictionaries for secondary education. Moreover, the proposed model intends to play a role in the planning of identical dictionaries for other Gabonese languages. Guidelines are provided so that comparable dictionaries

could also be planned and compiled in other African countries with their respective national, official and international languages. Furthermore, the formulation of the model can also be applied for the compilation of languages for special field dictionaries in administration, politics, economics, science and social activities. On the other hand, this investigation also plans to supply practical and theoretical inputs in the field of metalexicography and lexicography.

1.7. The research strategy, methodology and main theoretical views

The research strategy for the enquiry consists of analysing any type of existing dictionary, which can be useful for the formulation of the model. Those dictionaries comprise of existing Fang dictionaries in order to collect available and existing written sources of specialized school languages in Fang. This data collection is completed with oral sources. The analysis of dictionaries also embraces encyclopedic, general and specialized dictionaries whether in French or English and any type of dictionary that presents either only bilingual features or bilingual with a trilingual dimension features. On the other hand, the research strategy for the enquiry of the present dissertation utilizes the syllabus in use in primary education in Gabon in order to excerpt the lemma candidates which will have to be included in the proposed model. The excerption of the lemma candidates, which are in French, leads to one of the focal points of the research strategy and methodology for the enquiry of this dissertation, which is the lemmatisation in Fang of these lemma candidates. In this regard, discussions followed by theoretical and methodological guidelines are suggested in order to perform this lemmatisation. However, those guidelines will have to be finalized with the collaboration of Fang speaking people, teachers, experts in education programme, educational psychologists, specialists in different subjects and terminologists. The methodology which has been used is a qualitative approach.

The compilation of a relevant dictionary must be supported by the formulation of a model including a relevant dictionary plan and must be in accordance with the specific needs and reference skills of the target users. Numerous researchers have produced various and pertinent within the field of lexicography in order to deal with metalexicographical work and research. Accordingly, the general methodological criteria prescribed by the theoretical lexicographic work of H.E Wiegand presented in

English in Maria Smit's (1996) doctoral dissertation[1] underlies the formulation **of a Specialized Fang-French-English Multi-volume School Dictionary**. Indeed, the usefulness of a number of Wiegand's proposals is considered within the formulation of this model.

The formulation of the suggested model is complemented by some of the works done by other researchers in metalexicography such as, among others, Bergenholtz, H. (1995, 1996), Braun, P. (1989), De Schryver, G. -M. (1998, 1999, 2000), Fillmore, C. J. (1975), Geeraerts, D. (1982), Gouws, R. H. (1993, 1996, 1998, 1999a, 1999b, 2001, 2001a, 2001b, 2001c, 2004), Hartmann, R.R.K. (1992), Hausmann, F.J. (1989a, 1989b, 1989-1991, 1991), Landau, S. (2004), McArthur, T. (1986), Minsky, M. (1977), Pienaar, C. (1989, 1989a), Prinsloo, D.J. (2002, 2005), Stewart, W. (1968), Svensèn, Bo. (1993), Tarp, S (1998, 2000, 2002), Walter, E. (1992), Wegner, I. (1989), Zgusta, L (1971), cf. bibl. In addition, this formulation also refers to other researchers and doctoral research. These different theoretical views are of special importance because they are useful to determine in which respects metalexicography offers **challenges** and **possibilities** for the compilation of the proposed model.

1.8. Summary of the chapters
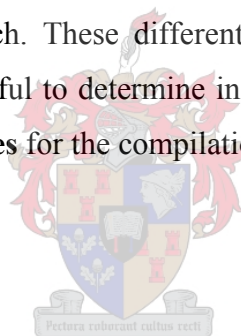
The first part of this dissertation, Chapter 1 to 6, concentrates on a general introduction to the research and also on the critical evaluation of the fundamental reasons and structural possibilities, which steer the formulation of a new type of dictionary in Gabon. The introduction developed in Chapter 1 has offered an extensive problem statement of the research. On the other hand, it has also scrutinized the objectives and the research hypothesis resulting from the discussion of these objectives and the problem statement. Finally, the introduction has resumed to giving an outline regarding the methodology which can support the development of this present doctoral dissertation.

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[1] This research relies on Smit when using Wiegand's metalexicography and not on Wiegand himself as primary reference because his work is in German. Smit made it more accessible by translating Wiegand's metalexicography in English within her research, cf. Smit 1996.

In Chapter 2 the evaluation focuses on the sketch of the current situation in Gabon in general with regard to the needs, the linguistic and lexicographic situations. Afterwards, these needs and situations are spotlighted in this evaluation with regard to the Fang language and community. In this chapter, this dissertation does not attempt to survey all lexicographic work that has been done in Gabon. It rather focuses on that which is relevant for the considerations regarding the compilation of a specialized multi-volume dictionary of the type described above.

Chapter 3 gives a comprehensive analysis of the intended target user group of the proposed specialized Fang-French-English multi-volume school dictionary. This comprehensive analysis provides first an effective identification of the intended target user group. This identification is followed by a detailed examination of the characteristics of these users, their user situations and their needs or problems. Chapter 4 discusses the lexicographic functions, which are provided in the proposed model. The typology of the typological innovative model suggested by the proposed model is widely scrutinized in Chapter 5. The first part of this research ends with the identification and formulation of the genuine purpose of the proposed dictionary in Chapter 6.
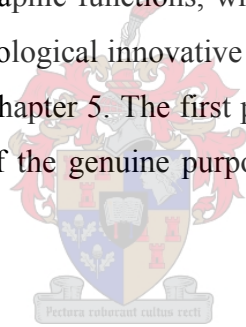
The purpose of the second part of this dissertation is to develop a relevant proposition of a framework for a specialized Fang-French-English multi-volume school dictionary, which responds to the challenges and possibilities arising from the fundamentals that steer its formulation. The purpose of the second part of this dissertation is also to make sure that the target user group, lexicographic functions, typology and genuine purpose identified, analysed and formulated in the first part, fit into this suggested framework. The purpose is not to develop a final framework for such a lexicographic project. It is also not the intention of creating an own lexicographical theory. The purpose is to adjust the constructive and useful ideas from lexicographic theories in order to come up with an appropriate framework for a specialized Fang-French-English multi-volume school dictionary. These adjustments are made for reasons of scientific application, interpretation, flexibility, adaptability and development, since this doctoral dissertation deals with the formulation of a

typological innovative model, which results from specific, new and different fundamentals, target users, lexicographic functions and genuine purpose.

Accordingly, the Chapters 7 to 11, discuss methodically, meticulously and comprehensively the salient components, which are included in the central list of the proposed model, namely, the macrostructure, the microstructure, the access structure, the addressing structure and the mediostructure. Each of these five (5) components is discussed separately in the corresponding chapter. Chapter 12 analyses the outer texts and indicates the types of data that might be needed to be included in these texts of such a dictionary.

In Part II, Chapter 12, a tentative proposal is given for the planning and compilation of a specialized multi-volume school dictionary in Gabonese languages that could meet the recommendations set by lexicographic theories. Some sample articles are also presented, to indicate the types of data, which might be needed in such a dictionary. Ultimately, the conclusion in Chapter 13 is an attempt towards a precise and concise statement of the problem raised within this research, the suggested methodology to follow in order to solve this problem and the research findings resulting from the elaboration of this methodology. Still, the conclusion intends to coordinate the acceptance of the research hypothesis elaborated in the introduction and developed throughout the study. Eventually, within the conclusion of this present study, recommendations are made for additional research in the problem related to special field languages for education and also to special field languages in general in Gabon and most African countries. Finally, recommendations are also made concerning the implementation of the findings worked out within this research in order to launch the compilation of a new type of dictionary.

PART I: THE MOTIVATIONS, THE TARGET USERS, THE LEXICOGRAPHIC FUNCTIONS, THE TYPOLOGY AND THE GENUINE PURPOSE OF A NEW MODEL

CHAPTER 2: A CRITICAL EVALUATION OF THE LINGUISTIC AND LEXICOGRAPHIC SITUATION OF THE NATIONAL LANGUAGES AND THE NEEDS FOR A NEW TYPE OF DICTIONARY IN GABON

2.0. Introduction

When taking the decision of formulating the envisaged model, it has observed that due to their respective linguistic and lexicographic situation, the needs for new dictionary projects differ from country to country or community to community. Accordingly, one can state that the decision for a dictionary project has to be steered by a critical evaluation of the motivations for this project. Firstly, these motivations usually result from a critical evaluation of various needs related to communication, cognition, science and even practical needs like the cost, the convenience of the product among others. Secondly, the linguistic and lexicographic situation of particular languages, a community or country has also to be inspected prior to a new dictionary project. Empirical data gathered from these different enquiries provide helpful information that assist to build a relevant and successful dictionary plan.

In view of that has been said above, this chapter, first of all, scrutinizes the communicative, cognitive, scientific and the practical needs that lead to the possibilities and reasons to formulate a model for a Specialized Fang-French-English Multi-volume School Dictionary for Primary education in Gabon. Then, this chapter gives an evaluation of the special-field lexicography in general and the Languages for Special Purposes (LSP) for school, particularly in Gabonese national languages. Finally, the lexicographic works and the linguistic situation of Fang, French and English are discussed. This critical evaluation of the communicative, cognitive, scientific and practical needs constitutes the reasons that steer the formulation for a

Specialized Fang-French-English Multi-volume School Dictionary for Primary education within this present dissertation.

2.1. A critical evaluation of the communicative, cognitive and scientific needs in national languages

The Gabonese government has spared no effort to introduce national languages in education with a further intention to use them as medium in education beside French. Acute communicative, cognitive and scientific needs will result from this intended policy. The next paragraphs offer an overview of these needs.

2.1.1. Communicative needs

Education and teaching are largely conveyed through what is known as languages for special purposes, which are identified in metalexicography as LSPs. LSPs are regarded as elements of general language also known as language for general purpose (LGP), cf. Berghenoltz & Tarp (1995: 17). A variety of LSPs corresponding to the different special fields represent the general language for special purpose used in education. Accordingly, in education LSPs can be regarded **as the representations of well-defined subsections of the lexicon of the core vocabulary with which the target scholars come into contact during typical classes and when working through their study material regarding the different subjects**. In this investigation these specific LSPs are called special field languages for education. Accordingly, it would be special field languages for primary, secondary or higher education. As an example, when a teacher in a primary school says:

> "Today in **Mathematics** we carry on with the chapter dealing with **numeracy** that we have started during the last class. And within this same chapter we are going to have a look at the first **operation mechanism** to be studied that we can also simply call **operation**, which is **addition**".

The teacher uses general or natural language but he or she also uses a language for a special field that is compulsory to communicate during Mathematics classes in primary education. This language for special field for primary education, which is Mathematics, is represented by the words highlighted in bold. **Mathematics**, **numeracy**, **operation mechanism**, **operation**, **addition** are examples of terms, which are included within special field languages for Primary education. In this dissertation these terms are known as **special field terms for primary education**.

The initiative of Gabon to use national languages, as medium of education besides French will create major needs regarding special field languages for education in national languages like Fang, among others, to make provision for communication needs that will arise. As illustrated in the example, special terminology is necessary for the teacher to ensure that students understand the meaning of terms, and the contexts in which these terms are used in national languages. Moreover, those special field languages will be needed when people are trained to teach in national languages. During this training a special terminology is necessary to ensure that people use the correct equivalent terms when referring to specific matters related to subject practices and experiences.
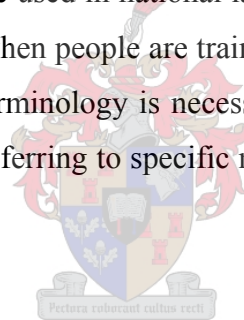
These identified communicative needs in the national languages of the users in Gabon give valuable orientation and also information to the lexicographer when it comes to dealing with the analysis of the intended target user group and the typology and the structure of the proposed model. Accordingly, information resulting from these identified needs is taken into account when analysing the users and when dealing with the typology and the structure of the planned model in this research.

2.1.2. Cognitive needs

Teachers, students and people trained to teach in national languages among others will not need special field languages for education only to communicate. They will also need these languages to acquire knowledge via national languages. In Gabon, few

lexicographic works that deal efficiently and exclusively with special field languages for education in national languages exist. The treatment of these languages in dictionaries compiled by missionaries and handbooks like the ones used by **Rapidolangue Method,**[2] cf. Raponda (1995 & 1996), in primary and secondary schools is a very good starting point to meet the needs for using national languages as medium of education. This type of initiative must be encouraged and expanded through other works. Special field languages for education require specific attention, treatment and lengthened work and research. Yet, the simple copy and paste from general or comprehensive dictionaries and other reference sources do not deal appropriately with these languages. The situation in Gabon will require a specific dictionary project, which focuses exclusively on the treatment of special field languages for education in national languages. Again, all this information is of special importance and is therefore further considered in the dissertation when dealing with aspects such as the users, the lexicographic functions, the genuine purpose and the structure of the proposed model.
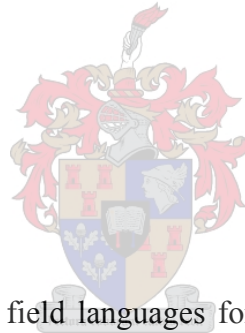
2.1.3. Scientific needs

The development of the special field languages for education in national languages will not be needed only for communicative and scientific needs. People in charge of the compilation of textbooks may also need them in the first place. In Gabon, special field languages for education in national languages will definitively be needed by IPN, the National Pedagogical Institute. This institute is in charge of the compilation of textbooks in use in public schools. These special languages will also be needed by experts in charge of the compilation of reference sources that will be requested when training people to teach in mother tongues at ENS in ENI. ENS and ENI are the institutes where people are trained in various fields of teaching and education for primary and secondary education.

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[2] It is a handbook compiled for the learning method of Gabonese languages.

On the other hand, researchers will need to undertake scientific research within special field languages for education in national languages. GRELACO and LUTO, which are the Research Group in Oral Cultures and Academic Laboratory for Oral Tradition, respectively are two among other structures, which work for the development of national languages in Gabon. Experts within these educational institutions will need additional and pertinent information like special field languages for education when dealing with national languages. In this regard, an electronic version for special field languages for education in Gabonese national languages may be needed and appropriate. In addition, the availability in electronic version will make these special languages to be functional world languages on the Internet via the Human Language Technology (HLT) virtual network.

Even if in the current Gabon access to a computer is still the exception rather than the rule, the compilation of electronic dictionaries may be crucially needed for scientific purposes. In this regard, the compilation of this version of dictionaries must not be discouraged. Beside that, lexicographers must be aware of all progress to fit their work in their area. As Landau (2004: 398) states, "dictionary making does not operate in a vacuum. It is part of the world of publishing and the publishing industry, like almost every other business, has been changed profoundly by computer technology. It is said that we are in the information age".

A discussion regarding the electronic version of the intended model does not fall within the scope of this dissertation. However, the compilers of those future dictionaries would be well advised to include this discussion in their dictionary plan. Yet, most of the information consequential from the evaluation of the scientific needs is considered when it comes to dealing with the theoretical contents to be included in the formulation of the model. Accordingly, some references which may help the lexicographer of the proposed dictionary are provided in the bibliography of this dissertation, cf. Bergenholtz and Tarp (1995: 31-32), Calzolari et al (1987), Prinsloo (2002), De Schryver & Prinsloo (2000), Landau (2004: 394-401), Knowles (1990) and Bonnie J. Dorr and Mari Broman Olsen (1997).

2.1.4. Concluding remarks on a critical evaluation of the communicative, cognitive and scientific needs

A critical evaluation of the communicative, cognitive and scientific needs provides valuable reasons and possibilities, among others, which lead to consider the formulation of a specialized dictionary. The branch of **specialized lexicography** within metalexicography supplies the theoretical criteria to follow when formulating a model for a Specialized Fang-French-English Multi-volume School Dictionary for Primary school considered within this dissertation. Furthermore, this evaluation also provides vital information to the lexicographer when it comes to drawing out the theoretical and practical criteria to formulate and compile the proposed model. However, an acknowledgement of practical needs is also the other reason among others that motivate the formulation of the proposed model. Accordingly, the following paragraphs give an evaluation of assorted practical needs which also motivate the formulation of the model and which in the same provide significant empirical information to consider when dealing with the theoretical contents to include within this formulation.
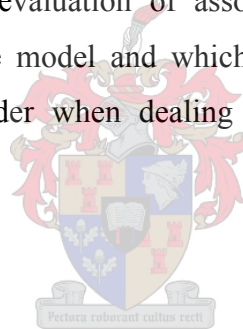
2.2. Practical needs

The needs of a group of users, a community or a country when planning and compiling dictionaries can exceed the communicative, cognitive and scientific scopes. As practical instruments, dictionaries are therefore exposed and included within the requests of the cost, the profitability and the users as typical consumers. Users can be demanding when it comes to the quality of products. Financial matters regarding the cost of the publication and sponsorship are the other needs, which are discussed, in the following paragraphs.

2.2.1. The needs for affordable dictionary projects

The production of dictionaries involves a lot of money throughout the lexicographic process, i.e. all the activities leading to the publication of a dictionary as a text. Some dictionary projects happen to fail or struggle because people and other sponsors are not often keen to spend colossal amounts of money. Dictionary projects focusing on a different special field language for education in Gabonese languages may be ill-assorted and costly investments. Yet, it seems that researchers from other fields like medicine receive sponsorships more easily than researchers dealing with languages. A model of a dictionary that can make provision for a unique, coherent and affordable lexicographic work dealing with all subjects can prevent this situation. This type of model of dictionaries may be appropriate and therefore needed in Gabon. This is why the formulation of a Specialized Fang-French-English Multi-volume Dictionary for Primary school makes provision for theoretical guidelines in order to deal in a unique project with the special field languages for education of all subjects registered in the programmes of the primary school.

2.2.2. The needs for adequate dictionaries

In Gabon dictionaries need to be functional instruments in accord with the needs and the situations of the national languages and education. This will lead those dictionaries to be pertinent and furthermore also to be seen as a good investment project. Therefore, dictionaries dealing with special field languages for education in national languages will have to be formulated or produced according to the contents of the subjects included in the textbooks. This will make this model of dictionary a useful and complementary instrument in education and therefore to be much better seen as a useful investment. In this regard, the formulation of the intended model will be undertaken in accordance with the textbooks aimed at Primary education in Gabon and published by IPN as main sources. Therefore, the contents to be included when compiling the dictionaries will match the realities of the education in Gabon. What is more, those dictionaries will be able to be used complementarily with the textbooks and therefore be in demand.

2.2.3. The needs for handy and attractive dictionaries

Dictionaries are functional instruments that assist human beings to satisfy certain needs. Therefore, when they are in printed version they must be handy and convenient to use and carry as product. On the other hand, instead of a compact book that can be massive and inconvenient to carry, students may need a dictionary with a multi-volume format that deals with one subject in different, friendly and practical books they can bring along to classes according to the timetable. With the view of being handy the formulation of a Specialized Fang-French-English Multi-volume School Dictionary for Primary education sets guidelines for a multi-volume dictionary format. It means those guidelines will make provision for different handy books each one dealing with the special field language of a corresponding subject. Furthermore, considering that young students compose the mass of the intended target users, the proposed dictionary must be as inviting as possible. This aspect of being attractive is implemented in the majority of reference sources used by young students, cf. Nathan (1994) & 1995), Institut Pédagogique Nationale (1998). Therefore, this important facet must prevail in the proposed model. The inclusion of the attraction aspect in this model is based on the reasonable use of colour in some texts as considered in subsections 12.3.2, 12.4.1, 12.4.2 and 12.4.3, coloured structural indicators as discussed in section 9.1 and coloured illustrations, cf. section 12.6.

2.2.4. Concluding remarks on a critical evaluation of the communicative, cognitive, scientific and practical needs

Communicative, cognitive and scientific needs on one hand and various practical needs on the other are relevant reasons among others which reveal the possibilities to lead to the formulation of the model for the intended dictionary. Empirical information collected from the practical needs will enhance the choice and orientation of the lexicographer regarding the typology of the proposed model. Still, as indicated in the introduction of this chapter "the linguistic and lexicographic situation of particular languages, a community or country has also to be inspected prior to a new dictionary project". The empirical data resulting from this inspection will give the

lexicographer the valuable needed information on the existing lexicographic and linguistic situation. This information will be valuable tools which will assist the lexicographer in giving an appropriate and new vision to the planned dictionary. Accordingly, the next paragraphs give a detailed discussion of the lexicographic and linguistic situation in Gabon where the proposed model is planned.

2.3. General overview of special-field lexicography in Gabonese languages

Special-field lexicography and terminology in Gabon is of special importance not only regarding the development of the LSP for school but also regarding the need of the government to inform, spread knowledge and communicate nationwide. Even if French is more and more turning into the mother tongue language among many young people, national languages still remain the more frequently used and they are mother tongues for people in the hinterland, cf. Bounguendza (2002: 37). Therefore, attempts towards the compilation of special-field dictionaries have been initiated in several Gabonese languages. Some special-field terminologies are readily available in word lists but in a very restricted field, cf. for example Raponda W, Sillans, A et R. (1961), who compiled **a list of Gabonese useful plant names register**, and Mouguiama (1995) who works on a **historical linguistic study of the ethno-ichthyologic denominations in Bantu people in Gabon**. The Omar Bongo University has been benefiting from the support of Lyon II University with regard to the compilation of a special-field lexicon in national languages, cf. Bounguendza (2002: 35).

In addition, the National Education Ministry is looking forward to set up a lexicon to access **news, health care campaigns and the study of the environment**, cf. Bounguendza (2002: 37). The article published by Mihindou (2001: 7-37) by developing **a model for an explanatory trilingual Yipunu-French-English dictionary for medical terms** can be useful for Gabonese languages with regard to the health care campaigns to be planned by the government. This project of the Gabonese government is expecting to involve journalists in charge of programmes in national languages, the health staff and Geography and Natural Science teachers. The national languages which are used on radio and television stations and which are

going to benefit from this project are **Yipunu, Fang, Inzebi, Mpongwè, Téké, Lembama** and **Gisira.**

The information provided by a general overview of special-field lexicography in Gabonese languages is more than valuable when compiling a new dictionary like the one planned in this research. This information tells the lexicographer that in the new dispensation, the task of researchers dealing with lexicographical, linguistic and terminological projects must be aimed at supporting the government in its policy to promote the use and standardization of national languages. Furthermore, this information also tells the lexicographer that one of the characteristics of the intended user group is that some users have their mother tongues as first languages. Accordingly, this information is considered for example when analysing the intended target user group of the proposed model as one of the primary characteristics in section 3.2.1 dealing with the typology of the users.

2.4. The situation of special field languages for education in Gabonese languages

In Gabon, the majority of special field languages for the education in the national languages are not available in reference sources. However, in hinterlands where the first language is more often the mother tongue for most people, teachers who are speakers or who can speak the local language, explain some matters for a better understanding in that language. Unfortunately, the use of this language for special fields is not standardized because each teacher uses his or her own language. In other words, special field languages for education in Gabonese languages are not recorded in written texts such as dissertations, handbooks, journal articles, encyclopaedia, word lists and general dictionaries. The situation of special field languages for education in Gabonese languages indicates the situations the intended target users of the proposed dictionary will face. They are analysed in what is known in metalexicographical terms as communication-orientated and knowledge-orientated user situations in section 3.2.2.

2.5. An evaluation of existing general lexicographic works in Fang

A brief evaluation of existing lexicographic works in Gabonese languages gives the number of Fang dictionaries as three (3) bilingual dictionaries, namely, one (1) biscopal bilingual dictionary and two (2) monoscopal bilingual dictionaries. "Le Galley" as it is called is the biscopal bilingual dictionary. This dictionary was published by Reverend Samuel Galley (1964). He was a protestant missionary who served in the Fang community for 40 years. "The Galley" can be considered as the best and most frequently used dictionary compiled for Fang in Gabon. An evaluation of the existing dictionaries dealing with Fang in Gabon can be done with the only evaluation of "the Galley". Mihindou (2001: 7-37) presents a comprehensive overview of the only general dictionaries published by missionaries. Therefore, referring to this evaluation of "the Galley", the different factors that lead to the compilation of this dictionary are examined. They can be regarded as external political and social factors, and as internal scientific factors.

2.5.1. External political and social factors

The need of Missionaries to communicate more easily with the local people was one of the main factors that steer the compilation of bilingual dictionaries in Gabon. They wanted to communicate more easily with African people by using local languages. Therefore, dictionaries with African languages compiled in that time have been governed by utility principles as pedagogical support to the reading of these languages rather than purely linguistic principles. Traditionally, these dictionaries were not compiled according to theoretical criteria. As a result, dictionaries with national languages are not as relevant as to be practical instruments which can assist users with the competence in their mother tongues. In "the Galley", these theoretical shortcomings can be identified as follows:

a) A limited set of data types, which focuses only on the presentation of translation equivalents.

b) The scope, the comprehensiveness and the quality of data are not of a very high standard.

c) The dictionary offers only restricted translation equivalents, aimed at a passive language use.

d) Little or no attention is given to active language use, or the functions characteristic of pedagogical dictionaries.

e) A lack of comprehensive monolingual description is displayed.

f) Being mainly a translation dictionary, several aspects such as semantics, syntax and pragmatics are neglected, because they only allow a restricted treatment of these categories. As pointed out by Piennar (1989 and 1989a, cited in Smit: 1996:234), this has serious consequences. Cultural aspects have to be treated in such a way that students from other cultures can derive the culture-bound meaning of expressions from the dictionary articles.
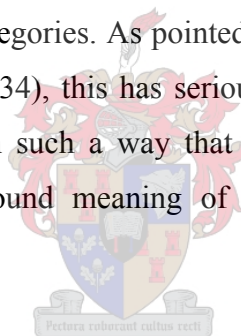
However, the contents of "the Galley" reflect the political and cultural needs in Gabon during the colonial era. As Hausmann (1989a: 5, cited in Smit: 1996: 234) states, the social functions of dictionaries depend, in the first place, on the type and stage of development of a language, but also political and cultural needs in the particular society. Therefore, because of the historical developments in Gabon, most of the existing bilingual dictionaries with Gabonese languages have been compiled with the function of giving non-native speakers of Gabonese languages access to a particular Gabonese language. Consequently, none of the existing dictionaries with Fang concentrate on giving adequate information to Fang speakers. No proper Fang monolingual dictionaries exist yet. Changes in this regard will have to take place in Gabonese general lexicography, in order to empower speakers of Gabonese languages with regard to their own languages. Furthermore, a culture of dictionary use will have to be created among speakers of Gabonese languages. User-friendliness in the

dictionaries is needed but users should also be trained in reference skills, in order to learn to use a dictionary in a successful way.

2.5.2. Internal scientific factors

The internal scientific factors have played an important role in the publication of bilingual dictionaries in Gabon. Some relevant aspects can be pointed out as advantages and disadvantages with regard to the primary sources, the macrostructure and microstructure used in "the Galley".

2.5.2.1. The primary sources

Regarding the primary sources, mention is made of use for excerption. Actually, most of the existing dictionaries with national languages in Gabon have been excerpted for biblical texts (Bible translations, prayers and hymn collections) in Gabonese languages. "The Galley" has been excerpted from the Bible in Fang translated by Reverend Samuel Galley, cf. Mihindou (2001: 8).
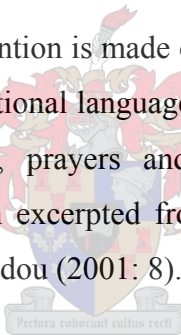
2.5.2.2. The macrostructure

"The Galley" displays a **straight alphabetical arrangement**. With regard to the access structure in the model within the inner access structure of this dictionary, the bold typeface is the typographical structural marker in which the lemmata appear. As a look at the dictionary as well as Mihindou's (2001: 7-37) overview can confirm it, nothing is said about the selection processes which led to the formation of the macrostructure of "the Galley". That makes it difficult to determine the type of criteria, which resulted in the inclusion of certain terms and the exclusion of others. It seems however, that the communicative function of this dictionary, namely, to serve as an aid in the acquisition of Fang by missionaries and French colonialists, influenced the macrostructure rather than a systematic excerption of written texts.

2.5.2.3. The microstructure

The microstructure of "the Galley" displays an acceptable degree of lexicographic organisation and variety. This dictionary reflects some metalexicographical foundation and reflections which have been made on research into dictionary use and users in their planning by reverend Galley.

In fact, missionary works compiled in the colonial era are mainly critized because tonal aspects, which are one of the major feature characterics of African languages in the Bantu area, are not taken into consideration. Within his work, Reverend Galley pays attention to the tonal aspects of Fang language. Accordingly, he indicates the tonal aspects data of lemmata by a letter between brackets in order to avoid cluttering within texts, by indicating tones on the top of the segments. For instance, in the article of the lemma sign *aba*, the letter (m) representing "*tonalité moyenne*" indicates that the lexical item *aba* displays a **mid tone**, cf. Mihindou (2001: 34). Regarding the representation of other tones, (h) representing "*tonalité haute*" indicates a **high tone**, (b) representing "*tonalité basse*" indicates a **low tone**. What is more, by noting (bm) for "*tonalité basse et tonalité moyenne*" or (hb) for "*tonalité haute et tonalité basse*", Galley shows that the vowel of the first syllable of a given lemma displays a **low tone** and the second syllable displays a **mid tone** for (bm). For (hb) that means that the vowel of the first syllable of a lemma displays a **high tone** and the second one displays a **low tone**, cf. Mihindou (2001: 34). Even if this presentation is not very relevant for access to data, it constitutes a quite relevant metalexicographical reflection in order to make provision for avoiding textual cluttering.

Grammatical data are supplied in "the Galley", namely, the part of speech, the gender and abbreviations when necessary. For example, *aba* n.4 means this lemma is a *noun*, which belongs to class 4. Data about the number is also supplied. The symbol *pl.* before a lexical item, for instance, **pl.** *meba* is the non-typographical marker to indicate the plural form of the lemma *aba*, cf. Mihindou (2001: 34).

Dialectal indications are also taken into consideration. When and where necessary, the dialectal indications are given if the lemmata display another form or paraphrase of meaning, cf. Mihindou (2001: 34).

Paraphrases of meaning are more often proposed in French in this biscopal dictionary, whether in the Fang-French section or in the French-Fang section. As a result, Fang is not dealt with well in the dictionary whether for Fang speakers or French speakers, cf. Mihindou (2001: 34-35). That gives the dictionary a monofunctional feature, in the sense that it almost only has lemmata in Fang, which are translated and explained in French. This means that "the Galley" can be successfully used by speakers of Fang for passive use, and by speakers of French for active use, but not in both functions for both languages groups.

When looking at "the Galley" no citations or references to literature are given in the dictionary. This is understandable considering the fact that like most African languages, Fang has a strong oral tradition. So there is no way to find literature e.g. books or newspapers, etc. to excerpt citations or references. The proposed dictionary will make provision for the inclusion of citations and references to literature where necessary, especially in the **Grammar volume**. This is of special importance with regard to the use by people in charge of the compilation of textbooks to which these information types are essential.

Scriptural illustrations are supplied in "the Galley" and they are relevant for the understanding of some lemmata, cf. Mihindou (2001: 35). Unfortunately, this dictionary does not include pictorial illustrations that could assist users to form a visual image of what a particular object looks like by illustrating cultural artefacts. This dictionary has a learner dictionary's aspect in the sense that it was aimed to help French speakers to learn Fang. Pictures could improve the understanding of lemmata. As Hupka (1989:716, cited in Smit: 1996: 236) contends, pictures of the objects dealt with in the dictionary articles enhance the quality of learner's dictionaries. She refers to some research undertaken in the field of cognitive psychology which maintains that a combination of verbal and iconic communication is very effective.

"The Galley" also deals with polysemy. The problem is that the treatment of polysemy is done in such a way that the treatment of the different senses of a lemma looks as if they belong to different lemmata, cf. Mihindou (2001: 35).

2.5.3. Concluding remarks on an evaluation of existing general lexicographic works in Fang

The numerous shortcomings and few metalexicographical mistakes identified in the Fang-French bilingual biscopal dictionary are due to the fact that the motives for its publication have been communicative rather than first and foremost lexicographically-based. As a result, no research has been done to establish the image of "the Galley" within the Fang community in which it is used, or to determine the frequency and success rate with which it is used. Therefore, empirical research should be undertaken as a basis for compilation of new dictionaries including Fang in order to determine what the image of such a dictionary might be in the Fang community. New dictionaries have to be instruments that play a role that dictionaries in Gabon have not played yet. An evaluation of existing general lexicographic works in Fang indicates to the lexicographer of the proposed model that he or she should start a new type of dictionary culture in Gabon in general and in Fang lexicography in particular.

2.6. The Fang linguistic situation in Gabon

Fang is one of the numerous national languages listed in Gabon. The linguistic situation of this language in Gabon is briefly discussed with regard to the linguistic research, the writing system, the standardisation, the status in education and the status in the media. The Bantu speech pattern Fang is one of the Gabonese national languages. Fang speakers represent about 30% of the population, that is to say around 427, 000 people (1982).[3] It appears in Guthrie's classification in the group Yaunde-Fang A70, cf. Guthrie (1971: vol.2) and the sub-group Fang A75. In Gabon, Fang

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[3] Sources from Ethnologue country index: www.ethnologue.com/country

comprises of six dialects namely, the Atsi, the Meke, the Mveny or Mvaï, the Ntumu, the Nzaman and the Okak. These dialects are located in four provinces, namely the Estuaire, the Moyen-Ogooué, the Ogooué-Ivindo and the Woleu-Ntem as specified in LUTO (1989: 144) as follows:

1. Fang atsi: Libreville-Kango-Lambaréné-Ndjolé-Mitizic
2. Fang meke, mekaa ou make: Libreville-Kango-Ndjolé-Mitzic-Makokou
3. Fang mveny or Mvaï: Minvoul
4. Fang ntumu:Oyem-Bitam
5. Fang nzaman: Makokou-Booué
6. Fang okak: Médouneu-Cocobeach

The dialectal distribution of Fang is in reality not always easy to identify along clear lines because the different speech forms interpenetrate each other, there is mutual understanding and a lot of similarities between words. Equally important, the typical Fang speaker, "*mone Fang*", sees him or herself first as a speaker of Fang and then as a speaker of the dialect Atsi, the dialect Ntumu, etc. What is more, a Fang speaker can use words that are from different dialects, cf. LUTO (1989: 144-146). It means that a database from any dialect of Fang can be relevant for the publication of any work in Fang.
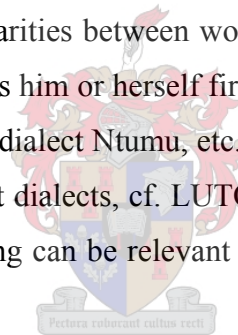
2.6.1. The linguistic research

The Fang language has been the subject of research in various fields like, phonetics, phonology, morphology, syntax, sociolinguistics, language acquisition, etc. This research consists of numerous master theses, doctoral dissertation proposals, doctoral dissertations, relevant published scientific works and articles, cf. among others, Afane (1999 & 2004), Ekwa (forthcoming), Largeau (1901), Lejeune (1872), Ondo-Mebiame (1992, 2000a, 2000b & 2001), Mba Nkoghe (1981) Medjo Mve (1991), Mekui Missang (1999), Ndi Ambani (1988), Nguema Nzue (1989), Nyagone Assam (2006), Nzang-Bié (1987). These reference sources can provide the lexicographer of the proposed model with relevant linguistics data.

2.6.2. The writing system

Currently, there are four writing system proposals of Gabonese languages. Raponda's proposal (1932), the Scientific Alphabet of Gabonese languages published by LUTO (1990), the new alphabet of Gabonese languages adopted in 1990, and the writing system used by the **Rapidolangue Method**, cf. Raponda (1995 & 1996). Throughout time, these different propositions have shown an improvement from writing systems traced mainly from French language to systems more appropriate with regard to the feature characteristics of Gabonese languages according to phonetics, phonological and morphological aspects. The new alphabet of Gabonese languages elaborated, cf. Ministry of National Education (1999), and presented below, shows graphics that are made in order to be more representative of the feature characteristics of these languages. This alphabet is used when it comes to dealing with the Fang language.

Vowels

i [i]	u̱ [y]	e [e]	e̱ [☜]	ə [ə]	a [a]	o̱ [🏳]	o [o]	u [u]

The **vowel length** is noted down by **identical vowel sequencing**.

Consonants

b	c	d	ḏ [🡔]	f	g	gh [☦]	h	jh [☾]	k	l	m
n	ny [✷]	p	r	s	sh	t	v	vh [🖐]	w	y	z

The new alphabet of Gabonese languages is the one in use when dealing with Fang within this present investigation. However, some aspects of this alphabet can be obstacles for the convenient typing of a research project. In this regard, some remarks

and linguistic adjustments are made in such a way that this alphabet will make it easy and convenient to write Fang. The remarks mostly emphasize the tones. Tones, which characterize Gabonese languages like all Bantu languages, are not used in this investigation. Linguists are still working on this delicate matter. However, tones should not be used in this dissertation when dealing with Fang because they make the texts look obstructed and therefore not very convenient to read.

The major adjustments affect the graphic **ə** and the underlined graphics. The graphic **ə** is not convenient to use because as a special character, it is slow to type. Beside, it cannot easily be typed or inserted in **Find** and **Replace** boxes when using the **Edit** tool.

On the other hand, the underlined graphics are not convenient and are therefore not used in this work for the same reason. Consequently, throughout this dissertation when dealing with Fang, **u** represents either u [y] or u [u]; **e** represents e [e], e [☜] and ə [ə]; **o** represents either o [☜] or o [o].

The linguistic adjustments suggested in this dissertation do not follow any standard linguistic rules. The suggestion of not using tones is very transitory. They are all set up for the convenience of the wording and the user-friendliness of this dissertation. Since the present research is not focused on the writing system of Fang, these alterations do not impede to follow properly and clearly the contents which are discussed. The system in which Fang is supposed to be written will be corrected after putting forward the appropriate contents to linguists.

2.6.3. The standardisation of Fang

To be part of relevant work, languages must be standardized. A language, which represents a set of dialects, can be regarded as standardized when it is considered as the unique system of communication accepted from that set of dialects. That means a language is the result of the recognition of a specific variety of that language or it

might be a given system of communication. This accepted variety or system of communication will be the language from which all projects regarding the writing system, the development of pedagogical material supports, the teaching of the language, the elaboration of the grammar, the development of a literature, etc. of a community of speakers are realized and achieved. In other terms, the standardisation of a language is a codification and recognition process by a given community of a set of rules as guidelines for the correct use of their language, cf. Stewart (1968, cited in Idiata: 2003: 41).

The process of the standardisation of Gabonese languages is still not well developed. There is no minimum of required reference sources like syllabus, textbooks, dictionaries, etc. in many of these languages so that they can be relevantly introduced in education. Some languages like Fang, Yipunu, Omyènè, Yinzenbi, Lembaama, Ikota-kele, Okandé-tsogo, Vili, Gisir, etc, which have been taught in some high schools through the **Rapidolangue Method** benefit from a syllabus and learner textbooks.

Numerous works towards the standardisation of Fang have been done and are being done. As illustrations, Nzang-Bié Afane (2004) suggests **metalexicographical guidelines for the standardisation of Fang** and **Nyangone Assam** (2006) devises **theoretical criteria on the use of Dictionaries as teaching instrument in Fang in Gabon**.

2.6.4. The status of Fang in education

In education, even if a lot of work still needs to be done for the national languages of Gabon, those languages show an interesting status. First, some languages are taught in high school education and an official commitment has been given to make provision for the introduction of national languages in education. As it has already been noted above, Fang is among the national languages that have been taught in some major high schools in Gabon through the **Rapidolangue Method**. These languages are taught as subjects for one to two hours weekly, from grade one to grade four.

Furthermore, in 1998 a National Languages Department has been created within the National Pedagogical Institute in the Ministry of High Education. This department is in charge of developing a program in order to introduce national languages in education.

Secondly, in higher education, national languages are not taught, however, they are the subjects of various and relevant work and research. The research done in Master's theses in the Linguistics Department created in 1994 within the Faculty of Arts at Omar Bongo University supply quality data regarding Gabonese languages. Major academic laboratories and research groups like GRELACO, LUTO, LASCIDYL, etc, realize relevant works regarding the development and the standardisation of Gabonese national languages. What is more, in 1998 channels have been introduced within the Higher Normal School, focusing on preparing people for a teaching career.

Gabonese languages benefit from a good situation to be developed and standardised from government and non-governmental commitments as noticed above. Reference sources like dictionaries may be one of the means to reinforce this favourable situation.
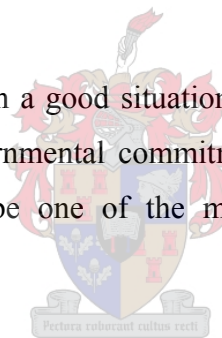
2.6.5. The status of Fang in the media

National languages are broadcasted in the media in Gabon but not with enough efficiency. Fang is among the languages, namely Yipunu, Omyènè, Yinzenbi, Lembaama, Ikota-kele, Okandé-tsogo, Vili, Gisir, etc. in which some albeit few programmes and contents are translated, if they are taken into account.

Firstly, regarding radio stations, only daily statements and weekly news, political and medical campaigns (vaccination, epidemic prevention, etc.) are the programmes regularly broadcasted in national languages on the national radio station and private radio stations in Libreville, the capital. Nevertheless, as a good point in local radio stations, news and numerous programmes are daily broadcasted in the local

language(s). Secondly, the same goes for television programmes. News is weekly translated in national languages when it comes to political and medical campaigns. The situation is negative regarding the newspapers. There is no publication in national languages.

For that reason, it can be said that a lot of effort has been put in the introduction of national languages. Yet, it is observed that only some programmes on radio and television stations are broadcasted in national languages. On the other hand, there are no newspapers in these languages. In view of that, one can consider this situation as a result of shortcomings, among others, of necessary language standardisation support like relevant dictionaries, handbooks, etc. as reference sources.

2.7. The French and English linguistic situation in Gabon

French is the only official language in Gabon. The linguistic situation of French, like European languages in other African countries, goes far beyond the only consideration of the status as official language. Due to historical, economic, scientific and political links between African and European countries, European languages are totally part of the linguistic scenery in African countries. They are taken into account at the same level as national languages when dealing with linguistic policy.

In this regard, according to the synthesis report of **States General of French Language Teaching in Subsaharan Africa** of March 2003 in Libreville, Gabon, all participants gathered during the agreed on the practice of the concept of linguistic partnership, on educational system levels. They pointed out that coexistence between French and local languages, a legacy of history, should not be viewed in terms of conflict, but of solidarity and complementarity. The linguistic partnership, French/local languages is based on the acknowledgement of languages – culture equality and the rejection of any hierarchy in this field. Both French and local languages coexist in the same space and fully participate in the African identity, each language dealing with it's own subject without any clear established barriers between

the languages on this issue. In this respect, **multilingualism** is either a negotiation or an evil and partnership suggests reciprocity, setting aside any single linguistic idea". [4]

The complementarity of European languages is important in the development and the promotion of national languages in numerous aspects. Due to the fact that European languages are carriers of worldwide knowledge, the coexistence of African languages and those languages has helped and will always do to introduce new terms and concepts hitherto unknown to the African languages. In addition, within many contexts presenting heterogeneous languages, as is the case in Gabon, European languages ensure national communication and cohesion. Important linguistic decisions like the use of local languages in education, administration, etc, should always consider the support and the complementarity of European languages in order to achieve successful results. As an illustration, the attempt of the "Madagascanisation", i.e. the unique promotion and usage of Malagasy language in the country of Madagascar in all levels of activities by excluding French the language used in administration and in education, was a failure. [5]

On the other hand, besides the compulsory use of a European official language, African countries must bear in mind that multilingualism in education, administration, Science, etc. has been regarded as a key to development since the last decades. Besides, the official language, the decision of including another international language in linguistic and lexicographic projects must always be considered. Accordingly, along side with Fang, French the official language and English as the other international used in Gabon are the treated languages within this research.

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[4] Cf. Synthesis report of *States General of French teaching in French Sub-Saharan Africa*, Libreville 17-20 March 2003.

[5] Sources from RFI (Radio France Internationale), Ecole du Savoir program, radio program from 18-03-2003 to 20-03-2003 presented from the University Omar Bongo, Libreville, Gabon.

2.8. Conclusion

A critical evaluation of the linguistic and the lexicographic situation in Gabon has unveiled the possibilities for the formulation and the compilation of a Specialized Fang-French-English Multi-volume School Dictionary. The potential lexicographer is provided with various and relevant information about the plan of the proposed dictionary. This information consists, among others, of how to incorporate the communicative, cognitive and practical needs of the users in the specific linguistic and lexicographic situation of Gabonese languages in general and Fang in particular. On the other hand, from the specific linguistic and lexicographic situation of Gabonese languages, a lexicographer is made to be well aware of the fact that the compilation of a dictionary including national languages must also take into consideration French and English. Nevertheless, this situation indicates that the lexicographer of the proposed model, due to their respective status in Gabon will have to deal with Fang and French in a bilingual perspective. English, is the language which can be treated as part of the trilingual vision.

This situation matches the statement of Emejulu (2001:53) who considers that lexicography in Gabon has to play an important role to be a relevant support regarding the present request of the interconnection between the dictionary, terminology and translation. It means that the introduction of national languages in Gabon should involve a synchronic development of dictionary, terminology and translation projects. All this important information collected from the critical evaluation of the communicative, cognitive and scientific needs on the one hand and the critical evaluation of the linguistic and the lexicographic situations on the other are highly capitalized when working out every single aspect of the theoretical criteria of the proposed model within this investigation.

Yet, the formulation or planning of any dictionary must be preceded by the clear identification and analysis of the target user group. This identification and analysis are done in the light of the evaluation of the linguistic and the lexicographic situation discussed throughout Chapter 2. As Gouws (2001c: 72) states, "decisions regarding the typology of the dictionaries to be compiled may not be based on emotional and

ideological criteria but should reflect the results of proper needs of the intended target users". Thus, the next chapter gives a discussion of the identification and the analysis of the intended target user group that may use a typologically innovative special field bilingual Fang-French dictionary for school with a trilingual dimension including English.
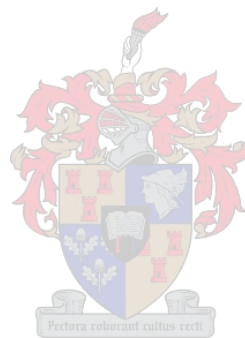
CHAPTER 3: IDENTIFICATION AND ANALYSIS OF THE INTENDED TARGET USER GROUP

3.0 Introduction

Dictionaries are utility products that are and should be produced in order to satisfy certain human needs. Therefore, when compiling dictionaries empirical research must assist these projects in order to clearly identify and analyse the users. In that way, dictionaries will be more appropriate to successfully fulfil the purpose of satisfying some human needs. This analysis can only be done once the intended target user has been identified unambiguously. It should not only reflect the needs but also the reference skills of the target users. This chapter examines the identification of the potential target user group of the intended model. This examination is followed by an analysis of their characteristics, their situations and their needs.
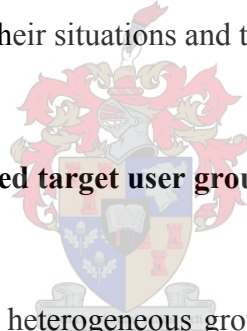
3.1. Identification of the intended target user group

The model will be directed at a heterogeneous group of people. As identified when dealing with section 2.1, this group of users may mainly consist of people in training to teach in Fang, teachers, students, lexicographers and compilers of dictionaries. It also includes Fang experts who will be in charge of the compilation of textbooks containing Fang.

3.2. Analysis of the intended target user group

The decisions in planning and structuring the designed model will have to be motivated by the reality regarding the different intellectual profiles and the reference skills of the heterogeneous intended target user group. A thorough analysis of these users must be done so that the planning and the structure of the macrostructural selection as well as the treatment of the lemma of the model will satisfy their varying

needs. Tarp's work (2000 & 2002) is used as heuristic tools in order to undertake the analysis of the users in this present investigation. Each one of those tools can be regarded as a set of parameters or variables to obtain concrete information regarding the users. These heuristic tools could be classified as follows:

a) Users typology or the characteristics of users;

b) Typology of user situations or the user situations;

c) Typology of problems or the user needs;

In the following paragraphs a discussion of the tools for the analysis of the users is followed by the analysis of the identified target user. The same type of discussion can also be done through the work of Bergenholtz and Tarp (1995: 20-28) in the specific chapter dealing with "specialised dictionary functions".

3.2.1. User typology or the characteristics of the users

Tarp (2000:194) expresses users' characteristics in order to make a general user typology for any dictionary determined on the basis of parameters or variables in terms of their LGP, LSP, cultural, special subject field, translation and lexicographic competences. As he states when dictionaries are considered as utility products made with the purpose of satisfying certain human needs, then two concepts place themselves in the centre as essential for lexicography as an independent science: the **user** and his/her **needs**. When a lexicographer conceives, produces or reviews a dictionary, he or she must always determine the corresponding or expected group of users and their needs. And if it is not done, as is unfortunately the case with many dictionaries, the lexicographic reference work cannot be done on a scientific basis.

As Gouws (1999b), states, within the existing theoretical discussions of lexicographic issues much emphasis is placed on the so-called "user perspective". It is an accepted

fact that every dictionary has to be compiled in accordance with the specific needs and demands of a well-defined target user. Tarp adds that the methodology for planning, making or reviewing a dictionary should be, first of all, to make a typology of potential users, user situations and problems that might arise for **each type** of user in **each type** of user situation. He classifies the characteristics of the users as **basic or primary characteristics** and **secondary characteristics,** cf. Tarp (2000: 195).

3.2.1.1. Basic or primary characteristics

The determination of the users' characteristics is based on a level of abstraction. A concrete group of users can be homogenous or heterogeneous. Basic or primary characteristics refer to numerous competences of the user group according to their language competence, cultural and encyclopedic knowledge, competence in the respective subject field, LSP competence within the given subject field, cf. Tarp (2000: 195). These characterstics are discussed in the following paragraphs:

3.2.1.1.1. Language competence
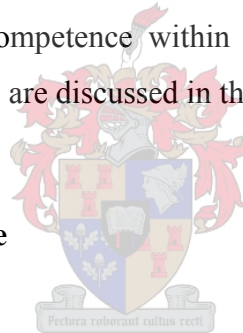
Language competence is relevant for all monolingual and bilingual dictionaries, including LGP dictionaries:

- Which language is their mother tongue?

- At what level do they dominate their mother tongue?

- At what level do they dominate a foreign language?

3.2.1.1.2. Cultural and encyclopedic knowledge

For a number of monolingual and bilingual dictionaries it is also important to know the users' general cultural and encyclopedic knowledge.

- What is the level of their general cultural and encyclopedic knowledge?

3.2.1.1.3. Competence in the respective subject field

For specialized dictionaries the lexicographer has to know the users' competence in the respective subject.

- At what level do they dominate the special field in question?

3.2.1.1.4. LSP competence within the given subject field

The information above concerning the level at which the users dominate the special subject field is not enough. The lexicographer must know the users' LSP competence within the given subject field.
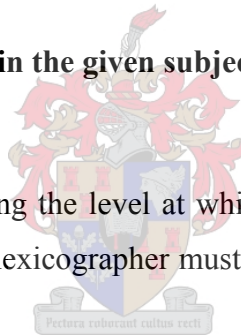
- At what level do they dominate the corresponding LSP in their mother tongue?

- At what level do they dominate the corresponding LSP in the foreign language?

- How is their experience in translation between the languages in question?

3.2.1.2. Secondary characteristics

In order to produce a high quality dictionary that is user friendly, the lexicographer must also know the general experiences of the users with dictionary use. These

characteristics of the users can be called their secondary characteristics, cf. Tarp (2000: 195).

- How are their experiences in dictionary use?

The characteristics of the users constitute what one calls the first stage on dictionary use, because they influence the type of user needs that give birth to the consultation of the dictionary. As an illustration, the characteristics of a seven-year-old unskilled child are different from the ones of an adult and skilled user. In that way Tarp (2000: 195) states that in order to meet the entire user needs, when the lexicographer plans a dictionary he or she must know both the primary and the secondary characteristics of the user group.

3.2.1.3. Analysis of the typology or the characteristics of the intended target user group of the proposed model

The intended target user group presents a heterogeneous type of people. It would be people in charge of the planning or compilation of textbooks and dictionaries. It would also be people in the training process to teach in national languages, teachers and students. Figure 3.1 below presents a comprehensive analysis of the characteristics of the intended target user group

Figure 3.1: Comprehensive analysis of the characteristics of the intended target user group

Parameters or variables of the characteristics of the users	Characteristics of the intended target user group
Language competence - Which language is their mother tongue? - At what level do they dominate their mother tongue? -At what level do they dominate a foreign language?	**Language competence** - Fang is the mother tongue of most users in hinterlands. French is the mother tongue of most users in cities. - Most of users who have Fang as mother tongue dominate the language. Most of users who have French as mother tongue dominate the language. - Most users do not dominate French in hinterlands. Users dominate French in cities.
Cultural and encyclopedic knowledge - What is the level of their general cultural and encyclopedic knowledge?	**Cultural and encyclopedic knowledge** - Students have a low level of general cultural and encyclopedic knowledge. Specialist users have a good level of general cultural and encyclopedic knowledge.
Competence in the respective subject field - At what level do they dominate the special subject field in question?	**Competence in the respective subject field** - Students and non-specialist users do not dominate the special subject fields. Specialist users dominate the special subject fields.
LSP competence within the given subject field - At what level do they dominate the corresponding LSP in their mother tongue? - At what level do they dominate the corresponding LSP in the foreign language? - How is their experience in translation between the languages in question	**LSP competence within the given subject field** - Students and non-specialist users do not dominate the corresponding LSP in Fang. Specialist users dominate the special subject fields in Fang. - Students and non-specialist users do not dominate the corresponding LSP in French. Specialist users dominate the corresponding LSP in French. - Students and non-specialist users do not have experience in translation between Fang and French. Specialist users have experience in translation between Fang and French.

3.2.2. Typology of user situations or the user situations

The second heuristic tool to analyse the users can be regarded in terms of typology of user situations, because, there are situations of needs that lead users, with their respective characteristics, to consult a dictionary. The determination of the users situations is not as abstract as the users' characteristics. Users' situations are more concrete. The users needs are not abstract, but related to concrete situations, cf. Tarp (2002). Therefore, these situations should be detected, distinguished from each other and analysed in order to determine which type of needs a specific type of user might have in each of them. The lexicographer must determine or know these **situations** in which the user is going to use the dictionary and for what **purpose,** cf. Tarp (2000: 195)*.* The following section gives a presentation of the two different general kinds of user situations identified in metalexicography as **communication-orientated situations** and **knowledge-orientated situations**, cf. Tarp (1998, cited in Tarp: 2000:195):

3.2.2.1. Communication-orientated user situations

The first type of user situation describes the situation whereby the user consults the dictionary in order to facilitate an existing or future communication. It can be called communication-orientated situations, cf. Tarp (2000: 195). There are six different types of these user situations:

- Reception of text in mother tongue;

- Production of text in mother tongue;

- Reception of text in foreign language;

- Production of text in foreign language;

- Translation of text from mother tongue into foreign language;

- Translation of text from foreign language into mother tongue.

3.2.2.2. Knowledge-orientated user situations

The second type of user situations describes the situation whereby the user consults the dictionary in order to get knowledge about a special subject or in order to learn and study a foreign language, cf. Tarp (2000: 195). There are three types of these user situations:

- General cultural and encyclopedic information;

- Special information about the subject field or the discipline;

- Information about the language (e.g. when studying a foreign language).

3.2.2.3. Analysis of the user situations of the intended target user group of the proposed model
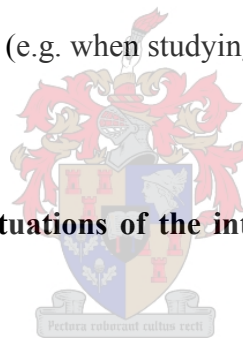
Specialized school items in Fang will be needed in several situations. Firstly, in order to deal with specialized school items when compiling textbooks and dictionaries, people may consult the proposed model of dictionary in order to get knowledge about specialized school items related to the subjects. Secondly, in order to facilitate existing and future communication in Fang, people in the Fang teaching training process may also consult the proposed dictionary. Moreover, in order to facilitate communication and get knowledge about specialized school items related to the different subjects, the proposed dictionary may be consulted as well. Figure 3.2 below presents a detailed list of the user situations according to the proposed model.

Figure 3.2: Comprehensive analysis of the user situations of the intended user group

Parameters or variables of the user situations	User situations of the intended target user group
Communication-orientated user situations - reception of text in mother tongue - production of text in mother tongue - reception of text in foreign language - production of text in foreign language - translation of text from mother tongue into foreign language - translation of text from foreign language into mother tongue	 - reception of text in Fang - production of text in Fang - reception of text in French - production of text in French - translation of text from Fang into French - translation of text from French into Fang
Knowledge-orientated user situations - general cultural and encyclopedic information	 - general cultural and encyclopedic information.
- special information about the subject field or the discipline	- special information about the subject fields or the disciplines included in school programmes.
- information about the language (e.g. when studying a foreign language)	- information about Fang and French languages.

3.2.3. Typology of problems or the user needs

The last heuristic tool that can be used by referring to Tarp (2000: 195-196) & (2002) when analysing the intended target users, can be considered in terms of the user needs. This tool can assist evaluating specific problems which refer to the concrete consultation of a dictionary by the user. The users along with their respective characteristics, who are in certain user situations and the complex of problems related to these situations, will cause them to consult a dictionary. The user consulting a dictionary wants information that allows him or her to solve a concrete problem. As Tarp (2002) notifies, once the user group and the user situations have been

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characterised, it is possible to work out a typology of the problems that this specific group of users might run into in this specific user situation. The development of the different types of lexicographic user needs is given below.

3.2.3.1. Primary user needs

Amongst the user needs, there are primary user needs. They are considered as primary needs because they give birth to the consultation of the dictionary, cf. Tarp (2000: 196)

- Information about the native language;

- Information about a foreign language;

- Comparison between the native and a foreign language;

- Information about culture and the world in general;

- Information about the special subject field;

- Comparison between the subject field in the native and foreign culture;

- Information about the native LSP;

- Information about the foreign LSP;

- Comparison between the native and foreign LSP.

3.2.3.2. Secondary user needs

Besides primary users needs, there are secondary needs that arise when uses are consulting a dictionary, cf. Tarp (2000: 196).

- General information on lexicography and dictionary use;

- Information about the concrete dictionary and how to use it.

3.2.3.3. Analysis of the needs of the intended target user group of the proposed model

Planners or compilers of dictionaries and textbooks with national languages may use the type of dictionaries of the proposed model. This use will assist them to access data that allows them to solve concrete problems when dealing with special field languages used at school. On the other hand, in order to teach correctly in Fang, people in the Fang teaching training process and also future teachers have to achieve information that allows them to master special field languages for education to solve concrete problems with regard to the practical communication when teaching. In addition, students may use specialized school items to retrieve information that allow them to solve concrete problems when working through their study material for example. Problem situations might occur because these items are not standardized in Fang. There are no existing dictionaries dealing with these items yet. The proposed model must be able to meet the needs that arise in these situations described above. Figure 2.3 below displays a meticulous examination of the needs of the intended target user group.

Figure 3.3: Comprehensive analysis of the needs of the intended target user group

Parameters or variables of user needs	User needs of the intended target user group
Primary user needs - information about the native language - information about a foreign language - comparison between the native and a foreign language	- information about Fang - information about French - comparison between Fang and French
- information about the special subject field - comparison between the subject field in the native and foreign culture	-information about the special subject field - comparison between the subject field in Fang and French culture
- information about the native LSP - information about the foreign LSP - comparison between the native and foreign LSP	- information about Fang LSP - information about French LSP -comparison between Fang and French
Secondary user needs - general information on lexicography and dictionary use - information about the concrete dictionary and how to use it	- general information on lexicography and dictionary use - information about the intended dictionary and how to use it

3.2.4. Concluding remarks

When observing thoroughly the research done by Tarp (2000 & 2002), a correlation can be established between the users' typology or also known as the characteristics of users, the typology of user situations or the user situations, and also between the typology of problems or the user needs. This relation makes each parameter or variable of each analysis category of the users to match to a specific parameter or variable of other analysis categories. This results in a synoptic presentation of the heuristic tools. This, can therefore be a more relevant and convenient synthetic

method that can assist the lexicographer of the proposed model in acutely analysing the users. This synoptic presentation used in the present dissertation is illustrated in the figure 3.4below.

Figure 3.4: A proposal of a synoptic analysis of the intended user group

Parameters or variables of the characteristics of the users	Parameters or variables of the user situations	Parameters or variables of the user needs
Language competence - Which language is their mother tongue? - At what level do they dominate their mother tongue? - At what level do they dominate a foreign language?	**Communication-orientated user situations** - reception of text in mother tongue - production of text in mother tongue - reception of text in foreign language - production of text in foreign language - translation of text from mother tongue into foreign language - translation of text from foreign language into mother tongue	**Primary user needs** - information about the native language - information about a foreign language - comparison between the native and a foreign language
Cultural and encyclopedic knowledge - What is the level of their general cultural and encyclopedic knowledge?	**Knowledge-orientated user situations** - general cultural and encyclopedic information	- information about culture and the world in general
Competence in the respective subject field - At what level do they dominate the special subject field in question?	- special information about the subject field or the discipline	- information about the special subject field - comparison between the subject field in the native and foreign culture

LSP competence within the given subject field - At what level do they dominate the corresponding LSP in their mother tongue? - At what level do they dominate the corresponding LSP in the foreign language? - How is their experience in translation between the languages in question?	- information about the language (e.g. when studying a foreign language)	- information about the native LSP - information about the foreign LSP - comparison between the native and foreign LSP
____	____	**Secondary user needs** - general information lexicography and dictionary use - information about the concrete dictionary and how to use it

The synoptic presentation of the analysis of users is very helpful and convenient when analysing the intended target user group. This synthetic presentation as illustrated in Figure 3.5 is obtained by simply removing the parameters or variables with the empirical information, which has been done comprehensively and separately in the previous paragraphs.
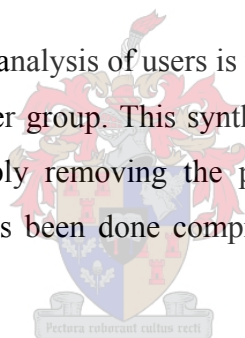
Figure 3.5: A synoptic analysis of the intended user group of the proposed model

Characteristics of the intended target user group	User situations of the intended target user group	User needs of the intended target user group
Language competence - Fang is the mother tongue of most users in hinterlands. French is the mother tongue of users in cities. - Most users who have Fang as mother tongue dominate the language. Most users who have French as mother tongue dominate the language.	**Communication-orientated user situations** - reception of text in Fang - production of text in Fang - reception of text in French - production of text in French - translation of text from Fang into French - translation of text from French into Fang	**Primary user needs** - information about Fang - information about French - comparison between Fang and French

-Most users do not dominate French in hinterlands. Users dominate French in cities.		
Cultural and encyclopedic knowledge - Students have a low level of general cultural and encyclopedic knowledge. Specialist users have a good level of general cultural and encyclopedic knowledge.	**Knowledge-orientated user situations** - general cultural and encyclopedic information.	- information about culture and the world in general
Competence in the respective subject field - Students and non-specialist users do not dominate the special subject fields. Specialist users dominate the special subject fields.	- special information about the subject fields or the disciplines included in school programmes.	-information about the special subject field - comparison between the subject field in Fang and French culture
LSP competence within the given subject field - Students and non-specialist users do not dominate the corresponding LSP in Fang. Specialist users dominate the special subject fields in Fang. - Students and non-specialsit users do not dominate the corresponding LSP in French. Specialist users dominate the corresponding LSP in French. - Students and non-specialist users do not have experience in translation between Fang and French. Specialist users have experience in translation between Fang and French.	- information about Fang and French languages.	- information about Fang LSP - information about French LSP -comparison between Fang and French
		- general information lexicography and dictionary use - information about the intended dictionary and how to use it.

3.3. Conclusion

The identification and analysis of the intended target user group of the model to be proposed display users of different ages, skills and knowledge and needs. Some users,

which would be experts in charge of the compilation of textbooks and dictionaries, will need a model of a dictionary that supplies a comprehensive treatment of special field languages for education in Fang. Certain users, particularly teachers and people in training to teach in Fang, will need to master the language for special fields that assist them when teaching subjects. To prevent and assist in communication problems, French translation equivalents of those languages will assist people who may have French as first language. Other users, e.g. students will need to know how to learn in Fang. To prevent and assist communication problems, French translation equivalents of those languages will assist students who may have French as first language. Beside the encyclopedic data, students will need the linguistic data in order to achieve the correct usage of the linguistic expressions they deal with. On the other hand, all these users may need an English treatment of language for special fields in a trilingual dimension to answer the needs of multilingual education.

In general, the intended user group with different ages, skills and knowledge will have communicative and knowledge problems and needs. To satisfy a target group of users, any projected model will have to successfully assist them by covering their different skills, ages, problems and needs amongst others. This assistance has to be made through a clear identification and determination of dictionary or lexicographic functions.
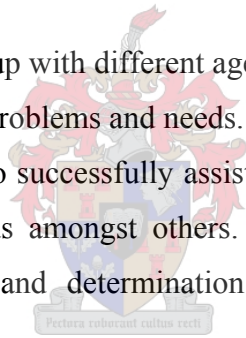
CHAPTER 4: IDENTIFICATION AND FORMULATION OF THE LEXICOGRAPHIC FUNCTIONS OF THE PROPOSED MODEL

4.0. Introduction

The present chapter first gives an exposé of the lexicographic functions according to Tarp. Indeed, the lexicographic functions as considered by Tarp correspond to what Wiegand, cf. Smit (1996: 63-66) regards as purposes of dictionaries. Secondly, the identification of the needed dictionary functions that arise from the identification and the analysis of the intended target user group are discussed. As all of the main theoretical points to be included within this formulation, the discussion of the dictionary functions of the proposed model is based on the empirical information resulting from the different discussions given in Chapter 2. The examination of the present chapter is mainly supported by the information collected when dealing with the communicative, cognitive and scientific needs on one part in section 2.1. On the other part the study of the chapter relies on the information collected in sections 2.3, 2.4, 2.5 and 2.6 dealing with the various aspects of the linguistic and lexicographic situations in Gabon. Still, like in Chapter 3, Tarp (2000 & 2002) is used again as heuristic tools that assist in discussing and determining this time the dictionary functions for the intended model. And like the identification and the analysis of the users, the same type of discussion can also be supported by the study produced by Bergenholtz and Tarp (1995: 20-28) in the chapter on "specialised dictionary functions".

4.1. Lexicographic functions

A lexicographic function can be defined as the endeavour and ability of the dictionary to cover the complex of needs that arise in the user in a particular situation, cf. Tarp (1998, cited in 2000: 196). It can be regarded as the assistance and support a dictionary provides to users in order to cover and satisfy their different needs according to their characteristics and problems. These functions are comprised into

two major types: what is known in metalexicographical terms as the **communication-orientated functions** and the **knowledge-orientated functions**, cf. Tarp (2000: 196).

4.2.1. Communication-orientated functions

Six types of communication-orientated functions are identified. The six functions mentioned below have a paradigmatic character at a relatively high level of abstraction, cf. Tarp (2000: 196). The intended target users are not explicitly mentioned, they are implied as those to be assisted.

- To assist with the reception of texts in the mother tongue;

- To assist with the production of texts in the mother tongue;

- To assist with the reception of texts in the foreign language;

- To assist with the production of texts in the foreign language;

- To assist with the translation of texts from the mother tongue into the foreign language;

- To assist with the translation of texts from the foreign language into the mother tongue.

In a relation to a concrete dictionary, the functions would have to be defined in a more explicit way in order to become operational, e.g.

- The function of this Chinese-English dictionary is to assist professional translators with Chinese as their mother tongue to solve the complex of problems that they run into when translating from Chinese into English.

4.2.2. Knowledge-orientated functions

There are three types of knowledge-orientated functions. Like the communication-orientated functions they have a paradigmatic character at a relatively high level of abstraction, cf. Tarp (2000: 197). Therefore, the users are not explicitly mentioned, they are implied as those to be assisted.

- To give general cultural and encyclopedic information;

- To give special information about the subject field or the discipline;

- To give information about the language (e.g. when studying a foreign language).

A knowledge-orientated function can be defined in a more explicit way in order to become operational in relation to a concrete dictionary as follows, cf. Tarp (2000):

- The function of this dictionary of biology is to assist students to solve the complex of problems that they run into when consulting a biology book or working on a biology lesson.

The exposé of the lexicographic functions can be summarized in the following synoptic presentation.

Figure 4.1: Synoptic presentation of the lexicographic functions

Paradigmatic characters of the determination of lexicographic functions
Communication-orientated functions
- to assist with the reception of texts in the mother tongue - to assist with the production of texts in the mother tongue - to assist with the reception of texts in the foreign language - to assist with the production of texts in the foreign language - to assist with the translation of texts from the mother tongue into the foreign language - to assist with the translation of texts from the foreign language into the mother tongue
Knowledge-orientated functions - to give general cultural and encyclopedic information
- to give a special information about the subject field or the discipline
- to give a information about the language (e.g. when studying a foreign language)

4.3. Identification of the needed lexicographic functions

The requirements of a bilingual education system with a trilingual vision will make the intended user group to face problems related to the reception and production of texts in both Fang and French and likely in English. This group of users will also face various problems related to the information in Fang and French and likely in English about the subjects. Therefore, the meanings and use of special-field items for school in Fang and in French will have to be explained adequately.

Accordingly, the formulation of the proposed model will have to make provision for particular communication-orientated functions and knowledge-orientated functions that can assist this intended target user group when facing the particular communication and knowledge matters described above.

4.4. Systematic approach for the determination of the lexicographic functions of the intended dictionary

The determination of the lexicographic functions of the intended model can be done in a systematic approach by presenting in a table a column including paradigmatic characters of the determination of lexicographic functions followed by another column, which includes the corresponding concrete information. In this regard the determination of the intended lexicographic functions can be presented as follows in the table illustrated below.

Fig. 4.2. A comprehensive determination of the lexicographic functions of the proposed model

Paradigmatic character of the lexicographic functions	Determination of the lexicographic functions of the intended model
Communication-orientated functions	**Communication-orientated functions**
- to assist the reception of texts in mother tongue	- to assist the reception of texts in Fang
- to assist the production of texts in mother tongue	- to assist the production of texts in Fang
- to assist the reception of texts in foreign language	- to assist the reception of texts in French
- to assist the production of texts in foreign language	- to assist the production of texts in French
- to assist the translation of texts from mother tongue into foreign language	- to assist the translation of texts from Fang into French
- to assist the translation of texts from foreign language into mother tongue	- to assist the translation of texts from French into Fang
Knowledge-orientated functions	**Knowledge-orientated functions**
- to give a general cultural and encyclopedic information	- to give a general cultural and encyclopedic information in Fang and French
- to give a special information about the subject field or the discipline	- to give a special information about the subject specialized items in Fang and French
- to give a information about the language (e.g. when studying a foreign language)	-to give a information about Fang and French

4.5. Synoptic presentation of the analysis of the users and the lexicographic functions of the intended model

Putting side to side the synoptic presentation of the analysis of users illustrated in figure 3.4 with the synoptic presentation of the lexicographic functions illustrated in figure 4.1 leads to a remarkable observation. It appears that the elements included are in perfect correspondence. This observation is illustrated in the figure 4.3.

Figure 4.3: A synoptic presentation of the correspondence between the analysis of the intended target users and the lexicographic functions

Parameters or variables of the characteristics of the users	Parameters or variables of the user situations	Parameters or variables of the user needs	Paradigmatic characters of the dictionary functions
Language competence - Which language is their mother tongue? - At what level do they dominate their mother tongue? - At what level do they dominate a foreign language?	**Communication-orientated user situations** - reception of text in mother tongue - production of text in mother tongue - reception of text in foreign language - production of text in foreign language - translation of text from mother tongue into foreign language - translation of text from foreign language into mother tongue	**Primary user needs** - information about the native language - information about a foreign language - comparison between the native and a foreign language	**Communication-orientated functions** - to assist the reception of texts in mother tongue - to assist the production of texts in mother tongue - to assist the reception of texts in foreign language - to assist the production of texts in foreign language - to assist the translation of texts from mother tongue into foreign language - to assist the translation of texts from foreign language into mother tongue
Cultural and encyclopedic knowledge - What is the level of their general cultural and encyclopedic knowledge?	**Knowledge-orientated user situations** - general cultural and encyclopedic information	- information about culture and the world in general	**Knowledge-orientated functions** - to give a general cultural and encyclopedic information

Competence in the respective subject field - At what level do they dominate the special subject field in question?	- special information about the subject field or the discipline.	- information about the special subject field - comparison between the subject field in the native and foreign culture	- to give a special information about the subject field or the discipline
LSP competence within the given subject field - At what level do they dominate the corresponding LSP in their mother tongue? - At what level do they dominate the corresponding LSP in the foreign language? - How is their experience in translation between the languages in question?	- information about the language (e.g. when studying a foreign language)	- information about the native LSP - information about the foreign LSP - comparison between the native and foreign LSP	- to give a information about the language (e.g. when studying a foreign language)
——	——	**Secondary user needs** - general information lexicography and dictionary use - information about the concrete dictionary and how to use it	——

This presentation can be of special importance because it will help the lexicographer to have the possibility when it is done to have at a glance any information regarding the users or the dictionary functions. It can also give the same possibility to provide for the lexicographer(s) accurate information, which links the user to the dictionary functions. The possibilities this presentation can provide the lexicographer of the proposed model are therefore illustrated as follows:

Figure 4.4: A synoptic presentation of the correspondence between the analysis of the intended target users and the lexicographic functions of the proposed model

Characteristics of the intended target user group	User situations of the intended target user group	User needs of the intended target user group	Dictionary functions of the intended model
Language competence - Fang is the mother tongue of most users in hinterlands. French is the mother tongue of most users in cities. - Most users who have Fang as mother tongue dominate the language. Most users who have French as mother tongue dominate the language. -Most users do not dominate French in hinterlands. Most users dominate French in cities.	**Communication-orientated user situations** - reception of text in Fang - production of text in Fang - reception of text in French - production of text in French - translation of text from Fang into French - translation of text from French into Fang	**Primary user needs** - information about Fang - information about French - comparison between Fang and French	**Communication-orientated functions** - to assist the reception of texts in Fang - to assist the production of texts in Fang - to assist the reception of texts in French - to assist the production of texts in French - to assist the translation of texts from Fang into French - to assist the translation of texts from French into Fang.
Cultural and encyclopedic knowledge - Students have a low level of general cultural and encyclopedic knowledge. Skilled and older users have a good level of general cultural and encyclopedic knowledge.	**Knowledge-orientated user situations** - general cultural and encyclopedic information.	- information about culture and the world in general	**Knowledge-orientated functions** - to give a general cultural and encyclopedic information in Fang and French
Competence in the respective subject field - Students and non-specialist users do not dominate the special subject fields. Specialist users dominate the special subject fields.	- special information about the subject fields or the disciplines included in school programmes.	-information about the special subject fields included in school programmes. - comparison between the subject fields included in school programmes in Fang and French culture	- to give a special information about the subject specialized items in Fang and French

LSP competence within the given subject field - Students and non-specialist users do not dominate the corresponding LSP in Fang. Skilled and older users dominate the special subject fields in Fang. - Students and non-specialist users do not dominate the corresponding LSP in French. Specialist users dominate the corresponding LSP in French. - Students and non-specialist users do not have experience in translation between Fang and French. Specialist users have experience in translation between Fang and French.	- information about Fang and French languages.	- information about Fang LSP - information about French LSP -comparison between Fang and French	-to give a information about Fang and French
		- general information lexicography and dictionary use - information about the intended dictionary and how to use it.	

4.6. Conclusion

When planning or compiling a dictionary, following an analysis of the users, the dictionary functions that can assist them have to be considered carefully. In the present chapter, a systematic and synoptic approach for the analysis of the users and the determination of the dictionary functions are suggested. These theoretical guidelines provide relevant heuristic tools for lexicographers to undertake empirical research regarding the users and the dictionary functions in a methodological way. These guidelines can help them to determine the suitable types of functions, which need to be executed in the planned dictionary in order to successfully assist the intended target user group.

Figure 4.4 illustrates how the comprehensive information regarding the intended target user group and the corresponding communication- and knowledge-orientated functions can be presented in a synoptic table. This synoptic presentation displays a heterogeneous intended target user group, which presents various characteristics, user situations and needs. Therefore, all necessary communication-orientated functions will have to be provided to assist this user group with purely linguistic matters they will encounter when using Fang and French as established languages as medium of communication. On the other hand, all necessary knowledge-orientated functions will have to be provided to assist this user group with purely knowledge matters when using Fang and French as established languages as medium of education.

The needs of the users and other information like their reference skills, age, and the corresponding functions of a planned dictionary are important factors for the determination of a next important typological decision.
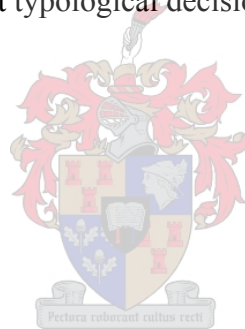
CHAPTER 5: THE TYPOLOGICAL PROFILE OF THE INTENDED MODEL

5.0. Introduction

The discussion regarding the typological profile of the envisaged model is based on the discussion about the analysis on the users and the lexicographic functions of this model. As Gouws (2001c: 72) states, decisions regarding the typology of the dictionaries to be compiled may not be based on emotional or ideological criteria, but should reflect the results of a proper needs analysis of the intended target users. Al-Kasimi (1977: 18) and Martin (1967: 154) also consent that dictionary typology and the characterisic features of the intended target user group must constantly be in correlation. One can include to that statement the proper analysis of the lexicographic functions of the model of the dictionary to be planned. In this regard, according to Al-Kasimi (1977: 18) typology cannot be separated from the "purpose" of a dictionary. Te term "purpose" in the context of Al-Kasimi's statement refers to "functions", cf. Louw (2004: 9). Yet, the point of departure of the discussion of this present chapter focuses on the study of the foreseen different typological profiles to be implicated in the intended model. This study will subsequently lead to the proper discussion of the typological profile of the model.
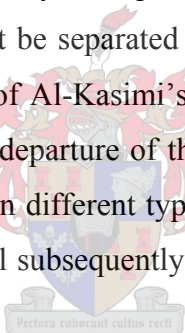
5.1. Different types of dictionaries implicated in the intended model

The decision regarding the choice of the typology of the intended model will have to combine typological counterparts sometimes in a contrasting pair and in most of the cases within other different types of dictionaries. However, these counterparts do not have to be seen as mutually exclusive. The needs, the linguistic and lexicographic situations, the users' analysis, and the lexicographic functions require the needs of a new type of dictionary. This will mainly result in the amalgamation of different types of dictionaries.

In other words, the formulation of the intended model considers the possibility to start the compilation of a hybrid dictionary, which could be appropriate to assist the intended linguistic policy in Gabon and the needs resulting from that policy. Therefore, regarding the typologly, the formulation of the intended model would include different types of dictionaries. The presentation of the different types of dictionaries that are foreseen to be applied in the dictionary under discussion is mostly influenced by the frameworks as worked out by Al- Kasimi (1977: 20), Gouws (2001c: 72-81), Svensén (1993: 18-22) and Zgusta (1971: 198-217).

5.1.1. Encyclopedic vs linguistic dictionaries

Encyclopedic dictionaries also known as encyclopaedias are directed at the extra linguistic features of the items to be treated, whereas linguistic dictionaries focus on the linguistic and pragmatic aspects, cf. Gouws (2001c: 73). To meet the desires of Gabon to establish national languages and French as medium in education, the intended model needs to be apprehensive to the encyclopedic knowledge of the school special field terms in Fang. For instance when dealing with these terms like *trapezium* in Mathematics, not only the equivalent must be provided but the full spectrum of knowledge regarding the classification as a *geometric shape*, the *calculation of the surface*, *the perimeter*, etc. must also be provided. This model therefore presents the features of encyclopedic dictionaries because it provides guidelines for the treatment of encyclopedic data in Fang and in French. Still, these encyclopedic features will support the knowledge-orientated functions as discussed in sections 4.2.2, 4.4 and 4.5 and more explicit and illustrated in figures 4.1, 4.2, and 4.4. They will make the foreseen model to assist and support the users in covering and satisfying them with their encyclopedic needs.

On the other hand, to make provision for the correct acquisition of the languages, especially the Gabonese languages, the model will also be concerned with the semantic knowledge of the school special field terms. Bantu languages have a different grammar from European languages. With the example of the lemma *trapezium,* as a noun there will not be gender, instead there will be the number of the

class to which this noun belongs according to the way its plural form is obtained. All these linguistic properties of the school special field terms once in Fang will need to be known and acquired by the users. These linguistic features will be required due to the fact that communication oriented-functions as discussed in sections 4.2.1, 4.4 and 4.5 and exemplified in figures 4.1, 4.2, and 4.4, will prevail in the model. They will make the envisaged model to assist and support the users in covering and satisfying them with their linguistic needs.

Therefore, this model will also present both features of linguistic and encyclopedic dictionaries because encyclopedic and linguistic data should be seen together as the cornerstone of the intended model. The needs of people in Gabon in general and the intended target user group go beyond the bilingual treatment in dictionaries which provide only the translation equivalents of the school special field terms. They need the types of dictionaries, which will execute both communication- and knowledge-orientated functions. This will unavoidably lead to the combination of encyclopedic and linguistic dictionary types.
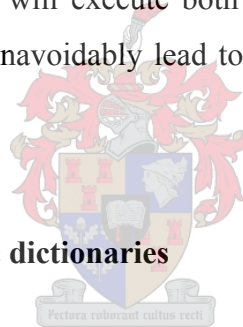
5.1.2. Diachronic vs synchronic dictionaries

A diachronic dictionary has the presentation of the history and etymology of the treated lexical items as its first assignment, while synchronic dictionaries focus on the lexicon of a language at a specific time in its development, cf. Gouws (2001c: 73). For scientific needs, expert users will need etymological data to undertake research regarding the special field languages for education in Fang. These terms are not well established in the national languages in Gabon. Therefore, researchers like linguists and lexicographers will need information regarding the origins or the methods used to establish the equivalents of these terms in Fang for further research. In this regard the model makes provision for an academic version in which experts will get the information regarding the origins and the procedures used to establish school special field terms in Fang. As a result, the model will more strongly present the features of a diachronic dictionary. On the other hand, the model will present more the feature of a synchronic dictionary because it will mainly focus on the lexicon of Fang, French and

English at the specific time during which it is planned and will be compiled. Yet, etymology data can be included in synchronic dictionaries.

5.1.3. Monolingual vs bilingual or multilingual dictionaries

The similarities between the monolingual, the bilingual or multilingual dictionaries within the typology of the model is done exclusively with regard to the extent of the treatment of the contents. Monolingual dictionaries present an extensive treatment of the items, cf. Gouws (2001c: 74). According to Landau (2001: 8), a monolingual dictionary, written enterily in one language, may be intended for the native speakers of that language, for people learning it as a second language in a country where the language is widely spoken either as native language or a lingua franca, or for people learning learning it as a foreign language. Bilingual or multilingual dictionaries usually provide only the translation equivalents and other aspects like the synonyms, etc. but not the meaning paraphrases, cf. Gouws (2001c: 74). According to Landau (2001: 8), a bilingual dictionary also consists of a list of words or expressions, in alphabetical order when in printed form, in one language (the source language), for which, ideally, exact equivalents are given in another language (the target language). The monolingual profile of the intended model is already suggested by the fact that it will display the encyclopedic and linguistic profiles, which will provide the full scale of the encyclopedic and semantic knowledge, i.e. an extensive treatment of the school special field terms. The intended model provides guidelines so that this monolingual aspect is included within each part of the bilingual treatment of Fang and French dealt with in the central list. The needs of people in Gabon, in general, and the intended target user group go beyond the bilingual treatment in dictionaries which provides only the translation equivalents of the school special field terms. The users need a type of dictionary that will provide them with the translation equivalents and an extensive treatment of the school special field terms. The extensive treatment of the school special field terms will assist the model in fulfilling the knowledge-orientated functions. Indeed, this comprehensiveness will give more coverage to deal with encyclopedic data. Indeed, this will make provision for the model to assist and support the users in covering and satisfying them with their encyclopedic needs.

Therefore, a specialized Fang-French-English multi-volume school dictionary will in a certain way be a bilingual dictionary. Still, the monolingual features will also prevail in the treatment. This may inevitably lead to the combination of monolingual and bilingual dictionary types within the planned model. The bilingual features will be of special for the model to implement the communication-orientated function to assist and satisfy the users with the text reception and production in Fang, French and English needs, cf. sections 4.2.1, 4.4 and 4.5. Therefore, the combination of monolingual and bilingual dictionary feature characteristics will be a way to support the model in fulfilling the communication- and knowledge-orientated functions. The comprehensiveness resulting from this combination will lead to a typological hybrid model which will give more coverage to deal with linguistic and encyclopedic data. Thus, this will make provision for the model to assist and support the users in covering and satisfying them with their linguistic and encyclopedic needs.

5.1.4. Standard vs comprehensive dictionary

Standard dictionaries usually are single volume products in which a synchronic and normative approach prevail, cf. Gouws (2001c: 76-77). Comprehensive dictionaries are multi-volume and multi-decade projects and give an account of the full spectrum of the lexicon including lexical items from the non-standard varieties, Gouws (2001c: 76-77). Zgusta (1971: 210) adds that these types of dictionaries have an overall-descriptive and informative approach. Accordingly, the planned model will present the feature characteristics of a standard dictionary because a synchronic and normative approach will prevail. A synchronic and normative approach will be part of the typological profile of the proposed model because the specific treatment of Fang and French as languages to be used as medium languages in education requires this treatment to be descriptive and synchronic. On the other hand, the only feature of the comprehensive dictionary involved in the model is the multi-volume aspect. The intended model provides guidelines in such a way that the language for special fields of each subject is dealt with in a different and handy book. The necessity for making provision for this type of multi-volume model is aimed at young students with

developing skills for whom the use of a separate and handy book can be very convenient.

Making provision for a multi-volume dictionary can be possible because scientific and technical terms are usually included in very limited quantity in existing dictionaries. As an illustration, the second edition of McGraw-Hill Dictionary of scientific and technical terms (1978) encompasses over 100 scientific and technical disciplines. In addition, 108, 000 definitions and 3000 illustrations are presented in 1771 pages. That virtually means that 1080 definitions and 30 illustrations of scientific and technical terms of one (1) discipline can be covered in 18 pages within the format of the same book, which is about 25x20cm big. However, as mentioned in Bergenholtz and Tarp (1995: 59), multi-field dictionaries pose a number of special problems because they they claim several hundred different fields and sub-fields but they do not do it in reasonable detail. This makes the multi-volume aspect of the proposed model to be regarded as a relevant idea. In fact, Bergeneholtz & Tarp (1995) state that the vast vocabularies involved in technicnal dictionaries make it next impossible to cover such a multititude of fields in one single dictionary, unless of course the dictionary has been designed as a multi-volume dictionary.

If the treatment of the scientific and technical terms within the envisaged model, of the different fields in the programmes of education in primary school is included in individual and smaller books, this could result in obtaining a very convenient and handy dictionary spread in distinct books. Furthermore, it would easily be possible for the lexicographer of the proposed model to make all the fields to be covered in comprehensive detail in their corresponding books.

In Gabon 15 subjects overall are listed in the programmes of education in public primary schools as follows: Lecture (Reading), Dictée-Questions (Dictation and Questions), Rédaction/Elocution/Language (Creative writing/ Elocution/ Language), Grammaire/Conjugaison (Grammar/conjugation), Vocabulaire (vocabulary), Récitation/Chant (Poetry and Singing), Etude de texte (Comprehension), Calcul écrit (Writing arithmetic), Calcul mental (Mental arithmetic), Histoire-Civisme (History and civics), Géographie (Geography), Science (Science), Ecriture (Hand writing),

Dessin (Drawing) and Education physique (Physical education), cf. school report in equivalent of grade six (6) in Gabon. Five textbooks, cf. Ackwe-n'gwe et al. (1995), Andjoua et al. (1995), Bordas (1995), Institut Pédagogique National (1998), Nathan (1995), Rékoula & Mba Ndong, R (1995), are used to sustain all these 14 subjects. There are only 5 textbooks because some subjects like Drawing, Poetry and Singing do not have or need corresponding textbooks. In addition, one textbook can sustain the contents of numerous subjects. For instance, the book for French language sustains 7 subjects, namely, Reading, Dictation and Questions, Creative writing/ Elocution/ Language, Grammar/conjugation, Vocabulary, Poetry and Singing, Comprehension.

Therefore, based on this information the formulation of the model can make provision for the compilation of five (5) very convenient and handy books and each one will correspond to a volume of the planned multi-volume model. The influence of this model can be broader than the restricted use by students and teachers in primary schools. In fact, once the type of the proposed model is compiled, it would be much easier for the appropriate experts to compile the equivalents of these textbooks for Primary education in Fang. The compilation of the intended model can also assist with the compilation of the sources that are used to support the teaching programmes in Fang in ENS and ENI. On the other hand, the compilation of the planned model can also help when compiling general dictionaries. As Landau (2001: 34) states, general dictionaries have always relied chiefly onsubject-field dictionaries for technical definitions. Obsviously, what is applied in Fang can also be applied in all Gabonese languages.

On the other hand, the formulation of the model can also make provision for the compilation of a book for Sports, which would be taught in the mother tongues as well. This means that the intended model would be a multi-volume dictionary of six books. However, all these decisions regarding the choice and the relevancy of subjects to be dealt with by the intended model will have to be made in collaboration with the lexicographer, teachers and experts from IPN.

This connection between the contents of the textbooks and the formulation of the intended model will make this type of dictionary to be a useful complementary and

pedagogical support. In this regard, the model will result in a functional instrument, which will be adequate for the needs and the situations. Therefore, the model will fit in the ideology of the government and other sponsors, which are more eager to financially support the production of adequate goods. Furthermore, the provision for the compilation of different books or volumes of the proposed model for corresponding subjects and the connection between the contents of the textbooks and these volumes will make the communication and knowledge oriented-functions to be executed with more effectiveness. This particular feature will make provision for the model to assist and support the users in covering and satisfying them in a more thorough and clear way with their linguistic and encyclopedic needs.

5.1.5. Restricted dictionary, specialized dictionary or dictionary for special purposes

Restricted, or specialized dictionaries as well as dictionaries for special purposes are directed at the treatment of a well-defined subsection of the lexicon of the given language, e.g. the lexicon of a specific hobby or special field, cf. Gouws (2001b: 12-13). A distinction is made between dictionaries confined to a special subject, such as law or medicine and known as "special-field" dictionaries as Barnhart's (cited in Landau: 2004: 32) term used by Landau, and dictionaries limited to an aspect of language such as pronouncing dictionary or slang dictionary, cf. Landau (2001: 32). Accordingly, the different languages reflecting the social grouping, like slang, or the specific categories of the languages like idioms or proverbs, can also be determined as criteria for the restriction in the selection of lexical items, cf. Gouws (2001b: 13). These latter categories are, therefore, applied to restricted dictionaries, but not dictionaries for special purposes. Another example of a restricted dictionary is the thesaurus, which reflects semantic information, especially different types of semantic relations holding between lexical items, cf. Gouws (2001b: 13). In this type of dictionary, the lexicographic treatment usually also enforces a restriction, qualifying it as a restricted synchronic dictionary. The presentation of lexical items is more often restricted to the presentation of translation equivalents.

If one refers to the distinction as made by Landau (2004: 32) when discussing restricted dictionaries, the intended model falls within the category of special-field dictionary. This model intends to deal with special field languages for education as the representation of a well-defined subsection of the lexicon of the core vocabulary with which the target scholars come into contact during typical lecture classes and when working through their study material regarding the different subjects. As indicated, instead of providing only the translation equivalents in Fang for French or in French for Fang, the model plans to be a restricted synchronic dictionary, which will also give the full lexicographic treatment of the lemma. This attribute to be included in the model will assist to support a specific knowledge oriented-function. This lexicographic function, consists of the important aspect of giving a special information about the subject specialized items, cf. sections 4.2, 4.4 and 4.5.

The intended target user group will need a proper dictionary that deals especially with school special field terms. As already indicated, these terms are not obtained from a simple copy and paste from general dictionaries. In addition, a survey of specialized lexicography in Gabonese languages in general and Fang in particular displays no works that can assist the establishment of school special field terms.
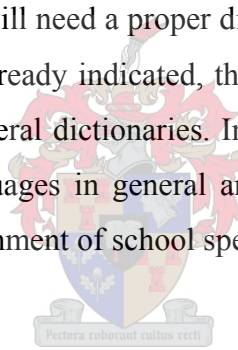
5.1.6. School dictionaries

School dictionaries are one of the two subcategories of pedagogical dictionaries, the learner's dictionaries representing the other subcategory. They represent a specialized category, cf. Lombard (1990, cited in Gouws, 2001c: 74) and they are aimed at scholars who are mother tongue speakers of the language treated in the dictionary. These dictionaries deal with the core vocabulary with which the target scholars come into contact during typical natural conversation and when working through their study material. On the other hand, school dictionaries typically display a low density of data, i.e. the quantitative relation between macro- and microstructural entries, because each article is only allowed a restricted number of microstructural categories. This type of dictionary is dominated by the central list and a limited number of texts

function as outer texts. Then again, it is also important that the pedagogical function has to prevail at all times in these dictionaries, cf. Gouws (2001c: 75).

The intended model will display numerous features of school dictionaries. First, it is aimed at scholars who are mother tongue speakers of the national language treated in the dictionary, which is Fang according to this dissertation. Second, because young students who are not skilled enough regarding the dictionary use are among the intended target user group, the formulation of the model will make provision for domination of the central list and a limited number of texts which will function as outer texts. However, the inclusion of Fang-French-English, French-Fang-English and English-French-Fang equivalent registers and the Fang-French-English, French-Fang-English and English-French-Fang guide word equivalent registers also characterize the intended model. If these registers can make the dictionary to be poly-accessible and poly-functional, this is only meant in the first place for the trilingual dimension purpose of the model. It means these registers are unintegrated outer texts.

The intended target user group which are students, i.e. scholars, will need a school dictionary that can deal exclusively with the special lexicon of the core vocabulary with which they come into contact during typical classes and when working through their study material regarding the different subjects. This type of new school dictionary will empower their knowledge. Usually, school dictionaries deal only with the core vocabulary with which the target scholars come into contact during typical natural conversation and when working through their study material.

5.2. Suggested typology of the intended model

The situation in Gabon will create lexicographical endeavours with the compilation of a hybrid dictionary which needs some features of encyclopedic, linguistic, etymological, multilingual, standard, comprehensive, specialized and school dictionaries. The combination of these different dictionary typologies in the intended typological hybrid dictionary is meant to provide the intended target user group with a

functional instrument that will assist their communicative and knowledge empowerment. Indeed, these different dictionary typologies will be essential in supporting the lexicographic functions to be included in the envisaged model in order to cover and satisfy the linguistic and encyclopedic needs of the intended target users.

The typology of the intended model would then be an encyclopedic, linguistic, etymological, multilingual, standard, comprehensive, specialized, school dictionary. This depicted typology enumerates only the different dictionary typologies involved within the model and does not portray clearly the exact features of the different dictionaries involved. Therefore, this typology will be confusing because it does not reflect the fact that the intended model takes in account only some aspects of each dictionary and that it is not a development of several fully-fledged dictionaries. Furthermore, sometimes it is even only some trivial aspects, like the multi-volume form of the comprehensive dictionary, which are considered as part of the features of the intended model.

The planned model works with the approach to create an innovative typology that will not be bound to the existing typological models in order to prevent confusion and ambiguousness when referring to its typology. The suggested typology of a Specialized Fang-French-English Multi-volume School dictionary can primarily be categorized as an **LSP dictionary**. An LSP dictionary may cover either an entire subject field, several subject fields or one or more sub-fields, correspondingly designated as single-field, multi-field and sub-field dictionaries, cf. Bergenholtz and Tarp (1995: 58). Accordingly, due to the fact that numerous fields will be included in the treatment as discussed in section 5.1.4, the proposed model can be more precisely typed as a multi-field dictionary. Yet, the model is typologically innovative and contains elements typical of encyclopedic, linguistic, etymological, multilingual, standard, comprehensive, specialized and school dictionaries. As Gouws (1999a, cited in Gouws: 2001c: 80) states, new dictionary projects should not see themselves bound to the existing typological models but should have the freedom to create innovative typological models.

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5.3. Conclusion

The implication of different typological profiles in the intended model leads to the creation of an innovative typological model. This creation is mainly based on the fact that a typology resulting from an enumeration of the different types of the existing dictionaries involved can lead to a misunderstanding and indirectness. A Specialized Fang-French-English Multi-volume School dictionary can be typed as a **Multilingual Specialized Multi-volume School Dictionary**, an innovative typological model that contains elements typical of encyclopedic, linguistic, etymological, multilingual, standard, comprehensive, specialized and school dictionaries. However, this innovative model can be categorised or classified as a **subtype** under the type of **restricted synchronic dictionaries** and not as a fully-fledged dictionary type.

Dictionaries can be regarded as practical instruments, which are compiled in order to be used by a specific target user group. In order to be functional instruments, dictionaries have to fulfil a specific purpose. In metalexicographical terms, this purpose of a dictionary is known as the **genuine purpose**, cf. Wiegand (1998, in Gouws: 2001c: 66). The genuine purpose has a direct impact on the structure and the contents of the dictionary articles and the data distribution patterns. Therefore, the identification and formulation of this purpose has to precede the elaboration of the structure and the contents of a dictionary project.

CHAPTER 6: THE GENUINE PURPOSE OF THE INTENDED MODEL

6.0. Introduction

When consulting dictionaries users want to satisfy the needs to achieve successful consultation procedures by reaching the goals that motivated the search. Dictionaries have the specific purpose to ensure successful dictionary consultation procedures. A successful consultation procedure depends on the way in which the needed linguistic information can be retrieved. The specific purpose to be fulfilled by dictionaries is known in metalexicographical terms as the **genuine purpose,** cf. Wiegand (1998, cited in Gouws: 2001c: 66). The formulation and the compilation of every dictionary has to incorporate a clear and unambiguous exposition of the genuine purpose of that dictionary. The identification and formulation of the genuine purpose has to precede the compilation process because the compilation process has to be steered by the genuine purpose of this dictionary, cf. Gouws (2001c: 66). Accordingly, the following paragraphs scrutinize the identification and the formulation of the genuine purpose of the intended model.
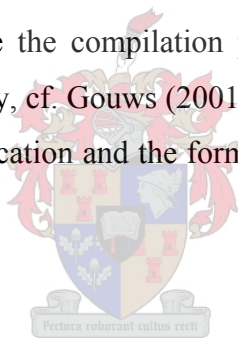
6.1. Identification of the genuine purpose of the intended model

The genuine purpose of a dictionary project has to be identified at a very early stage of the lexicographic process and this identification can be co-determined by, among others, its intended target user group and typological nature, cf. Gouws (2001: 66). According to the present research, the lexicographic functions are part of among others elements which also assist in co-determining the genuine purpose of the envisaged model. Lexicography as a theory and practice is a new field in Gabon. Therefore, every aspect and stage of the lexicographic process must be presented and explained with clear and tiny detail to make provision for successful dictionary projects. In this regard, within the formulation of the planned model, the identification and formulation of the genuine purpose should be extended concepts as specific

lexicographic procedures which include precise parameters as guidelines which have to be followed.

In view of that, referring to Gouws's (2001c: 65-67) discussion about the genuine purpose, one suggests that the lexicographer of the planned model should consider the identification of the genuine purpose, as *a set of hypotheses about the way successful dictionary consultation procedures should be designed in order to meet the needs of the intended target user group*. One suggests the identification of the genuine purpose of the intended model as an elaboration of premises of how successful dictionary consultation procedures can be achieved all the way through the different sections of the dictionary, namely, the outer texts and the central list. That means that the identification of the genuine purpose of that model can be regarded, as determining the premises regarding the way the lexicographer foresees the needed linguistic information to be retrieved all the way through the frame structure [6] of that dictionary. In other words, these hypotheses assist with predicting and giving a valuable basement on how the structure of the dictionary should be designed to fulfil the genuine purpose. However, the elaboration of these premises should not be randomly operated. One suggests that the lexicographer of the proposed model should put forward these hypotheses according to the information resulting from the evaluation of the linguistic and lexicographic situation in Gabon on one hand. On the other hand, he or she should also consider the analysis of the intended target users, the lexicographic functions and the typological profile of the model as discussed in the previous chapters 2, 3, 4 and 5.

Accordingly, in the following paragraphs one suggests how the parameters of the identification of the genuine purpose of the model can be envisaged. These parameters result on the elaboration of the premises which will assist the lexicographer with predicting how the main compounds, among others, the outer texts and the central list should be presented. One regards this procedure as of special importance to achieve a successful planning of the structure of the model. Yet, one also considers this set of premises to identify the genuine purpose of the envisaged

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[6] Cf. Definition of the frame structure in setion 12.1.

model first as guidelines which can be useful for the needed science-based lexicographic process in Gabon. Second, these premises can be regarded as of valuable assistance and basis for the lexicographer to successfully work out the dictionary consultation procedures.

6.1.1. The outer texts

As a result of its innovative typology, it can be predicted that the functionality of the intended model will exceed the boundaries of the central list. The intended target user group presents heterogeneous skills and needs. The lexicographic functions and the typology of the intended model present atypical feature characteristics. Accordingly, one suggests that the lexicographer of that model should ensure that the presentation of the lexicographical data in both the front and back matter texts to have a functional role in the successful dictionary consultation procedures.

6.1.1.1. The front matter texts

To achieve successful dictionary consultation procedures, one foresees that the front matter texts of the intended model will have to play an important role. In order to enable the access to different lexicographic data, the front matter texts of the model will have to assist the users to easily locate where and how the data is accommodated. In this regard, it will be recommended to include in those texts, among others, tables of contents and more especially the compulsory users' guideline text.

6.1.1.1.1. The table of contents

One expects that the way the table of contents will be presented will be of particular value because the model is an innovative typology. On the other hand, children are part of the intended target user group. In this regard one recommends to the lexicographer to make provision to a structure and contents that are visibly reported to

assist the users in achieving successful dictionary consultation procedures. Accordingly, the suggested thematic ordering in the central list will have to be presented in the table of contents to make the dictionary consultation simple and unambiguous. However, this table of contents will also be of special value because the existence and the location of Fang-French-English, French-Fang-English and English-French-Fang equivalent registers and also Fang-French-English, French-Fang-English and English-French-Fang guide word equivalent registers will have to be clearly notified. Due to the fact that dictionaries are more often dominated by a central list bias, users and more especially young ones more often limit the consultation of dictionaries to the central list.

6.1.1.1.2. The users' guidelines

As the model presents innovative typological features and also because children are among the intended users, one can anticipate that the front matter texts will also have to include comprehensive compulsory users' guidelines. Those guidelines will have to conduct the users to consult with easiness and efficiency different lexicographic data accommodated in the different sections of the dictionary. In this regard, the thematic ordering in each volume will have to be described plainly. This description will have to present the thematic organisation of each subject dealt with in the corresponding volume. Examples and diagrams can be used so that users will be ahead of the steps to pursue to retrieve the needed information.

On the other hand, one considers that the organisation in the central list of the Fang-French and French-Fang entries has to be explained clearly. This explanation will have to provide the hierarchical organisation of the lexicographic data categories included. According to the needs of the users, the functions and the typology of the intended model, the treatment of lemmata will consist of the presentation of linguistic and encyclopedic data. Therefore, the way entries are constructed will have to be shown by using examples and diagrams so that users will be ahead of the steps to follow and get the best out of the dictionary from both linguistic and encyclopedic data categories.

However, it will be recommended that the explanation of the organisation of the Fang-French and French-Fang entries have to be followed by the internal description of the different types of structures of Fang-French and French-Fang articles incorporated in the dictionary. Fang and French are two different languages therefore the way data is presented especially linguistic data, will be totally different. For instance, like the majority of African languages Fang does not display gender. Moreover, in most African languages, especially Bantu languages the singular and the plural forms of words are not determined by determiners as in French but by free or bound morphemes known as classifiers. As an illustration the equivalent of *trapezium* in Fang is dealt with as follows:

trapeze, [trap☜z] is a noun of cl 9, 10 because the plural form is *be trapeze*, and *be* belongs to class 9, 10 or is a classifier 9,10.

In this regard, providing the guidelines the internal description of the different types of structures of Fang-French and French-Fang articles will assist the users to make easy and efficient consultation of articles.
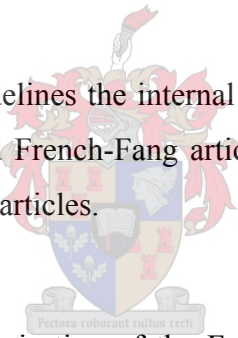
In the same perspective the organisation of the Fang-French-English, French-Fang-English and English-French-Fang equivalent registers and also the Fang-French-English, French-Fang-English and English-French-Fang guide word equivalent registers will also have to be described plainly. This description will have to present how the English equivalents of lemmata dealt with in the central list can be retrieved and used for text production and reception. In addition, the users' guidelines should make it clear to the user that the intended model will be a poly-accessible and poly-functional dictionary. Firstly, lemmata dealt with in the central list can also be reached from the registers. Secondly, translation equivalents of these lemmata can also be directly retrieved from these registers.

6.1.1.2. The back matter texts

It is foreseen in the back matter texts that the user should first find the **Fang-French-English**, **French-Fang-English** and **English-French-Fang** equivalent registers of all the lemmata dealt with in a given volume of the dictionary. Accordingly, these registers will represent the trilingual dimension of the intended model. They will have to be presented in such a way that the users will retrieve in the easiest way the equivalents in English of the lemmata dealt with in Fang and French throughout the dictionary. The same easy access will also have to be provided so that the users retrieve the meaning paraphrases in Fang and French dealt with in the central list of English equivalents presented in the register. This would successfully assist the users with text reception and production.

Secondly, the users will locate **Fang-French-English**, **French-Fang-English** and **English-French-Fang** guide word equivalent registers. These registers will also represent the trilingual dimension of the intended model. One predicts that they should be presented in such a way that the users either more familiar with Fang or French or English would retrieve in the easiest way the different data categories included within the articles presented in Fang and French in the central list.

Finally, one expects that the back matter texts should include a sort of **Fang-French-English** and **French-Fang-English** index referring to the page numbers of pictures included in the dictionary. This index will give a straightforward and easy access to the user who only needs pictorial illustration data. On the other hand, due to their size or for commodity and convenience some pictures will be located in this part of the intended model. Yet, the inclusion of some pictures in the back matter should not be just an ornamental data provided by the lexicographers. Besides, the lexicographers of the proposed model should ensure that the users would easily refer to these pictures in order to enhance the understanding of the corresponding article included in the central list.

6.1.2. The central list

The central list consists of article stretches including a variety of articles which function as texts in their own right and which are arranged or ordered in certain ways. The way the macrostructure has to be ordered or arranged and the way the dictionary articles should be presented play a major role in the identification of the successful dictionary consultation procedures in the central list.

6.1.2.1. A thematic ordering of the macrostructure

One envisages a conceptual or thematic ordering of the macrostructure as an arrangement that can be regarded as one of the means to achieve successful consultation procedures in the model. According to the contents of textbooks, subjects are taught in accordance with concepts. Mathematics for instance, are mainly divided and taught by talking about three sub-fields among others, cf. Cambridge International Dictionary of English, henceforth abbreviated as CIDE (1996: 874). Randomly, there is **Algebra**, which is a part of Mathematics in which signs and letters represent numbers, cf. CIDE (1996: 32). There is also the sub-field of **Arithmetic**, cf. CIDE (1996: 62), which is the process of making calculations such as adding, multiplying, etc. using numbers. Mathematics field also involve **Geometry**, which is the area of Mathematics relating to the study of space and the relationships between points, lines, curves and surfaces, cf. CIDE (1996: 589).

It is foressen that arranging the macrostructure of the envisaged dictionary in an alphabetical order that present a unique list of items of the different concepts can be difficult for the young users. As an example, when dealing with Mathematics items related to **Algebra, Arithmetics** and **Geometry** would be dispersed in one alphabetical list. This could be confusing for young users and may lead to the use of a lot of cross-referring that could result to difficulty in dictionary use and consultation. McArthur (1986: 77) describes this situation very well by saying that "alphabetisation poses problems of fragmentation that may be less immediately obvious with word

lists but can become serious when dealing with subject lists. Related items are scattered across the alphabet, and the effort to re-unite such items by cross-referring can be a frustrating task". Accordingly, one foresees the thematic ordering of the central list of the proposed model, as the ordering which should offer the users a successful way to retrieve information when dealing with subjects which are divided in themes or concepts.

6.1.2.2. Scholarly and popular structure of dictionary articles

The needs and the skills of the intended target user group are heterogeneous. This group comprises of both non-specialist and expert users. Accordingly, in order to retrieve the suitable information according one infers that there should be on the macrostructural level a differentiation between scholarly and popular types of the planned dictionary. A scholarly dictionary is aimed at academic use and it is the employed by specialists, researchers and post-graduate students, cf. Smit (1996: 283). One the other hand, a popular dictionary is made on the basis of the corpus of the scholarly dictionary and it is aimed at the use in schools and by non-specialists, cf. Smit (1996: 283). However, with regard to the popular version of the proposed model, one suggests that a differentiation should distinguish a type for primary school and another type for high school, etc. Accordingly, that the primary school type should contain less sophisticated lemmata and requires less sophisticated knowledge than the high school type. It means that the vocabulary included in the intended model should be graded according to the different grades so that the students would most likely understand it according to their respective grade levels. In fact, as Landau (2001: 27) states, the vocabulary skills of children at any grade level are highly variable, and the state of knowledge of these skills is still very imperfect. This differentiation of the structure of dictionary articles to be included according to the needs and the skills of the users should enable younger users to achieve successful dictionary consultation procedures in the intended model.

6.1.2.3. The nature and extent of the microstructure

In the microstructure, one infers that there should be a differentiation between the information presented to specialists and that given to non-specialist users. The second group will need less data types, whereas the former group will need as consistent and complete information as possible, like etymological data for example. One also requests that a second differentiation should distinguish the data presented to primary school students and the one given to high school students, for example. The latter user group will need more sophisticated and more data types, whereas the former group will need less and as unsophisticated and simple information as possible according to the level of their education. For instance, in primary school, Mathematics, Grammar of studied languages, Science, etc. do not have the same contents. Science as an illustration is a whole subject in primary school, when in high school is spread out in Physics, Biology, Geography, Geology, etc with more developed concepts, therefore more words and more developed. Accordingly, simple and less data for unskilled users and sophisticated and more data can be considered as a way in which the needed information can be retrieved successfully.

6.2. Formulation of the genuine purpose of the intended model

The formulation of the genuine purpose of a dictionary can be regarded as a response to the needs of the intended target users, Gouws (2001c: 66). Regarding the proposed model, one suggests that to be clear and unambiguous, the formulation of its genuine purpose must also include information regarding the user typology or the characteristics of the users, the user situations and the lexicographic functions to be executed. As the identification, the formulation of the genuine purpose of the proposed dictionary aims at supplying a science-based procedure to be followed when engaging this lexicographic stage.

Due to its innovative typology, the genuine purpose of the proposed dictionary does not have the same application as that of existing types of dictionaries. However, the

genuine purpose of existing dictionaries can be used and adapted to formulate the genuine purpose of the intended model. Gouws (2001c: 66) mentions that desk or standard bilingual or monolingual dictionaries belong to the broader category of linguistic dictionaries. Their genuine purpose is to transfer by means of lexical data, information regarding the set of lexical items included as treatment units in order to ensure the linguistic empowerment of the intended target user. The genuine purpose of a dictionary implies that a dictionary is produced so that the target user who uses the dictionary in a typical usage context will have an instrument to assist him in achieving a successful dictionary consultation procedure by reaching the goals that motivated the search. The genuine purpose of a dictionary should therefore be to ensure successful dictionary consultation procedures. A successful dictionary consultation procedure depends on the way in which the needed linguistic information can be retrieved.

One adapts Gouws's (2001c: 66) in order to provide a set of instructions that can be used as a systematic approach to formulate the genuine purpose of the intended model. One also considers that the formulation of the genuine purpose as a set of instructions will represent a valuable sketch which will support the lexicographer of the model when dealing with the structure. Still, this formulation is a temporary draft. A final draft will have to be formulated and included in the organisation plan when compiling the dictionary. Accordingly, the suggested instructions of the formulation revolve around three main points as follows:

- One suggests that a specialized Fang-French-English multi-volume school dictionary belongs to the category of restricted or specialized dictionaries. Its genuine purpose is to transfer, by means of lexical data, information regarding the set of lexical items included as treatment units in order:

    - To ensure the linguistic, the communication and knowledge empowerment of students, teachers and people enrolled in teaching programmes in Fang with French as the main official language in Gabon.

- To serve as reference source to experts in charge of the compilation of textbooks in Fang for Primary school and study material and other reference sources to assist in teaching programmes in Fang.

- To serve as scientific data for lexicographic and linguistic research in special field languages for school in Fang and the treatment of these lexical items within the compilation of other dictionaries.

- One proposes that the genuine purpose of this model implies that it will be formulated so that:

  - Students, teachers and people enrolled in teaching programmes in Fang who will use the dictionary when they are in communication-orientated user situations, i.e. reception of text in Fang, production of text in Fang, reception of text in French, production of text in French; translation of text from Fang into French and translation of text from French into Fang. Accordingly, these specific users will have an instrument to assist them in achieving successful dictionary consultation procedures by reaching those goals that motivated the search.

  - Students, teachers and people enrolled in teaching programmes in Fang who will also use the dictionary when they are in knowledge-orientated user situations, i.e. general cultural and encyclopedic information; special information about the subject fields or the disciplines included in school programmes; information about Fang and French languages, will have an instrument to assist them in achieving successful dictionary consultation procedures by reaching those goals that motivated the search.

  - Students, teachers and people enrolled in teaching programmes in Fang who will use the dictionary will have an instrument to assist them in achieving their primary user needs, i.e. information about Fang; information about French and comparison between Fang and French;

information about the special subject fields included in school programmes, comparison between the subject fields included in school programmes in Fang and French culture, information about Fang LSP, information about French LSP, comparison between Fang and French and the secondary user needs, i.e. general information lexicography and dictionary use, information about the intended dictionary and how to use it, will have an instrument to assist them in achieving successful dictionary consultation procedures by reaching those goals that motivated the search.

- One recommends that the genuine purpose of the intended model should therefore be to ensure successful dictionary consultation procedures. The successful dictionary consultation procedure depends on the way in which the needed linguistic information can be retrieved within the intended model. Ways to assist with the accomplishment of successful dictionary consultation procedures in the intended model have been identified in the previous paragraphs dealing with the identification of the genuine purpose. These ways represent premises regarding the presentation of the elements of the different compounds of the structure of the dictionary. In the following lines one suggests the prominent aspects of these ways that can be regarded as part of the formulation of the genuine purpose of the proposed model. However, these means are not absolute. The lexicographer can suggest other ways he or she will also consider relevant for the successful consultation procedures of the planned model. The recommended ways can be formulated as follows:

- A table of contents that should noticeably present the thematic ordering suggested in the central list and the existence and the location of the Fang-French-English, French-Fang-English and English-French-Fang equivalent registers, the Fang-French-English, French-Fang-English English-French-Fang guide word equivalent registers and Fang-French-English, French-Fang-English and English-French-Fang pictorial illustration index.

- Users' guidelines that will have to guide the users to consult with easiness and efficiency by describing the organisation of the thematic ordering of each subject dealt with in the corresponding volume so that users will be ahead of the steps to pursue to retrieve the needed information. This description should use examples and diagrams.

- An internal description of the different types of structures of Fang-French and French-Fang articles incorporated in the dictionary should be part of users' guidelines in order to make users aware of the important differences between Fang and French. This description will help the users to have an easy and efficient way to consult the articles.

- The easiest way to retrieve the equivalents in English of the lemmata dealt with in Fang and French in the Fang-English-French, French-Fang-English and English-French-Fang equivalent registers is part of both the poly-functionality and poly-accessibility features of the intended model. On the other hand, the presentation of Fang-French-English, French-Fang-English, English-French-Fang guide word equivalent registers and Fang-French-English, French-Fang-English and English-French-Fang pictorial illustration index also display both the poly-functionality the poly-accessibility aspect of the proposed dictionary. These registers enhance the chances of the users to achieve successful consultation procedures.

- A thematic ordering of the macrostructure will prevent the fragmentation of word lists of subjects by gathering the words that belongs to the same theme. That should put off the frustration and make effortless the task to join up words that belong to the same theme or concept usually spread out across the alphabet. The thematic ordering should assist the users with a procedure that gives a successful way to retrieve information as requested and needed when dealing with subjects, which are taught, learnt and dealt with according to themes or concepts.

- A differentiation is made between scholarly and popular dictionary articles so that both unskilled and skilled users achieve successful dictionary consultation procedures according to their respective skills and needs.

- Less data types to articles provided for non-specialist users and consistent and complete information as possible for specialist users will be a way in which the needed information can be retrieved successfully by the heterogeneous intended target user group.

6.3. Conclusion

The identification and the formulation of the genuine purpose of a dictionary have a direct impact on the way the structure, the contents of the articles and the data distribution pattern should be planned. The identification and formulation of the genuine purpose of a dictionary offer the lexicographer valuable guidelines regarding how the transfer of data should be done. It also gives the lexicographer an idea of how the information has to be retrieved. The identification and the formulation of the genuine purpose of a dictionary can be regarded as relevant preliminaries to the elaboration of the structure of that dictionary.

PART II: THE STRUCTURE OF THE PROPOSED MODEL

CHAPTER 7: THE MACROSTRUCTURE

7.0. Introduction

The easy and simple accessibility and retrieval of the different information types is a key element in ensuring a dictionary to fulfil its genuine purpose. Those successful consultation procedures are made possible by means of a pertinent and appropriate structure, which is a key to dictionaries to fulfil at their best the crucial purpose to satisfy the needs of the users. The structure of dictionaries can be regarded as a frame structure [7] in which the different data types are accommodated. The macrostructure, the microstructure and the outer texts mainly dominate the structure of a dictionary. Accordingly, the following chapter discusses the macrostructure.

The macrostructure is defined in metalexicography as the selection of lexical items to be included as lemma signs as part of the central list in the dictionary, cf. Gouws (2001c: 83). Accordingly the macrostructure can be regarded as the lexicographic term used to describe the arrangement of the stock of lemmata in the world list, cf. Bergenholtz and Tarp (1995: 15). On the other hand, Hausmann and Wiegand (1989b: 328) write: "Roughly speaking, the ordered set of all lemmata of the dictionary forms the macrostructure". They (1989b: 329) add that "the macrostructure primarily accounts for ordering and placing dictionary information", of which the alphabetical order is only one possible order. Accordingly, the lemma signs become the primary treatment units of the dictionary. The difficult decisions that need to be taken for the formulation and the compilation of a typological innovative profile of the planned model are reflected when it comes to devising its macrostructure. Clear-cut decisions on the type of the macrostructure in the dictionary have to be made regarding the selection of macrostructural elements, the type of macrostructure, the type of dictionary articles and the types of lemmata. Still, one recommends to the

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[7] Cf. Definition of the frame structure in section 12.1.

lexicographer of the proposed model to ensure that the way the macrostructure will be dealt with will be pleasing to young users. It is suggested to the lexicographer that he or she has to consider those decisions with awareness regarding the unimpeded retrieval of information. This aspect is regarded as one of the focal aims of the envisaged model.

7.1. Pragmatic approach of the selection of macrostructural elements

7.1.1. General principles and corpus requirements

A survey of reference sources in Gabonese languages shows that specialized school terms for education as discussed in sections 2.4, 2.5 and 2.6 have not been well elaborated yet, especially in Fang. The Fang-Francais & Francais-Fang from Galley (1964), which is regarded as one of the reference book when it comes to Fang language did not emphazise in technical terms in general. Therefore, one of the purposes of this present investigation is to work out the foundations for the elaboration of those terms of Fang as an example. Those foundations will have to be apprehended by conceptualising tools and determining systematic procedures to follow. In this regard, one of the main pressing requirements within the formulation of the model is to find an appropriate inclusion policy of the lemmata. The characteristics, the user situations and the needs of the intended target user group, the lexicographic functions to be executed and the typological profile of the planned model play a significant role to determine the arduous task of applying a reliable policy regarding the inclusion and selection procedure of the lemmata.

In view of that, the suggested inclusion policy is based on the idea of the so-called pragmatic approach, cf. Madiba (2001). This appproach encourages the simple conversion to the recipient language of borrowed elements. Some of the elements of the imported vocabulary may or may not later undergo indigenisation. A pragmatic approach appears as an answer to practical factors that take into account the linguistic realities such as the communicative needs of the speakers. It can be regarded as

compatible with the language situations, linguistic and non-linguistic resources, goals and objectives of language planning, development and modernisation of African languages. Most importantly a pragmatic approach can be well-matched to deal with the inclusion of the lemmata in the present study.

Accordingly, a reliable systematic approach to develop and modernize special field languages for education in Fang based on the pragmatic approach is discussed in the following paragraphs. Again, Fang is only used as an example. The considered approach is meant to be extended and applied to any other Gabonese and African language. The following paragraphs discuss first that borrowing terms planned or not planned has always been a normal and natural process, used to develop and modernize languages, including the present day languages known as international and strong languages. Secondly, with Fang taken as an example within this current investigation, a planned method of borrowing terms is scrutinized and advocated as a systematic approach to develop and modernize special field languages for education of any Gabonese and African languages. Finally, a discussion is given of the indigenisation of some of the imported vocabulary which usually follows the borrowing stage.

7.1.1.1. Borrowing terms as a natural process in the development and modernization of languages

Borrowing terms has always been a natural and normal process in the development of the vocabulary of languages. Languages like English, Spanish, Portuguese, French, etc. have not always been comprised of the range of modern vocabulary. Latin and Greek were languages through which most of the modern human knowledge was conveyed in a certain period of time. Borrowing vocabulary abundantly from Latin and Greek was the quantum leap most of the present day modern languages undertook to develop and modernize their vocabulary. The figure 7.1 below shows an illustration of the bigger reality regarding the large quantity of the vocabulary dealing with modern knowledge imported from Latin and Greek into English, French, German, Italian, Portuguese and Spanish. Those languages are known as Latin languages. In special languages dealing with fields like medicine, geography, geology,

mathematics, grammar, etc. borrowed terms represent the majority of the vocabulary of these languages.

Figure 7.1: A comparative chart of some mathematics terms in Latin languages.

	English	French	German	Italian	Portuguese	Spanish
Gê metron (Greek)	Geometry	Géométrie	Geometrie	Geometria	Geometria	Geometría
Trapezion (Greek)	Trapezium	Trapèze	Trapez	Trapezio	Trapézio	Trapecio
Rectus angulus (Latin)	Rectangle	Rectangle	Rechteck	Rettangolo	Retângulo	Rectangulo
Multiplicare (Latin)	Multiply	Multiplier	Multipliziven	Multiplicare	Multiplicar	Multiplicar
Dia gônia (Greek)	Diagonal	Diagonal, e *adj.* and *n*	Diagonal, e *adj.* and *n*	Diagonale	Diagonal	Diagonal
Pente gônia (Greek)	Pentagon	Pentagone	Pentagon, (fünfeck)	Pentagono	Pentàgono	Pentàgono
Bios logos (Greek)	Biology	Biologie	Biologie	Biologia	Biologia	Biología
Grammatica (Latin)	Grammar	Grammaire	Grammatik	Grammatica	Gramàtica	Gramàtica

Furthermore, one's small survey shows that English, French, German, Italian, Portuguese and Spanish have also updated and modernized their vocabulary by borrowing from other languages apart from Latin and Greek. As illustration, figure 7.2 illustrates the existence in French of borrowed words from diverse languages to enlarge, update and modernize its vocabulary. The interesting thing is that from those words twenty-nine are extracted from one hundred thirty three words which are included within the first three pages of the "*nouveau petit LAROUSSE*" dictionary (1971) which provides etymological data. That means that 21.80% or a bit more than 1/5 of the French words dealing with general and special language in the first three pages of this dictionary are borrowed. The percentage of borrowed words, as mentioned earlier, is even far more important when it comes to taking into account only special languages.

Figure 7.2: Some borrowed words in French

French	English equivalent	Source language
à (préposition)	at/in/to/ etc. (preposition)	*Latin (ad)*
a cappella	a cappella	*Italian*
abaca	manila hemp[8]	*Spanish (abacá)*
abaque	abacus	*Greek (abax)*
abbé	abbot	*Latin (abbas)*
abcès	abcess	*Latin (abcessus)*
abdiquer	to abdicate	*- (abdicare)*
abdomen	abdomen	*- (abdomen)*
abducteur	abductor	*- (abductus)*
abeille	bee	*- (apicula)*
aber	large estuary	*Celtic*
abhorrer	to abhor, to loathe	*Latin (abhorere)*
abîme	abyss	*Greek (abumos)*
abject,e	abject, despicable	*Latin (abjectus)*
abjurer	to abjure	*- (ajurare)*
ablation	excision, removal	*- (ablatus)*
ablégat	ablegate[9]	*- (ablegatus)*
ablette	bleak	*- (ablutus)*
ablution	ablution	*- (ablution)*
abnégation	abnegation, self-sacrifice	*- (abnegare)*
abolir	to abolish	*- (abolere)*
abominer	to abominate	*- (abominare)*
abonder	ao abound	*- (abundare)*
abonner (se)	to subscribe	*Gaulish (bonne)*
aborigène	aboriginal, indigenous	*Latin (aborigines)*
aboulie	abulia	*Greek (aboulia)*
aboyer	to bark	*- (abbaudiare)*
allégeance	allegiance	*English*
allegro	allegro	*Italian*

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[8] English equivalent from Cassel's French-English English-French Dictionary (1951:1)

[9] English equivalent from Harrap's New Standard French and English Dictionary (1972: A: 4)

Therefore, even for a strong and established international language like French, borrowing terms has always been a natural and normal process to develop and modernize. Furthermore, languages have always borrowed words to enlarge their vocabulary. It is not always noticeable because of what is called in this dissertation an **unplanned method of borrowing terms**. On the other hand, the borrowing of terms would be noticeable because it would be a **planned method of borrowing terms**.

7.1.1.2. The unplanned method of borrowing terms

Sometimes the borrowing of terms is not very noticeable because it is not planned, it is accidental. Nevertheless, spontaneously, the speech community will find new words referring to this newness by borrowing or making up their own words. The following figure 7.3 depicts some of the words, which have been accidentally incorporated into Fang during the colonization era in Gabon.

Figure 7.3: Some borrowed words in Fang

Fang	Source language
Ayen	English (*Iron*)
Dokira	English/French (*Docteur/doctor*)
Kisine	English/French (*Cuisine/kitchen*)
Kop	English (*Cup*)
Lama	English/French (*Lamp/lampe*)
Loo	English (*Lock*)
Messisse	- *Matches*
Metwa	- *Motor*
Ngaa	- *Gun*
Ngomane	French (*Commandant*)
Sikolo	English (*School*)
Sitokho	- *Socks*
Sobho	- *Soap*
Sop	- *Shop*
Tawula	- *Towel*
Tlasi	- *Trousers*
Waya	- *Wire*

Wunu	- *Window*

However, if the unplanned method does incorporate and enlarge the vocabulary of a recipient language, like Fang, this method is not suitable for the development of a language, especially with the case of African languages. It does not help Fang language to borrow for example the word referring to *iron* because it would be the only one electrical appliance which would be in use within the Fang community. Fang would need and gain by incorporating the entire vocabulary covering the spectrum of the nouns referring to the electrical appliances. This would be done through a planned method.

7.1.1.3. The planned method

One asserts that a planned method of borrowing would consist of the incorporation into the existing vocabulary of the target language of existing loanwords covering the diversity of all modern fields of human activities. European languages have just borrowed the entire vocabulary of the different fields of modern knowledge, which were studied through Latin, Greek and other languages. It seems that they did not just borrow what only came by accident. They made sure that their vocabulary covers every single field like medicine, politics, philosophy, biology, chemistry, physics, grammar, etc. In this regard, one can assert that a "planned method" of borrowing terms has been used to modernize European languages.

7.1.1.4. The planned method of borrowing terms as a systematic approach to develop and modernize languages

A planned method would therefore be regarded as a general and relevant systematic approach, among others, to borrow terms in order to develop and modernize Gabonese or African languages in general. This method can be regarded as the importation from a source language into the existing vocabulary of the recipient language of all existing loanwords covering the diversity of all modern fields of

human activities. The planned method would therefore heavily rely on simply elaborating lists of the vocabulary of different fields in a European official language in one column, while another column will be presenting extra words due to local references and existing equivalents of the recipient language.

On the other hand, borrowing from Latin and Greek as European languages did, could be an idea to develop and modernize African languages. However, firstly Latin is not formally in use in modern days. It is considered as a "classical" or "dead language". Equally important, it would be more difficult to adjust the morphophonological aspects of both Latin and Greek if African languages borrow directly. Indeed it would appear if African languages borrow Latin and Greek via European languages which in most of the cases are the official languages in African countries and are therefore part of closer and more compatible linguistic scenery. The existence and the morphophonological adjustment of Latin and Greek within European languages have made them more accessible to African languages. As an example, it would be more accommodating and practical for Gabonese languages to borrow the lexical items *pentagone* and *rectangle* from French instead of borrowing as *pente gônia* from Greek and *rectus angulus* from Latin, cf. figure 7.4. Accordingly, African languages would also develop and modernize their vocabularies by borrowing from Latin and Greek as European languages did. Though, this time due to present-day linguistic realities it would be much better for African languages not to borrow directly from Latin and Greek, but to borrow from these languages via matching official European languages.

7.1.1.4.1. The consideration of existing vocabulary in the recipient language

When undertaking the process of borrowing terms, the lexicographer should unavoidably take into account native words and concepts that are already well established. For example in Fang, the word to describe **battery**, used in electronic or electric devices like watch, calculator, torch, etc, and known in French as **pile** is well established as **akok**, [ákʌɞk]. It literally means **stone**.[10] Speakers of Fang would

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[10] According to a survey among Fang speakers realized in Gabon, cf. Addenda, Fang people related this particular battery to the stone because back in the days, stones were used to make fire.

recognise this local word most frequent than the borrowed word *pile* from French which is also used. One's survey shows that Fang speakers borrow only *battery* referring to the device used in cars as *batterie* from French. Thus, when dealing with the word **battery** in Science as subject one recommends that there will be no need to borrow **pile**. As Hartmann (1992: 152) states, "one must approach a dictionary in its own context. Dictionaries are the product of a particular age and location". In view of that, one requests that only the needed equivalents in the recipient language will have to be immediately filled up by loanwords.

In addition, it will not be an issue if borrowed words also have equivalents in the local languages to be part of a subject vocabulary. In English for instance, internationalisms[11] function alongside proper English words in **Anatomy** for words representing bones. As illustration, the words **coccyx**, **meniscus**, **vertebra**, which are from Greek **kokkus**, **mêniscos** and Latin **vertebra**, are used in English as well as in French as **coxxyx**, **ménisque** and **vertèbre**. On the other hand, words used in French and which are from Latin like **omoplate** (**ômos platê**), **tibia**, **péroné** (**peronê**), **cubitus**, etc. have the respective equivalents in words proper to English, namely, **shoulder blade/ scapula**, **shinbone/tibia, fibula and ulna**.
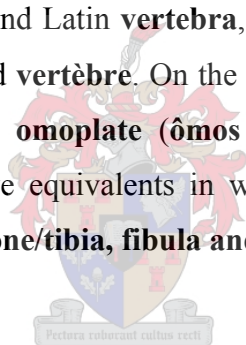
For a number of subjects or sub-fields dealing with natural concepts like **Beings**, **Vegetation**, etc, there will be no need to extensively borrow terms to develop their corresponding special field languages for education. All languages have their proper terms that represent for instance the different parts of a **human body**, **local animals** and **plants**, cf. addenda A, B and C (282-286). In that case terms representing the special field language for education in **Beings** and **Vegetation** will be collected primarily from the recipient language. The borrowing action should occur only when some missing words are observed like no **local animal** or **plants** and when dealing with **microscopic elements**, **small bones** and **muscles.** The words representing those terms are not well established or do not occur at all in African languages, cf. addenda A, B and C. Therefore, when borrowing terms from the source languages, even if it

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[11] Cf. 7.1.1.4.2

deals with internationalisms, an enquiry must be done to make sure that only words non-existing in the recipient language, are borrowed.

Finally, some beings and vegetation are only local and particular to Gabon. It will therefore appear that the lexicographer will sometimes not find words referring to these particularities in French dictionaries. As a result, the lexicographer of the proposed model must co-operate with experts dealing with beings, vegetation, culture and tradition. This will help to have a dictionary with a complete coverage of the vocabulary of concepts and objects existing in Gabon and in the rest of the world, which is necessary for the education in Gabon.

7.1.1.4.2. The issue of internationalisms

Internationalisms may be regarded as "linguistic elements common to the vocabularies of several languages", cf. Braun (1989: 159). Thus, for a term to be regarded as an internationalism, it should be used in "many national languages, [be] current internationally, [and be] comprehensible without translations", cf. Ulrich (1975, cited in Braun: 1989: 159). One the other hand, internationalims may be incorporated in the recipient language with minimal or no modification, cf. Madiba (2001: 61, 66). Figure 7.4 illustrates some examples of terms that can be regarded as internationalisms:

Fig. **7**.4: Some "internationalisms" in European languages

European languages / Greek/Latin	English	French	German	Italian	Portuguese	Spanish
Gê metron (Greek)	Geometry	Géométrie	Geometrie	Geometria	Geometria	Geometría
Trapezion (Greek)	Trapezium	Trapèze	Trapez	Trapezio	Trapézio	Trapecio

Rectus angulus (Latin)	Rectangle	Rectangle	Rechteck	Rettangolo	Retângulo	Rectangulo
Multiplicare (Latin)	Multiply	Multiplier	Multipliziven	Multiplicare	Multiplicar	Multiplicar
Dia gônia (Greek)	Diagonal	Diagonal, e *adj.* and *n*	Diagonal, e *adj.* and *n*	Diagonale	Diagonal	Diagonal
Pente gônia (Greek)	Pentagon	Pentagone	Pentagon, (fünfeck)	Pentagono	Pentàgono	Pentàgono
Bios logos (Greek)	Biology	Biologie	Biologie	Biologia	Biologia	Biología
Grammatica (Latin)	Grammar	Grammaire	Grammatik	Grammatica	Gramàtica	Gramàtica

Yet, languages can use different approaches to classify terms and expressions as internationalisms. In developing countries in Africa, terms borrowed from English, French, Portuguese or Spanish are regarded as part of an international terminology. First, whether those terms are used or not in several other international languages, the fact remains that they provide access to international scientific and technical knowledge. Moreover, as illustrated in figure 7.4, because most of the terms used in international languages have the same Greek or Latin roots, borrowing terms from one international language leads to immediate access to internationalisms. Notification has to be made regarding the fact that no search has been undertaken to check if all those languages have direct roots in Greek and Latin, or if some have only borrowed from the ones which have already had these roots. However, according to what has been said previously, in Gabon, borrowing terms from French should be regarded as a way to incorporate internationalisms to develop national languages in special-subject fields.

However, the lexicographer of the model will not have to make the decisions on his own. He or she must discuss, examine and finalize with linguists and experts in the different fields how to deal with the internationalisms according to the existing vocabulary of the recipient language(s) and subject field(s).

7.1.1.4.3. The conformity of the borrowed terms to the linguistic structure of the recipient language(s)

Borrowed words can be classified as loanwords and internationalisms, cf. Madiba (2001: 61). Their difference revolves around the fact that loanwords are incorporated in a modified form whereas internationalisms are in most cases incorporated without any modification. However, from a small enquiry one notices that weither they are loanwords or internationalisms, some slight morphological and phonological modifications are often made to adapt the borrowed words to the structure of the recipient language. As illustrations, referring to figure 7.4,[12] one observes that in **Italian**, **Portuguese** and **Spanish**, **-o~io** is added at the end of the similar forms of [pentagon-, rectangl-, trapez-] to adjust to the gender form of masculine in those languages. In **Italian**, **Portuguese** and **Spanish** a general rule indicates that **masculine** names end with **–o~io** when the **feminine** ones end with **–a~ia**, cf. **biologia**, **biología**, **geometria** and **grammatical**, **gramàtica**. One detects that there are also for example predictable ends –**log (y)** and –**log (ie**) for similar words in French and English to **biologie** and **biology** respectively, cf. **géologie/geology**, **écologie/ecology**, etc.
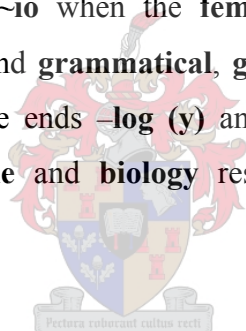
Accordingly, on the basis of the structure of African languages the slight morphological and phonological modifications to be made or not to adapt the international borrowed words without affecting at all the similar form can be predicted. On the basis of his or her linguistic knowledge, the lexicographer can set hypotheses regarding those modifications. However, the final applications should be made with the guidance of linguists and experts in terminology.

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[12] One's survey is not exhaustive and absolute. Yet, from few words it displays that slight morphological and phonological adaptations are often made so that borrowed international words fit into the recipient language.

7.1.1.5. Concluding remarks on the pragmatic approach

Developing a pragmatic approach within this research through a systematic planned method can be regarded as an action, among others, that has to be made regarding the thorny issue of developing and modernizing Gabonese languages and African languages in general. This action is meant to highlight the truism that borrowing terms has always been a natural process in the development of some of the languages known today as strong and internationally well-established.

The use of the language-internal term-formation approach, which Madiba (2001:55-59) regards as a puristic approach or tendency, is no doubt a strategy that can also be considered to expand and adjust African languages to fit into all the modern-day activities. Yet, an absolute puristic approach will firstly prevent African languages of borrowing terms from more established languages. On the other hand, considering the diversity of languages and cultural bounds, a language-internal term-formation procedure will be slow and it will not easily lead to a systematic approach, which African languages really need to develop quickly and with efficiency. Furthermore, a puristic approach is not always steered by a methodical study of the developmental predispositions of the languages and the needs of the speech communities. Borrowing terms from Western languages will not lead, as the proponents of a puristic model of language modernisation claim, to "maintain some form of independence on the part of Africa against the onslaught of Western culture commerce and technology", cf Madiba (2001:56). On the contrary, this process may lead Africa to be culturally, commercially and technologically independent from Western countries. Indeed, it might not only be a coincidence if Western countries themselves became independent from Greek and Latin culture, commerce and technology when they borrowed mostly special field languages from Greek and Latin to modernize their own languages.

A pragmatic approach, which encourages the incorporation of borrowed terms, can be considered as an approach that offers enormous advantages concerning the time and the effectiveness. By resulting in the introduction of as many terms as possible into the recipient language as discussed through a planned method, it can provide

maximum efficiency within a minimum period. Furthermore, borrowing terms can provide and set an established foundation to adopt the borrowed terms that can afterwards be naturally modified or not or even replaced in the recipient language. In fact, once some foreign terms have become commonly known to the speech community, many of them are progressively replaced by local terms because people would be able to express the references to these words according to their own and suitable vision, experience, culture, etc. These words undergo what is known as an indigenisation process.

7.1.1.6. The indigenisation stage

Referring to Madiba (2001: 69-72), the indigenisation stage engages the replacement of some borrowed terms by the indigenous ones. This stage takes place once some of the foreign terms have become commonly known to the speech community, many of them are progressively replaced by local terms because people would be able to express the references to these words according to their own and suitable vision, experience, culture, etc. This phase is not predictable and therefore the indigenisation of macrostructural elements cannot be planned like in the borrowing phase. The indigenisation of borrowed terms results from spontaneous reasons particular to the situations and needs of users, cf. Madiba (2001:69). In certain cases indigenisation can occur to meet the need for effective communication between specialists and non-specialists, cf. Madiba (2001:70). In that case the extent of this nativisation will depend on the development level of the target users of the recipient language. In some cases, the indigenisation will happen because the borrowed words will not properly cover a concept or will not be assimilated into the target language, cf. Sager and Mwansako (1989 & 1990, cited in Madiba 2001: 71). Those words have therefore a precarious existence and are replaced by native terms, cf Sager (1989: 21, cited in Madiba: 2001: 71). Accordingly, as notified in Madiba (2001: 72), in that case, generating indigenous words will be regarded as more productive to express foreign concepts than borrowed words.

However, the indigenisation phase may concern mainly terms borrowed for the development of general communication. Therefore, terms collected for the compilation of the model may not easily undergo indigenisation. Terms borrowed for the development of special subject fields, which are mostly internationalisms will not need to go through nativisation because they are meant to be comprehensible without translation. Therefore, the development of African languages within the special subject fields like the special field terms for education dealt within the present investigation, should primarily consist and focus on two phases. A first phase should provide the requirements for the collection of the needed data from the current prestigious language. A second phase should incorporate the collected data with the compulsory minimal modification to conform to the linguistic structure of the recipient language. The indigenisation phase of the borrowed terms will naturally come up due to the communicative needs, experience and culture of the speech community and also due to the dynamics of languages. Figure 7.5 illustrates some existing words in Fang which previously were represented by borrowed forms, before undergoing indigenisation.

Figure 7.5: Some existing words in Fang resulting from indigenisation

Existing Fang words undergone trhough indigenisation	Literal meaning	Equivalent in English of former borrowed words in French
Nda biang	The house of medicine	Hospital
Nda mbokh	The house of prisoner	Prison
Ndama	Ball	Soccer
Ndang minkobho	The house of talking	Court
Nkoo	Rope	Telephone
Nseng avion	The field of airplane	Airport
Nseng ndama	The field of ball	Soccer field

The general principles and corpus requirements discussed above were meant to provide valuable possibilities to the building of the lemma lists when dealing with special languages for education, which are scrutinized, in the present investigation.

Those lemmata would systematically be terms imported from French to complete the existing special languages for education. This, results from the fact discussed above according to the reality that borrowing from another language, which presents a more complete vocabulary, has always been a natural process in the development and modernization of languages. Therefore, the compilation of the lemma lists covering the special languages of different fields used in education in Gabon will be heavily based on borrowing terms from French as the official language. An illustration based on the elaboration of the lemma lists covering the field of Science as included in the programme of public primary schools in Gabon is displayed in the addenda of this dissertation, cf. page 268.

7.1.1.7. Requirements for the incorporation of definitions

Particular attention will need to be paid when incorporating into African languages the definitions of the international collected terms. This incorporation will consist of the translation of those definitions. Actually, terms from general communication often occur in the definitions of subject specialists or highly technical subject field terms. In that case, it will not be literal translation but some terms may undergo nativisation for the reasons of effectiveness of the definitions. As an example the definition of **electron**, cf. CIDE (1996: 446) is as follows:

"an extremely small piece of matter with a negative electrical charge"

Within the present definition of the subject specialist or highly technical subject field term **electron**, the part witch comprises of "an extremely small piece of matter with a…" belongs to general communication unlike the part comprises of "…negative electrical charge", which could consist only of internationalisms. In this regard, the lexicographer and experts involved when translating definitions to incorporate them into African languages should be cautious. They should make clear distinctions between expressions belonging to general communication, which will need to be translated, and the ones belonging to subject specialist or technical subject fields for

good results, which will be borrowed as internationalisms like the head terms of the vocabulary.

Accordingly, the principles and corpus requirements regarding the pragmatic approach of the selection of macrostructural elements suggested within the formulation of the model consists of two phases. The first phase deals with the material collection from French. The second phase finalizes the dictionary basis of the intended model by adopting French terms in Fang.

7.1.1.2. Specific principles and corpus requirements with regard to the model

7.1.1.2.1. Phase 1: The data collection from French

The typological profile of the planned model suggests that the data collection will mainly consist of the extraction of special field languages for education from textbooks. This extraction will have to follow meticulous guidelines. Bergenholtz and Tarp (1995: 83-90) and also Alexandre Manuila (cited in Landau 2001:378-380) respectively propose a systematic classification and a practical, step-by-step outline, originally prepared for the World Health Organization. Those two approaches are combined within the formulation of the model in order to provide relevant guidelines to a successful systematic collection of data. Accordingly, an adapted step-by-step outline is suggested as follows:

1. Define the field to be covered by the vocabulary and create a corresponding electronic file. As Manuila (cited in Landau 2001:378-380) indicates, the mere statement of a subject area or the selection of the title is not enough. In fact, as discussed in 4.1.4 considering the fact that a textbook can deal with more than one field, the number of the fields can be more than the number of the textbooks needed. Therefore, the definition of the field to be covered by the vocabulary must be done with awareness because this definition may be part of the title of a corresponding book of the intended multi-volume model. For

relevant results, this first step should be done in co-operation with experts representative of (a) the teachers of the discipline(s) covered by the vocabulary, (b) educational psychologists and (c) experts in the discipline(s) covered by the vocabulary;

2. Decide on the size of the vocabulary (i.e., the approximate number of terms). Within the formulation of the model at this stage the decision should remain provisional. The final number of terms will be decided on later.

3. Classify the vocabulary according to the themes or concepts as presented in the textbooks. This step can be regarded as external subject classification as discussed in Bergenholtz and Tarp (1995: 83). It refers to a systematic arrangement of the subject field in question, delimiting this in relation to adjacent fields, with the purpose of identifying the material which is to form the empirical basis of the dictionary. As an example: the table of contents of the textbook of Science/CE/Gabon grades 3 & 4 (1994) offers the classification of that subject as follows:
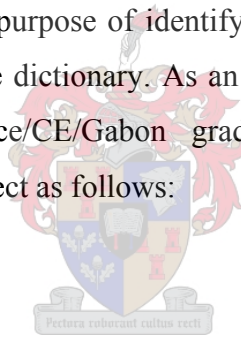
   1. Human being

   2. Animals

   3. Vegetation

   4. Physical environment

   5. Technological environment

4. List the preferred terms for these concepts under the appropriate divisions and the sub-divisions of the classified concepts. Those terms are usually underlined within the development of the corresponding contents or they are made available in the equivalent registers included in back matter texts. In some textbooks used in Gabon these terms are highlighted within the contents. For example, in the table of contents of the Mathematics textbook, only the term division is presented. In the section dealing with division, the preferred

terms within this concept, namely, dividend, divisor, quotient and remainder are highlighted in blue. Furthermore, as Manuila (cited in Landau 2001:378-380) indicates under each heading list, the terms in a logical sequence, not alphabetically. Do not invert the terms. This step can be considered firstly as what is called internal subject classification, cf. Bergenholtz and Tarp (1995: 84). It establishes an overview of the subject area in question, thus forming the basis of the systematic structuring of the dictionary. Example, the table of contents of the textbook of Science/CE/Gabon grades 3 & 4 (1994) also offers the divisions and sub-divisions classification of that subject as follows:

1. Human being

Human body

Bones, skeleton

Body in motion

Reception of information

Food

2. Animals

Diversity of animals

Domestic animals

How do animals feed themselves?

How do animals breathe?

How do animals give birth?

The growth of animals

Food chain

3. Vegetation

Diversity of plants

Different parts of a plant

Nutrition of plants

Reproduction of plants

The growth of plants

What is agriculture?

Different types of soil

Destruction and conservation of soil

What to plant?

Our garden

I cultivate my garden

Harvesting and conserving the products

4. Physical environment

Water

Water cycle

Air

Air in motion

5. Technological environment

Torch

Scale

Thermometer

Paper
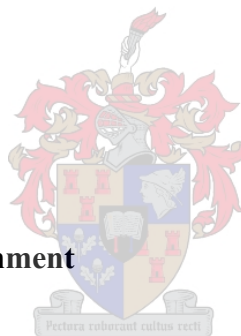
Under the division **Human being** and the sub-division **Human body** the list of the preferred terms, which are studied and underlined only from diagrams at this stage is the following:

- **Human body**

  Head
  Torso

Upper limbs
Lower limbs

The establishment of the list of the preferred terms can be regarded as a terminological classification, cf. Bergenholtz and Tarp (1995: 84). It is a systematic listing of the LSP terminology of the subject field in question, for the purpose of ensuring that all LSP terms are captured.

5. Circulate the completed classified list of terms to a number of experts for comments. These experts should be representative of (a) the teachers of the discipline covered by the vocabulary; (b) experts in the discipline covered by the vocabulary; (c) linguists; (d) educational psychologists and (e) Fang mother tongue speakers.

6. After adjusting the word list and the classification of the concepts or articles in the light of the comments and checking of the experts, draw up an article of each term. Manuila (cited in Landau 2001: 378-380) signifies that the only way to avoid contradictory definitions is to draw up articles as a group of related concepts as a group. This step is of special importance regarding the model because a decision will have to be made according to the different types of words collected. It is a crucial work to be done prior to the lemmatisation of the collected terms, for example, some lexical items like **Upper limbs** are **multilexical** units. The lexicographer must always bear in mind that young students are among the intended target user group. In that case guidelines must be worked out to deal with matters like multilexical units in the model by taking into account the target users. In addition, regarding the model the lexicographer could arrange the word list alphabetically only within the divisions and sub-divisions.

7. Finalize the preparation of the electronic file with each subject area or concept uniquely coded so that terms and definitions in French could be easily sorted by subject, printed out or sent electronically to the relevant experts for

checking. In this electronic file make provision for the next final phase, which is the adoption of French terms and definitions into Fang.

7.1.1.2.2. Phase II: The adoption into Fang of collected data from French

7.1.1.2.2.1. The morphological and phonological adaptation of terms

One proposes that the adoption into Fang of the data collected from French should consist in two fundamental steps. The first step is concerned with the adoption of terms. As one recommends, the adoption into Fang of the collected terms from French should be done with the compulsory minimal modification to conform to the linguistic structure of Fang. The first level of the morphological and phonological adaptation to be done in that case seems quite predictable according to the structure of the source language and the recipient language. For consistent results, the lexicographer should undertake this step in the light of the assistance and comments of linguists when finalizing the work. In fact, it will have to be the place of linguists to guide the lexicographer about the morphological and phonological modification or not to be done. With their knowledge about the synchronic and diachronic information regarding African and Gabonese languages, the linguists are the appropriate experts who will assist the lexicographer whether to converse the borrowed words with the predictable modification or keep them in the original form. In the last case it will also be the place of both lexicographer and linguists to update the way in which the borrowed terms are adopted into the recipient language.

In view of that, as it is suggested within this research, the phonological French characteristics should be kept as much as possible in their original form. On the other hand, the slight morphological modification should be concerned with the adaptation regarding the writing system where necessary. This will prevent the morphological aspect to be modified mechanically and severely into Fang in some cases. The original forms of the borrowed words should be kept as much as possible so that they are always easily intertranslatable with French. Local languages in Gabon and French

coexist in the same space and French participates fully as a complementary in the development of those languages. The speech community will need to recognize the words without difficulty to be more familiar with them and the concepts they both represent in French before they assimilate them into Fang. The borrowed terms will turn into local terms if necessary only after their notions have become familiar to the Fang speech community. Therefore, there will be no need to undergo thorough modification that could impede the quick and effective adoption of borrowed terms into the recipient language. Due to the dynamics of languages, a spontaneous and natural adjustment of borrowed terms from French will occur or not into Fang afterwards.

As an example, when borrowing **géométrie**: [∣εↄμετρι], it should be adopted first as **geometrie** without the **acute accents** because in Fang, as in most African languages there is no use of tones over letters to show how to pronounce them. Yet, once in Fang **geometrie** should be pronounced as in French, [∣εↄμετρι], and not as [γεↄμετρφε] as it should be pronounced if taking into account the writing and the phonological systems in Fang.
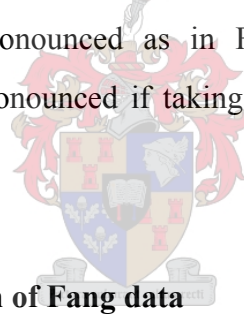
7.1.1.2.2.2. The standardisation of Fang data

One of the purposes of the present work is to deal with the standardisation of the special field subject languages of Fang. To successfully achieve this task, it is suggested to make use of **parallel corpora** as proposed by Prinsloo and De Schryver (2005). Their concept consists of the extraction and the management of the data in all the eleven South African languages. One of the outputs coming from that work is the fact that due to a lot of similarities occurring in 2 or more African languages it does appear indispensable to compile one monolingual or bilingual dictionary which includes all these very similar languages. That would prevent going to unnecessary, costly, hardworking, and time-consuming efforts in the compilation of dictionaries for each one of these languages.

Within the present research, this concept is considered as a relevant means to standardize a language. It can assist to manage corpora resulting from the extraction of the data in its different dialects. As indicated in section 2.6, the dialectal distribution of Fang is in reality not always easy to identify along clear lines because the different speech forms interpenetrate each other, and there is mutual understanding and a lot of similarities between words. From that consideration, the modification to be done to the borrowed terms will be the same in all the dialects. The main concern will therefore be to deal with the native terms that will be part of the corpora. In this regard it is proposed within this investigation to build **parallel corpora** that will include the six dialects of Fang, French and English. This data would be organized from the electronic file resulting from the data collected from French. That will lead to manage those three languages, which are involved within the model and most importantly it will help with the standardisation of Fang terms in the dictionary. These **Parallel Corpora** will assist to detect the words, which are the same in all Fang dialects and the variants with more frequency. In Fang most words have the same stems, a slight phonological or morphophonological difference occurs in the classifier morphemes. It is therefore quite normal to observe the same words in more than three dialects. Accordingly, it is suggested within the model that the variants with a higher frequency in the different dialects will be considered as the standardized form that will be presented as the main lemmata. The other variant (s) and corresponding dialect (s) will be indicated afterwards.

The examples of akok as the equivalent of battery used in 7.1.1.1.1 and the equivalents in Fang of head as the part of the body are representative of the matter as illustrated in figure 7.6. In addition, on the basis that Fang as most African languages does not have accents as used in French, the lexicographer can therefore decide to adopt **trapeze** into Fang from the internationalism **trapèze** borrowed from French.

Figure 7.6: An example of parallel corpora in Fang

	French	English	Fang atsi	Fang meke	Fang mvai or mveny	Fang ntumu	Fang nzaman	Fang okak
Mathématiques (Mathematics) Géometrie (Geometry)	*trapèze*	*trapezium*	*trapeze*	*trapeze*	*trapeze*	*trapeze*	*trapeze*	*trapeze*
Science Corps humain (Human body)	*tête*	*head*	*nlo*	*nlo*	*nlo*	*nlo*	*nlo*	*nlo*
Environnment tcehnologique (Technological environment)	*batterie/pile*	*battery*	*akwak*	*akok*	*akok*	*akok*	*akok*	*akwak*

In the case of the variant **akok**, which has the higher frequency, this form will constitute the main lemma of the Fang list. The other variant, *akwak*, from the corresponding dialects, **atsi** and **okak**, will be indicated afterwards, meaning that **akok** is the same form used in the other dialects. The lexicographer will easily deal with the standard forms of native Fang terms because in this language there is often a dominant variant within at least four (4) of the different dialects. It means that no more than two (2) variants with the corresponding dialects will be indicated next to the standard form. In view of that, the next figure 7.7 illustrates a sample of what would be the standard forms.

Figure 7.7: Some standard forms in Fang resulting from Parallel corpora

	Fang	French	English
Mathématiques **Mathematics** Géometrie (Geometry)	. . trapeze . .	. . trapèze . .	. . trapezium . .
Science Corps humain (Human body)	. . nlo . .	. . tête . .	. . head . .
Environnment technologique (Technological environment)	. . akok, akwak (*atsi* and *okak*) . .	. . batterie/pile . .	. . battery . .
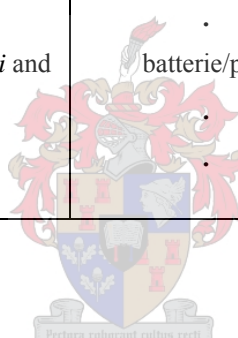
7.1.1.2.2.3. The incorporation of the definitions

The second step in the adoption of French collected data into Fang deals with the incorporation of the definitions. In this regard, translating the definitions collected from French will ensure to obtain Fang definition equivalents. This crucial step will have to be done with an unavoidable collaboration of experts representative of (a) the teachers of the discipline covered by the vocabulary; (b) experts in the discipline covered by the vocabulary who are Fang mother tongue speakers if possible; (c) linguists, (d) educational psychologists (e) Fang mother tongue speakers and (f) terminologists. More details regarding this step are discussed at length in sections 8.3 and 8.4.

7.1.1.3. Concluding remarks

An approach that could lead to an internal formation for the collection of special field terms for education has been considered within this research. This approach can be identified as a purist approach as developed by Madiba (2001: 55-59). Unfortunately, as Madiba indicates, in many cases in African countries the puristic approach is not based on a rational conception and a scientific study of the needs of a given language and the community. In Gabon for instance, the choice of a purist approach, which is quickly suggested when raising the development of national languages, is spurred by the promotion of patriotism and by the nationalist desire to preserve the languages from French in most of cases. This approach is mainly based on the persuasion people have that it could lead to achieve some form of independence from the French language and culture among others.

However, no argument can be given against the fact that this approach can constitute a way in the development of Gabonese languages. However, purist approach can be inappropriate to the need for a science-based approach. Indeed, one of the thorny matters is that speakers from different dialects or languages always tend to disagree on the choice of a dialect or a language, or some terms from other dialect(s) or language(s) to be the standard form(s). This method as observed in Gabon, has resulted so far in some disparities and inconsistencies. This situation has been a central obstacle in the development of mother tongues. As one of the consequences, the compilation of schoolbooks and other basic study materials that are useful for the teaching and also in the full learning in these languages has not been well developed. As highly technical subject terms, the development of terminology of special field subjects in African languages requires a rigorous programme. This programme should reduce as quickly as possible with effectiveness the present gap between Gabonese languages and French.

The pragmatic approach suggested within this investigation offers research in Gabonese languages a methodical base that will establish as soon as possible terms in special fields for school. Furthermore, this approach will enable those languages to be

intertranslatable with French the official language and the other international languages, which is a key to international scientific communication and exchange of knowledge. In other words, the pragmatic approach can be regarded as the response to the needs for the modernisation of Gabonese languages regarding their use as medium of instruction. Beside by providing established words this approach will set a valuable basis from which the borrowed terms can be replaced by the local ones if that will be necessary. Figure 7.4 illustrates the fact that international languages, which claim their own individuality use similar forms of a lot of terms in special-field subjects. It has also been discussed in section 7.1.1.1.1 how international languages like English, French, German, Italian, Portuguese and Spanish have extensively borrowed from other languages, mainly Greek and Latin to develop their body of knowledge for highly technical fields. On that basis, borrowing some words from French that will be adopted into Gabonese languages with the necessity to develop special fields for school will not be considered as an exception, but that will rather be considered as a norm. More especially the adopted words only complement the existing words.

The adoption of borrowed terms and the incorporation of translated definitions into Fang from French are only a step away from the inclusion of those elements in the macrostructure of the intended model as dictionary entries.
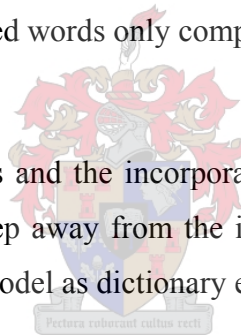
7.2. The lemmatisation of the collected terms

7.2.0. Introduction

Different types of lexical items lead to different types of lemmata to be included in dictionaries. The model has to be formulated and compiled in such a way that the macrostructure can accommodate all the different lexical items of Fang and French. However, the inclusion of lexical items as lemmata or the **lemmatisation** is not motivated subjectively but it has to be considered as the application of predetermined lexicographical criteria. Those criteria are determined among others by the typological nature of the dictionary, the usage frequency, the register and the

morphological nature of a lexical item. Accordingly, the following section exposes the different types of lemmata, discusses the criteria of the collected lexical items to be included as lemmata and the choice of those lemmata to be included in the macrostructure of the model.

7.2.1. Different types of lemmata as dictionary entries

The inclusion of lexical items as lemmata does not imply those lemmata will all receive an equal treatment, cf. Gouws (2001b: 24). On this basis, lemmata are classified within two major types of lemmata as dictionary entries. They are lemmata with a limited lexicographic treatment and lemmata with a complete lexicographic treatment. The lexicographer should have to explain in the front matter of the model the system used regarding the extent of the treatment of lemmata.

7.2.1.1. Lemmata with a limited lexicographic treatment

7.2.1.1.1 Variant and synonym lemmata

Some lemmata receive a very limited treatment, e.g. where two variants of a lexical item exist and both forms have to be included in the dictionary. In this situation, only one of these lemmata will receive the full treatment while the other lemma will have a treatment consisting mainly of a cross-reference to the fully treated lemma, cf. Gouws (2001b: 24). In the model, the lemma *akwak*, which is the variant form, will get no definition, cf. Figure 6.3. The limited treatment will allow a cross-reference to the standard form *akok*:

akwak…cf. " akok"

Synonyms occur barely in special-field subject terms, however if it does happen, the definition will not be repeated in each article. The synonym with the highest usage

frequency will receive a comprehensive treatment whereas the synonym with the lesser frequency will get a cross-reference to the treated lemma.

7.2.1.1.2. Self-explanatory lemmata

Self-explanatory or unexplained lemmata can be regarded as lemmata attached to the article of the lemma sign representing one of the stems of a complex item. These types of lemmata, which comprise of one or more stems or a stem plus a prefix, exist in some languages like Afrikaans, cf. Gouws (2001b: 25). In descriptive dictionaries, there are lexical items known as simplex lexical items, which are included and fully treated to another lemma where the definition is presented, also cf. Gouws (2001b: 25). There are also lexical items known as complex lexical items, which comprise of two types, are transparent and intransparent complex items. As indicated they are often included as so-called self-explanatory or unexplained lemmata. The difference between the two types of complex lexical items revolves around the fact that the meaning of a transparent complex lexical item can be deduced from the meaning of its components, whereas the meaning of an intransparent complex cannot be deduced from the meaning of its components.
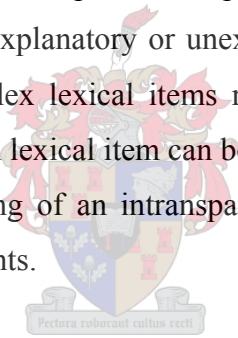
An example of a transparent complex lexical item is found in the Afrikaans descriptive dictionary **Nasionale woordeboek**, cf. Gouws (2001b: 25). All self-explanatory lemmata with the lexical item *hart* as first stem are given in a sinuous order attached to the article of the lemma *hart*. This clustering of lemmata includes the self-explanatory lemmata **hartaandoening** (cardiac affection), **hartgebrek** (heart aliment), **hartklep** (cardiac valve), **hartkwaal** (heart disease), etc. An example of an intransparent complex lexical item is also found in the same Afrikaans descriptive dictionary **Nasionale woordeboek** with the same stem **hart-**. **Hartaanval** (heart attack) and **hartaar** (aorta), which are all explained, cannot be deduced from the meaning of their components.

The inclusion of self-explanatory lemmata often impedes the strict alphabetical ordering of the macrostructure, cf. Gouws (2001b: 25-26). The inclusion of these lemmata also implies that the dictionary user should be able to retrieve the meaning of the lemma by looking at the meaning of its components. A dictionary user is not likely to come across self-explanatory lemmata in Fang and in French dictionaries. In the proposed model it would be suggested to deal with self-explanatory lemmata as full lemmata, i.e. as if they are all intransparent complex lexical items even if some are transparent complex lexical items. It is reasonable to expect that a user's linguistic intuition can still play a part in ensuring the retrieval of the meaning of the lemma from the meaning of its components. Furthermore, the use of self-explanatory lemmata constitutes an economical way to include a larger number of lexical items in a dictionary.

However, one recommends that the inclusion of self-explanatory lemmata should not be advised choice in the intended model. One asserts that in special-field languages as dealt with in the model, apart from the cases of variant and synonym lemmata, all lexical items need their own treatment and definitions. Besides, asking young students who are among the users to retrieve the meaning of some of the lemmata by looking at the meaning of its components will not make the dictionary to be user friendly. Using self-explanatory lemmata will not assist to effectively achieve the purpose of the intended model to assist with efficiency in education. On the other hand, including this type of lemmata will not support the genuine purpose of the model by assisting the users to successfully retrieve the needed information.

7.2.1.2. Lemmata with a complete lexicographic treatment

7.2.1.2.1. Lexical lemmata

Words constitute the largest section of the lexicon in a language, that goes for the lexicon for general communication or the lexicon for restricted communication, like special field language for education dealt with in this research. It is quite natural that

in the proposed model, the bulk of macrostructural elements will also be words, included as lexical lemmata. The extent of the selection of lexical items to be included in the model is determined by the typological criteria used in any dictionary regarding the variant spelling forms, the male and female forms, the homonym forms and the plural or diminutive forms. That means that in most cases the lexicographer, once again with the assistance or the light of comments of appropriate experts, namely, linguists, teachers, experts in education programme, educational psychologists and experts in the different fields, will endeavour to trim down lexical lemmata to the base forms of the words. In addition, if it happens that complex lexical items, which will be treated as intransparent, do exist in Fang and French, they will constitute a substantial number of lexical items that will complete the collection of lexical lemmata of the model.

7.2.1.2.2. Sublexical lemmata

Sublexical lemmata represent the lexicographic embodiment of a certain type of lexical item, **stem** and **affix**, which can be regarded as the two types of sublexical lemmata, cf. Gouws (2001b: 26-27). This is of special importance in Fang when presenting the morphological aspects. Like most African languages, Fang comprises of words which are basically constituted of **a stem** and a **classifier** (when the writing system is conjunctive as it is the case in most African languages), but not quite often of an **affix**. Classifiers, stems and affixes presented as lemmata will not be relevant for the proposed model. These sublexical lemmata do not individually represent a special field term for education. All these morphological units, which represent the relevant and different components of the lemmata, can be indicated in the linguistic description of the lemmata. The special-field or restricted typological aspect of the model prevails over its linguistic typological aspect, therefore only full lemmata, which refer to the special field concepts or objects for education will be presented as dictionary entries.

7.2.1.2.3. Multilexical lemmata

Since words always represent the largest section of the lexicon in a language, it seems that a word-based approach always plays a dominant role in the application of the inclusion of lexical items as lemmata. Idioms and fixed expressions, local or borrowed, constitute most of what is known as multiword lexical items, cf. Gouws (2001b: 27-28). Those specific items, however, do appear mostly in general language. If some idioms or fixed expressions as special field terms for education are encountered, practical discussions to their inclusion in the model as independent lemmata and their treatment according to lexicographical criteria will have to be taken into consideration. Zgusta (1971: 154) states that for the lexicographer, the detection and correct presentation of multiword lexical units is one of his important tasks". As Gouws (2001b: 28) states, the treatment in dictionaries of idioms gives little acknowledgment of the fact that they are fully-fledged lexical items.

7.2.1.3. Conclusion

All types of lexical items can be turned into corresponding types of lemmata. However, all types of lemmata cannot be included automatically as dictionary entries in a given dictionary and they also cannot all receive equal treatment. The application of predetermined lexicographical criteria resulting from the examination and the discussion of the types of lemmata to be included and their treatment motivates objectively the choice of including some or all lemmata as dictionary entries and the extent of their treatment. Regarding the model, lexicographical criteria resulting from this examination and discussion has steered the choice of including lemmata in the macrostructure and also the extent of the treatment to be done. The examination and the discussion of the types of lemmata to be included and their treatment are based on the typological nature and the genuine purpose of the intended model. Still, considering that the designed model is largely directed at young students, it has to be made as eye-catching as possible as given notice in subsection 2.2.3. For that reason, is suggested to highlight the presentation of the lemmata. Presenting them in bold and a bright colour as an eaxample can do this. Then, the criteria for the lemmatisation of

the proposed model which mainly refer to the studied case in this dissertation can be determined as follows:

- The lemmata will be presented in bold with a bright colour.

- The standard form of lemmata will be included as dictionary entries and treatment units when the other lemmata will have a treatment consisting mainly of a cross-reference to the fully treated lemmata.

- The synonym with the higher frequency will receive the complete treatment while the one with lesser frequency will get a cross-reference to the treated lemma.

- Self-explanatory lemmata will be treated as lexical lemmata.

- Lexical lemmata will constitute the bulk of the macrostructural elements.

- No sublexical lemmata will be included as dictionary entries. If they are encountered multilexical lemmata will be treated as fully-fledged lexical items.
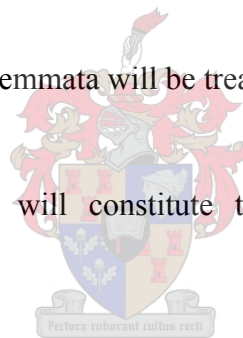
The examination and the discussion of the types of lemmata to be included and their treatment have provided the specific types of lemmata to be included in the macrostructure of the model. That examination and discussion has also given guidelines about the extent of the treatment to be operated in each specific lemma. These guidelines also give suggestions about how the presentation of the lemmata can be attractive to young users. The next paragraphs scrutinize the type of the macrostructure, which can be appropriate to answer the features of the intended users, to assist the lexicographic functions to be executed, to fit into the typology and to be suitable to fulfil the genuine purpose of the intended model.

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7.3. Different types of macrostructures

7.3.0. Introduction

Once the criteria for the selection and the inclusion of lemmata have been established, one considers that the next step for the lexicographer is to make an unambiguous decision regarding the type of macrostructure. According to the typology of the model, one advises that the macrostructure should offer an unimpeded access to the needed lemma-signs and to achieve the successful retrieval of information. The arrangement of the lemmata, which is determined by the type of the macrostructure, should not have to be done on a random basis, cf. Gouws (2001b: 24). Accordingly, one suggests that the decision on the suitable type of the macrostructure to be included in the central list of the proposed model should be dominated by well-defined principles and criteria. Furthermore, those principles and criteria must result from the assessment and the discussion of the different types of the macrostructures and the degree and nature of their treatment. Accordingly, the next section gives an analysis of the different types of macrostructures and a discussion at the same time of the decision for an adequate macrostructure for the intended model.
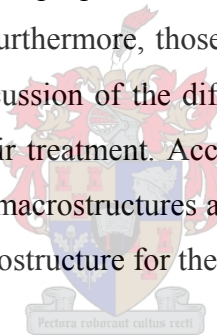
7.3.1. Alphabetical macrostructure vs thematic macrostructure

Most dictionaries, which can be monolingual, such as the CIDE (1996), bilingual such as the "Galley" (1964) or the Oxford-Hachette French Dictionary (2001), encyclopaedic, etc., display an alphabetical arrangement of their lemmata. An alphabetical arrangement in a dictionary can be seen as a **continuous arrangement** of lemmata which are ordered **independently** in a strict alphabetical ordering of the central list. Whereas a thematic ordering can imply that the dictionary presents a **discontinuous arrangement** of lemmata, which are ordered **together** in alphabetical order according to their membership relation within each one of the different themes included in the macrostructure.

The needs for adequate dictionaries and an innovative typology discussed respectively within sections 1.1.2 and 4.1.4 can motivate a calculated deviation from an alphabetical arrangement of the central list of the intended model. Those needs and the typological characteristics determine that the model should display a thematic arrangement. The intention within this dissertation is to make a formulation so that each book of the intended multi-volume dictionary will deal with a specific subject as presented in the corresponding textbook. In this regard, the model will be adequate to the programmes as included in education. As already indicated, this adequation will be reached by presenting the thematic arrangement of the central lists of the different volumes of the envisaged dictionary dealing with distinct subjects according to the contents of the corresponding textbooks.

Once again, the list of contents of the Science subject for the equivalent of corresponding grades 3 and 4 in Gabon is used as an example. This list consists of themes or concepts, which are:

1. Human being

2. Animals

3. Vegetation

4. Physical environment

5. Technological environment.
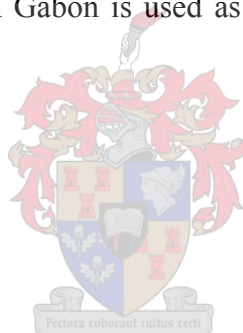
The macrostructure of the book of the intended model dealing with **Science** as a subject should adopt a thematic arrangement according to this list of contents. However, this list will have to be presented alphabetically. The thematic arrangement of the central list of the book dealing with Science as a subject within the intended dictionary for grades 3 and 4 in Gabon would therefore be as follows:

1. Animals

2. Human being

3. Physical environment

4. Technological environment

5. Vegetation.

In this regard, the intended model will rather be regarded as adequate to assist a bilingual education system. Teachers, students particularly and other users may find it very convenient for classes and assignments that they can retrieve all the special field terms regarding the theme of a given subject from a specific part of the dictionary corresponding to the theme and not spread all over the dictionary. In addition, young students with limited dictionary using skills would find it very convenient to use the model because they will just need to search for the required special field term in the part dealing with the corresponding subject, instead of the complex way for them to look throughout the full dictionary.

7.3.2. Straight alphabetical macrostructure vs macrostructure with a sinuous lemma file
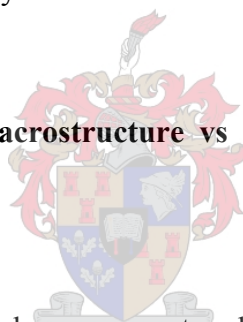
When dealing with an alphabetical arrangement, a distinction has to be made between a **straight alphabetical macrostructure** and a macrostructure with a **sinuous lemma file**, cf. Gouws (2001c: 85). Furthermore, where a sinuous lemma file is presented, a distinction is made between **niching** and **nesting** dictionaries cf. Gouws (2001c: 85). Even if a thematic arrangement is suggested within the model, an alphabetical arrangement of the lemmata will still prevail regarding the order of the lemmata within the presentation of each theme. Therefore, it is important for the lexicographer to be aware of all information regarding the alphabetic arrangement.

7.3.2.1. A straight alphabetical macrostructure

A straight alphabetical macrostructure implies that the lemmata display a vertical macrostructural arrangement and all these lemmata are positioned alphabetically, cf.

Gouws (2001b: 28). Wiegand (1989: 336, cited in Smit: 1996: 178) typifies a straight alphabetical macrostructure as a macrostructure which puts all lemmata strictly according to alphabetical system. He also characterises (1989a: 336, cited in Smit: 1996: 178) this form of arrangement as a **strictly alphabetical macrostructure without grouping**. This is the major ordering in general dictionaries. Dictionaries with a thematic approach, like a thesaurus, have a non-alphabetical ordering of the macrostructure. This can immediately imply that according to the suggested thematic arrangement, the macrostructure of the intended model will not present a straight alphabetical arrangement in each section of the central list. However, an alphabetical arrangement of the lemmata will still prevail within each theme. As an example, according to the designed model, the Mathematics volume will be divided and arranged according to the three themes which are *Geometry*, *Numeracy* and *Measures*. A straight alphabetical arrangement will not be maintained from the article of the first lemma presented in *Geometry* to the last article of the lemma presented in *Measures*. Each theme, will present its own isolated alphabetical arrangement of the lemmata which belongs to its spectrum. Only significant and valid reasons should stimulate the potential lexicographer of the proposed model to undertake a deviation from a straight alphabetical arrangement of lemmata within themes.
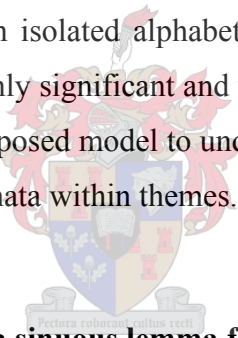
7.3.2.2. A macrostructure with a sinuous lemma file

7.3.2.2.1. Niched lemmatisation

Niched lemmatisation also known as niching, i.e. the ordering of niched lemmata, is a sinuous ordering of lemmata, cf. Gouws (2001c: 85). It maintains a straight alphabetical arrangement and does not necessarily display a semantic relation between the lemmata in the niche. The alphabetical arrangement is not only maintained in the sinuous file but also with regard to the preceding and following main lemmata in the vertical ordering, cf. Gouws (2001b: 30). Wiegand (1989a: 386) considers that a niching dictionary clusters several lemmata or articles together in a strictly alphabetical order, wheter they are semantically related or not. The lemmata or articles are put together into a so-called **text block**, which usually leads to space

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saving. According to him (1989a: 386), the text in this type of arrangement is usually more condensed that the one the straight-alphabetical macrostructure. Wiegand (1989a: 386) characterises this form of arrangement as a **strictly alphabetical macrostructure with grouping**. He (1989a: 386) also adds that users need longer time to find the word they are looking if they consulted a straight-alphabetical dictionary with a verical row of lemmata.

One considers that niched lemmatisation would not compatible to thematic dictionary such as the planned in this type of dictionary. In the planned model, lemmata are gathered in alphabetical order in the same theme because they necessarily display a semantic relation between them. Therefore, one asserts that niched lemmatisation should not be used in the envisaged model. In this model, lemmata will have to be arranged in the same niche because by belonging to the same theme they are of particular importance to extend and enhance the encyclopedic knowledge of the main lemma within a particular subject. If one considers the example of *triangle* in **Mathematics**, only different lemmata representing the spectrum of knowledge regarding the classification as a geometric shape, the different types of trapezium, the calculation of the surface and the perimeter of each type of triangle are supposed to be arranged in the same cluster. Those lemmata cannot be arranged along side with the lemma triangle, which also refers to a musical instrument.

7.3.2.2.2. Nested lemmatisation

Nested lemmatisation, also known as nesting, i.e. the ordering of nested lemmata, also is a horizontal ordering of lemmata following the article of one main lemma. Nesting implies a clustering which stretches the rules of straight-alphabetical ordering in order to exhibit morpho-semantic relations between words, cf. Hausmann & Wiegand (1989b: 336) and Gouws (2001c: 79-80). Wiegand (1989a: 386, cited in Smit: 1996: 178) defines nesting as microstructure which clusters lemmata or articles together, thereby "stretching" the rules of strictly alphabetical ordering, in order to exhibit morpho-semantic relationships between words. Gouws (2001b: 31) considers nesting as a macrostructural ordering which shows one obligatory difference and another,

which is optional from niching and the obligatory difference is the fact that nesting **does not maintain such a strict alphabetical ordering**. He (2001b: 31) states that this applies to both the internal ordering in the nest and the connection between the lemmata in the nest and the preceding and following main lemmata in the vertical ordering. Gouws (2001b: 31) adds that the optional difference is the fact that nesting **does not adhere to a strict alphabetical ordering within the cluster ordering**. Wiegand (1989: 391, cited in Smit: 1996: 178) also characterises nesting as a not strictly alphabetical macrostructure with grouping. On the other hand, Gouws (2001b: 31) states that the nested lemmatisation often displays certain morpho-semantic relations between the sublemmata.

Nesting lemmatisation is compatible with thematic dictionaries. It will therefore be suitable for the model. Within special field terms for education, terms belong to the same paradigm because they contribute to empower the knowledge of the user within a given subject. In the macrostructure of the intended model, lemmata will be arranged in the same cluster because they are of particular importance to extend and enhance the knowledge of the user. Referring once again to the example of *triangle* in Mathematics, different lemmata representing the spectrum of knowledge regarding the different types of triangle will be arranged in the same nest.
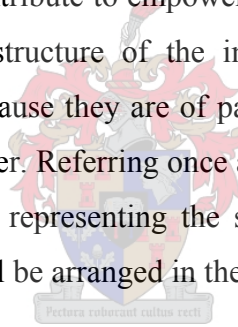
7.4. Different types of dictionary articles: single articles and synoptic articles

A dictionary article can be regarded as the combination of a macrostructural element with its microstructural treatment, cf. Gouws (2001a: 83). In other words, as Hausmann and Wiegand (1989: 328) state, the dictionary article consists of the "lemma and the whole set of information items which are addressed to the lemma". Modern lexicography research favours a central list, which displays a heterogeneous article structure. A distinction is made between single articles, which display the typical treatment allocated to the average lemma sign, and synoptic articles, which focus on extra-linguistic aspects with a traditional encyclopedic approach, cf. Gouws (2001c: 82). Special field terms for education are not average lemma signs. They represent the highly special-field subject words used in the conversation between

teachers and students and the words needed for text production and text reception when dealing with education. The needs, the linguistic and the lexicographic situations and the typology demonstrate that a comprehensive treatment of the lemma signs is more needed within the intended model than the typical treatment allocated to the average lemma sign.

As an illustration, the treatment of a lemma sign like *triangle,* as an example again in Mathematics must make provision not only for the translation equivalent in Fang and French, and the semantic knowledge of that lemma. This treatment must also provide the full spectrum of knowledge regarding the classification as a geometric shape, the different types of triangle, the calculation of the surface and the perimeter of each type of triangle, etc. Therefore, because of their comprehensiveness and encyclopedic nature, synopsis articles are the type of articles suitable to be presented in the central list of the model.
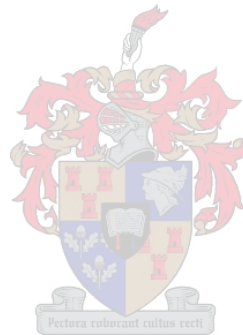
CHAPTER 8: THE MICROSTRUCTURE OF THE INTENDED MODEL

8.0. Introduction

The microstructure is represented by all the data categories included in a dictionary as part of the treatment of the lemma sign as well as by the structure and presentation of the articles, cf. Gouws (2001c: 86). In this regard, the microstructure can be referred to the arrangment of the information provided in the individual dictionary articles Bergenholtz and Tarp (1995: 15). On the other hand, Hausmann and Wiegand (1989: 328) assume that "roughly speaking, the structure of information within the article is called the microstructure". They (1989: 328) continue: "Strictly speaking, the data contained in the microstructure does not refer to the lemma but the linguistic sign which the lemma arbitrarily represents in the macrostructure". In order to construct an effective microstructure, it is recommended to the lexicographer of the model must necessarily take note of all gathered information regarding the users, the lexicographic functions, the genuine purpose and the typology of the proposed model. Fundamental decisions regarding the assembly of the article and data distribution structures have to be documented in detail. This documentation, which gives the full explanation of the different types of articles and the structures and contents of each type, has to be included obligatory in at least two texts. It has to be present in the dictionary plan and also in the front matter text dealing with the users' guidelines. That means those two texts will give information about the order in which the data is presented, the type of data that needs to be grouped together, the precise and predetermined structure of each type of lemma sign and the default data categories to be presented.

After carefully planning the nature and the extent of the macrostructure, the lexicographer must choose one type of mcrostructiure to be used. In metalexicography three types of microstructure, among others have been identified, namely, an **unintegrated**, an **integrated** and a **semi-integrated microstructure,** cf. Wiegand (1989 & 1996, cited in Gouws: 2001c: 87). As the results from the examination of the intended users, the lexicographic functions to be executed, the genuine purpose to be fulfilled and the innovative typology, both semantic and encyclopedic data will be

emphasised in the following paragraphs. Yet these paragraphs expose also data on pronunciation, grammatical data, pragmatic data and etymological data so that the model will adequately fulfil its communicative and knowledge functions.

8.1. The microstructural presentation and treatment of the data

8.1.0. Introduction

As other fields of research, lexicography has connections with other theories, constituent theories and fields for the sake of more efficiency and development. No field of research can be efficient and develop successfully by being self-sufficient. This truism also goes for lexicography. Due to similarities and convergences with some contents, lexicography has connections with lexical semantics. This relation makes lexical semantics a complementary field, of which numerous theories and results can be applied to lexicography when dealing with data. The use of lexical semantics is also regarded as pertinent because it is not detrimental at all to the treatment of the special field macrostructural elements for education, which request encyclopedic data. The semantic theory, as considered by Wiegand (1992: 257) and used in lexicography, does not favor boundaries between semantic and encyclopedic knowledge as claimed in traditional semantic theories. Semantic and encyclopedic knowledge rather overlap much more than being distinct research fields. Dealing with the semantic knowledge may also indirectly provide the encyclopedic knowledge in the treatment of macrostructural elements of most of the types of dictionaries.

One infers that the typology of the model leads to considering the frame theory as one of among other lexical semantic applications in lexicography, which can be discussed and suggested to deal with the presentation and the treatment of the data. Within the framework of Wiegand's theory as presented in Smit (1996), the subsequent section first discusses the indistinct boundary between semantic knowledge and encyclopedic knowledge and gives a succinct exposition of the frame theory. Afterwards, these sections contain a discussion of the application of the frame theory to the

microstructural treatment and presentation of data to be included in the intended model.

8.1.1. The indistinct boundary between semantic knowledge and encyclopedic knowledge

Wiegand has studied and analysed everyday dialogues about the meaning of linguistic expressions since 1975[13] in order to point out the unclear line between semantic knowledge and encyclopedic knowledge. He uses examples to illustrate his arguments; cf. Wiegand (1984: 17-19, cited in Smit 1996: 82, note 40) & (1992: 237). From his studies and analysis', one can contend that it is difficult to separate encyclopedic knowledge and semantic knowledge because in items giving paraphrases of meaning, there is the common concept of object-constituting knowledge between them that makes both these types of knowledge to be similar. The concept of object-constituting knowledge constitutes the referential object, i.e. the object of which one knows the designation in usual texts cannot be clearly separated from encyclopedic factual knowledge.[14]
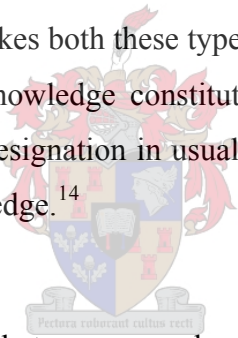
To make clear the indistinct line between encyclopedic and semantic data due to the common concept of object-constituting knowledge, Wiegand (1992: 252) makes the following statement:

> "It is an everyday knowledge about a part of the world, which allows a person possessing that knowledge to perform certain linguistic act. The object-constituting meaning knowledge is that part of the semantic knowledge which can be considered a characteristic part of the encyclopedic knowledge."

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[13] Cf. Wiegand (1977: 86ff, cited in Smit: 1996: 82).

[14] Wiegand (1992: 252, note 42) states that even empirical findings in neurolinguistics and psychology have not been able to clearly draw a line between linguistic and encyclopedic knowledge yet.

Wiegand (1992: 253) strengthens his statement by means of the following graph depicted in figure 8.1, regarding the word *lemon*:

Figure 8.1: An illustration of the unclear line between encyclopedic knowledge and semantic knowledge
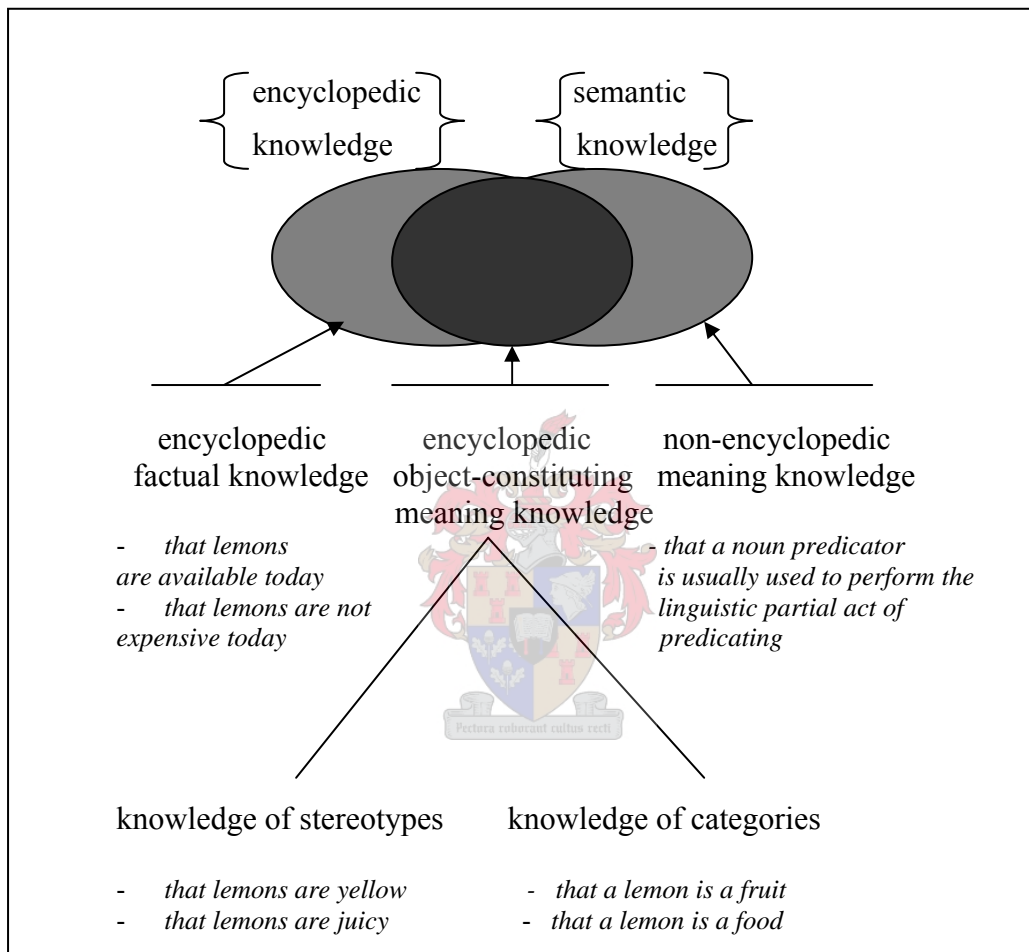
In this figure, Wiegand illustrates what speakers refer to when they talk about the meanings of expressions in their everyday dialogues. As noticed, because of the object-constituting meaning that binds them, encyclopedic knowledge or encyclopedic factual knowledge and semantic knowledge or non-encyclopedic knowledge are not and cannot be separated in items giving a paraphrase meaning. That means that dealing with semantic knowledge also implies dealing with encyclopedic knowledge. Therefore, dealing with the treatment and the presentation

of the microstructural data from a semantic perspective guarantees to convey the needed encyclopedic knowledge to satisfy the needs and expectations of the intended target user group of the proposed model. This is taken into consideration when dealing with the microstructure because the lexicographic functions to be executed in the proposed model embrace both the communication- and knowledge-orientated functions as discussed in Chapter 4. These functions are aimed at covering and satisfying the target users' linguistic and encyclopedic needs, which are as discussed in Chapter 3.

Semantic theory demonstrates an indistinct boundary between semantic knowledge and encyclopedic knowledge when dealing with the meaning paraphrases. Furthermore, within this theory, the frame semantics theory works out a framework when delaing with the microstructural presentation and treatment of data. Accordingly, when dealing with the microstructural presentation and treatment of the data in the proposed model, aimed at providing semantic and encyclopedic data, the next paragraphs discuss and suggest the frame semantics theory as a suitable framework to be used.
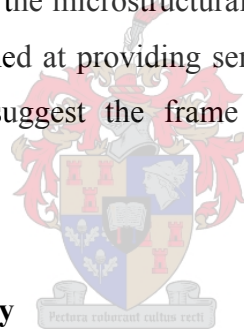
8.2. The frame semantics theory

The frame semantics theory was not actually developed within semantic theories. According to Wegner (1989: 893, cited in Smit 1996: 71) it was developed in the domain of artificial intelligence. Its subject domain is the reconstructive explanation of cognitive processes by means of computer simulation. It develops a programme, which can produce utterances, answer questions with regard to the contents of texts, summarize texts or determine the theme of texts. Researchers in text linguistics and lexical semantics, among others, Fillmore (1993) and Minsky (1977), cf. Smit (1996: 71). Accordingly, Konerding (1993:21) who quotes Minsky (1977: 360-364) and Fillmore (1975:123-124) respectively gives definitions of a frame semantics theory and of the frames. First, the frame semantics theory can be defined as follows:

"A frame is a data structure for representing a stereotyped situation. It is a collocation of questions to be asked about a hypothetical situation. It can be viewed as an organized matrix of slots for given states of affairs, assigned with specific terminal values on the basis of the particular states of affairs to which the frame is applied."

And the following words can be said about the frames:

"Certain schemata of frameworks of concepts or terms which link together as a system, which impose structure or coherence on some aspects of human experience and which may contain elements which are simultaneously parts of other such frameworks."

Wiegand (1992: 257) refers to the study by Konerding (1993)[15] with regard to the use of frame theory in lexicography. According to Konerding, frames are "text schemata consisting of questions organized by thematic groups". Their function is to identify and depict concept-bound implicit knowledge, "which also includes the knowledge in the expressions of the designative vocabulary". Konerding develops frames for types of nouns that can be used for systematically planning the contents of lexicographical texts, which have to convey a language-bound representation of meaning knowledge.[16] For example, a minimal frame for nouns designating concrete, discontinuous objects, which are artefacts, has the following forms:[17]

1. […]

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[15] Actually, Wiegand refers to the doctoral study by Konerding, which was finished in 1992. The published version of this doctoral thesis, which appeared in 1993, is used there.

[16] Earlier, Wiegand (1985: 85, cited in Smit: 1996: 72, note 27): Where does the lexicographer get a list of the predicates? He answered: from primary and secondary sources in the basis, as well as from the competence of the lexicographer. This statement surely is still valid with reference to the application of frame theory to lexicography.

[17] It should be noted that Wiegand (1992: 257-258) omits certain elements of the questions, which are of no relevance in the present context, and replaced them with "[…]".

How can the (outer) form of the object be described?

What does the object look like?

What are its typical measurements?

What is the object made of [= what are the components of the object? (decomposition into special parts, substances, functions, etc.)]

Which other sensory features does the object have? [e.g. surface structure, smell taste, material, etc.]

Which other (specific) characteristics, features does the object have?

2. […]

Is the object an essential constituent of a superordinate whole? Of which whole is the object a (component) part?

Of which kind are these constitutive relations?

3. […]

In which way (how) does the object (type) come into existence? (activity/production)

4. […]

In which functional contexts, natural processes, events, activities and contexts of (human) activities does the object play an important role?

Of which kind are these contexts?

What is the function of the object [in the context]?

Which importance [which value] does the object have for the human being (the life and activities of human)?

5. […]

Which other object is the object under consideration similar to and in which respects are they different?

How is the object classified? (classification systems and neighbouring concepts-designations: co-hyponyms, superordinates, etc.)

A minimal frame specifies a set of predicate classes, Wiegand (1992: 258) contends. Accordingly, a lexicographer can systematically select lemma signs belonging to the lemma type mentioned above in accordance with the dictionary type, when such lemma signs have to be treated lexicographically. Wiegand (1992: 258) uses an example of the items giving the meaning paraphrase in the dictionary articles **hammer**, which belongs to the class of artefacts called **tools** from the *Duden Deutsches Universalwörterbuch*, and *hammer* from the *Collins COBUILD* to illustrate this premise.
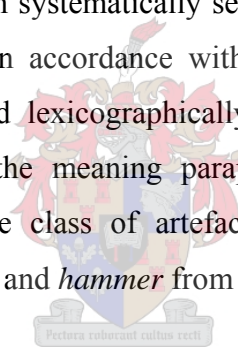
On the basis of Konerding's minimal frame for the type of noun, Wiegand (1992: 260) draws a matrix, which can be considered as pertinent for the determination of frame-based description patterns of lexicographical texts. This matrix that can be refined in several ways, cf. Wiegand (1992: 259), shows in a horizontal column the designations for the predicate classes for the type of noun discussed above. A vertical column displays the headings comprise of the lemma signs representing 6 other tools like *saw*. Empirical work and corroboration of results make Wiegand (1992: 259) to come to a conclusion that can be regarded as significant for a science-based application of the treatment of the macrostructural elements:

"On the basis of the minimal frames systematically and methodologically developed by Konerding frame-based description patterns can likely be established relative to semantically determined types of nouns for such lexicographic texts which are intended to impart semantic knowledge. From such types of nouns, it will be easy to proceed to types of lemma signs for certain types of dictionaries."

From this matrix Wiegand (1992: 261) states that the predicates **object**, **concrete**, **artefact**, and **discontinuing** apply to all seven mentioned **tool** nouns. These predicates, according to him (1992: 261), belong to the following predicate classes:

a) Predicates characterising **general categories** that include the object predicate class.

b) Predicates characterising the **human activities** of people in which the object functions.

c) Predicates characterising **form**.

d) Predicates characterising **essential parts** of the object.

e) Predicates characterising the **material** from which the object is made.

As indicated in Smit (1996:75), this list of predicates can be considered as a preliminary form for determining the contents of the frame-based description patterns of lexicographical texts, which have to convey semantic knowledge. This can result in certain propositions on the presentation of the predicates as part of the dictionary article. In this regard, Wiegand (1992: 261) gives three options. The importance of giving those options in this research relies on the fact that they provide a valuable basis to guide the lexicographer. They are not developed extensively, for more information cf. Smit (1996: 76-80). Information about these options can assist the

lexicographer who wants to work out the internal structure of the dictionary articles according to these options. This information can also help the lexicographer who needs to include some additional information or change the order of the frame in order to be able to meet the characteristics of the dictionary project dealt with.

8.2.1. The first option

The first option Wiegand (1992: 261) gives is computer-oriented. On the basis of the drawn matrix, the internal structure of the dictionary article **hammer** can be presented as follows:

- Class of items concerning the knowledge of categories (tool)

- Class of items concerning the knowledge of functions (for beating or pounding)

- Class of items concerning the knowledge of forms and components (consists of a head and a handle, fit into the head at a right angle)

- Class of items concerning the knowledge of materials (the head is made of metal; the handle of wood).
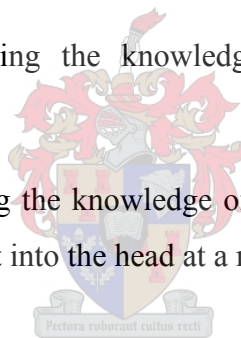
8.2.2. The second option

In the second option the guidelines suggested by Wiegand are mainly aimed at the compilation of learner's dictionaries. If a lexicographer wants to compile a learner's dictionary, Wiegand (1992: 262) suggests that he or she should formulate the parts of the dictionary article in which the object-constituting meaning knowledge appears without too much textual condensation. On the other hand, if standardised condensed dictionary articles want to be obtained, the lexicographer should formulate rules for lexicographers, which limit them to formulate freely. These rules can also be based on

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frames. The second option, cf. Wiegand (1992: 264), is therefore described in the frame-based pattern as follows:

a) A set of frame-based predicate classes;

b) An instruction for formulating texts which belong to the class item giving the object constituting knowledge, taking into account the predicates of the classes.

c) Determining an appropriate position for the item giving the object constituting knowledge within the *abstract* (hierarchical) microstructure.[18]

The second option results in the following microstructural treatment of the lemma **hammer** as follows:

A hammer is a tool used for beating or pounding; it consists of a head made of metal into which a wooden handle is fitted at a right angle.
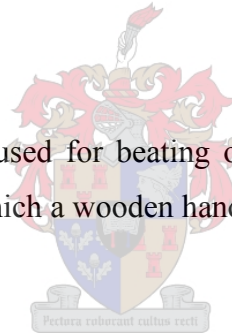
The presentation of the meaning paraphrase of the lemma **hammer** appears simple because its propositional content is structured according to minimal frames and its form is produced according to certain instructions. Moreover, this meaning paraphrase conveys the object-constituting knowledge. Wiegand (1992: 262) suggests that if a lexicographer wants to compile a learner's dictionary, he or she should formulate the parts of the dictionary article in which the object-constituting meaning knowledge appears without too much textual condensation.

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[18] Hausmann and Wiegand (1989: 344), describe an *abstract* (hierarchical) microstructure of a standardized dictionary article as an order structure " made up of classes of items which have the same function". They explain that the abstract microstructure is the part of the complete microstructure which selects and sorts out the classes of items of the corresponding concrete microstructure.

8.2.3. The third option

Wiegand's third option focuses on illustrations that can be regarded as a formal lexicographical category, Hansen (1990: 19). Illustrative examples have a function to help the user to distinguish between semantically related words and near synonyms, cf. Walter (1992: 129). According to Wiegand's (1992: 264) interpretations, more recent research in cognitive psychology and semiotics indicates that it might be useful to incorporate illustrations into the texts to facilitate the understanding of object-constituting knowledge by users. There are two ways of illustration, namely, by means of language (illustrative examples) and by means of pictures or graphs. The illustrations of the lemma **hammer** can be included to make easy and successful the understanding of object-constituting knowledge by younger users who could not be familiar yet with the object referred to by the lemma **hammer**.

This statement made by Wiegand (1992: 264) can be useful regarding the application of his suggestions to proceed to types of lemma signs for special field lemmata for education dealt with in this investigation. In this regard Wiegand's suggestions are taken into consideration in the formulation of the specialized multi-volume school dictionary proposed in this dissertation. This point is of special importance for special-field lexicography where numerous items dealt with can be selected as lemma signs belonging to a specific lemma type. This can be relevant within the formulation of the model to deal with theoretical and practical guidelines when setting up patterns and other means to deal with the microstructural treatment of special field lemmata for education.

8.3. The application of the frame semantics theory on the microstructural treatment and presentation of data in the intended model

8.3.0. Introduction

Different types of lemma signs are included in the planned multi-volume school dictionary. Consequently, different sample frames will have to be drawn up in order to provide examples for the lexicographer(s) and compiler(s) to deal with the corresponding dictionary articles in the different fields. Numerous examples discussing frames in order to deal with dictionary articles in the field of Mathematic*s* are given in this paragraph. Mathematics is a multifield that comprises of adjectives, nouns and verbs designating both abstract and concrete objects. The discussion resulting from the field of Mathematics will assist the lexicographer(s) and compiler(s) of the model to obtain useful guidelines for the possible different frames. Those frames represent the ones foreseen to be present in the different fields and the different types of articles for the model.

In each field, there are different types of lemmata, which are basically represented by means of adjectives, nouns and verbs. A further difference occurs between those lemmata dealing with abstract or concrete objects. In this regard, some lexicographic principles are discussed in order to make the lexicographer aware of the isolation to be established when dealing with the frames of lemmata, whether in a field or a sub-field or a sub-division.

Accordingly, the application of the frame semantics theory to the microstructural treatment and presentation of data in the intended model consists first of compulsory principles the lexicographer should be aware of. Secondly, lexicographic criteria to be followed by the lexicographer for the elaboration of the frames for the microstructural treatment and presentation of data in the intended model are set. Those criteria are followed by a number of examples within the field of Mathematics in order to illustrate the variety of frames needed when dealing with the dictionary articles of the

proposed multi-volume school dictionary. Within these examples, a possible internal structure and order of data of the dictionary article of a "generative" lemma is discussed and illustrated. In addition, a sample of the presentation of the contents of the dictionary article of the generative lemma is also depicted.

As a result, only the first example of frame semantics of lemmata generated from the noun **trapezium** is completed with a lot of explanations. Those explanations are not needed to follow the application of the frame theory to the other examples. However, it is very important to expose those examples. They are displayed in order to make the lexicographer (s) to bear in mind the fact that due to their variety and difference of the subjects, it is very important to work out frames independently to successfully complete the description of the dictionary articles in the model. Furthermore, to make these frames and their results on the data distribution and the micro-architecture more efficient, they should be submitted to researchers in text linguistics and lexical semantics if possible.

8.3.1. Lexicographic principles for the application of the frame semantics theory on the microstructural treatment and presentation of data in the intended model

Firstly, within special field terms for education, adjectives nouns and verbs describe, designate and express action or state concrete and abstract objects. Those concrete objects can be artefacts like the **thermometer**, the **battery**, etc, natural facts or objects like **wind**, **water**, etc, or facts that can only be represented graphically, like **geometric constructions**. The abstract objects are mostly only concepts, which can be objects like the different **notions of measure** or **operation mechanisms**. Therefore, a type of frame semantics has to be set up for different types of lemmata designating concrete objects, which can be artefacts, natural facts or graphic representations. Besides that, another type of frame semantics must be worked out for different types of lemmata designating abstract objects, which are concepts.

Secondly, it is suggested to deal individually with the frame semantics within thematically grouped lemmata resulting from the sub-divisions of the fields and the sub-fields. Sub-divisions provide the smallest thematic group of lemmata but they are more precise, which link lemmata together in a more accurate coherent system.

Thirdly, again, each field, each sub-field and each sub-division should be dealt with separately regarding the description of their lemmata. Any analogy or deduction should not have to be established between the same lemma, which belongs to distinct fields, sub-fields and sub-divisions. Analogy or difference in the treatment of lemmata should not be made arbitrarily. These relations should result only from operating frame semantics from each specific lemma that belongs to a specific sub-division.

8.3.2. Lexicographic criteria for the elaboration of the frame semantics theory for the microstructural treatment and presentation of data in the intended model

The elaboration of the frame semantics approach must result from the definition of the frame and the frames and the options proposed by Wiegand (1992). In addition, those frames proposed in the present work must also be elaborated on the basis of the frames proposed by Konerding (1993), and also the frames Smit elaborated for music events and instruments, c.f. Smit (1996: 316-320, 329-334). Therefore, for each and every type of these lemmata, thematic groups organize questions that can help to identify and depict concept-bound implicit knowledge. Those questions, which also include the knowledge in the expressions of a *generative* or *generator lemma,* are asked in order to set the minimal frame of this lemma. A *generative* or *generator lemma* would designate any lemma that belongs to a thematic group of lemmata and which is used to work out a frame of this considered thematic group. That means the frame worked out from that lemma can be applied to the other lemmata of the thematic group. As an illustration *trapezium* would be the generator lemma when discussing a frame for the thematic lemmata designating geometric shapes. Afterwards, a frame of the thematic group of lemmata, which includes the generative lemma, is elaborated. This frame is based on frames proposed by Konerding (1993)

and those for music events and instruments elaborated by Smit (1996: 316-320, 329-334).

Furthermore, each specific frame contains the types of questions which can be considered as the core questions to be asked in all other instances when dealing with a thematic group of lemmata. Those questions can be regarded, as the ones, which are needed for the semantic and encyclopedic description of any thematic group of lemmata. The lexicographer will fulfil those questions by referring to general monolingual dictionaries, encyclopaedias and textbooks. However, the lexicographer must be aware of the fact and all the data regarding the lemma is not usually complete in general monolingual dictionaries. As it can be deduced from Geerearts (1982: 255), those dictionaries do not have to present the specialized meanings of specialized lemmata. In textbooks, the data is spread in different chapters according to a progressive acquisition of knowledge. Usually it is only encyclopedic dictionaries, which can usually offer the complete scope of the needed information under a unique treatment, i.e. among others, the linguistic, etymological and complete encyclopedic information.
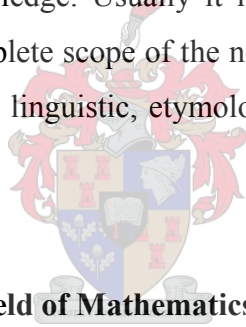
8.4. Sample articles from the field of Mathematics

8.4.0. Introduction

Sample articles, which are displayed in the present research, represent some lemma signs extracted from the field of Mathematics. Yet, the choice of this field among others like Fang, French, Geography, History and civics, Physical education, Science, etc. is purely fortuitous. Any field could have been chosen. Indeed, the lexicographic principles and criteria discussed in sections 8.3.1 and 8.3.2 in order to elaborate the microstructural treatment and presentation of data to be included in the intended model are applicable to all the fields. Mathematics in Primary school in Gabon is regarded as a **multi field subject** divided into **geometry**, **measures** and **numeracy** as sub-fields. Accordingly, one sample article representing the treatment of a lemma sign

chosen within each one of these sub-fields apart from numeracy with two articles will be displayed in the next paragraphs. These lemmata are namely, *trapezium* for geometry, *length* for measures, *multiplication* (noun) and *multiply* (verb) for numeracy. Again, in that case, the choice of the lemma signs is entirely unplanned. The choice of two lemmata in the sub-field of numeracy, namely, *multiplication* and *multiply* is of special importance because it coincidentally raises significant microstructural issues about dealing with verbs and also with lemma signs which are morphologically related as discussed in sections 10.2.4 and 11.5.

8.4.1. Model for the description of the sample articles

The description of the sample articles relies on a model which combines the principles of the frame semantics theory as elaborated by Konerding and discussed by Wiegand (1992), cf. section 8.2. This model is also based on the frames Konerding (1993) proposes and those for music events and instruments as worked out by Smit (1996: 316-320, 329-334). This adaptation of the frame semantics theory is done in order to meet the need to elaborate semantic frames that will meet the specific requests of the microstructural treatment of the proposed model. This adaptation is also meant to meet the need for a science-based approach by standardizing the dictionary articles. Wiegand (1988: 35, cited in Smit: 1996: 213) characterises standardisation as an act of unfying something according to a sample (a scheme, a catalogue of instructions, etc.). He adds that the standardisation of dictionary articles takes place when lexicographers who formulate them follow the compulsory, specified instructions. The actual standardisation, therefore, takes place even before the dictionary article is formulated, by working out detailed instructions for the presentation of lexicographical data.

Accordingly, the model set for the description of the sample articles to be included in the planned dictionary revolves around the following vital points.

    a)   A minimal frame for the article

b) A list of predicate classes of the class of lemmata where the lemma belongs

c) A possible frame for the description of the class

d) Information types for the article

e) A possible internal structure and order of data of articles of the class

f) Illustrations of a standard article and the samples of articles as they can be presented in the Fang-French and French-Fang parts in the proposed model.

The detailed procedures of each one of these points are extensively discussed and explained in the description of the first sample article dealing with the lemma *trapezium*. Since they are the same for all articles there will be no need to repeat them when dealing with other articles. On the other hand, standard sample articles are just meant to provide the English translation equivalent in order to give a clear and precise idea of the microstructural contents included in the Fang-French and French-Fang sample articles.

8.4.1.1. Sample article in geometry: *trapezium*

Trapezium is a noun, which designates in the sub-field of geometry in Mathematics, a flat four-side shape, where two sides are parallel. According to the model for the description of the sample articles as discussed in section 8.4.1 the description of the sample article of lemma *trapezium* is done as follows:

a) A minimal frame for the article of the lemma sign *trapezium*

b) A list of predicate classes for geometric shapes

c) A possible frame for the description of geometric shapes

d) Information types for article of the lemma *trapezium*

e) A possible internal structure and order of data for articles of lemmata representing geometric shapes

f) Standard sample and sample articles for the lemma *trapezium*

8.4.1.1.1. A minimal frame for the lemma *trapezium*

According to Konerding (1993), some questions organized in themes, can identify and depict concept-bound implicit knowledge and also include the knowledge in the expressions. Some questions have to be asked in order to set the minimal frame for the noun representing *trapezium*. Those questions are asked in such a way that this minimal frame can be used for systematically planning the contents of lexicographical texts, which have to convey a language-bound representation of meaning knowledge of *trapezium*. In this research, the elaboration of a minimal frame for the generative lemma sign like trapezium, which is a generative lemma for geometric shapes is considered as of special importance. It is considered as the compulsory starting point and the basis of a successful planning of the contents of lexicographical texts of the dictionary articles.

Trapezium is a noun which designates one of the **geometric shapes**, which can be regarded as **concrete objects** and **graphic representations**. A minimal frame for the article of the lemma *trapezium* can have the following contents:

1. How is the geometric shape classified? (classification systems and neighbouring geometric shapes-designations: co-hyponyms, superordinates, etc.).

2. Which other geometric shape is the geometric shape under consideration similar to and in which respects are they different?

3. How can the (outer) form or features of the geometric shape be described and what are the other types of geometric shapes with the same features (where necessary)?

4. How are the dimensions of the geometric shape, namely, the perimeter and the surface, calculated?

8.4.1.1.2. A list of predicate classes for geometric shapes

From the minimal frame, the predicates **shape**, **concrete**, **graphic representation** and **continuous** can be applied to all nouns designating geometric shapes. These predicates can belong to the following predicate classes:

a) Predicates characterizing the **classification** that include the geometric shapes predicate class.

b) Predicates characterizing the **features** of the designated geometric shape and the designation of other types of geometric shapes with the same features (where necessary).

c) Predicates characterizing the **calculation of the dimensions** of the designated geometric shape.

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This minimal frame can systematically specify a set of predicate classes of select lemmata which belong to the lemma type *trapezium,* i.e. a noun which represents a geometric shape, in accordance with the intended dictionary when the lexicographer has to treat such lemma signs.

8.4.1.1.3. A possible frame for the description of geometric shapes

Again, all the frames rely on Konerding's (1993) frames and the frames for music events and instruments as elaborated by Smit (1996: 316-320, 329-334). Therefore, this frame contains the **types of questions**, which are regarded as the ones that can be needed for the semantic and encyclopedic description of nouns denoting geometric shapes. Those questions can be considered as the core questions to be asked in all other instances. On the other hand, this frame is suggested because it can incorporate the types of data the lexicographer may need in the model when dealing with lemmata representing geometric shapes.

A. RELATIONSHIPS OF CLASSIFICATION

Is the designated geometric shape part of a higher classification? What is the nature of these relationships of classification?

> Predicates to characterize the **classification** that includes the designated geometric shape

B. FEATURES

What are the features of the designated geometric shape and the other types of geometric shapes with the same features (where necessary)?

> Predicates to characterize the **features of the designated geometric shape and the designation the other types of geometric shapes with the same features (where necessary)**

C. CALCULATIONS OF DIMENSIONS

How are the different dimensions of the designated geometric shape calculated?

> Predicates to characterize the **calculations of the different dimensions related to the designated geometric shape**

Information is also needed regarding the form of the lemma sign, besides the semantic and encyclopedic information. The following information is also valuable in the case of lemma signs treated in the specialized multi-volume school dictionary:

1. Lemma sign, part of speech and other grammatical data; stress pattern and pronunciation
2. Stylistic markers
3. Etymological data
4. Examples
5. Pictorial illustrations
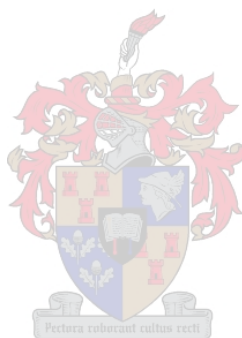
- Other lemma signs representing geometric shapes to be treated like the lemma sign *trapezium*:

The list below presents other lemmata representing geometric shape nouns within the sub-field of **geometry** that can be described like the lemma sign *trapezium* under the proposed frame. The lexicographer should always bear in mind to present this list together with the presentation of the internal structure and order of data of dictionary articles. This information represents a step-by-step outline provided to lexicographer(s) and compiler(s) of the model when dealing with the description of the lemmata. Regarding the lemma signs representing geometric shape nouns that can be described like the lemma sign *trapezium*, this list is as follows:

1. Circle

2. Cube

3. Cylinder

4. Parallelogram

5. Rectangle

6. Rhombus

7. Square

8. Triangle

8.4.1.1.4. Information types for the article of the lemma *trapezium*

A. RELATIONSHIPS OF CLASSIFICATION

Is the designated geometric shape part a constituent of a higher classification? What is the nature of these relationships of classification?

Predicates to characterize the **classification** that includes the designated geometric shape

Trapezium is a geometric shape that belongs to the family of irregular polygons.

B. FEATURES

What are the features of the designated geometric shape and the other types of geometric shapes with the same features (where necessary)?

Predicates to characterize **the features of the designated geometric shape and the designation of the other types of geometric shapes with the same features (where necessary)**

Trapezium is a quadrilateral, with two of the sides parallel and unequal. There are three types of trapezium, the ordinary trapezium, the isosceles trapezium, of which the sides that are not parallel are equal and the right-angled trapezium, of which one of the angles is a right-angled.

C. CALCULATIONS OF DIMENSIONS

How are the different dimensions of the designated geometric shape calculated?

Predicates to characterize the **calculations of the different dimensions of the designated geometric shape**

The surface of the trapezium is the sum of the length of the big basis added to the length of the small basis multiplied by the height divided by 2; $s = \dfrac{B + b}{2} \times h$.

The perimeter of a trapezium is the sum of all sides; $p = AB + BC + CD + DA$.

- Other possible information needed for the article of lemma sign *trapezium*:

1. Lemma sign, part of speech and other grammatical aspects; stress pattern and pronunciation.

trapezium (noun) [tr★'pizi★m]

2. Stylistic markers

3. Etymological data

4. Examples

Examples of the calculations of the different dimensions of the trapezium, namely, the perimeter and the surface could be given.

Illustrations of the different types of trapezium are presented.
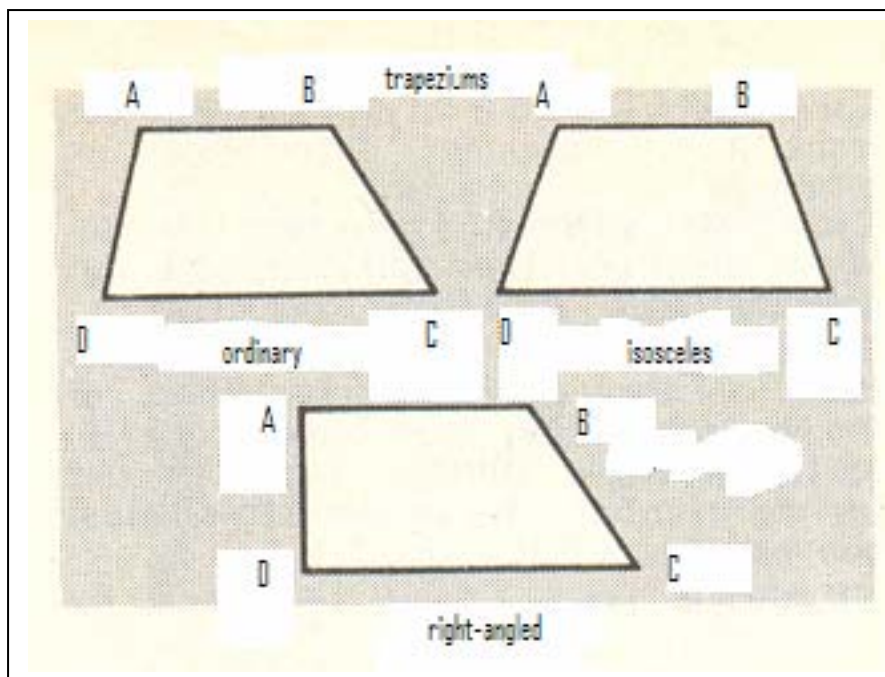
8.4.1.1.5. A possible internal structure and order of data of articles representing geometric shapes
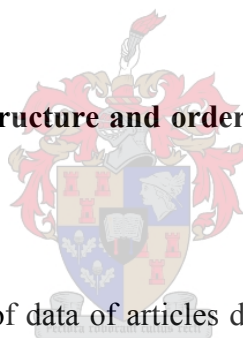
An internal structure and order of data of articles describing geometric shapes in the model can result from all what has been discussed above. All this information can be regarded as a step-by-step outline one suggests the lexicographer of the proposed model to follow when dealing with the structure of the articles. That means this information should not be provided randomly. It should rely on a science-based work resulting from theoretical guidelines provided by the frame theory. The presentation of internal structure and order of data of articles will always remain temporary as long as they are not yet submitted, discussed and evaluated with the help of appropriate experts, namely, teachers, educational psychologists and experts in the field. The lexicographer must not forget to present an internal structure and order of data of each dictionary together with the list of lemma signs that can be dealt with under this frame. This list is sorted out when dealing with the data collection and the possible frame of lemma signs.

In this regard, an internal structure and order of data for the description of articles dealing with **lemmata** representing **geometric shape nouns** are suggested as follows:

1. Firstly, it is the presentation of the data from the predicate class characterizing the **lemma sign**. In the model this presentation is either in Fang or French, according to the section of the model dealt with.

2. The next type is the presentation of the data from the predicate class characterizing the **pronunciation** and stress **pattern.**

3. The presentation of the data from the predicate class characterizing the **part of speech indicator** follows immediately. In the model, the **part of speech indicator** follows the **classifier indicator** in the Fang/French section. In the French/Fang section, **the part of speech indicator** immediately follows **the gender indicator**.

4. Noun **lemmata representing geometric shapes** are entered as **masculine** when applicable in the French/Fang section. The **feminine** form is also provided. In the Fang/French section, the form of the **noun** is invariable because like English, Fang **nouns** do not present gender.

5. Noun **lemmata** r**epresenting geometric shapes** are entered as **singular**. The **plural** form is also provided.

6. The following presentation is the data from the predicate class which characterizes the **etymological data.** This data will only be presented in the academic version when available.

7. The next type is the presentation of the data from the predicate class characterizing the **translation equivalent** whether in Fang or French according to the section dealt with.

8. After the translation equivalent, it is the presentation of the data from the predicate class characterizing the **classification that includes the designated geometric shape**.

9. Another type is the presentation of the data from the predicate class characterizing the **features of the geometric shape and the designation of other types of geometric shapes with the same features**.

10. The presentation of the data from the predicate class characterizing the **calculations of the dimensions**[19], it means perimeter, surface and volume where necessary are vital data types to be included in the article of the lemma which designates a geometric shape.

11. The presentation of the data from the predicate class characterizing the **examples** of the **calculations of the dimensions** is of special importance because they will enhance the understanding of data.

12. The presentation of the data from the predicate class characterizing the **pictorial illustrations** must also be considered. Pictorial illustrations also significantly enhance the understanding of the data as discussed in section 12.6. These specific data types of different types of trapeziums, including height, parallel sides and basis, will reinforce the presentation of the article of the lemma *trapezium*. It is suggested within the proposed model that for space and cost savings, the pictures will mostly be allocated to the treatment of the hypernym lemmata. Yet, a clear and simple cross-reference procedure to lead the user to this location, as discussed in section 11.7, must be done. In the case of the pictures of the different types of the hyponym lemma *trapezium*, these pictures could be placed close to the article of the hypernym lemma geometric shape for example, cf. section 12.6.

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[19] The calculation of surfaces, perimeters and volumes of geometrical figures can all be presented in tables in the treatment of lemmata surface, perimeter and volume respectively. This will be decided with people in charge of the compilation of the model.

13. **Cross-references** to other articles and texts if necessary are made at the end of each article. Those procedures as discussed in sections 11.5, 11.6 and 11.7 are very important for the distribution of the data included within an article.

8.4.1.1.6. Sample articles of the lemma *trapezium*

All the samples of the articles to be depicted in the following sections result from an application of the internal structures of the articles to be included in the proposed dictionary. These internal structures are individual descriptions of the articles of each one of the lemmata that will be included in this dictionary.

The presentation of all these samples comprise first of a standard sample of the treated article. This sample is only presented in English. This is done with the intention to make provision for the lexicographer who is not a Fang and/or French speaker to have a practical projection and idea of what the contents of the microstructure, previously discussed, can result to in an actual article. The presentation of this standard sample article is followed by the presentation of the sample articles of the lemma *trapezium* in both the Fang/French and French/Fang sections of the proposed dictionary.

On the other hand, the depiction in English of standard sample articles to be included in the proposed dictionary is a pertinent indication of the possibility of applying the guidelines of the present research in other types of lexicographic projects. Firstly, that shows that the proposed dictionary can be compiled in another language apart from Fang and French. In addition, it also shows that the proposed dictionary can be used for the compilation of a monolingual specialized multi-volume school dictionary and not only a bilingual dictionary with a trilingual dimension.

Accordingly, the samples of this article in both the Fang/French and French/Fang sections of the proposed dictionary follow a standard sample article of the lemma trapezium.

8.4.1.1.6.1. Standard sample article of the lemma *trapezium*

Fig. 8.2

trapezium [tr★'pizi★m] *n* [C] *pl* trapeziums or trapezia (etymological data) **translation equivalent**. Designates a **geometric shape**. It is a **quadrilateral,** which belongs to the family of **irregular polygons**.

● It presents two sides, which are parallel and unequal.

● There are **three types** of trapezium, **trapezium**, **isosceles trapezium** of which the sides that are not parallel are equal, and **right-angled trapezium**, of which one of the angles is a right-angled.

● **See** PIC **opposite**

● **surface:** the surface of the trapezium is the sum of length of the big basis added to the length of the small basis multiplied by the height divided by 2;

$$s = \frac{B + b}{2} \times h$$

example : B = 5cm, b = 4cm, h = 3cm :

$s = \frac{5cm + 4cm}{2} \times 3cm = 13, 5cm^2$

● **perimeter:** the perimeter of a trapezium is the sum of all sides;

$$p = AB + BC + CD + DA$$

example: AB = 5cm, BC = 3cm, CD = 6cm, DA = 3cm:

p = 5cm + 3cm + 6cm + 3cm = 17 cm

8.4.1.1.6.2. Sample article of the lemma *trapezium* in the Fang-French section

Fig. 8.3

trapeze [trap⬮z] *ew* [cl 9, 10] *pl* be trapeze**,** (aso flasi *trapèze*) **trapèze.** Désigne une **figure géométrique.** C'est un **quadrilatère** qui appartient à la famille des **polygones irréguliers**.

● Il présente deux côtés qui sont parallèles et inégaux.

● Il y a **trois types** de trapèze. Le trapèze **isocèle**, dont les côtés non parallèles sont égaux, le trapèze **rectangle** dont un des angles est un angle droit, et le trapèze **quelconque**.

● **voir** | ILL 〉 **ci-contre**.

● **surface :** la surface d'un trapèze s'obtient en multipliant la demi-somme des bases par la hauteur.

$$s = \frac{B + b}{2} \times h$$

exemple : B = 5cm, b = 4cm, h = 3cm :

$$s = \frac{5cm + 4cm}{2} \times 3cm = 13,5cm^2$$

● **périmètre :** le périmètre d'un trapèze est la somme de tous les côtés.

$$p = AB + BC + CD + DA$$

exemple: AB = 5cm, BC = 3cm, CD = 6cm, DA = 3cm:

$$p = 5cm + 3cm + 6cm + 3cm = 17\ cm$$

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- « **cl 9, 10** » represents the data providing the presentation of the class and the class indicator, which always has to be included when dealing with lemmata in Fang.

- « **frç. ngue kighe fala or flasi** *trapèze* » (meaning "from French *trapeze*", Fang people designate the French language by the noun "Fala or Flasi", Fala designated the country France) represents the data providing the presentation of etymological data, i.e. the origin of the word. This data always has to be included when dealing with lemmata in Fang in the academic version of the model because a lot of lemmata will result from borrowed words in French as discussed throughout section 7.1. This may assist lexicographers and linguists doing research on special field terms for education in Fang.

- The letters "ILL" included in the non-typographical box ⌐ILL⌐ represent an abbreviation of the word "illustrations" as a reference entry part of the cross-reference to the pictures of the different trapeziums.
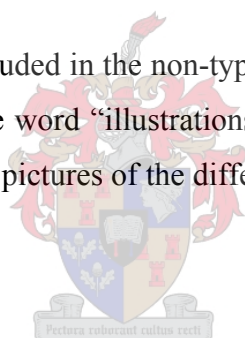
8.4.1.1.6.3. Sample article of the lemma *trapezium* in the French-Fang section

Fig. 8.4

trapèze [trap☞z] *n.m. pl* trapèzes (du latin *trapezion*) **trapeze**. Aalepe **eveghele geometric.** Ane e **quadrilatere** ane ayong be **polygon** bene **irregulie.**
● Abele mi nfake mibeigne minto parallele baselane feghe mi nteigne.
● Be trapeze bene **mevala me laa**. E trapeze ane **isocele**, e trapeze ane **rektangle** ya **zeze** trapeze.

● **ayene** | BIV ⟩ **ossu**

● **surface :** baveghe e surface trapeze eyong ba multiplie etune tang me tsine ya nteigne.

$$s = \underline{B + b} \text{ x } h$$
$$2$$

exemple : B = 5cm, b = 4cm, h = 3cm :

s = 5cm + 4cm x 3cm = 13, 5cm^2
   2

● **perimetre :** baveghe e perimetre trapeze eyong bafulane mi nteigne mi mfake miseghe.

p = AB +BC+ CD+ DA

exemple: AB = 5cm, BC = 3cm, CD = 6cm, DA = 3cm:

p = 5cm + 3cm + 6cm + 3cm = 17 cm

- « *m* » represents the data providing the presentation of the gender, which always has to be included when dealing with lemmata in French.

- « lat. *trapezion* » (meaning from Latin *trapezion*) represents the data providing the presentation of the etymological data, i.e. the origin of the word. This data always has to be included when dealing with lemmata in

French in the academic version of the model because a lot of words in French come from Greek or Latin. This may help lexicographers and linguists doing research on special field terms for education in French.

- The letters "BIV" included in the non-typographical box ⌐BIV⌐ represent an abbreviation of the word "biveghele" as a reference entry part of cross-reference to the pictures of the different trapeziums.

8.4.1.1.7. Concluding remarks on the description of the sample article of the lemma *trapezium*

The discussion and suggestions resulting from the description of the sample article of the lemma *trapezium* display how meticulous the elaboration of the frames must be executed in order to have relevant articles which will be included in the proposed dictionary. As indicated in the introduction of this section, only the description of the sample article of the lemma *trapezium* will be done with detailed discussion and explanation. It will be redundant to discuss and explain all over again the lexicographic principles and criteria meant for the description of all articles to be included in the proposed dictionary. An easy application and adaptation from the discussion and explanation comprised in the description of the sample article of the lemma *trapezium* will lead to the same description of all articles of lemmata to be dealt with in the proposed model. Therefore, the next paragraphs only present the vital points of the description of the sample articles of the lemmata *length, multiplication* and *multiply*.

8.4.1.2. Sample article in measures: *length*

8.4.1.2.1. A minimal frame for the lemma sign *length*

Length is a noun which designates one of the **notions of measure**, which can be regarded as **abstract objects**, which are **concepts**. A minimal frame for **length** can have the following contents:

1. How is the measure of *length* classified? (Classification systems and neighbouring concepts-designations: co-hyponyms, superordinates, etc.).

2. Which other notions of measure is the measure of *length* under consideration similar to and in which respects are they different?

3. What does the notion of *length* represent?

4. What are the practical units of the measure of *length*?

8.4.1.2.2. A list of predicate classes for the notions of measure

From the minimal frame, the predicates **notion** and **abstract** can be applied to all **nouns** designating the **notions of measure**. These predicates can belong to the following predicate classes:

a) Predicates characterizing the **classification** that includes the designated notion of measure predicate class.

b) Predicates characterizing the **representation** of the designated notion of measure and the designation of the other notions of measure.

c) Predicates characterizing the **presentation of the practical units** and the **table of conversion** of those units of the designated notion of measure.

This minimal frame can systematically specify a set of predicate classes of select lemma signs belonging to the lemma type *length*, i.e. a notion of measure, in accordance with the intended dictionary when the lexicographer has to treat such lemma signs lexicographically.

8.4.1.2.3. A possible frame for the description of notions of measure

A. RELATIONSHIPS OF CLASSIFICATION

1. Is the designated notion of measure part of a constituent of a higher classification? What is the nature of these relationships of classification?

> Predicates to characterize the **classification** that includes the designated notion of measure.

B. REPRESENTATION OF THE NOTION

1. What does the designated notion of measure represent and what are the other notions of measure?

> Predicates to characterize the **representation** of the designated notion of measure and **the designation of** other notions of measure**.**

2. What are the practical units of the designated notion of measure?

> Predicates to characterize the **presentation of the practical units and the table of conversion** of those units.

- Other possible data types in dictionary articles dealing with notions of measure:

1. Lemma sign, part of speech and other grammatical aspects; stress pattern and pronunciation

2. Stylistic markers

3. Temporal markers

4. Etymological data

5. Pictorial illustrations

- Other lemma signs, among others, that can be treated like the article of the lemma *length*:

1. Area or surface

2. Capacity

3. Time

4. Volume
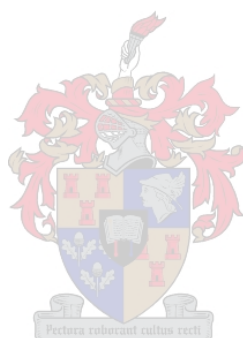
8.4.1.2.4. Data types for the article of the lemma *length*

A. RELATIONSHIPS OF CLASSIFICATION

Is the measure of *length* part of a constituent of a higher classification? What is the nature of these relationships of classification?

Predicates to characterize the **classification** that includes the measure of length.

Length designates a notion of measure.

B. REPRESENTATION OF THE NOTION

What does the measure of *length* represent and what are the other notions of measure?

> Predicates to characterize the **representation** of the measure of length and **other notions of measure.**

> Length designates the distance between two points or something from end to end or along its longest side. The other notions of measures are, among others, area or surface, capacity, mass, time and volume.

C. PRESENTATION OF THE PRACTICAL UNITS

What are the practical units of the measure of *length*?

> Predicates to characterize the **presentation of the practical units** and the **table of conversion** of those units**.**

> The measure of length consists of the principal unit of measurement that is the meter. The practical units of length comprise of the multiples and submultiples of the meter. The multiples are the kilometre, the hectometre, and the decametre. The submultiples are the decimetre, the centimetre and the millimetre. Presentation of the table of conversion of these units**.**

- Other possible data needed for the article of the lemma *length*:

1. Lemma sign, part of speech and other grammatical aspects; stress pattern and pronunciation.

> length (noun) [λε □]

2. Stylistic markers

3. Etymological data

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8.4.1.2.5. A possible internal structure and order of data in articles of lemmata representing the notions of measure

1. Presentation of the data from the predicate class characterizing the **lemma sign** is given. In the model this presentation is either in Fang or French according to the section of the model dealt with.

2. Presentation of the data from the predicate class characterizing the **pronunciation** and stress **pattern**.

3. Presentation of the data from the predicate class characterizing the **part of speech indicator**. In the model, the **part of speech indicator** immediately follows the **classifier indicator** in the Fang/French section. In the French/Fang section, **the part of speech indicator** immediately follows **the gender indicator**.

4. **Lemmata representing the notions of measures** are entered as **masculine** when applicable in the French/Fang section. In the Fang/French section the form of these lemmata will be invariable because like English, Fang language **nouns** do not present gender.

5. **Lemmata representing the notions of measures** are entered as **singular**. The **plural** form is also provided.

6. Presentation of the data from the predicate class characterizing the **etymological data** in the academic version when available.

7. Presentation of the data from the predicate class characterizing the **translation equivalent** whether in Fang or French according to the section dealt with.

8. Presentation of the data from the predicate class characterizing the **representation of the designated notion of measure and the designation of other notions of measure**.

9. Presentation of the data from the predicate class characterizing the **presentation of the practical units** of the designated notion of measure. This presentation could be followed by the presentation of the **table of conversion** of those units, put into the appropriate places whether in the dictionary article or in a specific place of the dictionary.

10. **Cross-references** to other articles and texts if necessary are given at the end of each article.

8.4.1.2.6. Standard sample article of the lemma *length*

Fig. 8.5

> **length** [λε□] *n.* *pl.* lengths (etymological data) **translation equivalent**.
> ● Designates a **notion of measure**. It is the distance between two points or something from end to end or along its longest side.
> ● **The other notions of measures** are, among others, **measure of area or surface**, **measure of capacity**, **measure of mass**, **measure of time** and **measure of volume**.
> ● The measure of length consists of the **principal unit** of measurement that is the **meter**. The **practical units** of length comprise of the multiples and submultiples of the meter. The **multiples** are the **kilometer**, the **hectometer**, and the **decameter**. The **submultiples** are the d**ecimeter**, the **centimeter** and the **millimeter**.
> ● **See** table of conversion of the units of length, p. 170. It is a table presenting the ratio between the practical units of the measure length according to the principal unit.

8.4.1.2.7. Sample article of the lemma *length* in the Fang-French section

Fig. 8.6

longueur [lʉɔgœr] *ew* [cl 9, 10] *pl.* be longueur. (aso flasi ngue kighe fala *longueur*) **longueur.**

● Désigne une **notion de mesure**. C'est la distance entre deux points ou d'une chose de l'une à l'autre de ses extrémités.

● Les autres notions de mesure sont la mesure d**'aire** ou de **surface**, la mesure de **capacité**, la mesure de **masse**, la mesure de **temps** et la mesure de **volume**.

● **L'unité principale** de mesure de longueur est le **mètre**. Les **unités pratiques** de mesure de longueur sont constitués de multiples et de sous-multiples. Les multiples sont le **kilomètre**, l'**hectomètre** et le **décamètre**. Les sous-multiples sont le **décimètre,** le **centimètre** et le **millimètre**.

● **Voir** tableau de conversion des mesures de longueur, p.170. C'est un tableau qui présente les rapports entre les unités pratiques de mesure de longueur en fonction de l'unité principale.

8.4.1.2.8. Sample article of the lemma *length* in the French-Fang section

Fig.8.7

longueur, [lɔ̃gœr] *nf. pl. longueurs.* **Longueur.**
● Alepe **notion ya mesure**. Ane nteigne one ozang me ndem mibeigne ngue kighe ozang mesuke dzome ezing.
● **Be notion be mesure bevogho** bene **mesure ya surface** ngue kighe **ndam**, **mesure ya capacite** ngue kighe a **bime**, **mesure ya masse**, mesure yaa **eyong** ya **mesure ya volume**.
● **Unite principal** e mesure longueur ane **metre**. B'**unite pratique** e mesure longueur bebele be multiple yaa be sous-multiple. Be **multiple** bene **kilometre**, **hectometre** ya **decametre**. Be **sous-multiple** bene **decimetre**, **centimetre** yaa **millimetre**.
● **Adeghe** tablo conversion b'unite longueur, p.101. Tablo te alere mi gnie mine ezang unite ane principal ya b'unite bene pratique.
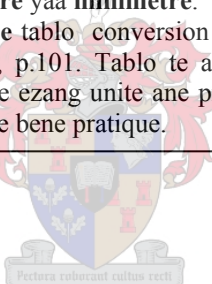
8.4.1.3. Sample articles in numeracy

8.4.1.3.0. Introduction

As mentioned in the introduction in this section 8.4, the choice of both lemmata *multiplication* and *multiply* is of special importance. These two lemmata offer the opportunity within this research to deal with the pertinent microstructural issues about verbs and noun lemma signs which are morphologically related, as further scrutinised in sections 10.2.4 and 11.5. Actually, this choice is coincidental because in the first place the idea was to discuss the description of the sample article dealing with a verb in one of the sub-fields of Mathematics. The choice of the verb was as unplanned as the choice of the sub-field. Yet, within the article of the lemma *multiply* an implicit

cross-reference, cf. 11.3 is made to the article of the lemma *multiplication* as it is mentioned among others that "multiply is to complete a multiplication".

Accordingly, a decision is taken to describe sample articles of both the lemmata *multiplication* and *multiply* because firstly a lot of lemmata like *add* and *addition*, *divide* and *division*, *subtract* and *subtraction*, among others, are morphologically related lemmata in the sub-field of numeracy. Secondly, cross-reference is very important when designing a dictionary, especially a dictionary like the proposed one which is also aimed at students. As a result, the description of the sample articles of the lemmata *multiplication* and *multiply* offers an opportunity to deal with essential cross-references as discussed in 11.5 between articles were lemmata are morphologically related. This opportunity is of special importance because morphologically related lemmata are frequent in numeracy.

8.4.1.3.1. Sample article: *multiplication*

8.4.1.3.1.1. The minimal frame for the lemma *multiplication*

Multiplication is a noun which designates one of the **operation mechanisms**, which can be regarded as **abstract objects** and **concepts**. A minimal frame for *multiplicatio***n** can have the following contents:

1. How is the operation of *multiplication* classified? (Classification systems and neighbouring concepts-designations: co-hyponyms, superordinates, etc.).

2. Which other(s) operation is the operation of *multiplication* under consideration similar to and in which respects are they different?

3. How is the mechanism of the operation of *multiplication* described?

8.4.1.3.1.2. A list of predicate classes for the operation mechanisms

From the minimal frame, the predicates **object**, **abstract** and **concept** can be applied to all **nouns** designating the operation mechanisms. These predicates can belong to the following predicate classes:

a) Predicates characterizing the **classification** that includes the designated operation predicate class.

b) Predicates characterizing the **description of the mechanism** of the designated operation and the **designation of the other types of operations**.

This minimal frame can systematically specify a set of predicate classes of select lemma signs belonging to the lemma type *multiplication*, i.e. an operation mechanism, in accordance with the intended dictionary when the lexicographer has to treat such lemma signs lexicographically.
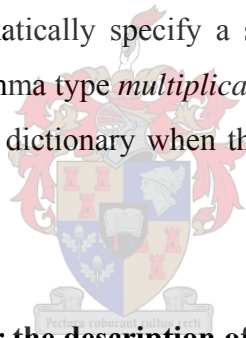
8.4.1.3.1.3. A possible frame for the description of operation mechanisms

A. RELATIONSHIPS OF CLASSIFICATION

1. Is the designated operation part of a constituent of a higher classification? What is the nature of these relationships of classification?

> Predicates to characterize the **classification** that includes the designated operation predicate class.

B. DESCRIPTION OF THE MECHANISM

How is the mechanism of the designated operation described and what are the other types of operations?

> Predicates to characterize the **description of the mechanism of the designated operation** and the **designation of the other types of operations**.

- Other possible data types in articles dealing with operation mechanisms:

1. Lemma sign, part of speech and other grammatical data; stress pattern and pronunciation

2. Stylistic markers

3. Etymological data

4. Pictorial illustrations

- Other lemma signs, among others, that can be treated like the article of the lemma *multiplication*:

1. Addition

2. Division

3. Fraction

4. Subtraction

8.4.1.3.1.4. Data types for the article of lemma *multiplication*

A. RELATIONSHIPS OF CLASSIFICATION

Is the designated operation part of a constituent of a higher classification? What is the nature of these relationships of classification?

> Predicates to characterize the **classification** that includes the designated operation predicate class.

> Multiplication designates an operation mechanism.

B. DESCRIPTION OF THE MECHANISM

How is the mechanism of *multiplication* operated and what are the other types of operations?

> Predicates to characterize the **description of the mechanism** of the designated operation and the **designation of the other types of operation mechanisms**.

> A multiplication consists of adding to itself a number (a multiplicand), a number of times equal to another number (multiple). The other operation mechanisms are, among others, addition, fraction, division and subtraction.

- Other possible data needed for the article of the lemma *multiplication*:

1. Lemma sign, part of speech and other grammatical aspects; stress pattern and pronunciation.

> multiplication (noun) [μ℘λτιπλι∩κει♣ν]

2. Stylistic markers

3. Temporal markers

4. Etymological data

5. Examples

Example(s) to display how a multiplication is operated could be given

8.4.1.3.1.5. A possible internal structure and order of data in articles for lemmata representing operation mechanisms

1. Presentation of the data from the predicate class characterizing the **lemma sign** is given. In the model this presentation is either in Fang or French according to the section of the model dealt with.

2. Presentation of the data from the predicate class characterizing the **pronunciation** and stress **pattern**.

3. Presentation of the data from the predicate class characterizing the **part of speech indicator**. In the model, the **part of speech indicator** immediately follows the **classifier indicator** in the Fang/French section. In the French/Fang section, **the part of speech indicator** immediately follows **the gender indicator**.

4. In the Fang/French section the form of the **noun** is invariable because like English, Fang language **nouns** do not present gender. **Nouns** are entered as **masculine** in the French/Fang section.

5. **Nouns** are entered as singular in both Fang and French. The **plural** form is also provided because the two poles of plural are not meant to enable these users to apply the plural form.

6. The presentation of the data from the predicate class characterizing the **etymological data** in the academic version when available.

7. The presentation of the data from the predicate class characterizing the **translation equivalent**, either in Fang or French according to the section dealt with.

8. The presentation of the data from the predicate class characterizing the **classification** that includes the designated operation predicate class.

9. The presentation of the data from the predicate class characterizing the **description of the mechanism** of the designated operation and the **designation of the other types of operation mechanisms**.

10. **Example(s)**, which enhance the data, of description of the designated operation.

11. **Cross-references** to other lemmata are given at the end of each article.

8.4.1.3.1.6. Standard sample article of the lemma *multiplication*
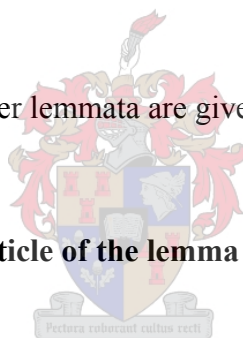
Fig. 8.8

multiplication [μ℘λτιπλι∩κει♣ν] *n. pl. multiplications.* (etymological data) **translation equivalent.**

● Designates an **operation mechanism** or **operation** which is indicated by [x] or [.] and consists of adding to itself a number (a multiplicand), a number of times equal to another number (multiple).

● The other operation mechanisms are, among others, **addition**, **fraction**, **division** and **subtraction**.

example: *2 x 3* or *2.3 = 6*

● See also the **multiplication table**, p.163.

8.4.1.3.1.7. Sample article of the lemma *multiplication* in the Fang-French section

Fig. 8.9

multiplication [myltiplikasi⟳→] *n* [kl 9, 10] *pl.* be multiplikation (a so flasi *multiplication*), **multiplication**.
● Désigne un **mécanisme opératoire** ou **opération** notée [x] ou [.], consistant à additionner à lui-même un nombre (multiplicande), un nombre de fois égal à un autre nombre (multiplicateur).
● Les autres mécanismes opératoires ou opérations sont, entre autres, l'**addition**, la **fraction**, la **division** et la **soustraction**.
exemple : *2 x 3* ou *2.3* = 6
● Voir aussi la **table de multiplication**, p 191.

8.4.1.3.1.8. Sample article of the lemma *multiplication* in the French-Fang section

Fig.8.10

multiplication [myltiplikasi⟳→] *nf. pl. multiplication.* **Multiplication**.
● Alepe **mekanism operatoir** ngue kighe **operation** balepe ya [x] ngue kighe [.], ayili naa babake ntang nzigne (multiplikande) ya abime biyong ntang vogho (multiplikateur) ene.
● Be mekanism operatoire ngue kighe b'operation bevogho bene naa **addition**, **fraktion**, **division** ya **soustraktion**.
exemple: *2 x 3* ngue kighe *2.3* = 6
● Adeghe vekhe **table multiplication**, p. 108

8.4.1.3.2. Sample article: *multiply*

8.4.1.3.1.1. A minimal frame for the lemma sign *multiply*

Multiply is one of the verbs which expresses the action of completing an operation mechanism, which can be regarded as an abstract concept. A minimal frame for *multiply* can have the following contents:

1. How the verb *multiply* can be classified? (Classification systems and neighbouring concepts-designations: co-hyponyms, superordinates, etc.).

2. Which other verbs is the verb *multiply* under consideration similar to and in which respects are they different?

3. Which mechanism operation action to be completed does the verb *multiply* express?

8.4.1.3.1.2. A list of predicate classes for verbs expressing the action of completing operation mechanisms

From the minimal frame, the predicates **abstract** and **concept** can be applied to all **verbs** expressing the action of completing operation mechanisms. These predicates can belong to the following predicate classes:

a) Predicates characterizing the **classification** that includes the designated verb predicate class.

b) Predicates characterizing the **designation of the action to complete the operation mechanism** expressed by the designated verb and the designation of other verbs that express the action of completing operation mechanisms.

This minimal frame can systematically specify a set of predicate classes of select lemma signs belonging to the lemma type *multiply*, i.e. a verb that expresses the

action of completing an operation mechanism, in accordance with the intended dictionary when the lexicographer has to treat such lemma signs lexicographically.

8.4.1.3.1.3. A possible frame for the description of operation mechanisms

A. RELATIONSHIPS OF CLASSIFICATION

Is the designated verb part of a constituent of a higher classification? What is the nature of these relationships of classification?

Predicates to characterize the **classification** that includes the designated verb predicate class.

B. DESIGNATION OF THE OPERATION MECHANISM ACTION

Which operation mechanism action does the designated verb express and what are the other verbs that express operation mechanism actions?

Predicates to characterize the **designation of the operation mechanism action** expressed by the designated verb and the designation of other verbs that express operation mechanism actions.

- Other possible data types in dictionary articles dealing with operation mechanisms:

1. Lemma sign, part of speech and other grammatical data; stress pattern and pronunciation

2. Stylistic markers

3. Etymological data

4. Pictorial illustrations

8.4.1.3.1.4. Information types for the article of the lemma *multiply*

A. RELATIONSHIPS OF CLASSIFICATION

Is the designated verb part of a constituent of a higher classification? What is the nature of these relationships of classification?

> Predicates to characterize the **classification** that includes the designated verb predicate class.

> Multiply expresses an operation mechanism action.

B. DESIGNATION OF THE OPERATION MECHANISM ACTION

Which operation mechanism action does the designated verb express and what are the other verbs that express operation mechanism actions?

> Predicates to characterize the **designation of the operation mechanism action** expressed by the designated verb and the designation of other verbs that express operation mechanism actions.

> Multiply expresses the action of completing a multiplication. The other verbs that express the action to complete other operation mechanisms are, among others, to add, to divide and to subtract.

- Other possible information needed for the article of the lemma *multiply*:

1. Lemma sign, part of speech and other grammatical aspects; stress pattern and pronunciation.

> multiply (noun) [μ℘λτιπλαι]

2. Stylistic markers

3. Etymological data

8.4.1.3.1.5. A possible internal structure and order of data articles of verbs expressing operation mechanism actions

1. Presentation of the data from the predicate class characterizing the **lemma sign**. In the model this presentation is either in Fang or French according to the section of the model dealt with.

2. Presentation of the data from the predicate class characterizing the **pronunciation** and stress **pattern**.

3. Presentation of the data from the predicate class characterizing the **part of speech indicator**.

4. Verbs are entered in the **infinitive form**.

5. The presentation of the data from the predicate class characterizing the **etymological data** in the academic version when available.

6. The presentation of the data from the predicate class characterizing the **translation equivalent** whether in Fang or French according to the section dealt with.

7. The presentation of the data from the predicate class characterizing the **classification** that includes the designated verb predicate class.

8. The presentation of the data from the predicate class characterizing the **designation of the operation mechanism action** expressed by the designated verb and the designation of other verbs that express operation mechanism actions.

9. **Cross-references** to other lemmata are given at the end of each article.

**8.4.1.3.1.6. Standard sample of the article of the lemma *multiply* according to the proposed model**

Fig. 8.11

multiply   [μ℘λτιπλαι]   *v*
(etymological   data)   **translation equivalent**.
● Expresses   the   action   of completing   an   **operation mechanism**.
● It is the action of completing a multiplication.
● **See** multiplication, p.173
example : Multiply 2 by 3 (2x3) or (2**.**3).
● The **other verbs** that express the action to complete other operation mechanisms are, among others, **to add**, **to divide** and **to subtract**.

8.4.1.3.1.7. Sample of the article of the lemma *multiply* in the Fang-French section

Fig. 8.12

multiplie [myltiplije] *v*. (aso fala ngue   kighe   flasi   *multiplier*) **multiplier**.
● Exprime l'action d'effectuer un méchanisme   opératoire**,**   c'est l'action de faire une multiplication de.
● **Voir** multiplication, p 173.
exemple : Multiplier 2 par 3 (2x3) ou (2**.**3).
● Les **autres verbes** qui expriment les   actions   d'effectuer   des mécanismes opératoires sont, entre autres, **additioner**, **diviser** et **soustraire**.

8.4.1.3.1.8. Sample of the article of the lemma *multiply* in the French-Fang section of the proposed dictionary

Fig. 8.13

> **multiplier** [myltiplije] *v.* (du latin *multiplicare*) **a multiplie.**
> ● Aalepe action ya abo mechanisme operatoire, ayili action yaa abo multiplication ya.
> ● Adeghe **multiplication**, p.89.
> **exemple**: A multiplie 2 ya 3 (2x3) ngue kighe (2**.**3).
> ● Be **verb bevogho** balepe b'action ya be mechanism operatoire bene **aadditione**, **a divise**, ya **a soustraire**.

8.5. Concluding remarks on the application of theory of the frame semantics

The use of Konerding's frames appears as a possibility to design articles that could include encyclopedic items of special importance in order to fulfil the genuine purpose of the proposed model. However, the following commentaries can be made at this phase of the adaptation of the frame semantics:

a) The adaptation of Konerding's frames has to be commented and discussed by other lexicographers in order to be empowered and authorized.

b) The sample articles that have been worked out in this investigation can be simplified for younger students and made complex for older students and other types of skilled users.

c) Although open descriptions will be used, the different data types will correspond to lists of terms resulting from a logical sequence of sub-divisions and divisions of the field or subject. The completed classified list of terms will be submitted to a number of appropriate experts for comments. These experts

include a) representatives of the subject, (b) teachers, (c) educational psychologists and (d) experts, if possible, who are Fang mother tongue speakers. This should be done on a spreadsheet which remains the same for each specific lemma type as suggested when making concluding remarks on possible frames for the description of each type of lemma sign.

d) Despite the predetermined article structures, some dictionary articles will still be longer or shorter than the other. Some lemma signs will necessitate more data to be supplied.

e) Additional sample articles of the other lemma types for example the ones describing **angles, fractions**, **intervals**, **speed**, **duration**, etc. will have to be worked out. All sample articles covering all lemmata to be included in the designed model cannot be dealt with in the dissertation. This will have to be done when planning the compilation of the model so that the proposed frames will be fully evaluated with regard to their effectiveness.

f) The designed sample articles will only be evaluated efficiently when empirical research on dictionary use, users' typology, the typology of user situations, the typology of problems and the lexicographic functions has been completed. Without those empirical proves of what dictionary users are, what make them to use the model, what are their needs and what are the lexicographic functions to fulfil, it will be impractical and therefore almost impossible to assess the effectiveness of the sample articles.

The illustrations of the samples proposed from the application of the theory of frame semantics represent only preliminary forms, which correspond to that stage of the present research. The samples of the dictionary articles of the proposed model are gradually updated throughout the investigation until a finalized form is obtained. The article of the lemma trapezium, of which a final form is given in section 11.7, illustrates the changes from the initial form to the final form of a dictionary article in the proposed dictionary. One volume of the envisaged multi-volume dictionary has

been chosen so that these changes can be carefully followed all through the dissertation.

8.6. The type of microstructure in a specialized multi-volume school dictionary

8.6.1. Different types of microstructures

Three types of microstructures, an unintegrated, an integrated and a semi-integrated microstructure, among others, are discussed within this present research. An unintegrated microstructure displays a distant addressing between a co-text entry and the relevant paraphrase of meaning/translation equivalent, cf. Gouws (2001c: 87-88).

An integrated microstructure presents a relation of direct addressing between a paraphrase of meaning/translation equivalent and its co-text entry/entries, cf. Gouws (2001c: 87). Each paraphrase of meaning/translation equivalent is immediately followed by the co-text entry illustrating the typical usage of the lexical item in question. The fact that no other occurrences of paraphrases of meaning/translation equivalents come between a given paraphrase of meaning/translation equivalent and its co-text entry decreases the textual condensation and makes it easier for a user to interpret the contents of the subcomment on semantics correctly.

An untingrated microstructure prevails when all the tems on the meaning, which are addressed to the item giving the form of the lemma sign are prent in the first sub-comment on the semantics, and all the items giving examples and itmes indicating colloquial expressions (as well as the items addressed to both of these) are divided according to a specific system among those sub-comments on semantics which follow the first, cf. Wiegand (1989: 488, cited in Smit: 1996: 201).

A semi-integrated microstructure is a hybrid form displaying features of both an integrated and unintegrated microstructure and is typically used in more comprehensive dictionaries where lengthier articles with a variety of data types and search zones occur, cf. Gouws (2001c: 87).

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8.6.2. The suggested type of microstructure in a specialized multi-volume school dictionary
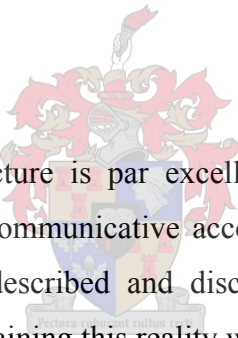
A model for a new project should make provision for a choice between these three types of microstructures, cf. Gouws (2001c: 87). The microstructure recommended in the model makes provision for the comprehensive treatment of articles, which presents a variety of data types. Furthermore, user-friendly search zones are devised in order to make provision for a successful information retrieval within the comprehensive treatment of a given lemma. As illustrated in figure 8.5 representing the sample of the lemma article *length*, this article is designed in such a way that the user will have the needed comprehensive information when consulting or dealing with that lemma within the field of Mathematics in primary education. This wide-ranging information will be conveyed through a variety of data types describing the lemma *length*. As an example, information to be retrieved in the description of this lemma in the proposed model vary from, among others, data types providing other notions of measure, data types providing a comprehensive presentation of the practical units of the measure of length and the table of conversion of these units.

One regards a semi-integrated microstructure as the appropriate type for the model because it is used when dealing with wide-ranging articles including a diversity of data types and search zones. However, this type of microstructure demands examples positioned in distinct types of article slots within the article of a polysemous item. And yet, the lemma items to be included in the proposed model are not all polysemous. In addition, for the items which are polysemous, the treatment of their polysemy will not be done within their respective articles. This treatment of the polysemy within the envisaged model will be done through a cross-reference to other(s) article which deals with the other sense(s). As an example the lemma *triangle* is polysemous by having a meaning in Mathematics and another in Music. As discussed in section 11.5, in order to make the target user of the proposed model aware of the polysemous sense of this lemma and also to present the treatment of the other sense(s), a cross-reference will be given in the article of the lemma *triangle* in the Mathematics volume to the article of the lemma *triangle* in the volume dealing with Music. On the other hand, a similar cross-reference will also be given in the

article of the lemma *triangle* in the volume dealing with Music to the article of the lemma *triangle* in the Mathematics volume.

Accordingly, the microstructure to be in use in the envisaged model will not be an integrated, unintegrated or semi-integrated type. The microstructure that will be employed is a hybrid type which displays a very good micro-architecture layout. In this type of microstructure, the different data types are clearly and distinctively organized and presented. As displayed in the sample articles, this hybrid type of microstructure will be suitable to accommodate the needed comprehensive, simple, explicit and clear treatment of the microstructure of the model. The successful retrieval of information conveyed by these different data types are made easy through friendly designed search zones as discussed in Chapter 9 dealing with the access structure of the model.

8.7. Conclusion

In the dictionary the microstructure is par excellence the section through which lexicographers strive to ensure communicative accomplishment for the target users. The suggested microstructure, described and discussed in this chapter, has been devised with the principle of sustaining this reality with a combination of the classical and innovative microstructures. This combination relies on the fundamental aspects of the conventional microstructures which have displayed their efficacy with innovations in the design of the data distribution and the micro-architecture in order to answer the needs and the purposes of the innovative intended typological model. The compiler(s) of this model should, more than ever, make it a main concern to devise a data distribution structure and micro-architecture that are set rigorously according to the principles of user-friendliness and the information retrieval.

The equilibrium between preservation and novelty suggested for the model is a way that is essential to prepare especially the young section of the intended target user group to be familiar with the use of a dictionary combined with the authorisation of the communication and the acquisition of knowledge throughout their programmes.

This is in harmony with the pedagogical, communicative and knowledge goals of the dictionary and the included lexicographic functions which all play a key role regarding the way data is presented. This is factual for a dictionary like the proposed model, where the primary purpose is the use in the classroom and when working with study material.

As displayed all through this present research the intended target users will have to be assisted carefully in order to achieve successful dictionary consultation procedures. This demonstration has relied on a pragmatic approach of selecting lexical items for treatment, a thematic arrangement of the macrostructure together with a combination of a carefully constructed presentation of semantic and encyclopedic data, This can provide the users an easy and successful dictionary consultation process. However, this crucial purpose of the model, which is its genuine purpose, is at best first fulfilled with the combination of the other salient structural components of a dictionary, namely, the access structure, the addressing structure and the mediostructure.
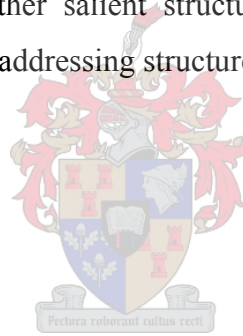
CHAPTER 9: THE ACCESS STRUCTURE IN A SPECIALIZED SCHOOL DICTIONARY

9.0. Introduction

The access structure is the search route followed by a user to reach a specific lemma sign or data category, cf. Gouws (2001c: 83). It may also be explained as the structure of the lexicographic indicators directing the use to the information required, cf. Bergenholtz and Tarp (1995: 219). A distinction is made between the outer and the inner search routes, cf. Hausmann & Wiegand (1989b: 337). The particular needs of users who are students with basic skills to communicate and acquire knowledge make the necessity even bigger for devising unambiguous and decidedly functional access structures in the designed model. Moreover, considering the young age of the main intended target users who are students, and primary school in the studied case, the proposed model must be as inviting as possible as any of the other reference sources aimed to them.
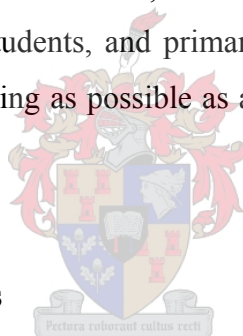
9.1. The outer access structures

The outer text structure can be divided into a rapid outer access structure and a standard access structure, cf. Hausmann and Wiegand (1989b: 338).

9.1.1. The rapid outer access structure

The rapid outer text structure includes all the entries on the cover indicating the title of the dictionary, tables of contents, headers, thumb indexes and any other elements of the same type, cf. Louw (2004: 162-164). It is designed to convey quickness to the location of the article in which the appropriate data is presented.

The title of the proposed dictionary must be clearly described and included in the dictionary plan. As part of the rapid outer text structure, all the entries which are part of the title and presented on the front cover must disclose with efficiency to the users the type of data accessible in the model. Users do not usually refer to the entries presented on the back cover of dictionaries. Therefore, the essential elements indicating the title of the proposed dictionary should be presented on the front cover. As noticed in existing bilingual dictionaries such as Oxford-Hachette French Dictionary (2001), which is bilingual French-English and English-French dictionary, most of the time, the target language, i.e. French in this case, is the only language highlighted on the cover. Consequently, the national language which is the target language presented in the dictionary of the proposed model, will be the most notified language on the cover.

However, the bilingual French-English and English-French aspect of the Oxford-Hachette French Dictionary is not presented on the cover. And yet, the target users of the proposed model are mostly young and unskilled. In addition, dictionary culture has not yet been well established in most African countries such as Gabon. As a result, entries which constitute the title of the proposed model must clearly indicate to the users from the cover of each volume various information such as the different languages which are presented and how they are presented, its specific typology, the treated subject and the level at which this treatment is presented. The indication of each volume can consist of providing a number (if necessary) and the topic of the subject. The numbering could be done according to an alphabetical ordering of the titles of the subjects treated in the different volumes. As an example, according to the proposed model, the volume dealing with grammatical and other linguistic aspects of Fang would be *Volume II: Fang language*. Accordingly, the numbers and titles of the other volumes would be, *Volume I: Civics*, *Volume III: Geography*, *Volume IV: History*, *Volume V: Mathematics*, *Volume VI: Sciences*, etc. Accordingly, in a vertical ordering, an example of the different entries of the title of the Mathematics volume of the model discussed in this dissertation can successively be as follows:

- **Fang;**

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- **Specialized Multi-volume School Dictionary;**

- **Fang-French-English**;

- **Volume V: Mathematics;**

- **Primary School.**

These entries on the cover indicating the title of the envisaged dictionary are only a proposal. Even though the editorial staff will decide the final entries and the cover, the suggested entries must be at least part of the title if this text is aimed at being part of the outer rapid access structure for the intended target users. On the other hand, because the proposed dictionary is mainly aimed at students, the design of the cover must be attractive. This requirement should be fulfilled with the collaboration of a picture editor. [20] Figure 9.1 depicts an example of the front cover of the Mathematics volume of the proposed dictionary according to the entries discussed above. Again, it is only a proposal. The editorial staff will discuss the final front and back cover.

Fig. 9.1

Name of the publishing house

FANG

Specialized Multi-volume School Dictionary

Fang-French-English

Volume V: Mathematics

Primary School

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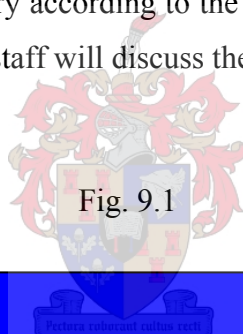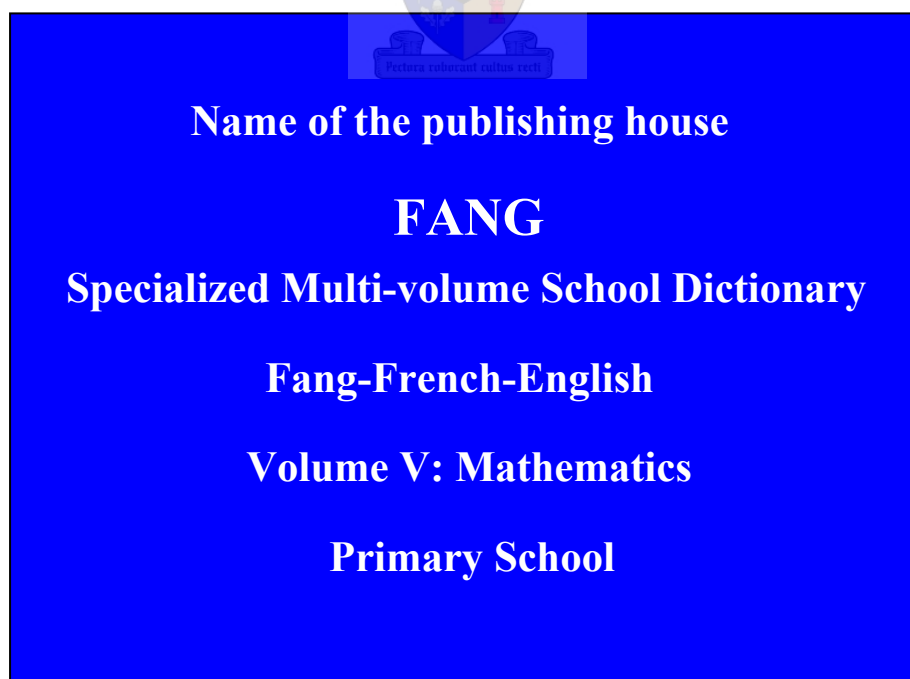
[20] Cf. section 12.6.2.

On the other hand, the usual rapid outer search path provided via thumb indexes in most dictionaries, which display alphabetic macrostructures, cannot be considered in the model, which will display a thematic macrostructure. This can be regarded as a big advantage because thumb indexes have proved to be a high-priced luxury and the proposed model intends to be an affordable lexicographic project as discussed in section 12.3.2**.**

The foreseen search path that can be laid out in order to prevent random and therefore arduous guessing can be the presentation in each volume of *comprehensive tables of contents of the central list*. These comprehensive texts are an extension of the general table of contents of the central list, which is included in the general table of contents of each volume. The general table of contents of the central list only presents the titles of the different themes of the subject, cf. example 12.1 displaying a suggestion of a general table of contents of the proposed model. The comprehensive tables of contents of the central list will be slotted into this central text before each word list. They will be comprehensive because under each theme of the subject as presented in the general table of contents, they will also present the page numbers of the article stretches. These comprehensive texts will present a thematic arrangement. They will also be presented in the target language of the word list. In the exhibited model, that means in the Fang/French section, the page number on which each Fang article stretch starts will be indicated in Fang. In the French/Fang section, these entries will be indicated in French, cf. example 12.2.

Including the page numbers where these texts are included in the central list will provide an option for a quickness access to the location of the comprehensive tables of contents of the central list. The general table of contents and the comprehensive tables of contents of the central list will be part of the important elements of the rapid outer text structure of the proposed model which will assist in conveying quickness to the location of the article in which the appropriate data is presented.

Apart from presenting a general table of contents and comprehensive tables of contents of the central list of a specific subject, each volume will also indicate the

contents of the other volumes which deal with the other subjects. For space and cost saving the presentation of the contents of the other volumes, could only consist of the appearance under each number and title of the comprehensive tables of contents of the central list. This process will broaden the possibilities and make more efficient and coherent the search route followed by a user to reach a specific lemma sign or data category within the model which is one dictionary but only divided in multiple volumes. It will offer the target users the possibility from any volume to be aware and also reach all lemma signs and data categories included within the other volumes of the dictionary.

The outer access structure proposed within the model may provide a slower access than thumb indexes in a dictionary with an alphabetical macrostructure. However, the proposed model is a particular type of dictionary. Accordingly, the suggested method provides a cost-effective choice and a vital support for the more unskilled user.

As an illustration, a skilled user or older student will quickly unlock the desired information regarding the treatment of the lemma *trapezium*, which will be located in the sub-field of **geometry**, maybe within the division of **geometric constructions** and still maybe within the sub-division of **geometric shapes** if necessary. That will not be the case with an unskilled and younger student who will crucially need a comprehensive table of contents of the central list as suggested, which includes the page number on which each article stretch starts in each word list. Without this method, because this type of user is not yet well aware of the programmes and the complexity of the divisions and sub-divisions of the fields, the consultation procedures can be very slow by looking through the whole dictionary with the intention to retrieve the lemma haphazardly. This consultation could even end up unsuccessfully if the user is not willing to go through the entire dictionary. This is why besides being indicated in the users' guide, it would be advisable to highlight the texts that include the page number on which each article stretch starts in each section of the dictionary. This will make younger students and unskilled users to be highly aware of those vital texts.

9.1.2. The standard outer access structure

The rapid outer access structure as its name indicates provides a quick access on various parts of the user's outer search path, cf. Louw (2004: 164-167). This specific structure will prevail within the model. Nevertheless, the selection according to the formulation of the model of the needed macrostructural element is still mainly assisted by the mechanisms of the standard outer access structure, i.e. an alphabetic access structure. In fact, within the major segmentations of each part of the section of the model due to the thematic ordering of the macrostructure, lemmata will be arranged in an alphabetical order. With the considered example of the sub-field of Mathematics in the previous chapter, the macrostructure will mainly be divided in three (3) major segmentations, namely, **geometry**, **measures** and **numeracy**. However, within each one of these major segmentations the lemmata will be ordered according to an alphabetical arrangement. This process will represent one of the standard outer access structures, among others, proposed in the dictionary.

Another mechanism of the search route will also make the standard outer access structure to prevail within the proposed model. This mechanism will be done through the different registers and the pictorial illustration index to be included in the back matter texts. Within the proposed model Fang-French-English, French-Fang-English and English-French-Fang equivalent registers will present in alphabetical order all the lemmata and the page numbers where they are dealt with in both parts of the central list. The consultation of these registers will lead the user in a standard outer access structure to the desired lemma.

Beside these equivalent registers, two (2) guide word registers to be included in the back matter texts will also constitute another standard outer access structure of the model. These alphabetical Fang-French-English, French-Fang-English and English-French-Fang guide word registers will consist of the page numbers of article stretches in which guide words are treated in the Fang/French and the French/Fang parts of the central list of the proposed dictionary. An example of a guide word is **perimeter of the trapezium** which will be the data category representing the **calculation of the**

perimeter within the article stretch dealing with the lemma *trapezium*. This alphabetic access structure proposed by the guide words' register will lead the user to specific needed information. As an illustration, if a user may only need information regarding the *calculation of the perimeter of the trapezium* an alphabetical search will easily lead to the letter P and the guide word *perimeter* of *trapezium*. In a further step with the page number of the article in which the data corresponding to this guide word is treated as extensively discussed in section 12.4.2, the user will be lead on an easy way to the location of this data to retrieve the needed information.

An outer access structure leading to the pictures included in the proposed dictionary will constitute an additional standard outer access structure within this model. As discussed in section 12.4.3, the index of pictorial illustrations will present the titles of the different tables of pictures and the page numbers where these tables are included throughout the dictionary. This index will be provided in Fang/French/English and also in French/Fang/English. This alphabetic access structure will unambiguously and explicitly guide the user to the exact picture in the dictionary.

9.1.3. Concluding remarks on the outer access structures
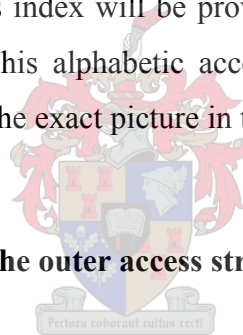
The proposed model has to provide a strong user-orientated approach because a lot of target users will be young and unskilled. Therefore, the standard outer access structure system used in the model will be explained simply and effectively to the intended target user group in both the preface and the users' guide if necessary. The use of words in bold, as intermediary markers that will guide the user on the rapid access search path will be an important facet included in a specialized multi-volume school dictionary. Yet, the specificity of the proposed model will make the standard access structures to mainly represent the essential search routes to be followed by the user. On one hand, this access structure will be strongly based on the general tables of contents of the central list of each volume, which includes the page numbers on which each theme stretch of the dealt subject starts. The general table of contents of the central list included in those general tables of contents are extended to comprehensive tables of contents of the central list. These extensive texts are slotted in before each

word list of the central text of each volume of the dictionary. These texts present the page numbers on which each article stretch starts. Beside the general table of contents of a specific volume, each volume will also present the general tables of contents of the other volumes and their respective comprehensive tables of the central list.

On the other hand, alphabetical equivalent registers and guide word registers providing respectively the page numbers of all the lemmata and guide words dealt with in both the Fang/French and French/Fang parts of the central list will make a standard outer access structure to prevail within the model. Accordingly, the designed outer access structure is planned to provide the model with a system that can be regarded as powerful and capable of guiding the user promptly to the wanted macrostructural element. Still, the accomplishment of this combinatory system will also depend a lot on a reliable application and comprehensive description in the users' guide.

9.2. The inner access structure in a specialized multi-volume school dictionary

The inner or internal access structure determines the article internal search route leading the user to the relevant data entry, cf. Gouws (2001c: 83). Acording to Hausmann and Wiegand (1989: 338), the inner access structure of a dictionary enables a user who is familiar with it to find the information he or she is looking for more systematically. They add (1989: 338) that the inner structure is usually explained in the user's guide of a dictionary, and can be regarded as a string of article positions which always have to appear in the same order. A well-devised inner access structure is characterised by the use of specific lexicographic conventions to assist the user on this internal search route, cf. Louw (2004: 167). It is requested to the lexicographer of the envisaged to take into accoun all this set of instructions and guidelines.
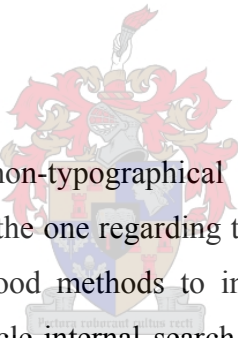
9.2.1. The rapid inner access structure

Classical structural indicators are regarded as elements that will guide the user on the rapid inner search route in the planned model. Structural indicators are comprised of two kinds, namely, typographical structural indicators and non-typographical structural indicators. Typographical structural indicators are the different typefaces, e.g. bold, italic, roman, and the use of capitals, small caps, etc. in a dictionary. Gouws (1996: 23) defines their role as indicators of the borders between data categories as well as the position and the scope of different search areas. Non-typographical structural indicators are symbols and signs used to mark the beginning of a certain search zone or data category. Dictionaries employ different types of non-typographical structural indicators, e.g. coloured blocks, diamonds, triangles, squares, brief headings, etc. The function of these markers is to indicate specific search zones or data categories.

Regarding the proposed model, essential typographical structural indicators can be used as it is often found in a monolingual dictionary. It means that specific indicators can be used in such a way that a user interested in finding one specific data category can have a quick access to the article slot by simply referring to the use of a specific marker. However, a dictionary has to make provision for a suitable inner access structure to assist the target users in their dictionary consultation attempts in order to reach the required data with as little trouble as possible. The compiler(s) of the proposed dictionary need to pay attention to their accomplishments and shortcomings as an excess of structural indicators can lead to an unsuccessful, confusing and irritating look-up experience for the young and unskilled users who are among the target user group. Provision has to be made in order to include, few, clear, simple and friendly typographical structural indicators, which must interact with the micro-architecture of the article and therefore add to the user-friendliness. Considering this fact and considering also the fact that the dictionary use has still not been well implemented in Gabon, it is suggested that the use of typographical structural indicators has to be restricted to a minimum in the model.

As it has been depicted in the samples of dictionary articles all through this investigation, the main lemmata and guide words are given in bold and colour. The

presentation of the paraphrases of meaning in roman and illustrative examples in italics as often observed in monolingual dictionaries for example has been avoided. This is suggested in order to prevent young users to be perplexed with too many categories of typographical structural indicators. Italics are only used to present abbreviations for grammatical categories and aspects like *n* for noun, *v* for verb, *pl* for plural, etc. That does not mean that the typographical structural indicators as suggested in this research are the only ones that can be used in the proposed model. Beside due to the fact that he proposed model must be as inviting as possible, typographical structural indicators such as *cf./compare/see*, etc. as discussed in 11.2 will be presented in bold and bright colour. The most important aspect to bear in mind is the simplicity in the use of typographical structural indicators because young students and users with low or non-existing dictionary using skills are among the intended target users. As Gouws (2001c: 89) states, the lexicographers have to be aware of the dictionary using skills of the intended target user to ensure a functional access structure.

The approach to the use of non-typographical structural indicators within the proposed dictionary is similar to the one regarding the use of typographical structural indicators. They all represent good methods to increase a successful consultation process by means of a clear article-internal search route. However, also similar to what have been suggested regarding typographical structural indicators, lexicographers have to be careful not to employ too many non-typographical structural indicators because they can confuse a dictionary user. The use of non-typographical structural indicators should also be restricted to a minimum within the proposed model. As it has been displayed throughout the example of sample dictionary articles, the full black circle, to indicate the borders between data categories, is the only non-typographical structural indicator used. The use of more than two non-typographical structural indicators is not really suggested in the model. The back and forth reference to be done between the front matter where non-typographical structural indicators are explained and the central list might make the dictionary consultation procedures difficult for young students who are unskilled in dictionary use, and who do not consult the front matter texts for the explanation of non-typographical indicators.

9.2.2. The standard inner access structure

The rapid inner access structure to be considered in the proposed model will emphasize the originality of this model. In this specific case, procedures of microstructural ordering are resulting from some proposals. Those proposals may have to be tested by means of questionnaires, interviews and evaluation by lexicographers and other appropriate experts, etc. This will be done in order to be certain about the fact that the use of the ordering of different data categories suits the target user best to guide him or her on the search path. All this data will be included in the dictionary plan. These methods will be applied consistently in the dictionary only if they are approved.

Regarding the application of a standard inner access structure in the proposed model the ordering of data categories and therefore the dictionary article as a whole is of special importance. At this point this application will have common characteristics with the article structure. The standard inner access structure in the proposed model will deal with the choices regarding the utilisation of the specific locations of data in the articles. Those locations must be circumspectly planned and from then comprehensively explained in the users' guide. The standard inner access structure can be regarded as another powerful method that can be used by the lexicographer to guarantee a user-friendly access in the proposed dictionary.

The application of a standard inner access structure in the proposed model refers first to the location of data via guide words. These guide words will be either a single word or a phrase taken from the microstructural treatment of the lemma sign. In the example of the article of the lemma sign *trapezium* depicted in the figure 9.2, **classification**, **different types of trapezium**, **surface**, etc. can therefore be considered as these guide words. Secondly, this structure will refer to the placement of data on new lines or paragraphs. These new lines or paragraphs will be introduced by the established guide words. On the other hand, because the envisaged model is mainly aimed at young students, it has to be made attractive as reported in subsection 2.2.3. As a result, the lemmata as suggested in section 7.2.1.3 and the guide words

will also display a bright colour where necessary and in a very reasonable approach. This system will help the user, especially the young one to enhance the abilty to make the immediate choice of the correct and needed information. An example of this application is depicted in figure 9.2 below.

Fig. 9.2

---

trapezium [tr★'pizi★m]

● **grammatical aspects** : *n* [C] *pl* trapeziums or trapezia. (etymological data).

● **translation equivalent** :

● **classification :** As a geometric shape it is a quadrilateral which belongs to the family of irregular polygons**.**

● **designation :** It is quadrilateral which presents two of the sides, which are parallel and unequal.

● **different types of trapezium**: there are three types of trapezium, namely, trapezium, isosceles trapezium, which the sides that are not parallel are equal and right-angled trapezium which one of the angles is a right-angled.

● See ⬡ PIC ⟩ opposite.

● **surface:** the surface of the trapezium is the sum of length of the big basis added to the length of the small basis multiplied by the height divided by 2;

$$s = \underline{B + b} \text{ x } h$$
$$2$$

example : B = 5cm, b = 4cm, h = 3cm :

s = <u>5cm + 4cm</u> x 3cm = 13, 5cm^2
            2

● **perimeter:** the perimeter of a trapezium is the sum of all sides;

$$p = AB + BC + CD + DA$$

example: AB = 5cm, BC = 3cm, CD = 6cm, DA = 3cm:

p = 5cm + 3cm + 6cm + 3cm = 17 cm

A comparison between this figure and the figures illustrating the dictionary article of the lemma sign *trapezium* throughout this investigation displays the input of the suggested system. This input revolves around the fact that the user will count on a

very reliable and enhanced user-friendly search path within the dictionary article. The indication about the ordering of different data categories improved with the use of a bright colour makes the user to be guided effortlessly on the search path. In a very user-friendly way, the user is lead to the information like the existence of classification regarding geometric shapes, how the trapezium falls in this **classification**, the **different types of trapeziums**, the **calculation of the surface and the perimeter** of this geometric shape, etc.

It is, nonetheless, essential to bear in mind that such enrichments may end up at a cost in that they result in the use of colour, more white space than when a rapid inner access structure, based on classical concepts, is in use. For that reason, meticulous forecasting, empirical research and evaluations or comments from lexicographers, teachers and experts in the fields, must determine where such an inclusion of colour and sacrifice of space can be more indispensable so that the micro-architecture should consequently be improved.
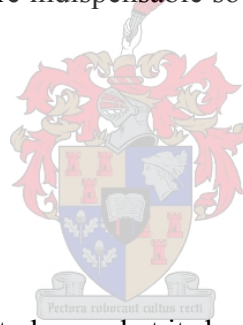
9.3. Conclusion

The proposed dictionary intends to be used at its best as text and as text type carrier so that the inner access structure will be a successful guide in the search for among others, assistance with grammatical aspects like pronunciation, part of speech, plural form, etc., semantic and encyclopedic data. A translucent and inviting outer access structure with a high standard of user-friendliness and dictionary accessibility is suggested in the proposed dictionary. This high standard of user-friendliness, dictionary accessibility and attraction will be supported through the presentation in each volume of the other volumes and their corresponding contents. This procedure principally gives a centralized and controlled access structure to the model which is split in several books. In other words, an efficient and pleasing access structure of the proposed model is obtained by mingling the effectiveness of the suggested standard access structure with some of the essential aspects of the rapid inner access structure which derive from established lexicographic concepts.

On the other hand, the inner access structure of the proposed dictionary will also turn into an effective and pleasant guide in the search route for data on pronunciation, grammatical aspects, semantics and encyclopedic data. In this regard, it would interact with the users' guide. In fact, the standard inner access structure suggested in the model overlaps with the standard outer access structure. This relation should not be ignored and should be carefully planned and motivated in the users' guide afterwards.

The discussed search for a relevant and pleasant access structure fulfils one of the lexicographic requests of the proposed model. On the other hand, if the access structure negotiates the search route followed by a user to reach a specific lemma sign or data category in a dictionary, another significant structural component in the central list negotiates the relation between an entry and the treatment unit at which it is directed.
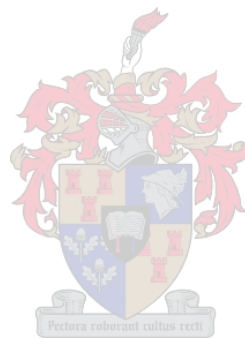
CHAPTER 10: THE ADDRESSING STRUCTURE IN A SPECIALIZED MULTI-VOLUME SCHOOL DICTIONARY

10.0. Introduction

As indicated earlier, the addressing structure is the relation between an entry and the treatment unit at which it is directed. Each microstructural entry is part of the treatment of the lemma sign of a given article or as a form of treatment or lexicographic comment on another microstructural entry or even lemma or other entry elsewhere in the dictionary, cf. Gouws (2001c: 89). Two major types of addressing procedures can be identified as follows: the **lemmatic addressing structure** and the **non-lemmatic addressing structure**. The proposed model is aimed to compile a typological innovative dictionary, which will convey semantic and encyclopedic data for specialized lexical items for education. On the other hand, this model should also be as attractive as other reference sources directed at young students. Therefore, the classical methods of negotiating the addressing structure procedures will be more often supported by innovative methods and also profoundly subjective to the suggested typological profile of the proposed dictionary.
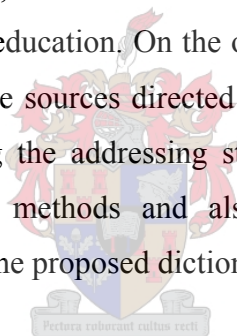
10.1. Classical addressing procedures

10.1.1. Lemmatic addressing structure

Lemmatic addressing structure is known as a procedure where the lemma is the address of an entry. This addressing procedure is operated by means of **sublemmatic addressing**, **full lemmatic addressing** and **non-lemmatic addressing**. Accordingly, the next paragraphs discuss these three (3) procedures of the lemmatic addressing structure within the proposed model.

10.1.2. Sublemmatic addressing

Sublemmatic addressing is known as referring to the fact that members of a niched or a nested cluster, i.e. sublemmata, may also be the address of an entry. The sublemmata remain part of the macrostructure of the dictionary. As discussed and shown throughout this investigation reference to the use of nesting, which stretches the rules of strict-alphabetical ordering in order to display morphosemantic relations between items inside the article, has been made in the proposed dictionary. In view of that, this dictionary can also be considered to contain procedures of sublemmatic addressing. Yet, another structure situation known as **full lemmatic addressing** can also be identified within the lemmatic addressing structure.

10.1.3. Full lemmatic addressing
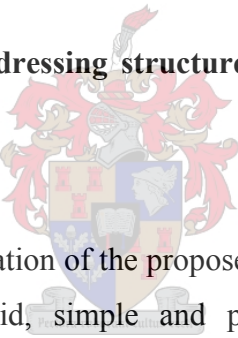
If all the items inside an article are addressed at the lemma a situation of **full lemmatic addressing** prevails, cf. Hausmann & Wiegand (1989b: 349). This will be happening in the model. Items inside an article will belong to the same paradigm because they all contribute to broaden at the optimum the semantic and encyclopedic knowledge of the main lemma. This will make the lemma treatment in the proposed dictionary to be relevant and complete and to meet the needs of the target user group. Accordingly, and considering again the example of the treatment of the lemma sign **trapezium** as depicted in figure in section 10.2.2, the items **grammatical aspects**, **translation equivalent**, **classification**, **designation**, **different types of trapezium**, **perimeter and surface** are all addressed at this lemma.

10.1.4. Non-lemmatic addressing structure

Non-lemmatic addressing structure is known as a procedure, which belongs to the microstructure of the dictionary and involves an entry not functioning as a lemma, as an address. Furthermore, in this structure, the address is represented by the topic of the specific treatment procedure, cf. Gouws (2001c: 90). The use of non-lemmatic

addressing implies a system of topic switching because each non-lemmatic address is a new topic, cf. Hausmann & Wiegand (1989b: 329). Considering the fact that topic switching increases the level of textual condensation of a given dictionary article and it also adds to more comprehensive treatment procedures, non-lemmatic addressing procedures represent a powerful medium with numerous advantages. However, those procedures are not considered within this investigation and they are not recommended to be in use in the microstructure when compiling the proposed dictionary. Due to the young age and the low skills in dictionary use of a large part of the intended user group, the commitment within the formulation of the intended model is to make provision for a predictable and user-friendly article structure for the compilation of the dictionary. In this regard, the lexicographer should always keep in mind that the choices he or she would make, have to be based on the needs and skills of the target users. Therefore, the lexicographer should apply those choices circumspectly.

10.2. Characteristics of the addressing structure of a specialized multi-volume school dictionary

In the present section, the formulation of the proposed model searches for the quest of providing guidelines for a rapid, simple and pleasant access structure. These guidelines also make provision with a satisfactory explanation of the basic addressing procedures. Yet, the compiler(s) of the proposed dictionary must be aware of the aspects characterizing the complex entity the addressing structure. The decision and the choice of considering some aspects of the addressing must result from a circumspect examination. As an illustration, some aspects, like the remote article-internal addressing, which are supposed to be a problem to the target users, is among the salient and indispensable features of the proposed model.

10.2.1. Open and hidden addresses

An open address can be referred to as an entry, which is clearly marked by means of typographical or non-typographical structural indicators, cf. Hausmann and Wiegand

(1989b: 350). The hidden address is the one that is not clearly demarcated, as illustrated in figure 10.1.

Fig. 10.1

trapezium [tr★'pizi★m] *n* [C] *pl* trapeziums or trapezia. (etymological data). As a geometric shape it is a quadrilateral which belongs to the family of irregular polygons**.** It is quadrilateral which presents two of the sides, which are parallel and unequal. There are three types of trapezium, namely, trapezium, isosceles trapezium, which the sides that are not parallel are equal and right-angled trapezium which one of the angles is a right-angled.

See ⎡PIC⟩ opposite.The surface of the trapezium is the sum of length of the big basis added to the length of the small basis multiplied by the height divided by 2.

$$s = \underline{\boldsymbol{B + b}} \text{ x } h$$
$$2$$

Example **:** B = 5cm, b = 4cm, h = 3cm :

s = $\underline{5cm + 4cm}$ x 3cm = 13, 5cm^2
        2

The perimeter of a trapezium is the sum of all sides.

$$p = AB + BC + CD + DA$$

Example: AB = 5cm, BC = 3cm, CD = 6cm, DA = 3cm:

p = 5cm + 3cm + 6cm + 3cm = 17 cm

The maintenance of a high measure of user-friendliness is raised all through this investigation. In addition, users, even adults and skilled users, need to be shown unequivocally where the treatment units they are likely to look for in the consultation process are located. In this regard, the use of hidden address is unlikely to be in use in the proposed dictionary. As an illustration, below figure 10.2 displays the kind of open address which is suggested in the proposed model.

Fig 10.2

trapezium [tr★'pizi★m]

● **grammatical aspects** : *n* [C] *pl* trapeziums or trapezia. (etymological data).

● **lemma equivalent** :

● **classification :** As a geometric shape it is a quadrilateral which belongs to the family of irregular polygons**.**

● **designation :** It is quadrilateral which presents two of the sides, which are parallel and unequal.

● **different types of trapezium**: there are three types of trapezium, namely, trapezium, isosceles trapezium, which the sides that are not parallel are equal and right-angled trapezium which one of the angles is a right-angled.

● **see** PIC ⟩ **opposite**.

● **surface:** the surface of the trapezium is the sum of length of the big basis added to the length of the small basis multiplied by the height divided by 2.

$$s = \frac{B + b}{2} \times h$$

example : B = 5cm, b = 4cm, h = 3cm :

$s = \frac{5cm + 4cm}{2} \times 3cm = 13, 5cm^2$

● **perimeter**: the perimeter of a trapezium is the sum of all sides;

$$p = AB + BC + CD + DA$$

example: AB = 5cm, BC = 3cm, CD = 6cm, DA = 3cm:

p = 5cm + 3cm + 6cm + 3cm = 17 cm

A high measure of user-friendliness and the unequivocal presentation and location of the treatment units of the lemma trapezium, namely, **grammatical aspects**, **lemma equivalent**, **classification**, **designation**, **different types of trapezium** and their **pictorial illustrations**, the calculation of the **perimeter** and the **surface**, are

noticeably well presented. The clear demarcation between the different data types is done via full black circle, non-typographical indicators and guide words in bold and colour patterns.

Figure 10.1 illustrates a treatment of the article of the lemma *trapezium* with hidden addresses. This way of organizing the addresses is not suggested to be in use in the proposed dictionary. As it can be observed, the different addresses referring to data **grammatical aspects**, **translation equivalent**, **classification**, **designation**, **different types of trapezium** and their **pictorial illustrations**, the **calculation of the perimeter and the surface**, are not clearly demarcated by any means of typographical indicators or non-typographical indicators.

It is true that all data regarding the lemma *trapezium* is presented in this figure. It is even more true that this presentation provides space saving and therefore it can be regarded as cost effective when it will come to the publication phase. Yet, the resulting unclearness can roughly jeopardize the maintenance of a high measure of user-friendliness indispensable to young users and even to adults and skilled users. When consulting an article, users in general need the treatment units to be explicitly shown and located. In figure 10.2, every data unit which is treated is clearly demarcated. In figure 10.1, a user who may only need specific information of the treatment of the article of the lemma *trapezium* such as the information on the *calculation of the perimeter*, will have to look carefully through the whole article.

By not using typographical and/ or non-typographical indicators, the use of hidden addresses may lead to a cost effective method when dealing with the publication. It can also lead to a very ambiguous relation between the entries of the dictionary and their treatment units. This situation can frustrate and not satisfy the users. On the other hand, when dealing with a word such as *trapezium* in Mathematics, students need to know information such as its **classification** and **designation** as a geometric shape, the **different types of trapezium**, the **calculation of the perimeter and the surface** of that specific geometric shape. These essential guide words are not highlighted in a hidden address. In that case, the user, especially the young one still in the process of

the acquisition of knowledge would fail to know and maybe to learn in a quick and efficient way the paradigm of information which sustains the knowledge of *trapezium* when it comes to studying or reading about this *geometric shape*. For all these different reasons, again, open addresses are unquestionably the ones to be in use in the proposed model.

10.2.2. Direct article-internal addressing

A direct article-internal addressing can be regarded in metalexicographical terms as the immediate relation between the lemma and the item class representing the data category. The suggested inner access structure to be used in the proposed model and extensively discussed in section 9.2.2 is mainly based on the application of a standard inner access structure relying on the location of data via distinguishing guide words. This is due to the fact that the microstructure suggested to be used in the model is a hybrid type of microstructure displaying a pertinent micro-architecture layout. As discussed in section 8.6.2, this type of microstructure is suitable for the synopsis articles with their variety of data types that will be included in the model. According to the genuine purpose and the intended target users, which comprise of young and unskilled ones, the search zones within the articles of the model must be done with a high standard of distinctiveness, clarity and user-friendliness. These factors, among other specificities of the model, will make direct article-internal addressing not to be commonly in use within the proposed dictionary. According to the examples of the articles to be included in the model, direct article-internal addressing will appear only between the lemma and the item class representing phonetic data.

10.2.3. Remote article-internal addressing

One of the procedures that are usually regarded as the first possible obstacle is presented by remote article-internal addressing procedures. Those procedures can be regarded as a microstructure in which the addressing between the lemma and numerous lemmatically addressed items is not immediate, cf. Louw (2004:178-182).

This addressing can be linear, i.e. each lemmatically addressing item follows the other immediately. Or this addressing can be discontinuous or gradual, i.e. clearly impeded through rapid inner access procedures, such as non-typographical structural indicators or standard access procedures, such as guide words. The obstacle presented by remote article-internal addressing whether linear or discontinuous appears when it is not applied with clearness and user-friendliness and also not visibly explained in the user's guide. Yet, a linear remote article-internal addressing with not clear demarcation between data types can result in a hidden address as depicted in figure 10.2. Therefore, even if it is worked out with high clearness, user-friendliness and visibly explained in the user's guide, as it has been discussed and suggested in section 10.2.1, the linear remote article-internal addressing is not suggested to be in use in the proposed model.

On the other hand, a remote article-internal addressing with a discontinuous procedure, which is indicated for the most part by non-typographical structural indicators and guide words, has been suggested to be used in the proposed model. This procedure results in articles with open addresses as discussed in section 10.2.1 and depicted in figure 10.2. Therefore, apart from the immediate addressing between the lemma and the lemmatically addressing item representing phonetic data, in most of the articles to be included in the proposed model the lemma will have a gradual or discontinuing addressing relation with the other lemmatically addressing entries. This gradual procedure of the remote article-internal addressing will be noticeable as displayed in figure 10.1 through the use of coloured non-typographical indicators and the coloured bold guide words. In this figure, it is noticeable that the guide words **classification**, **designation**, **different types of trapezium**, **perimeter** and **surface,** preceded by full black circles are inserted between the lemma *trapezium* and the lemmatically addressing entries. Yet, it is very important to explain in detail in the user's guide of the proposed this specific addressing structure procedure.

10.2.4. Article-external addressing

The compiler(s) of a specialized multi-volume school dictionary must be aware of the fact that the macrostructure is mainly based on a remote article-internal addressing. Usually the effects of the power of this system would present obstacles in other types of dictionaries. In the proposed model it is displayed that on the contrary remote article-internal addressing procedures constitute relevant means to maintain or direct an entry to another.

On the other hand, the addressing structure extends further than the domains of an article. The success of the addressing structure as a guide to the search path also relies on the well-designed cross-references between articles. Consequently, the interaction between the addressing structure and the mediostructure must be settled effectively in order to make certain that cross-references connecting articles are successful. The article-external addressing procedures do not have to be made in a complex way. Those procedures must be done in accordance with the ineluctable and conventional addressing observed in existing dictionaries. It is not suggested when compiling the proposed model to undertake article-external addressing procedures randomly according to the personal choices of the lexicographer (s).

Interaction between the addressing structure and the mediostructure is vital in the proposed model. This crucial interaction will provide the user a friendly search path to relevant and complementary or additional information when reaching the other lemma. See, for example the treatment of addressing, which affects the lexical items such as *multiplication* and *multiply*. The lemma *multiplication* is morphologically related to the the lemma *multiply*. Therefore, in the treatment of the article of the lemma *multiply*, an article-external addressing is given to the article of the lemma *multiplication* to have the semantic relation which links those two lemmata.

Furthermore, there is also the example of a specific type of addressing which will affect polysemous lemmata like the lemma *triangle*. This lemma presents a

polysemous sense, which appears, in Mathematics and in Music. Consequently, an article-external addressing of this lemma has to prevail between the Mathematics and Music volumes. This type of addressing will make the user to be aware of the polysemous characteristic of the lexical items such as *triangle*. This addressing will also have to make sure that the user is provided with an easy search path to reach the other sense (s) of the polysemous lemma sign. These two examples are discussed in more detail in section 11.5 dealing with *article-external cross-references*.

10.2.5. Text-external addressing

The users of the proposed dictionary, even the younger ones will be expected to be aware of and consequently to master a number of the majority of remote addressing procedures involving different texts in the dictionary. A strong interaction between the different components of the central list and the user's guide has been stressed as a requirement for the proposed model. Other vital addressing relations to be established and mastered by the users of the intended model are between the salient components of the central list, the equivalent registers and the guide word registers. Those relations are discussed in the sections 12.4.1 and 12.4.2 respectively.
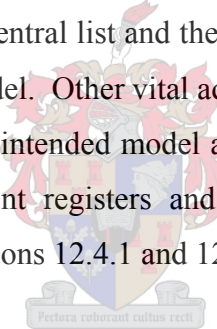
10.3. Conclusion

A well-devised addressing structure is likely to significantly increase the user-friendliness of the intended model. Yet, this goal can only be achieved if much consideration is given to the classical procedures to establish the innovative and specific approaches that come along with the uniqueness of the proposed model.

CHAPTER 11: THE MEDIOSTRUCTURE IN A SPECIALIZED MULTI-VOLUME SCHOOL DICTIONARY

11.0. Introduction

Referring to Gouws (2001c: 91), the mediostructure can be regarded as the system of cross-referencing employed in a dictionary to lead a user from one entry to another by means of cross-reference entries. A cross-reference entry comprises of a cross-reference marker and a reference address, cf. Gouws & Prinsloo (1998: 19). This is why according to a theory of mediostructures, a mediostructure is a system which occurs when a lexicographer refers the dictionary user from a reference position to a reference address, cf. Wiegand (1996a, cited in Gouws 2001c: 91). Cross-referencing procedures may be restricted to the specific article or it may exceed the boundaries of the articles. The mediostructure is a system, which is of special importance when negotiating the search path to be followed by the target user group to the needed data. It is also significant to the communicative achievement of the dictionary as a whole.

Accordingly, the next paragraphs firstly explain more specifically the structure of cross-reference entries. Secondly, this explanation is followed by a focus specifically on the devise of the elements of the reference markers, which are known as structural indicators. On the other hand, those paragraphs give a discussion regarding the use within the proposed model of some of the mediostructure types, which are among others, article-internal cross-references, article-external cross-references and text-external cross-references. Once again, this discussion of the structure of cross-references also takes into consideration the fact that the proposed model must be eye-catching to young students and users.

11.1. Structure of cross-reference entries

As already mentioned, a cross-reference entry comprises of two elements, namely, a reference marker also known as mediostructural marker and a reference address.

Referring to Gouws (2001c: 91) the reference marker is the entry marking the reference relation and the other entry gives the reference address. As illustrated in Gouws (2001c: 91), if the cross-reference entry "compare X" is considered, it typically consists of two separate text segments, i.e. the entry marking the reference (compare…), which is the reference marker, and the entry (…X) indicating the reference address.

Yet, Gouws (2001c: 91) also points out that the non-appearance of a reference marker in the cross-reference entry represents a form of textual condensation, which makes it thornier for the user to clearly infer the entry. Again, the proposed model is steered by, among others, a user-driven approach. Therefore, within this present research the formulation of reference entries is attempted towards a well-devised mediostructure system, which should cope with the mixture of reference marker possibilities provided by the variety of structural indicators. Accordingly, the next section discusses the structural indicators.
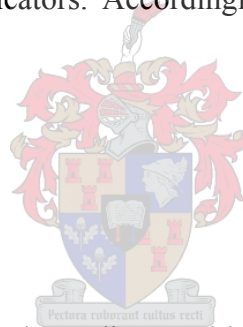
11.2. Structural indicators

Structural indicators have already been discussed in section 9.2.1 of this dissertation. As indicated, they are comprised of two kinds, namely, typographical structural indicators and non-typographical structural indicators. Non-typographical structural indicators such as arrows, diamonds, triangles, squares, brief headings, etc. are employed in some existing dictionaries as reference or mediostructural markers. On the other hand, typographical structural indicators such as *cf./compare/see* and abbreviations (e.g. *n*, *v*, and *adj* for *noun*, *verb* and *adjective*) represent explicit structural indicators. They make cross-references to be more explicit. Yet, another type of marker, combines both typographical and non-typographical techniques and mostly represented among others, by the use of texts in text boxes, and abbreviations in block arrows. This type of marker is also commonly used in order to give the user access to additional more explicit lexicographic data. In the CIDE for example, guide words, which are used when a word has more than one meaning, are indicated in text boxes, e.g. **gear** | ENGINE PART | ; **gear** | EQUIPMENT | .

LP⟩ and PIC⟩, are both examples of the use of abbreviations in block arrows as a type of marker, which combines both typographical and non-typographical techniques. In the CIDE (1996) the first one reports to the user that there is a Language Portrait, which gives interesting extra information about a word or words connected to it. The second one notifies the user that there is an illustration containing the word. However, in order to accommodate the pleasing aspect which should be part of the feature characteristics of the envisaged model, the texts in textboxes will be presented in bright colour as discussed and displayed in sections 11.5, 11.7 and 11.8.

When compiling a dictionary, the suitable type of marker needs to be employed for the particular mediostructural procedure, the purpose and the genuine purpose of the dictionary, and also the user-driven approach to be attempted on one hand. The proposed model is aimed at scholars and most of them are young students and unskilled dictionary users, who feel more comfortable using attractive dictionaries. On the other hand, efforts towards low space consuming and costs regarding the model have been raised throughout this research. Accordingly, prior to making a decision on the use of structural indicators as mediostructural markers the lexicographer(s) in charge of the compilation of the proposed dictionary will have to consider all these parameters. This decision will be included in the dictionary plan as a well-devised system, which copes with the variety of reference possibilities, the space consuming, the cost and the requirements of the proposed model.

11.3. Explicit and implicit cross-references

Explicit cross-references are accompanied by a cross-reference marker, such as *see*, *see also*, *compare*, *cf.*, which may be written in full or abbreviated. Indicators may also be graded; thus *see* or *cf.* may be used to signify an important cross-reference which the user is strongly recommended to, whereas *see also* may be considered less important, cf. Bergenholtz and Tarp (1995: 216). In order to fulfil the purpose of the proposed model to also be pleasing to young students, the reference markers are suggested in addition to display a bright colour such as blue used in the dictionary studied in this dissertation.

Implicit cross-references can occur e.g. when the absence of grammatical data in an article results in an implicit reference to the dictionary grammar. These mediostructural procedures also include the absence of encyclopedic data on verbs where this data is addressed to the corresponding noun only. In that case, the very absence of data on the verb is an implicit cross-reference to the explanation at the noun, cf. Bergenholtz and Tarp (1995: 217).

11.4. Article-internal cross-references

Article-internal cross-references can be regarded as the use of explicit cross-references within the article. It means that within an article a reference is made to a lemma or an entry by using a cross-reference entry. Yet, in section 10.2.2 the choice of the use of remote article-internal addressing has been discussed as a procedure suggested being mainly in use when dealing with the search path that will lead the target user within the article. This may mean a priori that article-internal cross-references will not be very commonly in use in the articles of the proposed model. Yet, if this specific mediostructure system has to be applied in some article the requirements of the model must be followed, among others, low space consuming, the simplicity, the clarity and the explicitly of the variety of reference possibilities at hand.

11.5. Article-external cross-references

The article-external cross-references can be regarded as the cross-references, which exceed the boundaries of the article. In that case, the external address can be located either elsewhere in the central word list, e.g. another lemma sign or a specified microstructural element in another article, or in a separate text outside the central word-list, cf. Gouws & Prinsloo (1998: 20). A language consists of a set of connections of semantic relations between different lexical items. The article-external cross-references are of special importance because they help lexicographers to distribute data according to the links between lexical items. For that reason they assist

the user to refer to these links when consulting a dictionary. That axiom also goes for the special field language for education dealt with in this research. In addition, that axiom is of special importance because students need to be aware of the lexical items representing concepts and objects that belong to the same paradigm, theory or ideas. As Gouws (2001c: 91) notes, the lexicon of a language consists of a network of semantic relations holding between different lexical items and the application of mediostructural procedures is one of the ways to help the dictionary user become aware of the links between these items.

In view of that, in the proposed model article-external cross-references will be used to establish conventional reference relations between lexical items, which are morphologically related such as *multiplication* and *multiply*. Therefore, cross-reference is always proceded from the article of the lemma sign *multiply* to the article of the lemma sign *multiplication*. Besides that, those procedures will also be employed to make the user aware of the links between the different articles of polysemous lexical items such as *triangle*. Lexical items like *triangle* will be included in different books of the proposed multi-volume dictionary because they will represent a different object or concept in different subjects or fields. The configuration of the article-external cross-references in the proposed dictionary will to a certain degree be decided by the choices taken as part of the proposed dictionary plan regarding cross-references between morphologically related lexical items which are polysemous.

The decisions that need to be made regarding cross-references between morphologically related words rely on the application of what is done in existing dictionaries. However, it does not mean the process of morphological relation, which makes a lemma B to be related to lemma B must be explained and emphasized when cross-referring to it. This cross-reference will only be made because a lemma A and a lemma B are from two (2) distinct categories, therefore they cannot be dealt with in the same dictionary article. However, the understanding of their meanings is related. It means that when consulting the lemma B the user may need to refer to lemma A to achieve a satisfactory dictionary consultation. This first type of article-external cross-

references to be dealt with in the proposed model can be illustrated by the examples *multiply* and *multiplication*, which is a verb and noun respectively. When consulting the article *multiply*, the user may actually need to be referred to the article *multiplication* to achieve the full understanding of the dictionary article dealing with *multiply*. For that reason within the article of the lemma *multiply* a cross-reference entry will be made to the lemma *multiplication*. To make the user to be aware of the need and the importance of this cross-reference, this procedure will not be done at the end of the dictionary article of the article of the lemma *multiply*. This procedure is activated as soon as the word multiplication appears in the article. This article-external cross-reference is operated through the cross-reference entry "**see multiplication**" as illustrated in Example 11. This example depicts the samples of articles of the lemma signs *multiplication* and *multiply*. "**see…**" is the cross-reference or mediostructural marker and "**…multiplication**" is the cross-reference address.

Example 11

multiplication [μ℘λτιπλι∩κει♣ν]

● **grammatical aspects :** *n*[C] *pl multiplications.* (etymological data)

● **lemma equivalent.**

● **classification** : It is one of the operation mechanisms or operations**.**

● **designation** : It is the operation mechanism or operation, which is indicated by [x] or [.] and consists of adding to itself a number (a multiplicand), a number of times equal to another number (multiple).

● **other types of operation mechanisms** : They are, among others, **addition**, **fraction**, **division** and **subtraction**.

● **see** the multiplication table.

● **see** exercises in MATHEMATICS textbook, page 100.

multiply [μ℘λτιπλαι]
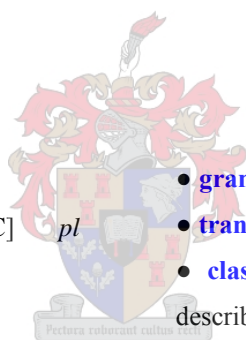
● **grammatical aspects** : *v* (etymological data)

● **translation equivalent**.

● **classification:** It is one the verbs which describe the action of completing an **operation mechanism**.

● **description** : It is the action of completing a multiplication of.

● **see multiplication**. Multiply 2 by 3 (2x3) or (2**.**3).

● **other verbs describing operation mechanism.** The other verbs that express the action to complete other operation mechanisms are, among others, **to add**, **to divide** and **to subtract**.

On the other hand, the decisions that need to be made regarding cross-references between the different articles of polysemous lexical items rely on the application of what is done in encyclopaedia. This second type of article-external cross-references to be dealt with in the proposed model can be illustrated by the example of *triangle*. When consulting the article of the lemma *triangle* in the volume dealing with Mathematics, the user must notice that the lemma *triangle* is polysemous by having another meaning in Music. Accordingly, a cross-reference must be given from the article of the lemma *triangle* in the Mathematics volume to the article of the lemma *triangle* in the volume dealing with Music and vice versa. In Music, the lemma *triangle* refers to *a musical instrument consisting of a thin metal bar bent into a triangle shape which is hit with a metal bar to make a sound*, cf. CIDE (1996: 1556). Again, young and unskilled dictionary use students are the main target users of the proposed model. Therefore, the arrangement of such a system should be devised and executed in such a way that the path to be followed by the user will be done in an unambiguous way.

As a suggestion, among others, when dealing with the lemma *triangle* in the Mathematics volume, the item giving the cross-reference procedure can be as follows: "**see also** **triangle** MUSIC, page x". The cross-reference marker (see also…), the cross-reference address, which is a combination of three entries, i.e. "**triangle**", " MUSIC", "page x". The combination of these three (3) entries establishes a **triple cross-reference address**. The entry "**triangle**" is the first cross-reference address indicating the other sense of the lemma *triangle*. The other entry " MUSIC" is the second cross-reference address indicating the other volume therefore another field in which the lemma *triangle* has another sense. The third entry "page x" is the third cross-reference address indicating the page of the article dealing with the other sense of the lemma *triangle*. This complex cross-reference entry constitutes an efficient procedure that can be regarded as a successful cross-reference which could lead the user and especially the young and unskilled ones in an unambiguous and explicit way to the article dealing with the other sense of the lemma sign *triangle*. This cross-reference also indicates the volume and the page in which the article dealing with the other sense will be included in the proposed multi-volume dictionary. The cross-reference marker "see also" in blue bold colour, the triple address represented by the

entries "triangle" in bold, the non-typographical box including the capital letters "MUSIC" in blue and the page number, produce a straightforwardly identifiable and eye-catching cross-reference entry for the user. A symmetrical cross-reference procedure to the Mathematics volume will also have to be done in the Music volume within the article of the lemma *triangle* in order to make the users aware of the other sense of this lemma in Mathematics when consulting the Music volume of the proposed dictionary. This procedure, among others, is recommended to be in use in the proposed dictionary. Figure 11 below illustrates how this procedure can be dealt with in the Mathematics volume. Yet, this example also depicts how this particular cross-reference procedure can be applied within other volumes. Again, the page number is purely imaginary.
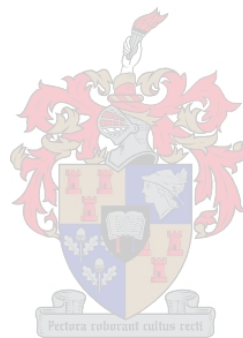
Fig 11.1

triangle [trai·æꭙ·ɣɔ●]

● **grammatical aspects** : *n* [C] *pl* triangles (etymological data).

● **translation equivalent** :

● **classification :** As a geometric shape it belongs to the family of irregular polygons**.**

● **designation :** It is an irregular polygon which presents three straight sides.

● **different types of triangle**: there are three types of triangle, namely, triangle, isosceles triangle, which two sides are equal and equilateral triangle which all the sides are equal.

● **see** ⬡ PIC below.

● **surface:** the surface of the triangle is the basis multiplied by the height and all divided by 2 .

$$s = \frac{b \times h}{2}$$

example : b = 3cm, h = 2cm,

$$s = \frac{3cm \times 2cm}{2} = 3cm^2$$

● **perimeter**: the perimeter of a triangle is the sum of all sides.

$$p = AB + BC + CA$$

example: AB = 3cm, BC = 4cm, CA = 3cm

$$p = 3cm + 4cm + 3cm = 10cm$$

● **see also triangle** MUSIC p. 132

The lexicographer(s) of the proposed model should endeavour to configure an appropriate and relevant format for article-external cross-references. They will need to take even bigger concern to ensure that the cross-references are as comprehensive, accurate and user-friendly as possible.

11.6. Text-external cross-references

The text-external cross-references can be regarded as the cross-reference system, which cross-refers to the outer texts of the dictionary. A steady application of text-external cross-references will play a significant role in sustaining consistency of the proposed model as a full carrier of data. This consistent application will be vital to the communicative and knowledge process of the intended target user group. A well-built and vigorous interaction between the central list and the user's guide to ensure a successful transfer of data will be strongly recommended in the proposed dictionary. This interaction is also recommended between the central list and the mini-grammar for the successful transfer of grammatical data, especially regarding Fang.

Outer texts in the back matter will also be strongly linked to the articles in the central list. This will happen through the inclusion of Fang-French-English, French-Fang-English and English-French-Fang equivalent registers and also Fang-French-English, French-Fang-English and English-French-Fang guide word registers as illustrated in sections 12.4.1 and 12.4.2 respectively. The registers have been set as a requirement for a successful data transfer in the proposed dictionary. These registers will not only include the lemma signs treated in the central list and their equivalents in English. It will also consist of guide words representing data category entries which are included in lemma articles. In this regard, implicit text-external cross-references via guide words put together with the page numbers, will direct the user from one of the equivalent registers to an article stretch in the central list. In addition, the user will be directed to the required data contained in this article. As illustrated in the figure depicting the sample of the article of the lemma *trapezium* in section 11.4, the users can follow the search path that could lead them straight to the data dealing with the **calculation of the perimeter and the surface** of the trapezium, or the **practical units** of the measure of length in the articles included in the central list from the one of the guide word registers.

In this regard, beside already being a relevant access structure procedure as one of the search routes to be followed in order to reach a specific lemma sign or data category,

the inclusion of the guide word registers will be more valuable and will not be isolated in the proposed model. The Fang-French-English, French-Fang-English and English-French-Fang guide word registers in the case of the present research will constitute pertinent interactive outer texts, which will add to the consistency of the proposed dictionary as a complete carrier of data, which is fundamental to the communicative procedure.

11.7. Pictorial illustrations and cross-referencing

Including pictorial illustrations in the back or middle matter texts resolves many problems of a bilingual, bidirectional dictionary, cf. Louw (2004: 189). For space saving, the textual condensation of the microstructure and the cost of the production the same pictures are usually avoided to be presented twice by being inserted in each section of the dictionary. Indeed, when it can be costly for the publications, some pictures are not inserted as microstructural items under the corresponding lemma or in close proximity. They are included in some of the middle or back matter texts. Yet, this approach does not provide immediate addressing. Again, the lexicographer should be careful about the choice to be made when formulating and compiling the dictionary. The high cost of the publication of a dictionary can be covered by the good quality of the end product which will sell well. On the other hand, a low-priced cost of the publication can lead to a bad quality dictionary which will not satisfy the users.

Though, in the specific case of the proposed Fang/French bilingual bidirectional dictionary with an English trilingual dimension, other options are presented to provide as much immediate addressing as possible for young and unskilled users. Therefore, the pictures will be inserted twice in the central list of the proposed dictionary to provide convenience and more immediate addressing to the users especially the young ones than the pictures being inserted in middle or back matter texts. As discussed in more details in section 12.6 pictorial illustrations will mostly be located close to the articles dealing with **hypernym lemmata** where pictures representing the **hyponym lemmata** will be presented. These pictures will be accompanied by text in the three languages Fang/French/English, so that the users are also given straightforward access

to LSP terms and their corresponding target-language equivalents. The pictures, which are large, like the human body, the skeleton, maps, national flags, etc. will be placed in the back matter texts even over two pages or in inserted leaflets if necessary. In this regard, the lexicographer(s) of the proposed model should devise very precise cross-references that will guide the user to the appropriate pictorial illustrations. That means that those cross-references must be rallied by an equally clear-cut and unambiguous cross-reference entry in the microstructure of the related article.

In this regard, the structural marker which combines a typographical and non-typographical structural indicator and which is mostly used in existing dictionaries can be used as one option in the proposed model. When dealing with the lemma *trapezium*, the item giving the cross-reference can e.g. be " **see** **PIC** **geometric shapes, page x"**. *Trapezium* will be one of the hyponyms of the heperonym *geometric shape*. Therefore, the illustrations of the geometric shapes will be presented close to the article of the lemma *geometric shape*. This structural marker will help to establish a successful cross-reference to the collage that shows **geometric shapes** and in which the needed picture of different types of *trapezium* appear. The non-typographical block arrow and the capital letters "**PIC**" in blue colour as an abbreviation of "picture" combined with the presentation of **geometric shapes** in blue bold typeface and the page number, create an easily identifiable cross-reference entry.

Another option can be to offer the users of the proposed model more immediate addressing to the pictorial illustrations by presenting illustrations of the sub-divisions of hypernym lemmata. As an example, the illustrations of the different types of trapezium will not be present within the article of the lemma trapezium

This pertinent and also pleasant mediostructural procedure, which is used in the CIDE (1996) for instance, as discussed in sections 9.2.1 and 11.1, is suggested among others, to be used in the proposed dictionary. The efficiency of this method of this procedure would be reinforced and also pleasant for the young users with the use, among others, of colour. This method is illustrated in figure 11.2 below. Once again, the page number is purely arbitrary.

Fig 11.2

trapezium [tr★'pizi★m]

● **grammatical aspects** : *n* [C] *pl* trapeziums or trapezia. (etymological data).

● **lemma equivalent** :

● **classification :** As a geometric shape it is a quadrilateral which belongs to the family of irregular polygons**.**

● **designation :** It is quadrilateral which presents two of the sides, which are parallel and unequal.

● **different types of trapezium**: there are three types of trapezium, namely, trapezium, isosceles trapezium, which the sides that are not parallel are equal and right-angled trapezium which one of the angles is a right-angled.

● **see** [PIC] **opposite**.

● **surface:** the surface of the trapezium is the sum of length of the big basis added to the length of the small basis multiplied by the height divided by 2.

$$s = \underline{B + b} \text{ x } h$$
$$2$$

example : B = 5cm, b = 4cm, h = 3cm :

s = 5cm + 4cm x 3cm = 13, 5cm^2
            2

● **perimeter**: the perimeter of a trapezium is the sum of all sides;

p = AB +BC+ CD+ DA

example: AB = 5cm, BC = 3cm, CD = 6cm, DA = 3cm:

p = 5cm + 3cm + 6cm + 3cm = 17 cm

● **see also** [PIC] **geometric shapes**, p. 245 for complete information on perimeters and surfaces of geometric shapes.

11.8. Dictionary-external cross-references

Dictionary-external cross-references can be regarded as the cross-reference system, which exceeds the boundaries of a given dictionary. This mediostructural procedure links a text segment in a dictionary to a source outside the dictionary, cf. Gouws & Prinsloo (1998: 22). The pinnacle of remote addressing in the dictionary is reached when certain elements in the dictionary refer to outside sources, cf. Louw (2004: 191). That is especially the case when citations with detailed source references are employed. The proposed specialized multi-volume school dictionary as discussed in section 2.2.2 intends to be a useful and complementary reference source in education. As a consequence the formulation of this model is done according to the syllabus that appears in education. This strong interaction will make it important to consider the possibility when strictly necessary to refer the users who are students to data, discussed in more detail in their textbooks and other study materials. As an illustration, the dictionary-external cross-reference procedure, "**see MATHEMATICS textbook,** page 100 for exercises". This cross-reference procedure within the article of the lemma *trapezium* after providing data about the **calculation of the perimeter and the surface** would be a recommendation to the students to go to these exercises in order to obtain a better understanding and to master the calculation of the perimeter and the surface of the trapezium.

Consequently, the type of dictionary proposed in this research can be part of a **"package of reference sources for school"**. This package would consist, among others, of the proposed dictionary itself, a lexicographical work which would be a textbook for dictionary use, and textbooks. This package could be one of the means, to enhance and make education more consistent as it is acutely needed in especially African countries. Yet, the importance of the decision and the choice to be made regarding the package of reference sources will have to be discussed and finalized in collaboration with teachers, experts in education programme and publishers.

Still, if such an idea eventually happens to be realized, its success will also have to depend first on the approval and commitment of people to compile and update the

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proposed dictionary according to the syllabus. Then this success will rely on the effectiveness of the dictionary-external cross-references, which will from then on be possible to be undertaken. Accordingly, the article trapezium is updated and can be finalized as illustrated in figure 11.3 as follows:
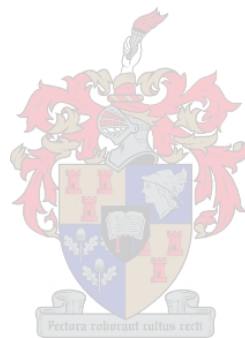
Fig. 11.3

trapezium [tr★'pizi★m]

● **grammatical aspects** : *n* [C] *pl* trapeziums or trapezia. (etymological data).

● **lemma equivalent** :

● **classification :** As a geometric shape it is a quadrilateral which belongs to the family of irregular polygons**.**

● **designation :** It is quadrilateral which presents two of the sides, which are parallel and unequal.

● **different types of trapezium**: there are three types of trapezium, namely, trapezium, isosceles trapezium, which the sides that are not parallel are equal and right-angled trapezium which one of the angles is a right-angled.

● **see** | **PIC** ⟩ opposite.

● **surface:** the surface of the trapezium is the sum of length of the big basis added to the length of the small basis multiplied by the height divided by 2.

$$s = \frac{B + b}{2} \text{ x } h$$

example : B = 5cm, b = 4cm, h = 3cm :

s = $\frac{5cm + 4cm}{2}$ x 3cm = 13, 5cm^2

● **perimeter**: the perimeter of a trapezium is the sum of all sides;

$$p = AB + BC + CD + DA$$

example: AB = 5cm, BC = 3cm, CD = 6cm, DA = 3cm:

p = 5cm + 3cm + 6cm + 3cm = 17 cm

● **see also** | **PIC** ⟩ geometric shapes, p. 245 for complete information on perimeters and surfaces of geometric shapes.

● **see** MATHEMATICS **textbook, page 100 for exercises**.

11.9. Conclusion

As it has been discussed and observed through this investigation with the access structure and the addressing structures, the mediostructure also plays a significant role to ensure the high standard of the user-friendliness of a dictionary. Furthermore, when these three (3) components are correctly devised and utilized, it results in a harmonious integration and interaction of all the five (5) salient components of the central list, namely, the macrostructure, the microstructure, the access structure, the addressing structure and the mediostructure. Furthermore, adding up an eye-catching feature characteristic that enhances the standard to access the different data will make the proposed model to be a user-friendly practical instrument which will attract the age bracket of the young students of the intended target users. Yet, the way the colour is used to make the proposed model to be pleasing in this research is only a proposal. The inclusion of colour should be tested by means of questionnaires and interviews with young students and teachers. Secondly, the editorial staff should make the final decision with the collaboration of other appropriate experts such as people in charge of the compilation of reference sources aimed at young students, educational psychologists, etc. Going through to this methodological approach, will make certain about the right choice of the colour and the right place where the colour should be used in order to make the model as inviting as possible. All in all, a strong integration and interaction between the macrostructure, the microstructure, the access structure the addressing structure and the mediostructure, added up with a pleasing presentation are of special importance for the consistency of the proposed model to achieve the goal of being a systematic and vital study aid for students, teachers, linguists and lexicographers.

PART III: CHAPTER 12: THE OUTER TEXTS AND PICTORIAL ILLUSTRATIONS

12.0. Introduction

Outer texts play a vital role in the consultation process of dictionaries. This vital role is supported by the structures and the contents and their constant innovation in order to help the users to decode and understand the codes, conventions and the methods employed in dictionary. The device of the outer texts and their innovation are a prerequisite to ensure a dictionary to completely fulfil its role. This also goes for the proposed dictionary. This model is formulated in order to be a complementary reference source to the textbooks and other study material in education. In this regard, other suggestions are made so that a specialized multi-volume school dictionary will be an effective aid particularly for students in the classroom and when studying.

Accordingly, the major suggestion made in order to meet the goals of the proposed model revolves around two important aspects. Firstly, the lexicographer of the proposed model should plan the outer texts in such a way that they can be used as relevant contents that can help and inspire a programme or a subject focusing on the dictionary use. Secondly, this programme should be part of the different lectures or subjects, which could run through a determined period of the academic year. An appropriate period could for example be the first trimester. After receiving classes about the use of the dictionary during this early period of the year, the students could then use this knowledge through the remaining period. However, the appropriate authorities and experts will decide on the suitable time of this period.

This suggested orientation of the outer texts, put together with the analysis of the users steer in this regard the formulation of the proposed dictionary to consider the design of innovative types of texts to be presented in addition to the central list. Yet, when dealing with any type of outer texts, the lexicographer should always be aware of the disparity between **integrated** and **unintegrated** outer texts. As Gouws (2001c:

84) explains, unintegrated outer texts complement the central list do not play a role in achieving the genuine purpose of the dictionary. Integrated outer texts function in co-ordination with the central list and are integrated into the genuine purpose of the dictionary.

In view of that, the textual sketch of each one of the outer texts which are planned within the next paragraphs, whether in the front matter or the back matter to be inserted in the central list of the proposed dictionary if necessary, adhere strictly to this important distinction. Moreover and very importantly because a specialized multi-volume school dictionary is a bilingual dictionary with a trilingual dimension, every outer text must disclose this feature. Therefore, the outer texts will be presented in Fang, French and English. The use of the presentation of the outer texts in English will be for the English text production on the one hand. On the other hand this presentation will be useful for Fang and/or French text reception and production. In other words, the outer texts of the proposed model will significantly participate in the lexicographic functions of the model. Therefore, the outer texts of the proposed model will ensure what is known in metalexicographical terms as a *transtextual functional approach*, cf. Gouws (2004). Yet, the outer texts of the envisaged model and the selection of the data to be included in these texts should be planned carefully. Then again, in order to make the proposed model to be attractive, guidelines are suggested to integrate as far as possible pleasing features in the outer texts. Accordingly, the lexicographer(s) should make the planning of these texts as an integral part of the dictionary conceptualisation plan.

Yet, as discussed in section 8.2.3 illustrations that can be regarded as a formal lexicographical category facilitate the understanding of object-constituting knowledge by users. In this chapter apart from the fact that the pictorial illustrations of the proposed model have to be colourful, more emphasis will be on these texts as more often wrongly considered as simple decorations rather than a fully-fledged lexicographic category.

Thus, the following paragraphs first give a brief discussion of the frame structure, the structure of the outer texts and the lexicographic functions and the outer texts. This discussion which mainly relies on Gouws (2004: 68-87) is of special importance to successfully deal with the outer texts of the envisaged model. Second, each foreseen outer texts to be included will be methodically scrutinized. Finally, a discussion on the pictorial illustrations will be given.

12.1. The frame structure and the structure of the outer texts

According to Kammerer and Wiegand (1998, cited in Gouws: 2004: 69), a dictionary with a central text, and front and back matter texts constitutes a frame structure. It is the lexicographic term used to refer to the structure of the dictionary, cf. Bergenholtz and Tarp (1995: 211). Dictionaries such as the one planned in this research consists of a central text or list which is complemented by front and or/ or back matter texts. This reality based on the fact that the central list can be complemented by outer texts emphasizes the structure of dictionaries. This results in more attention to the outer texts and in seeing outer texts as *textual parts and textual constituents*, *partially* and *completely extended texts*, *complex* and *extended complex outer texts*. Still, the outer texts are structured as *primary* and *secondary frame structure*, cf. Gouws (2004: 68-72).

12.1.1. Outer texts as textual parts or textual constituents

An outer text can be seen as textual constituent when is a functional component of the dictionary, cf. Kammerer and Wiegand (1998: 228, cited in Gouws: 2004: 69). As an example, the user's guide text included in the front matter of a dictionary is not a user's guide to the front matter but a user's guide to the dictionary as a whole, cf. Gouws (2004: 69).

12.1.2 Partially and completely extended texts

In a dictionary the central list as well as any text occurring in the front or back matter can be extended and this extension can be complete or partial, cf. Gouws (2004: 68-69). A partial extension leads to a given text being complemented by either front or back matter texts whereas a complete extension results in a text complemented by both front and back matter texts. The notion of an extended outer text is not only to reflect the situation where the central list is complemented by an outer text but also to make provision for an outer text with its own outer text(s). An example of an extended outer text is an outer text consisting of a number of subtexts and which also includes its own table of contents as a secondary outer text to enhance the access to the different subtexts, cf. Gouws (2004: 70).

12.1.3. Complex and extended complex outer texts

A complex outer text can be seen as an outer text consisting of a number of subtexts whereas an extended complex outer text can be regarded as a complex outer text, which consists of a number of subtexts and also consists of its own table of contents, cf. Gouws (2004: 70). The texts included in the back matter part of each volume of the proposed dictionary and indicated by the table of contents in the front matter function. For instance, *the equivalent registers* as discussed in section 12.4.1 are complex outer texts which comprise a number of subtexts representing different words included in a specific word list the central text referring to the specific themes of the subject present in the corresponding volume. Accordingly, the equivalent registers of the volume dealing with the subject Science will include a long list of subtexts which refers to specific semantic fields, i.e. human beings, animals, vegetation, physical environment and technological environment. These texts are complex outer texts as depicted as follows:

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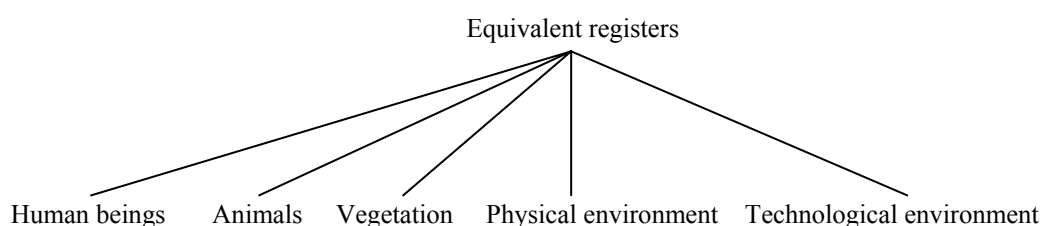
If displaying their own tables of contents in order to ensure rapid access to the different subtexts extends these outer texts, they will be regarded as extended complex outer texts, cf. Gouws (2004: 70). The equivalent registers of the model, as extended complex outer texts would be represented as follows:

Equivalent registers

Table of contents Human beings Animals Vegetation Physical environment Technological environment
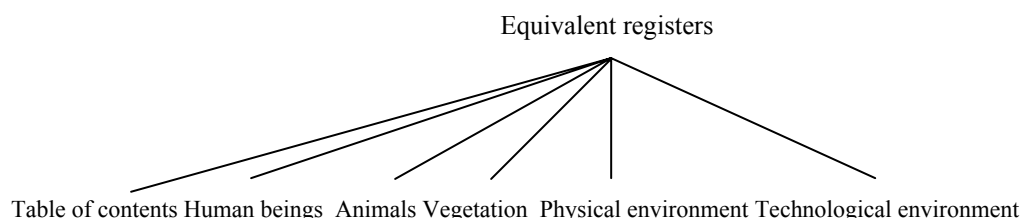
Still, this option will not be considered in the proposed model for the reason that the number of subtexts representing the different words included in each section of the central list is extensive and these texts might not be indispensable to access the dictionary. Therefore, the inclusion of extended primary outer texts in the proposed might not be beneficial to the proposed model. They might lead to space-consuming matter and be pointlessness.
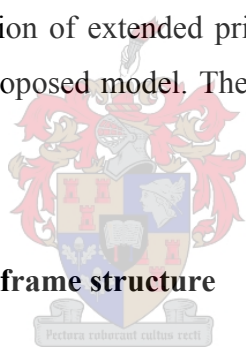
12.1.4. Primary and secondary frame structure

A distinction is made between a primary and a secondary frame structure, cf. Gouws (2001: 527, cited in Gouws: 2004: 70). The primary frame structure can be regarded as the combination of the texts which are outer texts as a whole. The secondary frame structure applies to an outer text which displays its own complete extension resulting in a frame structure. This frame structure typically applies to outer texts but it can also prevail in dictionaries with more than one word list, e.g. a bilingual dictionary with biscopal character, cf. Hausmann and Werner (1991, cited in Gouws: 2004: 71), where more than one of the word lists could display a frame structure with these outer texts directed at the specific word list and not at the dictionary as a whole, cf. Gouws (2004: 71).

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12.2. Lexicographic functions and the outer texts

It has been discussed throughout Chapter 4 that the functions of a dictionary are not only determined by the characteristics of the users, but also by the user situations and the user needs. The situations in which a dictionary is used and the needs resulting from these situations have a definite influence on the data distribution programme. They also have similar effects on the lexicographic functions of that dictionary. In combination with the central list, the outer texts also participate in fulfilling the lexicographic functions to be displayed by a dictionary. As already notified, this approach known as a *transtextual function approach* will prevail in the envisaged model. Accordingly, as part of a successful approach when dealing with the outer texts of the model, the following sections examine the outer texts with communication- and knowledge-orientated functions.

12.2.1. Outer texts with a communication-orientated function

The outer texts of some dictionaries clearly share the communication-orientated function of the central list, cf. Gouws (2004: 85-86). In bilingual dictionaries, the central list alone cannot always assist the users in their text production efforts. This comprehensive assistance is usually achieved by the participation of the outer texts in assisting the central list in fulfilling a more complete lexicographic function such as text production. As an example from Gouws (2004: 85), in the *Readers's Digest Afrikaans-Engelse Worodeboek/ English-Afrikaans Dictionary* (henceforth abbreviated as RD), one of the primary back matter texts is a bilingual text *Writing a letter in Afrikaans/ Die skryf van 'n brief in Engels*. As he says this unintegrated complex back matter text has an undisputed communication-orientated function and complements the central list in its text production goals. In this outer text, the users get advice regarding the writing of letters in both Afrikaans and English. One text explains some conventions and it is complemented by further texts in which examples of different letters are given.

Detailed explanation and more examples dealing with outer texts with a communication-orientated function are given in Gouws (2004: 85-86). The lexicographer of the proposed model can use this information to ensure a successful understanding and establishment of the interactive relation between the central list and the outer texts to help with the communication-orientated function relevant to the dictionary. Still, similar interactive relations between the central list and outer texts to achieve more complete communication-orientated functions exist in the envisaged model. These relations are discussed and noticeably highlighted whenever they occur when dealing with the respective outer texts to be included in the next paragraphs.

12.2.2. Outer texts with a knowledge-orientated function

Just as the outer texts of some dictionaries share the communication-orientated function of the central list, it also applies to the knowledge-orientated function. As an example, the envisaged *Fang-French and French-Fang Bilingual Specialized Multi-volume School Dictionary with English in trilingual dimension*, will establish a relation of thematic progression, i.e. coherence, between the central list and the back matter texts. These texts are: *The Fang-French-English, French-Fang-English* and *English-French-Fang* equivalent registers, *The Fang-French-English, French-Fang-English* and *English-French-Fang* guide words and the *Fang-French-English, French-Fang-English* and *English-French-Fang* pictorial illustration indexes. Considering the subject matter of the model, these outer texts are functional constituents which add to the thematic progression and to an efficient transfer of data. Still, more development and more examples regarding outer texts with a knowledge-orientated function which can help the lexicographer of the proposed model when dealing with the lexicographic functions of the outer texts are discussed in Gouws (2004: 76-78).

Yet, as the communication-orientated functions the knowledge-orientated functions of the outer texts of the model are noticeably scrutinized and pointed out every time they come about when dealing with the different outer texts to be included in the next sections. The explanation and the examples provided in Gouws, combined with this

discussion will provide the lexicographer of the proposed model with valuable instructions when dealing with the knowledge-orientated functions of the outer texts.

12.3. The front matter texts of the proposed model

The front matter texts can be regarded as guidelines to the presentation, the understanding and the use of a dictionary. Those texts will be of special importance in the case of the envisaged model because as a typological innovative model, they will have to help the users to easily access the complex frame structure. The bulk of the intended users will be young and unskilled users. The front matter texts will have the important role to ensure an easy decoding of the data included in the frame structure of the proposed dictionary. At least six (6) outer texts are foreseen to be included in the front matter texts of each one of the volumes of the proposed dictionary. Those texts are the preface, the list of contributors, the table of contents, the list of abbreviations, the user's guide and the mini-grammar.
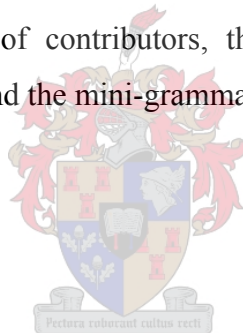
12.3.1. The preface

The preface can be regarded as an unintegrated outer text located in the front matter of a dictionary, in which the genuine purpose, the typology, as well as the target users of that dictionary are among others usually indicated. The proposed specialized multi-volume school dictionary is a typological innovative dictionary. This outer text will have to provide first of all in very precise and concise words data regarding the background. Then, this outer text will have to specify the structural possibilities and motivations, the linguistic and lexicographic situations that lead to the compilation of the dictionary from the envisaged model. The preface will also give a clear indication of the analysis of the users, the identification and the formulation of the genuine purpose and the typology of a specialized multi-volume school dictionary. However, the editorial will have to decide if this preface will be presented in each and every volume or it will only be included in the volume which will be decided to be volume one (1).

12.3.2. The table of contents

When discussing the rapid outer text of the proposed dictionary in section 9.1.1 it was suggested that a general table of contents presenting a sketchy structure of the dictionary should be given in each volume. This table of contents will be presented distinctively in Fang, French and English, cf. figure 12.1. Additionally, comprehensive tables of contents of the central lists will complete the general table of the central lists included in the general table of contents. As already discussed in section 9.1.1, these texts will be slotted before each section of each volume of the proposed model. The comprehensive tables of contents of the central list will be considered as secondary outer texts because each one of them will be directed at a specific word list of each volume of the model. Then again, in each volume of the proposed model the other volumes and their corresponding comprehensive tables of the central list will be included. On the other hand, in order to make these texts eye-catching and highlight the source language, the texts including the page numbers as noticed in most of reference sources aimed at young students, cf. Nathan (1994) & 1995), Institut Pédagogique Nationale (1998), the texts representing the source language will be presented in bright colour. The presentation in bright colour of the texts representing the source language and the page numbers also prevails in all the outer texts where applicable, cf. list of abbreviations, equivalent register, guide word register, pictorial illustration index.

Example 12.1 below depicts a sample of the general table of contents as it could be presented in the Mathematics volume. The other volumes and their comprehensive contents will not be illustrated because it is not considered as relevant in this specific case. Example 12.2 that follows, illustrates the comprehensive table of contents of the central list of the same volume. As shown, the texts representing Fang which is source language and the page numbers are presented in blue. Still, the page numbers are fictional and the presentation is still a proposition to be finalized.

Example 12.1: Sample of the general table of contents in the Mathematics volume

Table a be matiere ane general
Table de matières générale
General contents

Be texte bene osu
Les avant textes
Front matter texts

E liste ane central
Liste centrale
Central list

Liste central ane Fang-Fala/Flasi · Liste centrale Français-Fang · English / Anglais · 50

Be volume bevogho ya be table a be matiere bene detaille
Les autres volumes et les tables de matières détaillées
The other volumes and the comprehensive contents

Be texte bene a mvus

Les arrière textes

Back matter texts

Example 12.2: Sample of the comprehensive tables of contents of the central list in the Mathematics volume

Liste central ane Fang-Fala/Flasi

Table a be matiere ane detaille
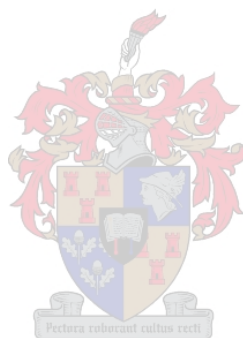
Liste centrale Français-Fang

Table de matières détaillée

Enumération

Géométrie
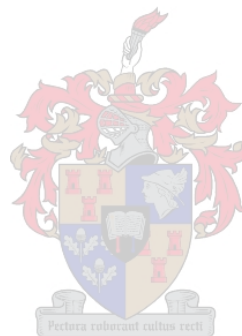
Mesures

The feature characteristic of the proposed dictionary presents a thematic ordering of the central list. This will be a principal reason for users to make use of the table of contents in order to assist them in their dictionary consultation. In the proposed dictionary, words will not be presented in an individual continuous alphabetical order. They will be clustered together within split alphabetical listings each one representing a group or paradigm of words, which belongs to a particular theme. The more skilled users may just rely on the general table of contents to get hold of the needed lemma, which is inserted in a specific alphabetical listing of the discontinuing central list. This will not be the case with the young and unskilled users. This part of the intended target user group will need the general table of contents and more especially the

comprehensive tables of contents of the central list to straightforwardly reach the needed lemma.

In each volume, the general tables of contents will be presented in the front matter. Furthermore, the comprehensive tables contents of the central list will be presented before each section. In addition, each volume of the proposed model will include the presentation of the contents of other volumes. By offering access to the data included in the central list, the procedures used to present the tables of contents will make them to be fully effective as outer texts and will highlight the polyaccessibility of the proposed model. However, more research will have to be done to improve the effectiveness of the suggested procedure, which needs to be as user-friendly as possible.

12.3.3. The list of abbreviations

As part of the primary frame structure, the list of abbreviations employed in the proposed dictionary will be of special importance for the intended target user group. These abbreviations will comprise of domestic abbreviations when it comes to dealing with Fang. The use of Fang in dictionaries has not yet been well established in Gabon. Therefore, most of the abbreviations used in the model will be innovative. Still, the lexicographer must also take into account the abbreviations which have been used in existing dictionaries including Fang. The abbreviations when dealing with French and English will be the general abbreviations used so far in existing dictionaries including these two languages.

Fang has not yet been well standardized in Gabon and French is not well mastered in the hinterlands. Therefore, the abbreviations, which are used when dealing with these two languages, must be known beforehand by the user through a front matter text presenting a list of abbreviations with regard to Fang. A user who is an English speaker may strongly need to refer to this list in order to ensure an optimal and full retrieval of information provided in Fang or French. As an example, in the article of

the lemma *nlo*, meaning *head*, which includes the abbreviation **ew** in the grammatical aspects to indicate the part of speech, the user will need to refer to the list of abbreviation to find out that e*w* is the abbreviation *ewula* which is the Fang equivalent of noun.

On the other hand, the bilingual with a trilingual dimension feature of the proposed model must be reflected in the list of abbreviations. Accordingly an example of this list is as follows:

Example 12.2

- Abbreviations for Fang-French section

abrev	abbreviation	abbreviation	abbreviation
ew	ewula	nom	noun
cl	class or classificateur	classificateur	classifier

- Abbreviations for French-Fang section

abrév	abbreviation	abbreviation	abbreviation
n	nom	ewula	noun
pron	pronom	pronom	pronoun

The list of the abbreviations will be presented in an alphabetical order to make it easy to retrieve the needed abbreviation. In the list of abbreviations for the Fang-French section the user will get the information about what the abbreviations refer to in Fang. In addition, the user will also know which are the equivalents in French and English of these items and vice versa, in the list of abbreviations for the French-Fang section. Furthermore, the user who is an English speaker will get in both lists information

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about the abbreviations in Fang and French and also the English equivalents of these items.

12.3.4. The user's guide

As a component of the primary structure, i.e. a textual constituent, the user's guide plays vital role and functions in a dictionary. Gold (1993: 304) explains the first function guide as follows: " Responsible dictionary compilers are expected not only to give careful thought to those questions (e.g. on the user profile – PAL), take explicit decisions, and give effects to their decisions, but also to tell potentiel users of their works exactly what they can expect from them". Yet, it has been indicated that the outer texts of the proposed model should be planned in such a way that they can be used as relevant contents that can sustain a programme focusing on the teaching of the dictionary use. The lexicographer of the model should make a distinction between general dictionary using skills and the guidelines about using this specific dictionary. The user's guide is the location in the dictionary that will obviously be employed to meet this need. From the perspective of the foreseen dictionary, the user's guide is considered as an essential and compulsory outer text, which provides the user with an indication of the design and accessibility of the contents of the dictionary. The accessibility of the proposed dictionary can be regarded as the entire organisation of the search path provided by this dictionary in order to successfully lead the user to the required data. In the other words, the user' guide is regarded as an indication in accessible and simple words from the lexicographer to the user about the structure, contents and functions of a specialized multi-volume school dictionary.

Accordingly, some suggestions for the contents of the user's guide of the proposed model are made. These suggestions revolve around the fact that the data about the macrostructure, the microstructure, the access structure, the addressing structure and the mediostructure will constitute the main components of the user's guide. The presentation of the user's guide via those components could be considered as a frame that can support or make easy the decision on working out a teaching programme on dictionary use.

The components should be presented in a general and simple language for the sake of the understanding of the intended non-specialist users which comprise of young unskilled students. Therefore, the user's guide of the proposed model must be written in words that children can also understand. This change from the specialized language to a general language can be suggested as presented in example 12.3. In this example, the first column of the table presents in metalexicographical terms the different components of the user's guide. The second column presents a suggestion of a general language which can be used for a school child to understand the user's guide. This general language is only a suggestion, it still contains some metalexicographical terms which at this stage are difficult to be turned into simple terms. The final version will have to be done in collaboration with other lexicographers, teachers and educational psychologists.

Example 12.3

Metalexicographical language	A general language
The macrostructure	*The organization of the words in the dictionary*
The microstructure	*The treatment of the words*
The access structure	*The organization of the route to the different data types of the dictionary*
The addressing structure	*The way in which an entry is directed at another entry*
The mediostructure	*The cross-references between the different data*

With the components of the central list of the proposed dictionary changed from lexicographic special-field language into a general language simple and accessible to the non-specialist users, the following paragraphs give a proposition of a canonical

form of the presentation and the contents of the type of the suggested user's guide. Obviously the user's guides will not be the same in each volume of the proposed multi-volume dictionary. There will be a standard structure, which will be slightly modified in order to make the user's guides to adjust to the contents of the dealt subject. Finally, the proposed dictionary is meant to be bilingual with a trilingual dimension. This aspect must also prevail in the user's guide. The user's guide must be presented in the involved languages. In the present research from the title as presented in the example 12.4 below, to the contents the user's guide will be presented distinctively in Fang, French and English.

Example 12.4

"Abelane ya dictionnaire" as the title of the user's guide in Fang

"Se servir du dictionnaire" as the title of the user's guide in French

"Using this dictionary" as the title of the user's guide in English
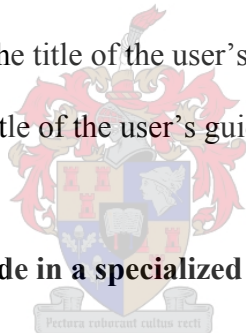
12.3.5. A sample of a user's guide in a specialized multi-volume school dictionary

The following sample is meant to give the lexicographer(s) a concrete example of the structure and the contents of a user's guide which is suggested when compiling the proposed dictionary. The presentation of this sample takes into account once again the fact that the different components should be worked out in such a way that it can provide relevant outlines for a teaching programme on the dictionary use. In addition, this user's guide should be supported by means of a general language for the sake of the understanding of the non-specialist users, i.e. young students, who are unskilled in dictionary use. The structure and the contents proposed in this sample are extremely preliminary, highly hypothetical and very approximate. The draft and the final version will have to result from a thorough evaluation and consultation with the teachers, linguists, Fang native speaker(s) and other lexicographers. This sample as depicted in Example 12.5 below illustrates the contents of the user's guide as it could be given in the Mathematics volume of the proposed specialised multi-volume school dictionary.

Example 12.5: A sample of the user's guide in English in the Mathematics volume

"Using this dictionary"

1. *THE ORGANIZATION OF THE WORDS IN THE DICTIONARY*

In both sections of this dictionary the words are not presented individually in a continuous alphabetical order. This dictionary presents a thematic arrangement of the central list. It means that in the central list, which is the part of the dictionary where the meanings of the words are presented, is organized through chapters like in textbooks. The ordering of themes is alphabetic. This is why in this Mathematics volume the themes of the corresponding chapters in the Mathematics textbook are Enumeration, Geometrie and Mesure in the Fang/French part and Enumération, Géométrie and Mesure in the French/Fang part. Therefore, the words are grouped together in an alphabetical order in each theme. This makes each part of the central list of this dictionary not to follow an alphabetical ordering from the first letter to the last because the beginning of the treatment of a theme also implies the beginning of another alphabetical ordering. As illustrated in the example below representing a portion of the central list, the verb *mulitplie* (multiply) and *multiplication* (multiplication) are treated together in the theme stretch representing **Numeracy**. There is no alphabetical ordering with the next words *trapezium* and *longueur* (length), which are treated in the theme stretches representing **Geometry** and **Measures** respectively. It means that the user does not have to try to find *multiply* after the words beginning with **L** even within the words beginning with **M**, like it should have been in a dictionary with a straight alphabetical ordering. The user is lead to the theme stretch in which the word *multiply* belongs to and which is treated. The same principle goes for the article of the lemma signs *trapezium* and *length*. The organization of the dictionary makes provision for the user to follow an easy and friendly way that will lead him to reach that word as it is described in the third point of the user's guide. The

example below is an illustration of the thematic arrangement of the central list to be found in the dictionary. This illustration considers the articles of the word signs *multiply*, *trapezium* and *length*, and the corresponding themes in which they are dealt with. This example displays that there is not straight alphabetic ordering between all the words included in the central list of this dictionary. Indeed, in this dictionary lemmata such as *multiply*, *trapezium* and *length* are dealt with in distinctive themes, namely Numeracy, Geometry and Measures.

● An example of the presentation of the Fang-French section the central list of the proposed dictionary.

THEME 1 : ENUMERATION / ENUMERATION / NUMERACY

multiplication [myltiplikasi☞➔] *n* [kl 9, 10] *pl.* be multiplikation (a so flasi *multiplication*), **multiplication**.
● Désigne un mécanisme opératoire ou opération notée [x] ou [.], consistant à additionner à lui-même un nombre (multiplicande), un nombre de fois égal à un autre nombre (multiplicateur).
● Les autres mécanismes opératoires ou opérations sont, entre autres, l'**addition**, la **fraction**, la **division** et la **soustraction**.
exemple : *2 x 3* ou *2.3* = 6
● **voir aussi** la table de multiplication, p 191.

multiplie [myltiplije] *v.* (aso fala ngue kighe flasi *multiplier*) **multiplier**.
● Exprime l'action d'effectuer un méchanisme opératoire**,** c'est l'action de faire une multiplication de.
● **voir multiplication**, p 173.
exemple : Multiplier 2 par 3 (2x3) ou (2**.**3).
● Les autres verbes qui expriment les actions d'effectuer des mécanismes opératoires sont, entre autres, **additioner**, **diviser** et **soustraire**.
● **voir** exercises sur la multiplication dans le livre MATHEMATICS, page 80.

THEME 2 : GEOMETRIE / GEOMETRIE / GEOMETRY

trapeze [trap☞z] *ew* [cl 9, 10] *pl* be trapeze**,** (aso flasi *trapèze*) **trapèze.** Désigne une **figure géométrique.** C'est un **quadrilatère** qui appartient à la famille des **polygones irréguliers**.
● Il présente deux côtés qui sont parallèles et inégaux.
● **Différent types de trapèze** : Il y a trois types de trapèze. Le trapèze **isocèle**, dont les côtés non parallèles sont égaux, le trapèze **rectangle** dont un des angles est un angle droit, et le trapèze **quelconque**.

● voir ⬡ ILL ci-contre.

● **surface :** la surface d'un trapèze s'obtient en multipliant la demi-somme des bases par la hauteur.

$$s = \frac{B + b}{2} \times h$$

exemple : B = 5cm, b = 4cm, h = 3cm :

$s = \frac{5cm + 4cm}{2} \times 3cm = 13, 5cm^2$

● **périmètre :** le périmètre d'un trapèze est la somme de tous les côtés.

$$p = AB + BC + CD + DA$$

exemple: AB = 5cm, BC = 3cm, CD = 6cm, DA = 3cm:

p = 5cm + 3cm + 6cm + 3cm = 17 cm

● **voir aussi** ⟨ILL⟩ de**s** figures géométriques p. 245 pour une information complète sur les calculs des périmètres et des surfaces.

● **voir** exercices sur le calcul des périmètres et des surfaces dans le livre MATHEMATICS, page 100.

THEME 3 : MESURE (BE) / MESURES / MEASURES

longueur [lↄ:gↄr] *ew* [cl 9, 10] *pl.* be longueur. (aso flasi ngue kighe fala *longueur*) **longueur.**
● **désignation** : **notion de mesure**. C'est la distance entre deux points ou d'une chose de l'une à l'autre de ses extrémités.
● a**utres notions de mesure** : mesure d**'aire** ou de **surface**, la mesure de **capacité**, la mesure de **masse**, la mesure de **temps** et la mesure de **volume**.
● **unités pratiques : l'unité principale** de mesure de longueur est le **mètre**. Les **unités pratiques** de mesure de longueur sont constitués de multiples et de sous-multiples. Les multiples sont le **kilomètre**, l'**hectomètre**

et le **décamètre**. Les sous-multiples sont le **décimètre,** le **centimètre** et le **millimètre**.

● **voir tableau de conversion des mesures de longueur**, p.170. C'est un tableau qui présente les rapports entre les unités pratiques de mesure de longueur en fonction de l'unité principale.

● **voir** exercices sur le calcul de longueur et distances dans le livre MATHEMATICS, page 90.
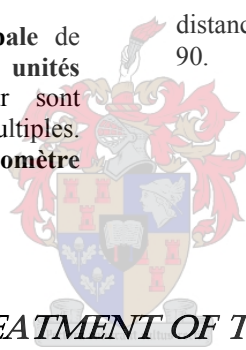
2. THE TREATMENT OF THE WORDS

- The main word is presented in blue bold typeface, e.g. **trapeze**. Within the treatment of this word the different data types are easily identifiable due to a full black circle that precedes them, e.g. ● **different types of trapezium**.
- The symbol ⟨PIC⟩ combined with the indication of information to refer to and the page number at which this information is located, indicates where the user can retrieve the

information about the referred picture, **see** ⟨PIC⟩ **geometric shapes**, page 245.

- In order to give the user additional information, which cannot be dealt with within the consulted article, the user will sometimes be cross-referred to another entry within the same article and mostly to another article. For example, in the treatment of the word *multiply*, the user will be cross-referred to the treatment of

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the word *multiplication*, as "see multiplication". Besides that, the user is aware of the polysemous aspect of some words, i.e. words with more than one sense, of which the senses belong to more than one subject. In that case, at the end of the treatment of the consulted word and its sense, the user is referred to the other book(s) in which the polysemous words display their other senses. As example, "**see also triangle** MUSIC volume 5, page 132". This cross-reference procedure produces an easily identifiable way to refer the user to the treatment of the other senses of a polysemous word.

- The following lines give a presentation of the standard structure and information the user can find in the dictionary regarding the treatment of the words and their meanings.

1. Firstly, the **word** followed by the **pronunciation** and **stress pattern** is given either in Fang or French according to the section, e.g. **trapèze** [trap‑z].

2. The **grammatical aspects** of the lemma sign are provided. This also includes the word's etymology, i.e. its history and origin. Those aspects are distinct from Fang to French. ☼

In this regard the user is strongly recommended to take note of the mini-grammar, i.e. some basic rules about how words change their form and combine with other words to make sentences, and refer to it when necessary. ● In the Fang/French section the **part of speech,** which is indicated by symbols like *v,* for *verb* or *ew* for *ewula* (meaning verb and noun in Fang) is followed by the **class** of the word. This class is indicated by the symbol *kl* (abbreviation of klass for class in Fang), which is put together with the number of the class, example kl 9, 10, **trapeze** [trap‑z] ew [cl 9, 10] *pl* be trapeze**,** (aso fala ngue kighe flasi *trapèze*) **trapèze**. There is no gender in this section because Fang language does not present gender. ● In the French/Fang section, **the part of speech**, which is indicated **by indicators** like *v, adj* or *n* for *verbe, adjectif* and *nom* (meaning verb, adjective and noun) is followed by the **gender** of the nouns and adjectives. This gender is indicated by *m, f* or *inv* for *masculin, féminin* or *invariable* (meaning masculine, feminine and uncountable), e.g. **trapèze** [trap‑z] *n.m. pl* trapèzes (du latin *trapezion*). ● In both sections **nouns** are entered in their **singular** forms

and the **plural** forms are also provided.

3. The presentation of the grammatical aspects ends by providing information about the etymology of the lemma sign where necessary.

4. The presentation of the **translation equivalent of the word**, i.e. the equivalent of a word in another language, whether in French or in Fang according to the section follows the presentation of grammatical aspects of the lemma sign.

5. A **comprehensive treatment** of the meanings of the words follows the presentation of the translation equivalent of the lemma. This treatment, which includes examples and pictorial illustrations, gives complete information about the treated word. As an example the treatment of the meaning of the word **trapezium** includes the classification as geometric shape, the characteristics of a trapezium, the different types of trapezium and their characteristics, the information regarding the calculation of the perimeter and surface of a trapezium.

6. **References** to other information and more especially when this information is included in another volume like the polysemous meanings of a word, is always put at the end of the treatment of the words and their meanings. E.g. "see also **triangle** MUSIC page 132".

3. THE ORGANISATION OF THE ROUTE TO THE DIFFERENT DATA TYPES OF THE DICTIONARY

● The organization of the access to the different data types included in the dictionary consists of the access to the words and their treatment on one hand and to the different data types included within this treatment on the other hand. One of the best and easiest ways to reach the words and their treatment is to refer first to the general table of contents. This table of contents provides an indication of the page numbers at which the two (2) comprehensive tables of contents are located. These comprehensive tables presented before each section, include the page number at which the

treatment of each word starts. The dictionary is divided into two sections. One section presents the words in Fang and their treatment in French. The other section presents the words in French and their treatment in Fang.

● The other way of reaching the words and their treatment in the central list is to refer to the equivalent registers and the guide word registers provided in the back mater texts. An equivalent register provides an alphabetical list of words and their equivalents in another language or more. A guide word register presents an alphabetical list of key words which are part of the treatment of the main words used as entries in the dictionary. The Fang-French-English, French-Fang-English and English-French-Fang equivalent registers provide, in an alphabetical order the translation equivalents of the words and the page number indicating where they are treated in the central list. ● The Fang-French-English, French-Fang-English and English-French-Fang guide word registers provide the guide words which assist with reaching specific data categories, i.e. a particular treatment of a word. Example, these guide word registers will include **perimeter of the trapezium**, the **surface of the**

trapezium, etc. the article where these are treated and the page number indicating where the article is located within the central list. It means if the user only needs a specific treatment of a data category like **surface of the trapezium** he or she can refer to the guide word registers for a direct, easy and successful access and retrieval of this specific data included in the article of the lemma *trapezium*.

● **A** Fang/French/English and also French/Fang/English index provides in an alphabetic order the titles of pictorial illustrations of the different tables and the page numbers where these pictures are included in the dictionary. This index helps the users to easily access the pictures when they only want to consult them with no need to go through the articles. Furthermore, this index helps the users to easily find a set of pictures representing the words which belong to the same paradigm and which might be confused with them. Example, the user who wants to find the illustration of the different polygons, can look for *geometric shapes*, *polygons* or any of the *polygons*. He or she will find a page number where the illustrations representing the *hyponym* words *hexagon, polygons* and *rectangle* as an

illustration are presented in a table of illustrations dealt with under the treatment of the *hypernym* lemma *geometric shape*.

● The access to the different data types within the treatment of the words are pointed out by two symbols. The first symbol is a full black circle ●, which indicates the demarcation between different types of data. The second symbol is a word or group of words in blue bold such as, **surface** and **different types of trapezium** within the treatment of the word *trapezium*, which immediately follows the full black circles. These words or groups of words in bold specify the specific treatment of a word. The full black circle makes the user aware of the different data types and the words and groups of words give the nature of the different data included in the treatment of a word.

4. THE WAY IN WHICH AN ENTRY IS DIRECTED AT ANOTHER ENTRY

The words treated in this dictionary represent the core lexicon, i.e. all the words used in a particular language or subject, of special field terms for education in Primary school. ● In this regard, the treatment of the meanings is strictly related to the words according to the nature of the subject these words belong to. Only the relevant meaning of a polysemous word, i.e. a word with more than one sense, which corresponds to the nature of the subject, is treated in the specific volume. In the volume dealing with Mathematics for example, the treatment of the meaning of the word *triangle* focuses only on the indication of the information representing the knowledge about the **classification** as a geometric shape, the **different types of triangle**, the **calculation of the surface and the perimeter**, etc. This treatment does not include the treatment of the word *triangle* as a musical instrument. To avoid confusion and ambiguity an indication to the book dealing with Music is only made so that the user can be aware of the fact that *triangle* is a polysemous word. ● However, some references from one treatment of a word to another are crucial for the better understanding of their meaning. Actually because they are different

categories of words, their morphological relation cannot be discussed under the treatment of one word. It is the case with the words *multiply* and *multiplication*, which are a verb and a noun respectively. When consulting the article of the lemma *multiply*, one of the entries indicates that "…*multiply is the action of completing a multiplication...*". For that reason, the user is referred to the treatment of *multiplication* to achieve the full understanding of the treatment dealing with *multiply*. The cross-reference required by the user within the article of the lemma *multiply* is operated via the following procedure: "...**see multiplication**…"

● Besides that, each type of data given within the treatment of the meanings of the words is independent. It means that the user does not necessarily have to be cross-referred to another entry to understand the other. For instance in the article of the lemma *triangle*, there is no compulsory need to be cross-referred to the different types of *triangle* to understand the calculation of the surface and the perimeter of the isosceles triangle.

5. THE CROSS-REFERENCES BETWEEN THE DIFFERENT DATA TYPES
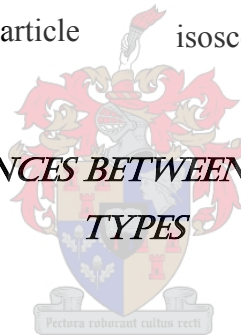
There are a lot of procedures in use in this dictionary through which cross-references from a particular lemma or entry to another lemma or entry are established. Most of these means have already been indicated throughout the user's guide. ● First of all, the user will not have to expect cross-references made within an article. Most of the cross-references are made from an article to another one, or to another book of the dictionary or to another reference source. ● Secondly, these cross-references can be classified as explicit and implicit. The cross-references, which are done with explicit procedures, are clearly indicated. They are among others, "**see multiplication**" within the treatment of the word *multiply* for a better understanding of multiply; "**see Geometric shapes**, **page 245**" within the treatment of the word *triangle* to refer to the location in which the user reaches the picture of the different types of triangle; "**see triangle MUSIC**

volume, page 132" within the treatment of the word *triangle* to refer to another book of the dictionary in which the treatment of the other sense of this polysemous word is given. ● Another cross-reference guides the user to the textbooks used in classes. The dictionary and these textbooks are complementary. Therefore, where necessary, a cross-reference is given to guide the user to the textbook to enhance the knowledge about the concepts or objects represented by the words treated in the dictionary. For example, the indication, **see exercises in Mathematics textbook, page 100**, after information about the perimeter and the surface in the article of the word *trapezium* is a recommendation to the students to do exercises in order to master the calculation of the perimeter and the surface of the trapezium. ● The references with implicit procedures are not clearly indicated or are not just indicated at all. These types of references comprise of the interaction between the central list and the user's guide to ensure a successful understanding by the user of the different types of data presented in the dictionary. There is also the interaction between the central list and the mini-grammar, which is implicit. No indication is made in the treatment of a word referring the user to it. However, in the user' guide the user is strongly recommended to refer to the mini-grammar for the successful transfer of grammatical data, especially regarding Fang. ● The other implicit cross-references, which are more or less similar, are the links between the tables of contents and the central list on one hand and the links between the equivalent registers, the guide word registers and the central list on the other hand. In these texts, main words or entries put together with the page numbers direct the user to the words and their treatment. These links provide the users with a friendly search path from a word or a group of words that lead them straight to the specific data of the treatment of this word. These links are well described in the schema included in the guideline 4. Implicit references are indicated in the user's guide and they are as important as the explicit cross-references in order to make the user to understand the transfer of information operated in the dictionary. In addition, these cross-references are made implicit to avoid an abundance of texts in the dictionary. This abundance can easily confuse the young users and therefore makes their consultation procedures arduous.

12.3.6. The mini-grammar

The mini-grammar is not widely regarded as a compulsory text as the user's guide, cf. Louw (2004: 202). This is not necessarily the case in the proposed dictionary. The reasons, the goals, the characteristics, the needs and the problems of the users, the typology and the genuine purpose, all these parameters which steer the formulation of the compilation of the proposed dictionary, request the inclusion of the mini-grammar. Fang has not yet been standardized in Gabon and French is not well mastered in the hinterlands. Therefore, the morphology and the syntax of Fang and French have to be presented precisely and concisely in the front matter of the proposed dictionary. Besides the mini-grammar, a comprehensive treatment of Fang and French verbs must be available, either in the front matter or in the back matter.

The lexicographer should not forget, once again, that the proposed dictionary is bilingual with a trilingual dimension. Therefore, a translation in English must precede the mini-grammar included in Fang and in French for Fang and/or French text reception and production. The consultation of this mini-grammar is strongly recommended to the user in the user's guide. In addition, when dealing with the comprehensive treatment of Fang and French verbs, the equivalents in English of these verbs must be provided. This would help with Fang and/or French text reception and production and with English text production.

Accordingly, the mini-grammar will represent an explicit and useful aid to users. In the model it will be a textual constituent and part of the primary frame structure. Even if it will be an unintegrated outer text, the typology and the frame structure of the proposed dictionary will make the target user to be aware of the existence and the usefulness of the mini-grammar as powerful tool which supplements the immediate information transfer founded in the microstructure. As Louw (2004: 203) suggests, the mini-grammar as the one needed in the proposed model, can be integrated with the central list by means of

text-external cross-references to be a powerful tool to supplement the immediate data transfer provided in the microstructure, with detailed knowledge of the systems and processes governing the lemmatised lexical item tha tis being looked up. As Al-Kasimi (1977: 50) and Gouws respectively state, such a mini-grammar "should outline the morphology and syntax of the language" and must "present the user with guidance regarding both the regular and irregular aspects of the grammar of the specific language".

12.4. The back matter texts

The back matter texts of the proposed dictionary will comprise of at least four (4) types of texts, namely, some pictorial illustrations, the equivalent registers, the guide word registers and the pictorial illustration index. The inclusion of only these four texts is suggested because they are regarded as the only essential elements that are integrated. This is done in order to avoid the inclusion of texts, which mostly turn into luxuries because they are not needed and consulted by the users. Furthermore, these texts are unnecessary costly when compiling dictionaries.
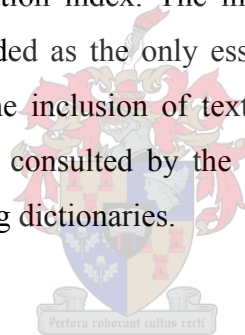
12.4.1. The equivalent registers

The samples of equivalent registers as suggested in the following lines, have been widely discussed throughout this investigation. Those equivalent registers will display attributes similar to that of an alphabetical index. Regarding the proposed model Fang-French-English, French-Fang-English and English-French-Fang equivalent registers will be provided. Their usage is strongly recommended in the user's guide. As already indicated, these alphabetical registers provide, among other features, the equivalents of the article stretches, the lemmata in the article stretches and the page numbers indicating where they are treated in the central list. The Fang-French-English equivalent register will indicate the page numbers of Fang article stretches, the French-Fang-English equivalent register will indicate the page numbers of French article stretches whilst the English-French-Fang

equivalent register will indicate the page numbers of both French and Fang article stretches. The lexicographer of the model must be careful when dealing with the classification of these back matter texts as primary or/and secondary frame structure. In fact, the Fang-French-English equivalent register will be primarily directed at the specific Fang-French part of the dictionary. The same principle goes for the French-Fang-English equivalent register which will be principally directed at the specific French-Fang part of the dictionary, whereas, the English-French-Fang equivalent register will be directed at the whole dictionary. Yet, all these different texts of the equivalent register will be part of the *primary frame structure* of the model as discussed in section 12.1.4. The inclusion of these back matter texts is one of the features which profoundly alter the proposed model from mono-accessible to poly-accessible.

The treatment allocated to the lemmata in the central list typically represents the bilingual dimension of the model. The inclusion of the English translation equivalents in the equivalent registers will be the pillar of the trilingual dimension feature characteristic of the model. These back matter texts will assist the user in choosing the wanted target language form for a given source language item. This illustrates a typical communication-orientated function which will be displayed by these back matter texts. Accordingly, the equivalent registers of the model will also be the pillars of the communication-orientated functions when it comes to the reception, production and translation of texts from Fang and French into English and the reception, production and translation of texts From English into Fang and French.

On the other hand, the equivalent registers also provide lemmata representing the field and sub-field dealt with in a given volume. For instance, the word *geometry* representing the sub-field of the multifield subject Mathematics is also included in the equivalent registers of the Mathematics volume. This word will have the same treatment as any other word in the theme of **geometry** in the Mathematics volume. It means that these registers will contain both hypernym and hyponym lemmata.

Samples of the Fang-French-English, French-Fang-English and English-French-Fang equivalent registers are proposed in the following lines. Those samples give examples of what these registers can be in the specific volume of the proposed multi-volume dictionary. However, those samples also depict how these texts should be in the other volumes. Naturally those samples are only proposals. It means that they are open to suggestions and improvements before being finalized.

● Sample of Fang-French-English equivalent register

addition	addtion	addition	10
additionne	additioner	add	12
capacite	capacité	capacity	24
carre	carré	square	25
cercle	cercle	circle	30
cylindre	cylindre	cylinder	31
cube	cube	cube	33
diagonal	diagonal	diagonal	36
divise	diviser	divide	37
division	division	division	39
enumeration	énumération	numeracy	40
fraction	fraction	fraction	41
geometrie	géométrie	geometry	43
longueur	longueur	length	45
losange	losange	rhombus	48
masse	masse	mass	51
mesure	measures	measures	53
multiplie	multiplier	multiply	57
multiplication	multiplication	multiplication	57
rectangle	rectangle	rectangle	75
soustraire	soustraire	subtract	81
soustraction	soustraction	subtraction	81
surface	surface	surface	82
trapeze	trapèze	trapezium	84
triangle	triangle	triangle	87
volume	volume	volume	95

● Sample of French-Fang-English equivalent register

addition	addtion	addition	22
additioner	additionne	add	25
capacité	capacite	capacity	48
carré	carre	square	51
cercle	cercle	circle	59
cylindre	cylindre	cylinder	63
cube	cube	cube	66
diagonal	diagonal	diagonal	75
diviser	divise	divide	75
division	division	division	80
énumération	enumeration	numeracy	83
fraction	fraction	fraction	84
géometrie	geometrie	geometry	86
longueur	longueur	length	89
losange	losange	rhombus	97
masse	masse	mass	100
mesure	measures	measures	106
multiplier	multiplie	multiply	113
multiplication	multiplication	multiplication	113
rectangle	rectangle	rectangle	149
soustraire	soustraire	subtract	160
soustraction	soustraction	subtraction	160
surface	surface	surface	165
trapèze	trapeze	trapezium	167
triangle	triangle	triangle	175
volume	volume	volume	191

● Sample of English-French-Fang register

addition	addition	addition	22, 10
add	additionner	additionne	25, 12
capacity	capacité	capacite	48, 24
square	carré	carre	51, 25

circle	cercle	cercle	59, 30
cylinder	cylindre	cylindre	63, 31
cube	cube	cube	66, 33
diagonal	diagonal	diagonal	75, 36
divide	diviser	divise	75, 37
division	division	division	80, 39
numeracy	enumération	énumération	83, 40
fraction	fraction	fraction	84, 41
geometry	géométrie	geometrie	86, 43
length	longueur	longueur	89, 45
rhombus	losange	losange	97, 48
mass	masse	masse	100, 51
measures	mesure	mesure	106, 53
multiply	multiplier	multiplie	113, 57
multiplication	multiplication	multiplication	113, 57
rectangle	rectangle	rectangle	149, 75
subtract	soustraire	soustraire	160, 81
subtraction	soustraction	soustraction	160, 81
surface	surface	surface	165, 82
trapezium	trapèze	trapeze	167, 84
triangle	triangle	triangle	175, 87
volume	volume	volume	191, 95

12.4.2. The guide word registers

The guide word registers are also included as back matter texts. A guide word register can be defined as a list of words or a group of words known as guide words which represent each one a specific data category entry within an article, e.g. **perimeter of the trapezium**, **surface of the trapezium** within the article of the lemma *trapezium*. In this article, those entries provide data regarding the **calculation of the perimeter and the surface of the trapezium**.

The guide word registers will display the same attributes as the equivalent registers with the exception that they will provide guide words which will assist to reach different data categories within the articles. Like the equivalents registers, the use of the guide word registers will be strongly recommended in the user's guide. These registers will make available the Fang-French-English, French-Fang-English and English-French-Fang translation equivalents of the guide words and the articles where those words are treated. By indicating the relevant lemma, the page numbers of the relevant articles in the central list are also provided. The different texts of the guide words adhere to the same principles as the equivalent registers as part of the primary frame structure. The Fang-French-English guide words will be primarily directed at the specific Fang-French part of the dictionary. The French-Fang-English guide words will be principally directed at the specific French-Fang part of the dictionary also as a secondary frame structure. The English-French-Fang equivalent register will be directed at the dictionary as a whole.

These registers have a more extended and detailed communication and knowledge-orientated functions as the equivalent registers. Indeed, more than the equivalent registers, guide word registers constitute an instantly and easy access to the varieties of linguistic and encyclopedic microstructural data included in the articles.

Samples of the Fang-French-English, French-Fang-English and English-French-Fang guide word registers are proposed in the following lines. These are examples of what these registers can be in the Mathematics volume of the proposed multi-volume dictionary. However, those samples also depict how these back matter texts should be presented in the other volumes. Naturally those samples are only a proposal. It means that they will have to be submitted to other lexicographers and teachers for comments, suggestions and improvements before being finalized.

● Sample of Fang-French-English guide word register

- perimetre ya trapeze	périmètre du trapèze	perimeter of trapezium	(trapeze)	84
- perimetre ya triangle	périmètre du triangle	perimeter of triangle	(triangle)	70
- surfase ya trapeze	surface du trapèze	surface of trapezium	(trapeze)	84
- surfase ya triangle	surface du triangle	surface of triangle	(triangle)	70
- trapeze a ne isocele	trapèze isocèle	isosceles trapezium	(trapeze)	84
- volume ya cube	volume du cube	volume of cube	(cube)	31
- volume ya cylindre	volume du cylindre	volume of cylinder	(cylindre)	33

● Sample of French-Fang-English guide word register

- périmètre du trapèze	perimetre ya trapeze	perimeter of trapezium	(trapèze)	162
- périmètre du triangle	perimetre ya triangle	perimeter of triangle	(triangle)	130
- surface du trapèze	surfase ya trapeze	surface of trapezium	(trapèze)	162
- surface du triangle	surfase ya triangle	surface of triangle	(triangle)	130
- trapèze isocèle	trapeze a ne isocele	isosceles trapezium	(trapèze)	162
- volume du cube	volume ya cube	volume of cube	(cube)	64
- volume du cylindre	volume ya cylindre	volume of cylinder	(cylindre)	68

● Sample of English-French-Fang guide word register

- perimeter of trapezium	périmètre du trapèze	perimetre ya trapeze	(trapèze, trapeze)	162, 84
- perimeter of triangle	périmètre du triangle	perimetre ya triangle	(triangle, ~)	130, 70
- surface of trapezium	surface du trapèze	surfase ya trapeze	(trapèze, trapeze)	162, 84
- surface of triangle	surface du triangle	surfase ya triangle	(triangle, ~)	130, 70
- isosceles trapezium	trapèze isocèle	trapeze a ne isocele	(trapèze, trapeze)	162, 84
- volume of cube	volume du cube	volume ya cube	(cube, ~)	64, 31
- volume of cylinder	volume du cylindre	volume ya cylindre	(cylinder, ~)	68, 33

As already said, the guide word register enhance the polyaccessibility of the proposed model. It will offer a relevant search route to users who may only need specific information within an article. As an example, a user may only want to know how to

calculate **the perimeter of a trapezium**. The guide word register by means of the guide word *perimeter of trapezium,* including the lemma and the page number where this lemma is treated, will guide the user directly and easily to this data.

12.4.3. Pictorial illustration index

The index of pictorial illustrations will provide in an alphabetic order the titles of the different tables of pictures and the page numbers where these pictures are included throughout the dictionary. This index will be provided in Fang/French/English, French/Fang/English and also in English/French/Fang. These texts are also part of the *primary frame structure* of the dictionary. The Fang-French-English section of this index will mainly be directed at the specific Fang-French part of the dictionary. Therefore, this section will be part of the secondary frame structure of the dictionary. The same principle goes for the French-Fang-English index which will primarily be directed at the specific French-Fang part of the dictionary. While, the English-French-Fang part of the pictorial illustration index will be directed at the whole dictionary. This particular section will therefore be seen as a component of the primary structure.
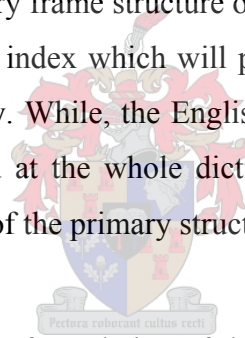
As mentionned in section 12.6, the formulation of the present model suggests two types of pictural illustrations. One type will only present pictures while another type will be accompanied with encyclopedic data. Consequently, the pictorial illustration index will give the users an easy and direct access to pictures when they only want to consult these especific data categories with no need to go through the articles. On the other hand, the pictorial illustration index will also help the users of the proposed model to access in some cases both pictures and useful encyclopedic data related to these pictures. The following example depicts an extract of the pictorial illustration index in the proposed model. The page numbers are purely fictional.

- Example of the presentation of the pictorial illustration in the model

Pictorial Illustration Index

Fang/French/English

French /Fang/English

English /French /Fang

According to the example, if a user wants to find the illustration of the different polygons in the proposed model, he or she can look for *geometric shapes*, *polygons* or any of the *polygons*. He or she will find a page number where the illustrations representing the *hyponym* words *hexagon*, *polygons* and *rectangle* as an illustration are presented in a table of illustrations dealt with under the treatment of the *hypernym* lemma *geometric shape*. cf. figure 12.1.

Fig.12.1: Illustrations of the hyponyms of the hypernym lemma *geometric shape*
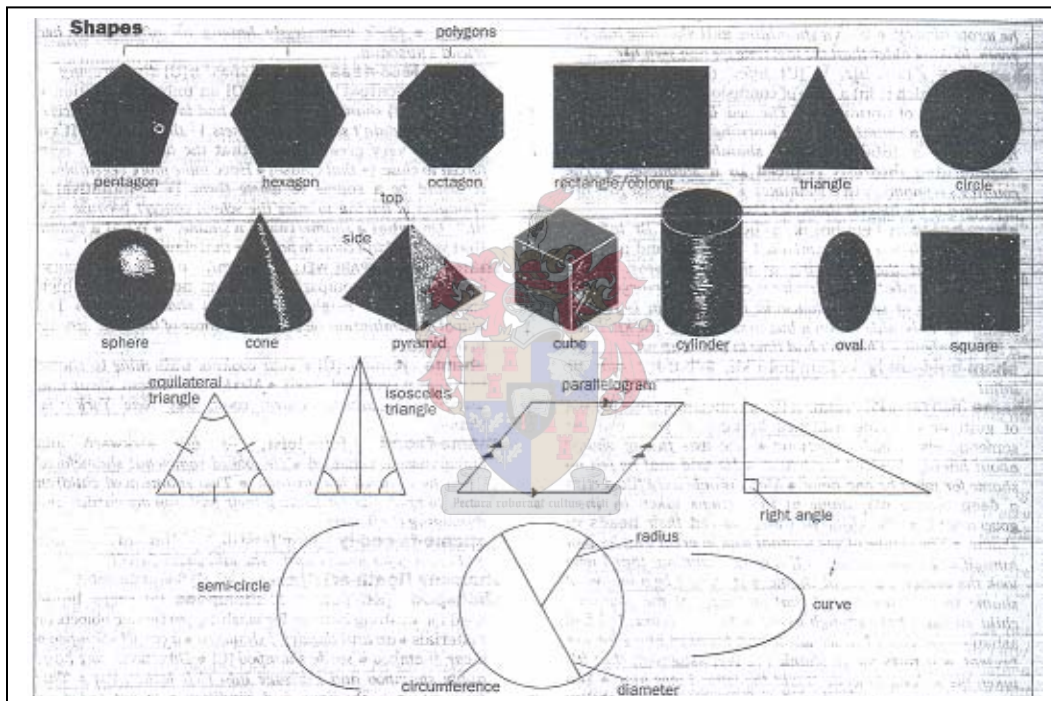
From the pictorial illustrations included within the article of the lemma *surface*, the users of the proposed model will have access to the formulas of the calculation of the surfaces of different gometric shapes and also their corresponding illustrations as depicted in figure 12.2 excerpted from « nouveau petit LAROUSSE » (1971: 989). Indeed, they will first be lead to the pictorial illustrations which enhance the comprehension of the target users. Secondly, this index will lead the users to pictorial illustrations of the different

geometric shapes with the relevant encyclopedic data regarding the calculation of their surfaces as illustrated in figure 12.2.

Fig. 12.2: Illustrations of the different geometric shapes with the calculation of their surfaces
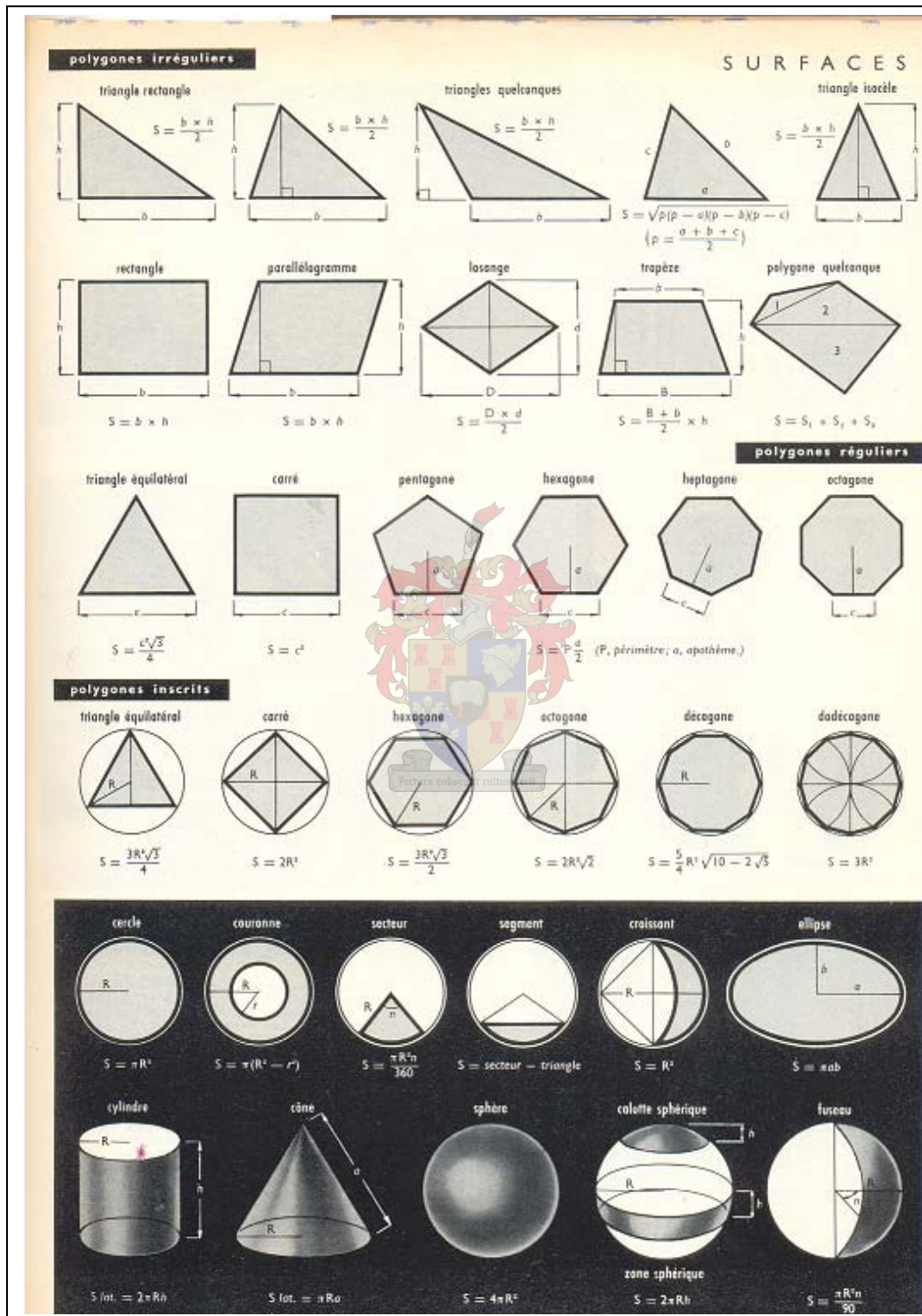
12.5. The frame structure of a *Specialized Multi-volume School Dictionary*

Except if the preface is presented in a volume to be considered as volume n° 1 as discussed in section 12.3.1, all the volumes of a *Specialized Multi-volume School Dictionary* (henceforth abbreviated as SMSD) will a priori present the same outer text structures. Therefore a single volume of a SMSD and not the dictionary as a full set of all volumes, will display both primary and secondary outer texts. A single volume of a SMSD consists of two separate word lists to primarily provide for a national language and official official European language sections respectively. *National Language* and *Official European Language* are abbreviated as NL and OL respectively.

The primary frame structure of a volume of a SMSD comprises of a number of front and back matter texts which feature both integrated and unintegrated outer texts. The secondary outer texts consist exclusively of some front matter texts. The list of contributors is part of the secondary frame outer texts. It does not assist the user to achieve a more successful dictionary consultation procedure. The user's guide is a primary text because it provides the users guidelines for the use of the dictionary as a whole and not of the front matter. The general tables of contents are also part of the primary structure. However, the comprehensive tables of contents of the central list are components of the secondary outer texts because each one of them is directed at a specific word list of the central text. The equivalent registers, the guide words, the pictorial illustration index and the large pictures are primary texts.

As a multifunctional model, the outer texts which are included in the back matter of one volume of a SMSD are used to achieve a more comprehensive and more user-friendly data distribution. Consequently, the nature and the contents of most of the back matter texts feature both a communication- and a knowledge-orientated approach. In its communication-orientated approach by including a third language which corresponds to another *International Language* (henceforth abbreviated as IL) apart from the official European language, these texts make provision for the trilingual dimension of the model. These outer texts will assist in text production, text reception and bidirectional translation

functions between the three treated languages. Figure 12.3 illustrates the frame structure figures 12.4 & 12.5 depict the primary and secondary frame structures of a single volume of a SMSD. These illustrations rely on the frames of the illustrations as proposed in Gouws (2004: 79).

Fig. 12.3: **Frame structure of a single volume of a SMSD**
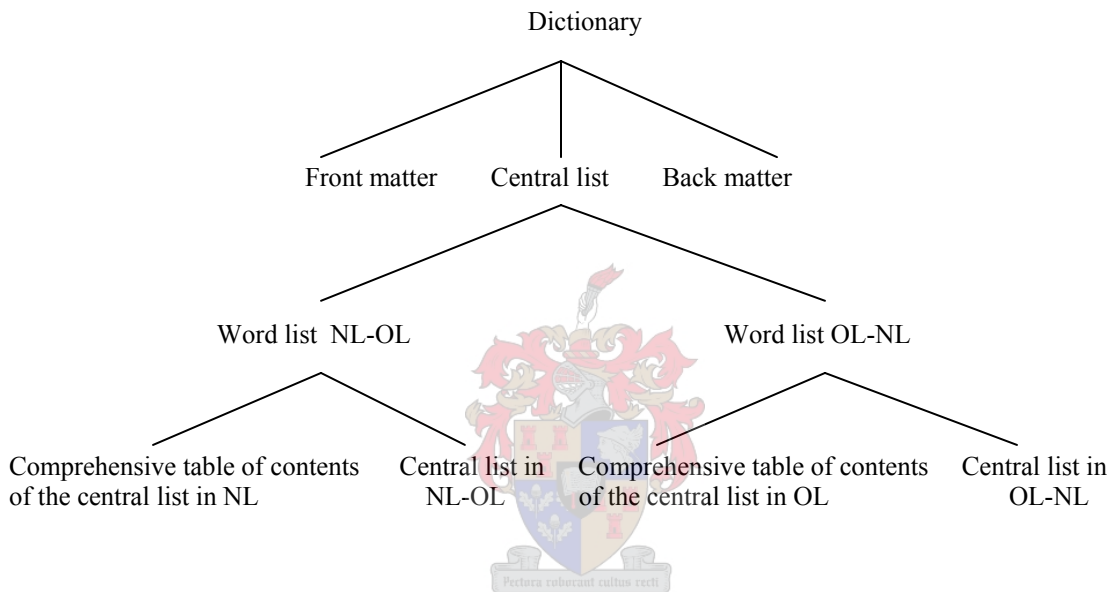
Fig. 12.4**: Primary frame of a single volume of a SMSD**

Dictionary

[Front matter   Central list   Back matter**]**
<u>Front matter</u>   <u>Back matter</u>
Contents   NL-OL-IL equivalent register
Abbreviations   OL-NL- IL equivalent register
User's guide   IL-OL-NL equivalent register
Title   NL-OL-IL guide words
                OL-NL-IL guide words
                IL-OL-NL guide words
            NL-OL-IL pictorial illustration index
            OL-NL-IL pictorial illustration index
            IL-NL-OL pictorial illustration index
           Large pictures with NL/OL/IL texts

Word list NL-OL   Word list OL-NL

Fig. 12.5**: Secondary frame of a single volume of a SMSD**
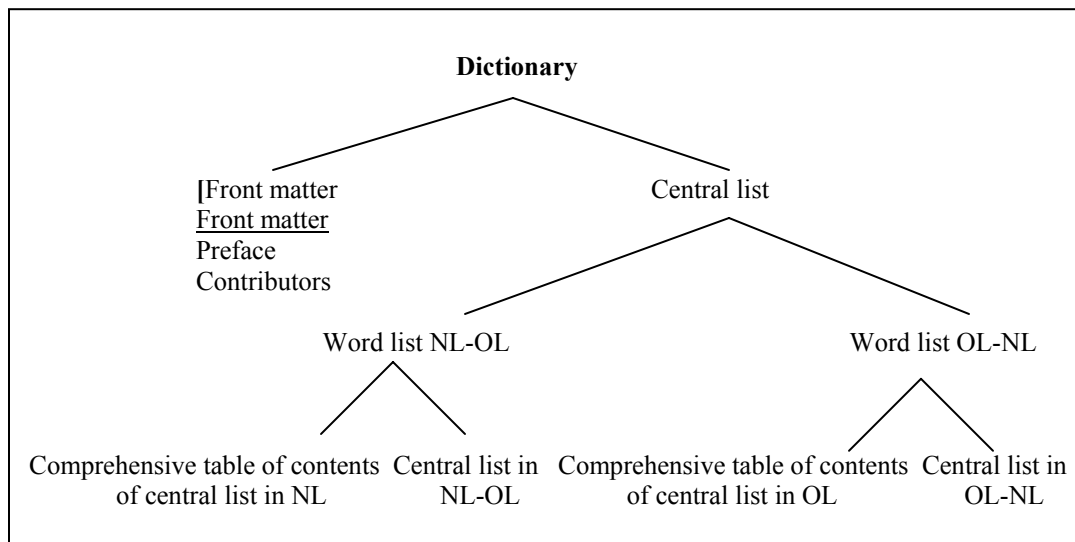
12.6. Pictorial illustrations

12.6.1. Lexicographic and practical principles for pictorial illustrations

As Gouws (1993: 45) indicates, although pictorial illustrations are employed quite frequently, they are too often regarded as ornamental components of a dictionary article. Yet, as stated once again in Gouws (1993:45), dictionary critics have the full right to regard pictorial illustrations as redundant entries if they perform no distinctive function. Yet, the proposed model is aimed at children and must therefore be as inviting as possible. It must also be as relevant as possible in fulfilling its genuine purpose to lead them to an easy and successful retrieval of the needed information. As indicated in Landau (2004: 388), the importance of illustrations varies from one dictionary to another. Svensén (1993: 167-168) describes this educational criterion for inclusion as follows: "A picture reinforces learning, and also a picture may often, quite differently from a definition, appeal to the reader's previous experience of the world, and enable him to

achieve fresh insights". Due to the fact children form the bulk of the intended target users and even if adults are also part of the users, the inclusion of pictorial illustrations plays a double important role in the envisaged model. Svensén states that, due to the ability of illustrations to activate earlier experience with an object, concept, etc. better than an item giving the paraphrase of meaning, "illustrations are therefore more important in children's dictionaries than dictionaries for adults". As Landau (2004: 388) suggests, for children's dictionaries, in particular, pictorial illustrations are of prime importance. Indeed, colourful and abundant illustrations will first, make the compiled dictionary to be attractive to children. Second, by complementing the verbal definition with supplementary data and also elucidating some data which the definition cannot present clearly enough, these pictorial illustrations will have a distinctive function and hence an undeniable lexicographic validity. Therefore, by being entries which augment the understanding of the intended target users, the employment of pictorial illustrations will be conclusive and relevant in the planned model.

12.6.2. The planning of pictorial illustrations

Regarding the unquestionable lexicographic and practical validity of the employment of pictorial illustrations in some dictionaries such as the one envisaged in the present research, early imperative decisions should be made in the planning of the dictionary regarding their importance and their cost. Yet, in this section only a general outline is suggested to the lexicographer of the model when dealing with pictorial illustrations. This outline relies on suggestions as made by Landau (2004: 388-391). In this regard, for more detailed information on the pictorial illustrations the lexicographer can refer to this source. The general outline to be suggested revolves around two main and vital questions which have to be asked and answered: *what will be illustrated* and *how will it be illustrated*?

- As Landau (2004:388) indicates, few definers have the experience in working with illustrations to have good judgement of what can be reasonably illustrated in small, space, and free-lance editors, in particular, are not likely to devote time to anything other that what they are being paid to do. Therefore, as Landau says, the best arrangement is to have a picture editor who will work in collaboration with the editor in chief and the managing editor or another senior editor. The picture editor is responsible for the choice of illustrative content. Besides that, this person should maintain a constant liaison with the managing editor and the art director to make sure that the terms used in labelling parts of an automobile, for example, are not only included in the dictionary but are the preferred forms. This teamwork will successfully lead to what will be illustrated and to determine how they will be illustrated in the dictionary project.

- The compilation of the proposed model which will be a dictionary comprising numerous volumes. Each volume will include functional pictorial illustrations. Acordingly, the compilation of this model will lead to a large lexicographic project. As Landau (2004:388) indicates, large projects also have an art director. The art director is responsible for the clarity, style, and consistency of the art, as well as for seeing that the job gets done on time. This person must be an artist in the business of managing other artists and must be an expert in typography as well as illustration and should have experience in illustrating reference books. With their adequate expertise this type of person is aware of some relevant and delicate matters regarding pictorial illustrations. As Landau (2004:388) takes as an example, the illustrations for a school dictionary are drawn in different style, with a more relaxed and freer quality, than those for an adult dictionary, and now many major school dictionaries have full-colour illustrations. The school dictionary should avoid the cuteness that may be suitable for a children's storybook but is jarringly discordant in a reference book. In a larger project, as will be the case with the envisaged model, Landau (2004:388) suggests that the picture editor may need one or

two subordinates, including a picture researcher who assembles illustrative material (called *scrap*) from which the artists work. As Landau (2004:388) states, many of us have a vague idea of the difference between an alligator and crocodile, but how many of us could draw a picture of each that clearly distinguish them without having photographs showing exactly what they look like? The lexicographer should not risk the quality of the pictures with an unplanned, random and approximate presentation. The lexicographer as the one in charge of the compilation of the model should know that the quality of the pictorial illustrations would result from the collaboration of picture researchers who dig out photographs and high-quality drawings.

12.6.3. Presentation of pictorial illustrations in the proposed model

The planning of pictorial illustrations as discussed in the previous section 12.6.2 shows that the presentation of the pictorial illustrations requests just as meticulous a planning as any other aspect of the lexicographic process. For a successful presentation of these data types, the lexicographer of the proposed model should strongly rely on relevant planning. Accordingly, the discussion regarding the pictures in this research is not final. They only represent preliminary suggestions and lexicographic principles to be followed in order to achieve a successful presentation of pictures in the model. The finalized pictorial illustrations to be presented should be done with the appropriate collaboration of the editor in chief and the managing editor or another senior editor with a picture editor and subordinates, and an art director as discussed in section 12.6.2.

As already discussed in section 11.7 the inclusion of the pictures in the proposed model intends to fit into the judicious way as observed in bilingual dictionaries. On the other hand this model must also stick to its trilingual dimension aspect and provide as much as possible immediate addressing for young and unskilled users. In this regard, in order to provide handiness within the dictionary and more immediate addressing to the users

especially the young ones, apart from exceptional cases pictures will be presented as close as possible to the articles of the hypernym lemmata. This way of presenting pictures is very well exemplified in the CIDE (1996) for example. All types of apes and monkeys are illustrated within the article of the hypernym lemma *ape* (p 53), as as example, cf. figure 12.6.

Fig. 12.6: Illustrations of types of apes and monkeys under the hypernym lemma *ape*
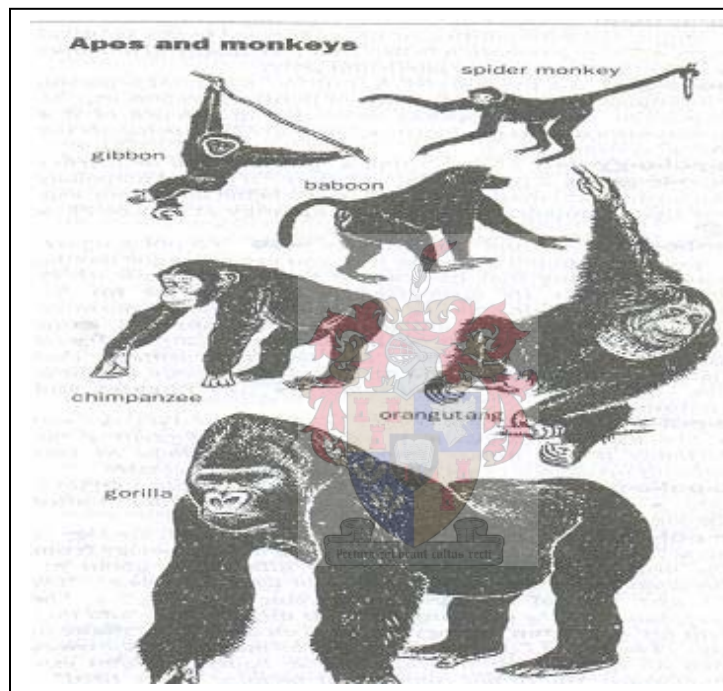
Related lemma article

Another example, among others, is all types of birds, which are exemplified within article of the hypernym lemma *bird* (p 129), cf. figure 12.7.

Fig. 12.7: Illustrations of the different types of birds under the hypernym lemma *bird*

Related lemma article

All over the CIDE (1996) a variety of pictorial illustrations e.g. the different types of accommodations (p 9), the different types of berries (p 118), the different types of jewellery (p 764), etc. are presented within articles of the corresponding hypernym lemmata *accommodation*, *berries* and *jewellery* respectively. Cross-references to the pictures are not included within the articles because they are most of the time presented on the same pages where the articles are treated. As a result, the titles of the pictures and the nearness provide a direct addressing between the pictures and the articles. However, some cross-references are not between the article of the hypernym lemma and the page where the pictures representing the hyponym lemmata are presented. The article of the hypernym lemma *bread* (p 159) illustrates his situation. In this article, the pictures representing hyponym lemmata such as *different types of bread, cakes, puddings and biscuits* are presented on the following page 160 without any cross-reference. This way of presenting the pictures can be confusing and can make a young user not to follow up properly. Therefore, in the model cross-reference entries between articles and the pictures will always be given especially for the good and easy consultation of young users via cross-reference entries such as:

"see PIC opposite", "see PIC below", " see PIC above", etc.
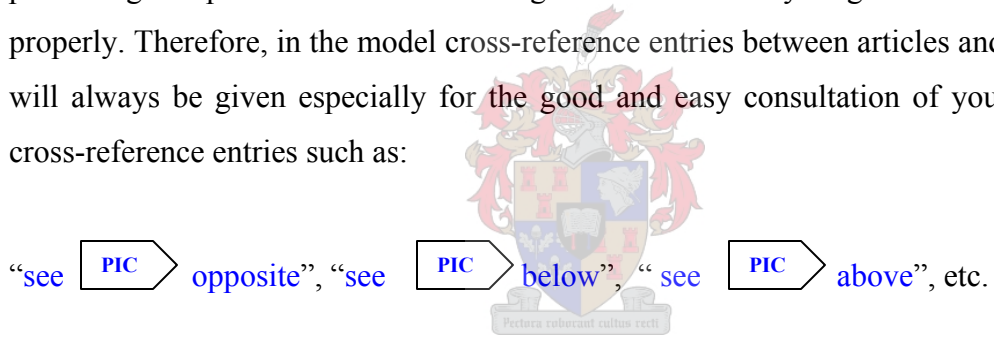
As discussed in section 12.4.3 in the back matter texts of this dictionary, an index providing the page numbers where the articles are presented in the central list is provided. The entries of this index are represented by the titles of the pictures as *apes and monkeys, birds,* etc.

In the planned model, the pictorial illustrations will also be clustered within the treatment of hypernym lemmata. Yet, these pictures will only have numbers representing the main parts to be named. They will be accompanied by texts in the three languages giving the equivalent terms represented by the numbers as footnotes. In the Fang/French part the texts will be in Fang/French/English. Figure 12.8 illustrates the table of the pictures of

apes and monkeys in the Fang/French part of the science volume of the proposed model within the theme dealing with *animals*.

Fig. 12.8: A sample of illustrations to be presented in the Fang/French section of the model

A. kwègne	gibbon	gibbon
B. kiki	singe-araignée	spider monkey
C. sèkhe	babouin	baboon
D. wagha	chimpanzé	chimpanzee
E. olalu	orang-outang	orangutang
F. ngui	gorille	gorilla
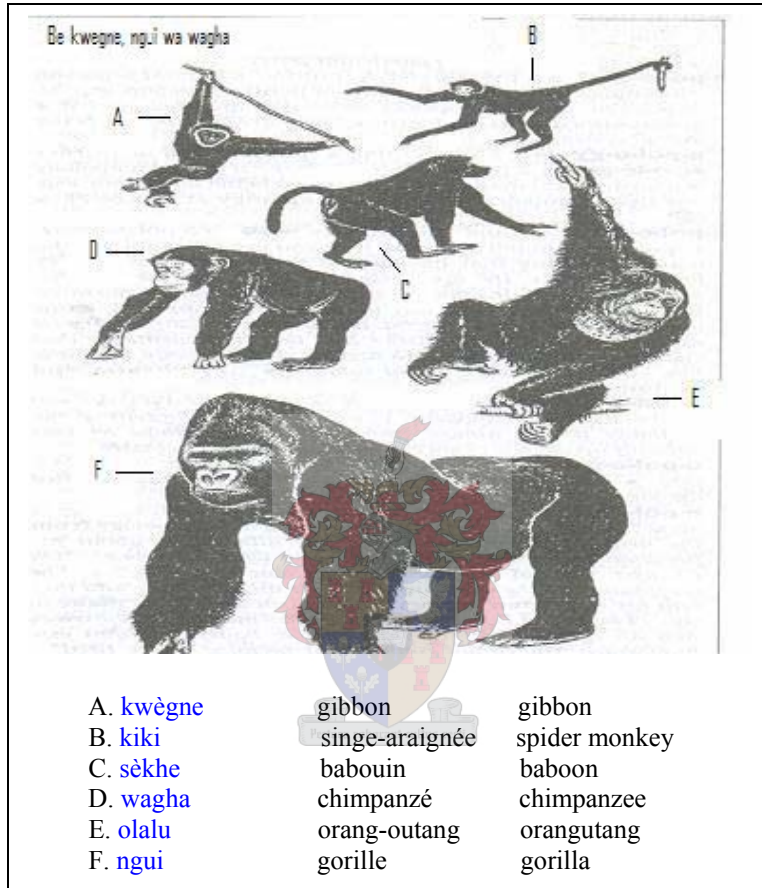
In the French/Fang part they will also be in French/Fang/English, as portrayed in figure 12.9.

Fig. 12.9: A sample of illustrations to be presented in the French/Fang section of the model

A. gibbon	kwègne	gibbon
B. singe-araignée	kiki	spider monkey
C. babouin	sèkhe	baboon
D. chimpanzé	wagha	chimpanzee
E. orang-outang	olalu	orangutang
F. gorille	ngui	gorilla
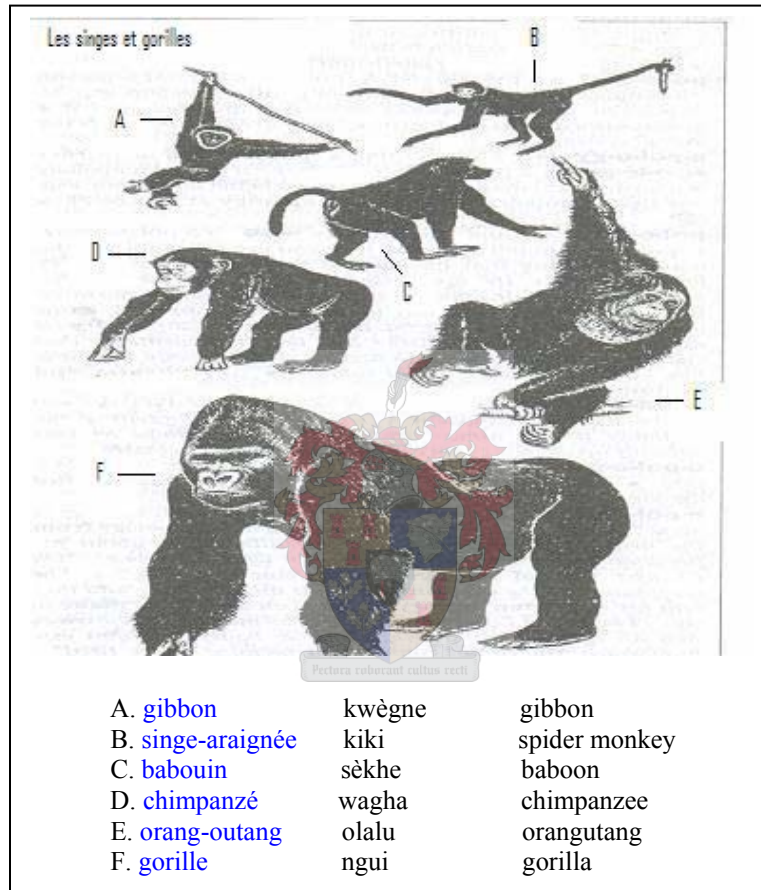
This type of procedures as displayed in figures 12.8 & 12.9 will give the users of the proposed model an easy access to LSP terms and their corresponding target-language equivalents in both parts of the central list. It will therefore offer the pictorial illustrations in the proposed model with what is known as an *equivalent search function*, cf. Bergenholtz and Tarp (1995: 165). At least two types of pictorial illustrations will be included in the proposed model. One type will exclusively be presenting pictures and the

translation equivalent texts. The other type will also be presenting encyclopedic data related to the pictures. An example of a table of pictures with the title *"perimeters"* will include the different geometric shapes and also the formulas for the calculation of the perimeters of these geometric shapes. These two types of pictorial illustration are discussed in more details in section 12.4.3.

Still, the pictures that are large, like that of the human body and skeleton, maps, national flags, etc. will be placed in the middle or back matter texts even over two pages or in inserted leaflets if necessary for a map for instance which may need three (3) pages. This way of dealing with this type of pictorial illustrations is conventionally observed in existing bilingual and monolingual dictionaries. This time these texts will only be presented in Fang/French/English. Still, this type of pictures and the ones which will have to be included in the back or middle matter texts and also located together within given articles of hypernym lemmata must be dealt with in that way for a systematic reason. As Bergenholtz and Tarp (1995: 166) state, only where pictures are incorporated with the sole purpose of providing a systematic overview can it be considered as a good idea to place them separately. Furthermore, very precise and clear-cut reference entries that will guide the user from the microstructure of the related article to the appropriate pictorial illustrations should be devised.

Finally, as observed in the CIDE (1996), an index of the pictorial illustrations, cf. 12.4.3 will also be included in the back matter texts of the proposed model. However, the entries must be as simple as possible. As an example, an entry like *geometric shapes* may be difficult to be interpreted by a young user. It would be good to have this entry and also have it split in multiple entries such as *polygons*, *trapeziums* or *trapezia*, *triangles*, etc. to enhance the possibilities of young users to easily access the illustrations of the geometric shapes included in the central list. This index will be presented in Fang/French/English, French/Fang/English and also in English/ French/Fang. Pictorial illustrations play an important role to add to the understanding of the lemmata. Indeed, referring to Gouws (1993:46), the validity of the employment of pictorial illustrations is unquestionable

when these entries enhance the comprehension of the target user. The way the pictorial illustrations will be presented in the dictionary will then play an essential part in the knowledge-orientated function of the proposed model to give special information about the subject specialized items in Fang and French.

12.7. Conclusion on the outer texts and pictorial illustrations

At least six (6) front matter texts, namely, the preface, the list of contributors, the table of contents, the list of abbreviations, the user's guide and the mini-grammar, and four (4) back matter texts, namely, big pictures, the equivalent registers, the guide word registers and the pictorial illustration index are suggested to be included as outer texts of the proposed dictionary. The outer texts which are included in this model strongly complement the central list. On the other hand, the presentation in bright colour of specific texts of the outer texts extends the attraction feature which should prevail in the proposed model. Some of the front matter texts such as the tables of contents and their extensions feature integrated outer texts. Still, most of the back matter texts strongly contribute to both communication- and knowledge-orientated functions of the central list. Then, the target users will consult these back outer texts because by interacting and being strongly integrated with the central list they will assist them with satisfying a number of needs, cf. figures 3.4 and 3.5 in section 3.2.4. Yet, the compilers of the proposed model can suggest other outer texts to be included. In that case, they should avoid including texts, which will turn into extravagance and be pointlessly pricey because they might not be really needed and consulted by the users. The same principle of including relevant data resulting from the planning of the dictionary should also apply to pictures. The presentation of the pictures in the envisaged should rely on the collaboration of the editorial staff of the dictionary with the appropriate experts in picture.

CHAPTER 13

CONCLUSION

The methodical strategies resulting from the metalexicography are particularly constructive and valuable to precede compilation of a dictionary. Theory makes the lexicographers and compilers aware of all detailed criteria to follow for a successful planning and making of dictionaries. It is therefore of fundamental importance that lexicographers and anyone aspiring to compile dictionaries get a thorough training in the theory of lexicography in order to come up with a coherent theoretical basis for the planning and compilation of their dictionaries.

The theoretical criteria that are discussed in this dissertation can provide a framework for the compilation of a significant specialized multi-volume school dictionary, as typological innovative dictionary, which deals with special field language for education in primary school in Gabon. It is a bilingual bi-directional dictionary with a trilingual dimension. Fang as one of Gabonese mother tongues and French as the official language are the languages dealt with in the bilingual bi-directional aspect. English as an international language is dealt with in the trilingual dimension. These three (3) languages have served as empirical evidence throughout this research. The lexicographer(s) of this model must, in shaping the criteria, be steered by a deep analysis of the intended target user group. This analysis ought to be determined by means of a comprehensive, detailed practical research that must head the compilation course of action and the findings of the relevant data, which must be incorporated in the dictionary plan. A thorough analysis of the intended target user group provides the lexicographer with exhaustive and meticulous information of the varying lexicographical needs of users with Fang as first language, users with Fang as second language, non-Fang users, users with French as first language, users with French as second language, non-French users, English users, users with English as third language and non-English users. This extensive and meticulous

information provides decisive guidelines for determining the structural profile of the proposed dictionary.

However, the lexicographer(s) should make sure that the dictionary plan results from constructive research and cautious concern and that it is methodical, before claiming to have an adequate theoretical basis for the proposed dictionary. The time used for devising this dictionary plan and for the analysis of the users will unavoidably show results in the macrostructure, microstructure, access structure, addressing structure, the mediostructure and the outer texts of the dictionary. These salient components of the dictionary will then integrate the basic principles of user-friendliness and accessibility on a structural level. On the other hand, the lexicographer(s) must also make sure that the presentation of the structure of the dictionary to the users is absolutely clear. This will be accomplished via the planning of a comprehensive and easily decodable user's guide. Accordingly, the user's guide will be written in an easy language, which includes some basic terms of the metalexicographical language to be known by the average user. It will not be written in a full metalexicographical special field language, which would make it easy to decode only for a few experts and skilled users and difficult for the bulk of the users.
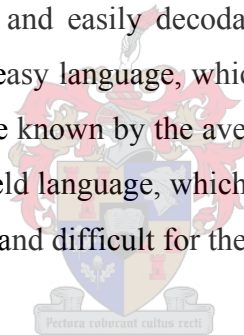
Accordingly, the proposed dictionary can be used as instrument in a bilingual education system with a trilingual vision, which will integrate harmoniously and complementarily a Gabonese mother tongue, the official language of Gabon and an international language. Basically the proposed model will assist Fang and non-Fang students in classrooms and when working on their study materials and assignments, etc. Teachers can use this dictionary when preparing lectures and different programmes in Fang.

Beyond the utilization by students and teachers, the proposed dictionary can be utilized as reference source to assist the compilation of appropriate textbooks and study material in a bilingual education system, which will include Fang. On the other hand, the proposed model can be employed as reference source to assist the compilation of textbooks and study material, which will sustain the programmes in Higher Education institutions, like

ENS, ENI, etc. which are in charge of the training in different types of teaching careers in Gabon.

From a purely lexicographic perspective, the dictionary devised in this research can serve as reference source when dealing with language for special fields or subjects for school in the compilation processes of other types of dictionaries, which contain Fang. Still, the criteria scrutinized through the model can serve for the same purposes in any other Gabonese language. The benefits of the proposed model include the possibility of its contribution to the development of metalexicographical research in Gabon, a country where lexicography has a bright future.

Finally, the use of the proposed dictionary can go further than the spectrum of special field languages for education. This model can be applied for the dictionaries of the same type dealing with other types of fields and activities like economics, law, administration, health, agriculture, etc.

The proposed model supports the intended policy of most African countries like Gabon with regard to the implementation of a bilingual education system. This policy is enthused by the legitimate will to preserve and promote their indigenous languages and enable these languages to be as functional as the official European languages. However, these countries also want to and need to keep on being part of the international landscape through multilingualism. Most importantly, this educational dispensation is based on the critical principle of producing performing students and a future competent labor force with excellent knowledge and communication skills. The decision on this policy is not without consequences regarding the tremendous implications on the availability of excellent   reference   sources when training teachers and preparing study material for students in their classrooms and when completing assignments. This is an exhilarating challenge for lexicographers, and other researchers, to step up to the plate and deliver affordable, integrated, complementary, mass-produced but beyond doubt user-friendly and educational-sound

bilingual dictionaries with a trilingual dimension. Mother tongue and non-mother tongue users of Gabonese languages, mother tongue and non-mother tongue users of French and mother tongue and non-mother tongue users of English are the intended target user group who will use these dictionaries. The compilation of dictionaries similar to the proposed model in the other Gabonese mother tongues, which are taught in the programmes of a lot of schools, can play an important role in assisting the implementation of this policy to be successfully achieved.

This vision can be adequately supported and funded by the government of Gabon, which spares no effort regarding the preservation and the promotion of mother tongues. Furthermore, companies from the private sectors like Shell Gabon, Elf Gabon, among others, which have been spending money in support of educational initiatives because they know that successful education is fundamental in providing a local skilled future labor foundation, should be keen to actively sponsor this lexicographical project. On the other hand, dictionaries similar to the one developed in the proposed model, in the other Gabonese mother tongues will be in favorite position to get financial and material support from international organizations like the African Union, International Organization for the Francophonie, ACCT, UNESCO, etc. These organizations, among others, have been encouraging the complementary and harmonious integration of mother tongues in education as a key to quality education in African countries. Furthermore, UNESCO considers the use of mother tongues in education as a fundamental right and a respect for education and linguistic diversity. If the proposal presented in this dissertation, which is supported by strong metalexicographical guidelines and empirical research is backed, as it should be, by the government, companies from private sector and international organizations, this lexicographical project will contribute to fundamentally modify the Gabonese lexicographical, linguistic and educational scenery.

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ADDENDA

"A SAMPLE OF FANG-FRENCH-ENGLISH CORPUS OF SPECIAL FIELD TERMINOLGY FOR SCIENCE FOR PRIMARY SCHOOL EDUCATION IN GABON"

The main goals of this addenda is to suggest to the lexicographer(s) of the proposed model an example of the process for the collection of the macrostructural elements as discussed in section 7.1. These addenda are the result of an enquiry realised among 10 adult Fang speakers in Gabon in March 2002. It is also completed with 10 adult informants interviewed in August 2006 in Stellenbosch, South Africa. This sample corpus is also the results of comments and suggestions given by the informants on the suggested process for the collection of the lemma.

This enquiry is not exhaustive. It only presents some technical items of each theme of the field of Science as included in the programme of Primary school in Gabon, from a more comprehensive corpus one has been collecting. Still, this example should provide enough and a relevant illustration so that the lexicographer would easily apply the process for the collection of all the fields of Science and also the other fields. Within this sample of the corpus, the words highlighted in bold in both Fang and French display the words which have been imported from French into Fang.

Yet, the example is in an early phase and no attention must be paid to the spelling as used in the Fang language. The example is more focused on the illustration of the process regarding the elaboration of the corpus of the proposed model. The misspelling or other morphologic and phonologic mistakes and lacks observed would not impede the lexicographer to follow properly the visualization of the process of the building of the corpus.

ADDENDUM A

THEME 1: MBOT, MBOT YA MVWUEGNE/L'HOMME, L'HOMME ET SA SANTE/HUMAN BEING, HUMAN BEING AND ITS HEALTH

abègne	cuisse	thigh
abèlè	accouchement	childbirth
abume asi	abdomen	abdomen
accident	**accident**	accident
agnu	bouche	mouth
agnu a bo	orteil	toe
antibiotique	**antibiotique**	antibiotic
antiseptique	**antiseptique**	antiseptic
aorte	**aorte**	aorta
appareil digestif	**appareil digestif**	digestive system
appareil urinaire	**appareil urinaire**	urinary tract
artere	**artère**	artery
artere aorte	**artère aorte**	aorta artery
asonghe	dent	tooth
ayéné	ouïe	hearing
bacille	**bacille**	bacillus
bacille Hansen	**bacille de Hansen**	Hansen bacillus
bacille Koch	**bacille de Koch**	Koch bacillus
bacille tetanique	**bacille tétanique**	tetanus bacillus
BCG	**BCG**	BCG
bidzi	aliment, alimentation	feeding, food
boo	cerveau	brain
cellule	**cellule**	cell
cerumen	**cérumen**	cerumen, earwax
chechègne fame	pénis	penis
couronne	**couronne**	crown
doo	nuque	nape of the neck
dope	nombril, ombilic	navel, umbilicus

dzime, dzidzime	aveugle	blind
dzise	oeil	eye
dzwat	abcès	abscess
egnume	odorat	sense of smell
ekhute bong	coude	elbow
ekope	peau	skin
ekukweigne nlo	crâne	skull
elang	anus	anus
essaa	père	father
evesse	os	bone
evesse e ne iliaque	os iliaque	hip bone
eyadzisse	paupière	eyelid
gna mbot	adulte	adult
gnuu	organisme	body, organism
gnuu mbot	corps humain	human body
mbakhe	blessure	cut
mfume dzisse	blanc de l'oeil	white of the eye
mveigne	côte	rip
ndjigne	nez	nose
ndzime	cécité	blindness
neme	coeur	heart
nerf	nerf	nerve
nerf a ne optique	nerf optique	optic nerve
nicotine	nicotine	nicotine
nkaghala	colonne vertébrale	spinal column, vertebral column
OKC (Okwan wa Karane ya Chicheigne)	MST (Maladie Sexuellement Transmissible)	STD (Sexual Transmitted Disease)
organe	organe	organ
organe a ne génital	organe génital	genital organ
organe a ne reproducteur	organe reproducteur	reproductive organ
organe be sens	organe de sens	sense organs
pansement	pansement	dressing
parasite	parasite	parasite
parasitose	parasitose	parasitosis
penicilline	pénicilline	penicillin
rachitisme	rachitisme	rachitis

radiographie	radiographie	radiography
tsine	racine	root

ADDENDUM B

THEME 2: BE TSITE/LES ANIMAUX/ANIMALS

abo tsite	patte	leg
abume asi	abdomen	abdomen
afape	aile	wing
akung	hibou	owl
angueke	mâchoire	jaw
angueke tsite	mandibule	mandible
egnakhe	boeuf	ox
ekamelokhe	cheval	horse
endeng	plume	feather
esawulaghe	fourmi	ant
essiang	chat	male cat
eyem	animal domestique	domestic animal, pet
gnate	buffle	buffalo
gwigne ntaang	porc	pork
kara	crabe	crab
kwasse	poisson	fish
kwègne	escargot	snail
mammifere	**mammifère**	mammal
mfumfoung	abeille	bee
mgbebem	lion	lion
mi nkune	musculature	muscles
mvepe	hérisson	hedgehog
mvome	boa	boa
mvu	chien	male dog
mvwat	poil	fur
ndzingoo	caméléon	chameleon
ngaa	femelle	female
ngaa essiang	chate	female cat

ngaa kupe	poule	hen
ngaa mvu	chienne	female dog
ngane	caïman	cayman
ngape	nageoire - de mammifère, d'oiseau, reptile - de poisson	- flipper - fin
ngape ya me kane	nageoire anale	anal fin
ngape ya mfusse	nageoire dorsale	dorsal fin
ngome	porc-épic	porcupine
ngui	gorille	gorilla
nguieme	queue	tail
ngwigne	cochon	hog, pig
nkome ngane	crocodile	crocodile
nkune	muscle	muscle
nome	mâle	male
nome kupe	coq	cockerel
nsong	bec	beak
ntoma	bouc	goat
nze	panthère	panther
nzokhe	éléphant	elephant
obame	épervier	Sparrow-hawk
ogbaa	perdrix	partridge
ogbong	gazelle	gazelle
onwane	oiseau	bird
ossene	écureuil	squirel
ovipare	**ovipare**	egg-laying, oviparous
sogho	canard	duck
tsite	animal	animal
tsite ya alu	animal nocturne	nocturnal animal
tsite ya omosse	animal diurne	diurnal animal
wagha	chimpanzé	chimpazee
wong	anguille	eel
zeng tsite	pelage	coat, fur
zum	pigeon	pigeon

ADDENDUM C

THEME 3. VEGETATION/ LES VEGETAUX/ VEGETATION

abègne	cultiver	(to) cultivate, grow (champ, plante)
abo elokhe - abo **céléri**, **salade** - abo viyo - abo **vigne**	pied (de plante) - pied de **céléri**, **salade** - pied de champignon - pied de **vigne**	 - head - stalk - vine
acajou	**acajou**	mahogany tree
adjigne	banane douce	banana
afane	forêt	forest
afupe	champ	field
ail	**ail**	garlic
andiyè	igname	yam
andokhe	manguier	mango tree
cafe	café	coffee
carotte	**carotte**	carrot
chlorophylle	**chlorophylle**	chlorophylls
dogho	patate - patate douce	potato - sweet potato
ekwane	banane plantin	banana
ekwane	bananier	banana tree
ele	arbre	tree
ele andokhe	mangue	mango
ele cafe	caféier	coffee tree
ele fefogho	papayer	papaya tree
ele kekaa	cacaoyer	cacao tree
ele ofumi	oranger	orange tree
fefogho	papaye	papaya
fiyè	avocat	avocado
fleur - nga **fleur** - nome **fleur**	**fleur** - **fleur** femelle - **fleur** mâle	flower - female flower - male flower

kekaa	cacao	cocoa
kuemè	noisette	hazelnut
mbang	amande	almond
mbang - mbang café - mbang moutarde - mbang poivre - mbang raisin	graine - graine de café - graine de moutarde - graine de poivre - graine de raisin	seed - coffee bean - mustard seed - peppercorn - grape
mbang - mbang **cajou** - mbang **coco** - abéé	noix - noix de cajou - noix de **coco** - noix de kola	walnut - cashew nut - coconut - kola nut
mbong	manioc	cassava, manioc
messepe	oseille	sorrel
metsogho	argile	clay
mfone	maïs	corn, sweetcorn
ndokhe	mangue (sauvage)	mango (wild)
ngwane	concombre	cocumber
nkene	noyau	pit US, stone GB
nkokhe	canne à sucre	sugar cane
nteme	branche	branch
nzong	aubergine	aubergine, eggplant US
ofumi	fruit	fruit
ofumi	orange	orange
ofumi, afumi	agrume, les agrumes	citrus fruit, citrus fruits
ofumi, **pamplemousse**	**pamplemousse**	grape fruit
ognwane	oignon	onion
okiègne	feuille	leaf
olwasse	citron	lemon
onguma	okoumé	gaboon, mahogany
ossang	citronnelle	citronela
owono	arachide	groundnut
oxygene	**oxygène**	oxygen
viyo	champignon	edible fungus, mushroom
zeghe	ananas	pineaple

THEME 4. ENVIRONNEMENT PHYSIQUE YA TECHNOLOGIQUE/ ENVIRONNEMENT PHYSIQUE ET TECHNOLOGIQUE/ PHYSICAL AND TECHNOLOGICAL ENVIRONMENT

abigne **rouille**, a**rouille**	rouiller	(to) rust, go rusty
abong mang	côte	coast
abong ochigne	bord de fleuve, rivière	bank
acier	**acier**	steel
alcool - **alcool** aadzikhe - **alcool** ane a 90^0 - **alcool** ane **absolu** - **alcool** ane **camphre** - **alcool** ane ethylique - mfume alcool	**alcool** - **alcool** à **brûler** - **alcool** à 90^0 - **alcool absolu** - **alcool camphré** - **alcool éthylique** - **alcool** blanc	alcohol - surgical spirit GB, rubbing alcohol US - meths GB, methylated spirits - absolute alcohol - camphorated alcohol - ethyl alcohol - clear fruit brandy
akok	pile électrique	battery
altitude	**altitude**	altitude
aluminium	**aluminium**	aluminium
argent (ekiègne)	**argent** (métal)	silver
atmosphere	atmosphère	atmosphere
avion, onwane bikiegne - **avion** ane ya **geometrie variable** - **avion** aa **reaction** - **avion** awa medzime - **avion** ane cible - **avion** ane **citerne** - **avion** aalumane - **avion** aa **fret**	avion - **avion** à **géométrie variable** - **avion** à **reaction** - **avion** bombardier d'eau - **avion-cible** - **avion-citerne** - **avion** de chasse - **avion** de combat - avion de fret	(aero)plane GB, airplane US, aircraft - variable-geometry aircraft - jet(plane) - firefighting plane - target aircraft - tanker aircraft - fighter(plane) - combat aircraft - cargo plane

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- **avion** aa **ligne**	- **avion** de **ligne**	- civil aircraft, liner
- **avion** aa **reconnaissance**	- **avion** de reconnaissance	- reconnaissance plane
- **avion** aa tourisme	- **avion** de tourisme	- light passenger aircraft
- avion aa mimbeghe	- **avion** de transport	- transport or freight plane
- **avion** aa sikolo	- **avion**-école	- training aircraft
- **avion** aa mefepe	- **avion** en papier	- paper aeroplane GB, airplane US
- avion aa espionne	- **avion**-espion	- spy plane
- **avion** ane fusée	- **avion**-fusée	- rocket power aircraft
- **avion** ane furtif	- **avion** furtif	- stealth
- **avion** ane pompier	- **avion** pompier	- firefighting plane
- **avion** ane postal	- **avion** postal	- mail plane
- **avion** ane sanitaire	- **avion** sanitaire	- air ambulance
- **avion** ane spatial	- **avion** spatial	- spacecraft
bougie	**bougie**	candle
bus	**bus**	bus
calculatrice	**calculatrice**	calculator
car	**car**	coach GB, bus
chrome	**chrome**	chromium
combustible	combustible	combustible
combustion	combustion	combustion
- **combustion** ane **incomplete**	- combustion incomplete	- incomplete combustion
- **combustion** ane otetekhe	- combustion lente	- slow combustion
- **combustion** ane **nucleaire**	- combustion nucléaire	- nuclear combustion
- **combustion** ane **organique**	- combustion organique	- cellular combustion
- **combustion** ane **vive**	- combustion vive	- fast combustion
condensation	condensation	condensation
cycle ya medzime	cycle (de l'eau)	water cycle
debrouissailleuse	débrouissailleuse	brushcutter
decantation	décantation	decanting
decapsuleur	décapsuleur	bottle-opener

degres Celcius	degrés Celcius	degree Celcius
dissolution	dissolution	dissolution, dissolving
dzope	ciel	sky
ebuma	bulle (d'eau)	bubble
ekalighe	brouette	weelbarrow
ekiègne	fer	iron
okuriyè	marteau	hammer
enguini	tronçonneuse (machine-outil, scie-portable)	power saw, chain saw
essence	essence	gas US, gasoline, petrole GB
evekhele	balance	scales
fax	fax	fax machine
filtre	filtre	filter
- **filtre** aa mfwang	- filtre à air	- air filter
- **filtre** aa café	- filtre à café	- coffee filter
- **filtre** aa mbwane	- filtre à huile	- oil filter
firi	charbon (de bois)	wood charcoal
gnuu	corps	body
- gnuu daa fwang ne kikhe	- corps inerte	- inert
- gnuu etaa	- corps vivant	- living body
imprimante	**imprimante**	printer
- **imprimante** ane ya ebuma **encre**	- imprimante à bulle d'**encre**	- bubble-jet printer
- **imprimante** ane ya **jet encre**	- **imprimante** à **jet** d'**encre**	- ink-jet printer
- **imprimante** ane **laser**	- **imprimante** (à) **laser**	- laser printer
- **imprimante** **aa marguerite**	- **imprimante** **à marguerite**	- daisywheel printer
- **imprimante** ane **matricielle**	- **imprimante matricielle**	- matrix printer
inoxydable	**inoxydable**	non-oxidizing
kalsine	pétrole	oil, petroleum
lama	lampe	lamp, light
- lama aa **acetylene**	- lampe à **acetylène**	- acetylene lamp
- lama aa **bronze**	- lampe à **bronzer**	- blow lamp GB, blow torch US, sun light

- lama aa **essence**	- lampe à **essence**	- kerosene lamp GB, paraffine lamp US
- lama aa **incandescence**	- lampe à **incandescence**	- incandescent lamp
- lama aa **iode**	- lampe à **iode**	- halogen lamp or quartz idiome
- lama aa kalessine	- lampe à pétrole	- kerosene lamp GB, paraffine lamp US
- lama aa **soude**	- lampe à **souder**	- blow lamp GB, blow torch US
- lama aa nkute **mercure** ngue kikhe **sodium**	- lampe à vapeur de **mercure** ou **sodium**	- mercury or vapor sodium lamp
- lama aa **bureau**	- lampe de **bureau**	- desk light or lamp
- lama aa **mfekhe**	- lampe de **poche**	- pocket torch
- lama aa **surete**	- lampe de **sûreté**	- safety lamp
- lama ane **electrique**	- lampe **électrique**	
- lama ane **fluorescente**	- lampe **fluorescente**	- flashlight US, torch GB
		- fluorescent light
- lama ane **halogene**	- lampe (à) **halogène**	- halogen lamp
- lama ane **solaire**	- lampe **solaire**	- blow lamp GB, blow torch US
- lama aalep	- lampe témoin	- indicator light
- lama aa efope	- lampe-tempête	- hurricane lamp
mendekhe mene larane	vases communicants	connected vessels

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