Introducing a New Lexicographical Model: AlphaConceptual+ (and How it Could Be Applied to Dictionaries for Luganda)

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Abstract: In this article we explore the possibility of amalgamating the semasiological (i.e. alphabetical), onomasiological (i.e. conceptual) and visual approaches to dictionary compilation, here termed an alphaconceptual+ (i.e. alphaconceptual 'plus') dictionary, using Luganda as a brief case study. Such a dictionary would combine the strong points of alphabetical and conceptual lexicography, with all entries also linked to relevant picture plates. In Section 1 we expound on the history of Luganda lexicography, highlighting the different types of dictionaries in the language since the early 1900s. Section 2 is an exposition of semasiological and onomasiological lexicography. In Sections 3 and 4 we study the actual dictionary market and scholarly lexicographic literature, in Africa and the rest of the world respectively. In Section 5 a case for language-independent alphaconceptual+ lexicography is argued, and its proposed compilation approach is sketched out in Section 6, followed by the conclusion in Section 7.

Ekifunze: Okwanjula Enkola ya Kannankuluze Empya: Ennawalifu-Bitegeero+ (n'engeri gy'eyinza okukozesebwamu mu nkuluze z'Oluganda). Mu lupapula luno tutunuulidde obusobozi bw'okugatta enkola z'okuwandiika enkuluze omuli ey'ekiwalifu, ey'ebitegeero n'ennyinyonnyozabifaananyi, wano kye tutuumye enkuluze ennawalifu-bitegeero+, nga tukozesa Oluganda ng'ekyokulabirako. Enkuluze ey'engeri eno eba ejja kugatta emiganyulo gya kannankuluze ow'ekiwalifu n'ow'ebitegeero, ng'ennyingizo zonna era ziyungi-ddwa ku bifaananyi ebizituukirako. Mu Kitundu 1 tulombojja ebyafaayo bya kannankuluze w'Oluganda, nga tumenya ebika by'enkuluze eby'enjawulo mu Luganda okuviira ddala ku

ntandikwa y'emyaka gya 1900. Ekitundu 2 kinnyonnyola kannankuluze ow'ekiwalifu n'ow'ebite-geero. Mu Kitundu 3 ne 4 tutunuulira akatale k'enkuluze kennyini mu Afrika n'ebiwandiiko by'ekiyivu ku nkuluze okwetooloola ensi yonna. Mu Kitundu 5 tuwa ensonga lwaki enkuluze ennawalifubitegeero⁺ yeetaagibwa mu Luganda, ne tuteesa n'engeri gy'eyinza okuwandiikibwamu mu Kitundu 6, ne tuzzaako okukubira mu Kitundu 7.

Ebigambo Ebikulu: KANNANKULUZE OW'EKIWALIFU, KANNANKULUZE OW'E-BITEGEERO, WABITEGEERO, ENKULUZE NNAMIRAMWA, ENKULUZE Y'EMITWE, ENKU-LUZE Y'ENFAANANYAMAKULU, ENKULUZE Y'EBIFAANANYI, ENKULUZE ENNYINYO-NNYOZABIFAANANYI, ENKOLA YA KANNANKULUZE EMPYA, ENNAWALIFUBITEGEE-RO⁺, LUGANDA

1. Luganda lexicography

The oldest known lexicographical work in Luganda, i.e. Le Veux's Luganda–French vocabulary of 1917 is also regarded as one of the pioneering works in Bantu lexicography (Benson 1964: 73). This was followed by Kitching and Blackledge's Luganda–English dictionary of 1925 that was later revised by Mulira and Ndawula in 1952. Although these pioneering works have been referred to as dictionaries and are, no doubt, an invaluable effort in the foundation of lexicography in Luganda, one would still consider them as simple glossaries, for their entries are comprised of only two or at most three pieces of information, i.e. the headword, part of speech and a target-language gloss. A more developed (but still bilingual) Luganda–English dictionary was written by Snoxall in 1967, followed by another Luganda–English dictionary by Murphy in 1972. Even a brief look at these two dictionaries reveals that Murphy drew a lot from Snoxall, so much so that it would take a critical eye to notice the (subtle) differences. For a period of close to four decades after Murphy's dictionary, no Luganda dictionary was compiled, up to the late 2000s when Kiingi et al.'s 1 000-page *Enkuluze y'Oluganda ey'e Makerere* was published in 2007. This was the first-ever monolingual dictionary to be written in Luganda. A number of bilingual dictionaries have recently been compiled as well, including *A Concise Luganda–English Dictionary* by Bagunywa et al. in 2009 and *Fountain Standard Luganda–English Dictionary* by Bukenya and Kamoga, also in 2009.

Compilers of dictionaries in Luganda have thus concentrated on bilingual lexicography, with only one attempt at a monolingual reference work so far. Secondly, and more importantly, all these dictionaries have followed the same old tradition of alphabetical arrangement, without due regard to other advantageous forms of arrangement. There is but one exception to this trend: Kawalya's unpublished BA dissertation (2003), which includes a thematically arranged dictionary of Kiganda culture. The intrinsic contribution of this work notwithstanding, that dictionary cannot be representative of the entire language since it only deals with a section of the language, i.e. culture. An MA project (Kawalya

2006), developing the theoretical notions of Kiingi (2005) on conceptual lexicography for Luganda, does not provide a full solution to the absence of conceptual lexicographical works in the language either: it stops at categorizing the vocabulary of Luganda into conceptual clusters.

A modern dictionary for Luganda that is not straitjacketed by the alphabetic ordering would however be a very welcome addition to the dictionary landscape. As it stands, the well over five million first and second-language speakers of Luganda (Lewis et al. 2013) are ill-served with basic A-to-Z bilingual dictionaries on the one hand (most of them considerably dated at that), and a voluminous single-volume A-to-Z monolingual dictionary on the other. Writing in the 2010s, the dire need for a modern Luganda dictionary could and should of course translate into an electronic product. Not assuming automatic speech recognition (ASR), being able to spell remains a requirement to access an electronic product, but the contents should not necessarily be presented in alphabetical order. In an electronic product there is also room for more and different types of multimedia to support the presentation of the lexical information (for an in-depth overview of the possibilities, cf. De Schryver 2003). It is precisely this state of affairs, and the options offered by the modern digital world, that set us on a course to devise a new lexicographical model with which new types of dictionaries could be compiled — for Luganda, or for any other language(s).

2.   Semasiological vs. onomasiological dictionaries

For a long time, the principle of alphabetization has gone hand in hand with the understanding of lexicography. Lest it be forgotten, the first monolingual dictionary in the English language even honoured the alphabet in its title: *A Table Alphabeticall* (Cawdrey 1604), and had to explain the process to its readers:

> If thou be desirous (gentle Reader) rightly and readily to vnderstand, and to profit by this Table, and such like, then thou must learne the Alphabet, to wit, the order of the Letters as they stand, perfecty without booke, and where euery Letter standeth: as (b) neere the beginning, (n) about the middest, and (t) toward the end. Nowe if the word, which thou art desirous to finde, begin with (a) then looke in the beginning of this Table, but if with (v) looke towards the end. Againe, if thy word beginne with (ca) looke in the beginning of the letter (c) but if with (cu) then looke toward the end of that letter. And so of all the rest. &c. (Cawdrey 1604: fol. A4v)

In many published works, the definition of dictionary continues to been found inseparable from the term alphabet. To this effect, Jackson (1988: 208) notes: "Ask anybody for a definition of the word dictionary and the term alphabet will most likely feature in it." He quotes the *Collins Pocket English Dictionary* which defines dictionary as "a book of alphabetically listed words in a language with definitions, pronunciations, etc." Most dictionaries have indeed

been compiled following this principle.

It is true that alphabetical arrangement of entries is advantageous to the user, mainly in one aspect, the convenience of reference or accessibility (for those who know the alphabet, and on the condition that a strict alphabetical ordering is followed, and not, for example, a phonemic classification). It is easy for the users of the dictionary to locate the items they are looking for, because entries are arranged following their alphabetical progression. In this way, a dictionary is basically serving a decoding purpose (Sierra 2000), while, according to Hartmann (1983), a large number of dictionary users need dictionaries for encoding purposes too. To the latter category of dictionary users, traditional (alphabetical) dictionaries may not be the most helpful (Sierra 2000).

The possibility of transforming traditional semasiological dictionaries into onomasiological dictionaries — i.e. "dictionaries that are used for finding a word from an idea" (Sierra 2000: 224) — has been upheld by many, e.g. Kipfer (1986), Sierra (2000), Burkhanov (2005). The need to see it as a 'transformation' is somehow ironic, however, as the 'topical tradition' is of course much older than the alphabetic one (cf. Hüllen 1999: 36).

> Alphabetical dictionaries have conquered the market. This fact will not change in the near future. One consequence of this is that they have also conquered the attention of scholars. Yet, it seems high time that non-alphabetical dictionaries should at least regain their history. (Hüllen 1999: 21)

Although the biggest advantage of semasiological dictionaries seems to be centred on accessibility, Kipfer (1986: 55) notes that a lot of information is still hidden behind the structure of alphabetized headwords and that this is seriously disadvantageous to users who are interested in the differences between related words. Urdang (quoted in Kipfer 1986)[1] is disappointed that lexicographers have not been more resourceful in developing methods for organizing and accessing dictionaries. According to his survey, the main arrangements available besides the alphabetical one include: chronological (day-by-day and year-by-year with, in certain cases, a cross-grid of general thematic categories); indexed (words and phrases, topics, and content); thematic (usually supplemented by an index); rhyming; etymological; and structured (e.g., the Roget-type thesaurus with an index) (Kipfer 1986: 58). According to Urdang, of these, only thematic and structured formats use concepts as the basis of their methodology and attempt to go from "meaning" to "word". However, these approaches also have shortcomings. For example, Kawalya (2006: 8) notes that Roget's thesaurus — if not the first,[2] certainly the most famous among dictionaries compiled in a principle other than alphabetization — relies heavily on an alphabetical index for accessibility. Furthermore, the numerical code assigned to individual words in the index is shared by all words within the same cluster. This implies that the code 503 for *mad* for example (in Roget et al. 1966) will not take the user directly to *mad* but rather to the cluster title "Insanity" where *mad* is found together with over 750 other words, within which the user has to look for *mad*.

On this note, Kipfer (1986) argues a case for electronic onomasiological dictionaries, contending that large print dictionaries "would be too costly in formats other than alphabetical, both to prepare and print traditionally; they would require indexes and be very cumbersome to use" (p. 61). She summarizes the main advantage of the onomasiological approach over the traditional semasiological dictionary as lying in transparency, by providing access through each of the categories rather than just one (p. 64). Kipfer further argues that the most important advantage of an (onomasiological) electronic dictionary lies in the ability to ask for all entries that have a certain word in their definitions. For example, if one searched for all entries with the word *start* in the definition, one would be able to get words such as *begin*, *commence*, *embark*, *initiate*, *instigate* and *institute* (assuming that the word *begin* was used in the definitions of all these words).

3.   Beyond the semasiological dictionary: the market for African-language dictionaries

Even a brief review of the available dictionaries for the African languages reveals that most are basically A-to-Z treatments of the general language. For some regions, however, especially in Central and South Africa, thematic approaches are quite popular, an activity typically undertaken by terminographers compiling terminology lists. For Cilubà, for instance, De Schryver (1999: 25) lists 38 dictionaries published over the course of a century (between 1897 and 1998), about a quarter of them with onomasiological features. These include a dictionary of synonyms (Nzongola 1967), and thematic dictionaries that focus on linguistic terminology (Bunduki 1975), economic and social activities (Maalu-Bungi et al. 1983), a classification of the general language (Yukawa 1992), hygiene (Kadima 1995), road signs (Kadima and Katende wa Ndaya 1995), and education (Kadima et al. 1995). Often, thematic dictionaries are built around illustrations (drawings, photos, etc.), an activity at which South African dictionary publishers excel. Examples include Pharos's *Multilingual Illustrated Dictionary* (Bennett and Tsoeu 2006), which covers English, Afrikaans, Zulu, Xhosa, Northern Sotho, Southern Sotho, and Tswana, or OUPSA's *First Bilingual Dictionary* series, which pairs English to each of the other official South African languages, ten dictionaries in all (Paizee et al. 2007–2009). Hybrid dictionary concepts are also being tried out: Maskew Miller Longman released the *Longman Foundation Phase Bilingual Dictionaries* (Various 2010), a series of five dictionaries spearheaded by R.H. Gouws and D.J. Prinsloo, in which English is paired with Afrikaans, Zulu, Xhosa, Northern Sotho and Tswana respectively. Each dictionary consists of four sections: a bilingual picture dictionary built around themes, an A-to-Z dictionary with definitions and examples in the African language and equivalents resp. translations in English, and two indexes, one for each language. Four approaches to what are basically

similar dictionary contents make this hybrid series rather cumbersome to use. The problem, of course, is that one is constantly hitting the limitations of paper: there is only so much one can present on a single page, and there is only so much one can pack into creative search routes for paper dictionaries.

In the Great Lakes region, at least two attempts were made to streamline the process. Kawalya (2006), in his MA dissertation, attempted a conceptual categorization of the Luganda lexicon using a Situational-Role Theory and imitating the biological taxonomy of living things. The underlying idea being that such a categorization would be so natural as to be able to dispense with indexes. In testing the hypothesis, Kawalya used the lexicon of Luganda, as reflected in Kiingi et al.'s (2007) *Enkuluze y'Oluganda ey'e Makerere*, considering the primary senses of the lexemes therein, and then fitting individual lexical items under various formulas, which could help in assigning an item to appropriate clusters. The lexicon of Luganda fitted into 52 conceptual clusters, which were grouped into eight major taxonomic categories that were given labels borrowed from the biological taxonomy of living things, i.e. super kingdom, kingdom, phylum, class, order, family, genus, and species. Brief tests of the outcome revealed that the conceptual clustering, especially the formulaic aspects, was too abstract to be of widespread practical use. A similar attempt in a closely related language, Runyankore-Rukiga, is that of Uganda's President, Y.K. Museveni and colleagues.[3] In their *Katondoozi y'Orunyankore-Rukiga* 'Thesaurus of Runyankore-Rukiga' (Museveni et al. 2012), the entire world was categorized into eleven broad clusters. Unlike Kawalya, Museveni et al. used words to label the clusters, i.e.:

— Of the heavens, earth and cosmology;
— Of plants;
— Of animals;
— Of humankind;
— Of man and language;
— Of social behaviour in closely related communities;
— Of agriculture and preparation of foods and beverages;
— Of livestock farming, milk and meat;
— Of work and the world of skills;
— Of dressing, ornaments, perfumery and general hygiene; and
— Of travel on land, water and in the air.

Unfortunately, we feel that the items in this thesaurus cannot be easily accessed, exactly because there is no alphabetical index. The classification may make a lot of sense according to Uganda's President own perception of the world, but that does not automatically make it universal. One thus needs to know, either by intuition or otherwise, to which cluster a given word belongs in order to be able to access the respective list of words under the desired cluster. Also, and similar to Roget's thesaurus, words are simply listed without any definitions.

The search for innovative access routes to lexical information thus remains on, at least for the African languages. Sadly, compared to a decade ago, the lexicographic community with an interest in the African languages seems to devote ever less of their intellectual efforts to onomasiological approaches. This can be seen from Figure 1, in which various onomasiological key concepts are plotted for each volume of *Lexikos*, from Volume 1 (1991) up to Volume 22 (2012).
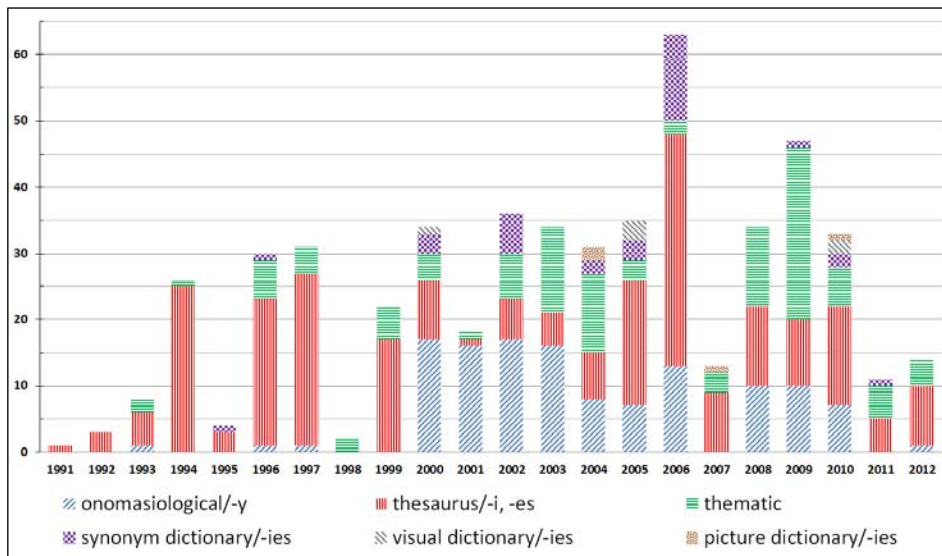
Figure 1:   Onomasiological concepts in *Lexikos* (actual occurrences per volume).

One firstly notices that the sum of the various terms averages only about 24 occurrences per volume, with the mentions in Volume 16 (2006) exceptionally high. Also, the technical terms "onomasiological/onomasiology" only start to be used in earnest as of the year 2000. On the whole, references to "thesaurus/ thesauri, thesauruses" gradually give way to references to the more generic "thematic". Finally, discussions of the "synonym dictionary/-ies" are rather random, while the "visual dictionary/-ies" and "picture dictionary/-ies" are truly undertreated in *Lexikos*. In order to appreciate the trend, Figure 2 shows the normalised totals for the same onomasiological terms (expressed as hits per 100 000 words in each volume), as well as the five-year moving average to obtain an even better idea of the true trend. The trendline in Figure 2 clearly shows that while interest in the onomasiological dictionary steadily grew up to and including 2006 in *Lexikos*, interest has declined fast ever since. This, in our view, is a sad development, especially in this day and age of digital solutions.
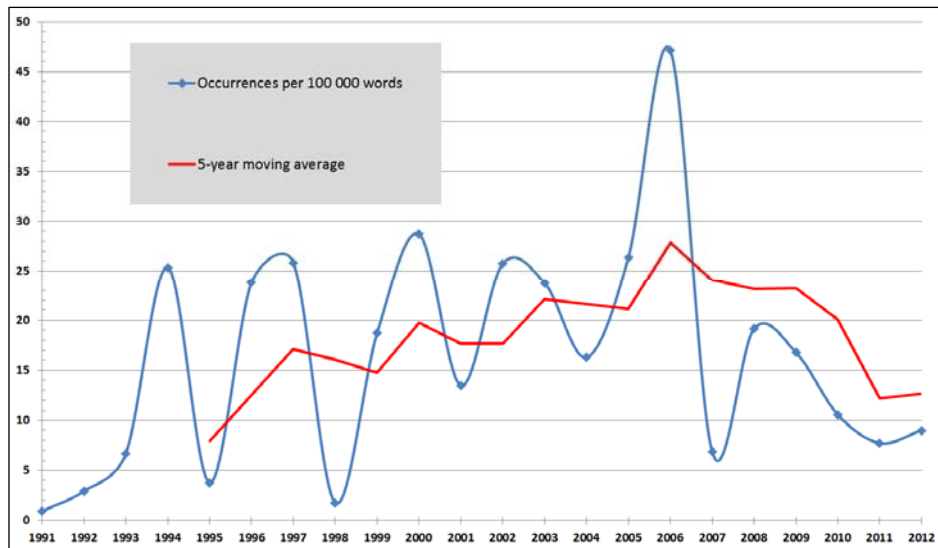
Figure 2: Onomasiological concepts in *Lexikos* (normalised occurrences per volume, and trendline).

4.   Beyond the semasiological dictionary: the international dictionary market

In order to move from Africa to the rest of the world, we can start by comparing the trendline arrived at in Figure 2, with the trendline for the same terms as seen in a lexicographic reference corpus of 20 million words that spans the entire world (for more on that lexicographic reference corpus, cf. De Schryver 2012). The result is shown in Figure 3.

From Figure 3 it may be seen that attention to onomasiological aspects is not only consistently higher in the lexicographic reference corpus, but also presently, following a dip during the 1990s, getting ever more popular, unlike what was seen for *Lexikos*. Assuming that more scholarly activity in this field also results in more advanced onomasiological traits in published dictionaries, we conducted the following experiment. On a single day in November 2011, we visited a well-stocked bookshop in the West and checked the variety of dictionaries available, taking pictures of interesting onomasiological features.[4] We use both our findings and a selection of the photos in the discussion that follows.

We first noted that modern paper dictionaries don't just split along the dichotomy semasiological vs. onomasiological, but that picture dictionaries interact with both of these, resulting in a trichotomy.
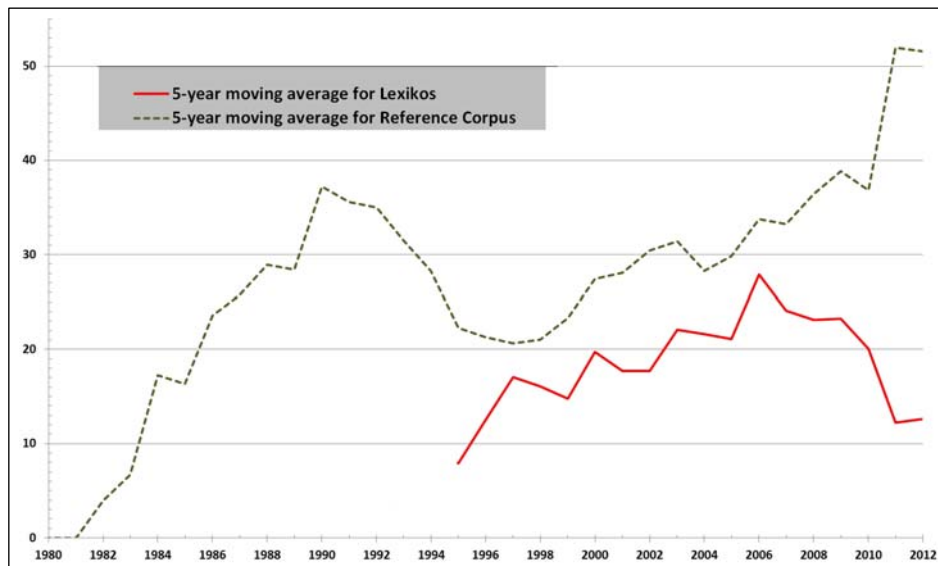
Figure 3:   Onomasiological concepts in *Lexikos* vs. the same concepts in a 20-million-word lexicographic reference corpus (trendlines are the five-year moving averages of the normalised occurrences per 100 000 words).

Examples of "pure" semasiological and "pure" onomasiological dictionaries abound, but picture dictionaries tend to have many features of onomasiological dictionaries and often also of semasiological ones. At the same time, it also quickly became clear that semasiological dictionaries include ever more onomasiological features, and that, vice versa, onomasiological dictionaries include ever more semasiological features. We started in the children section, moved to the travel section, then on to the language acquisition section, to end up at the "proper" (advanced/adult) dictionary section.

—   The *Beeldwoordenboek Engels* (Van Humbeeck 2001): This is a bilingual picture dictionary English–Dutch, arranged around various themes, which also includes example sentences in English, a mini-grammar and two indexes. Not all collections of drawings bring together similar concepts, however. The pages with "Useful words", for instance, mainly bring together function words and some prepositions, as seen in Addendum 1. These are clearly daunting concepts for a picture dictionary to convey, and pages like these are close to "pure" picture dictionaries: no single concept or even onomasiological field brings the material together; if anything, it is the *function* these words have in the language that brings them together.

—   The *Arabic–English Visual Bilingual Dictionary* (Salih et al. 2009): This is basically a picture dictionary showing actual photos grouped around certain concepts and topics, with words in two languages assigned (often by

means of lines) to their respective photos. There are also two indexes. For example, a plate of crockery and cutlery has pictures of (and their words for) mug, coffee cup, plate, bowl, teapot, jug, glassware, fork, spoon, knife, etc. No definitions are given. See Addendum 2. On the cline "pure picture dictionary – pure onomasiological dictionary", a dictionary such as this one sits right in the middle of the continuum.

— The *Thematische woordenschat Engels* (Häublein et al. 2011): This is an example of a thematic dictionary, where the lexicon is arranged around themes and subthemes. Within each subtheme the words are grouped in a logical rather than an alphabetical order (there is also an index), and given a brief lexicographic treatment. Within the subtheme "Free time, hobby, game", for example, one of the groups of words is: *leisure* n., *recreation* n. uncount form, and *relaxing* adj. See Addendum 3. The lexicographic treatment includes word-class assignation, pronunciation, occasionally combinations and/or examples, and translations in a separate column.

— *Le Nouveau Petit Robert: Dictionnaire Alphabétique et Analogique de la Langue Française* (Rey-Debove and Rey 2011): This well-known product of French lexicography hints at both semasiology and onomasiology in the title already (i.e. *alphabétique* 'alphabetical' vs. *analogique* 'analogical'). Although basically an A-to-Z dictionary, and entirely picture-less, it goes to great lengths, throughout the dictionary, to indicate the various lexical relations. In Addendum 4, for instance, one finds, at the end of the article for *agile*, the label "CONTR.", followed by *gauche*, *lent*, *lourd* — the latter three being antonyms of the headword. Under the same article, at sense 1, one finds, following a right-pointing arrow, the words *leste*, *souple*, *vif* — these three being closely related words (synonyms) of the headword in its first sense. Or still, at the article for *agissements*, the label 'FAM.' at the end signifies that the words that follow, *combine* and *magouille*, are synonyms in 'familiar' registers only (i.e. not to be used in 'solemn' situations).

— The *Macmillan Dictionary & Thesaurus* (Rundell et al. 2013): As one moves closer to the traditional A-to-Z type of dictionary, the advanced section in the bookshop holds an unusually large selection of especially English learners' dictionaries. In addition to highly developed A-to-Z sections, all these reference works also contain thematic sections and illustrations. As the latest big-publisher entrant in the series, the Macmillan version could have been featured here, but Macmillan has since decided that "it will no longer be publishing dictionaries in book form" (EURALEX News, 2 November 2012). The move from print to online indeed beautifully allows the full and seamless merging of "the dictionary" and "the thesaurus" (Calzolari 1988), as seen in the online *Macmillan Dictionary & Thesaurus*, and illustrated in Addendum 5. In this online environment, one can not only either consult the dictionary or consult the thesaurus, but also move between the two — and this is crucial — *on sense level*. Starting at the first

sense of *agile*, as shown in Addendum 5a, one can thus literally pull in extra thesauric information for that particular sense (5b), and dig even further into the thesaurus (5c). In an online environment everything is indexed and hyperlinked, allowing for a smooth navigation of all the data, both semasiological and onomasiological, through mere clicks.[5] There are, however, no illustrations in this dictionary, placing this type right in the middle of the continuum "pure semasiological dictionary – pure onoma-siological dictionary".

— The *Collins COBUILD Advanced Dictionary* (Sinclair et al. 2009): This is an alphabetically arranged dictionary with small picture templates, provided on selected pages throughout the dictionary. These are in the form of so-called "Picture Dictionary" boxes and "World Web" boxes. This dictionary also has "Thesaurus" boxes incorporated within some entries throughout the dictionary, to provide synonyms of particular senses of the headword. See Addendum 6. Clearly, not all entries are illustrated with pictures, and even in cases where picture plates are provided, they are far from exhaustive; for example a picture plate for 'bird' has only a handful of birds.[6]

— The *Oxford Learner's Thesaurus: A Dictionary of Synonyms* (Lea et al. 2008): As the name indicates, this work deals with synonyms only. Full dictionary treatments of each major entry and of its synonyms are all provided, again in logical rather than alphabetical order. See Addendum 7a. There are almost no pictures except for a few scattered templates. These few picture templates are interesting, though, because we see mini-articles complete with part-of-speech and sense-number indication as well as phrases being linked to a picture. See Addendum 7b. Accessibility is reinforced by topic and alphabetical indexes at the end of the thesaurus.

What this brief overview shows is that there are increased attempts by A-to-Z lexicographers to include ever-more onomasiological features and illustrations, that thesauri are turned inside out and mimic fully-fledged A-to-Z dictionaries, and that there are at the same time attempts by picture-template developers to include features more typical of both semasiological and onomasiological dictionaries. Semasiological, onomasiological and picture dictionaries are but the extreme ends on continua between them, of course, so what dictionary makers are (no doubt mostly unconsciously) doing is to try finding the optimal point for a particular target user group in the three-dimensional space created by those continua.

5.   Alphaconceptual⁺ lexicography

If we now reduce today's lexicographic reality to its most basic representation, then we can visualise the situation at the base as consisting of a triangle with word-based, concept-based and picture-based as the vertices (corners) of that

triangle. Viewed like this, one immediately recognizes the famous Semantic or Semiotic Triangle of Ogden and Richards (1923: 11), reproduced in Figure 4, an idea which can be traced back to (who else) Aristotle.
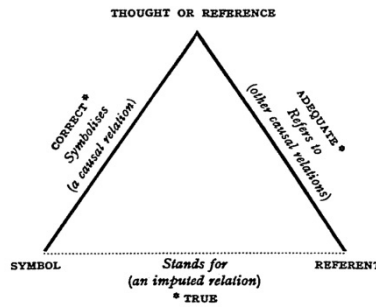
Figure 4:   Semantic or Semiotic Triangle of Ogden and Richards (1923: 11).

One way to read this is to say that a graphical form (SYMBOL), say the spelling "c o m p u t e r", symbolises the idea (THOUGHT or REFERENCE), of a computer, which refers to the non-linguistic entity being implied (REFERENT), that is the actual computer in the real world.

Expressed in ISO terms, this could become as shown in Figure 5.
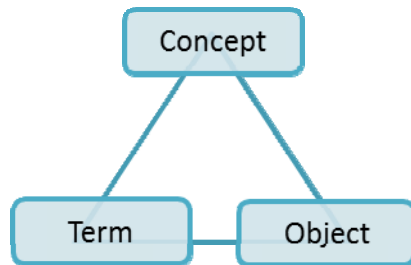
- **Object**: "Any part of the perceivable or conceivable world." [ISO 1087: 2000]
  Objects can be material (e.g. a certain house, Tower Bridge) or immaterial (speed, pain, freedom, process). [cf. DIN 2330, p. 3]
- **Concept**: "A unit of thought constituted through abstraction on the basis of properties common to a set of **objects**. The semantic content of a concept can be re-expressed by a combination of other and different concepts, which may vary from one language or culture to another." [ISO 5963: 1985]
- **Term**: "Designation of a defined **concept** in a special language by a linguistic expression." [ISO 1087: 2000]

Figure 5:   Semantic or Semiotic Triangle in ISO terms (cf. eCoLoTrain 2007).

Or thus in lexicographic terms as shown in Figure 6, with the word and concept levels corresponding to semasiological and onomasiological dictionaries respectively, and picture dictionaries — or in a digital environment, any multimedia dictionaries — the closest thing to the actual referent in the real world.
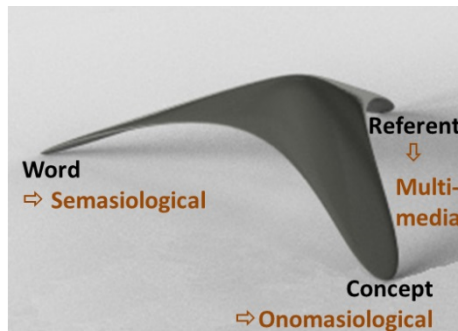
Figure 6: Semasiological, onomasiological and multimedia vertices in lexicography.
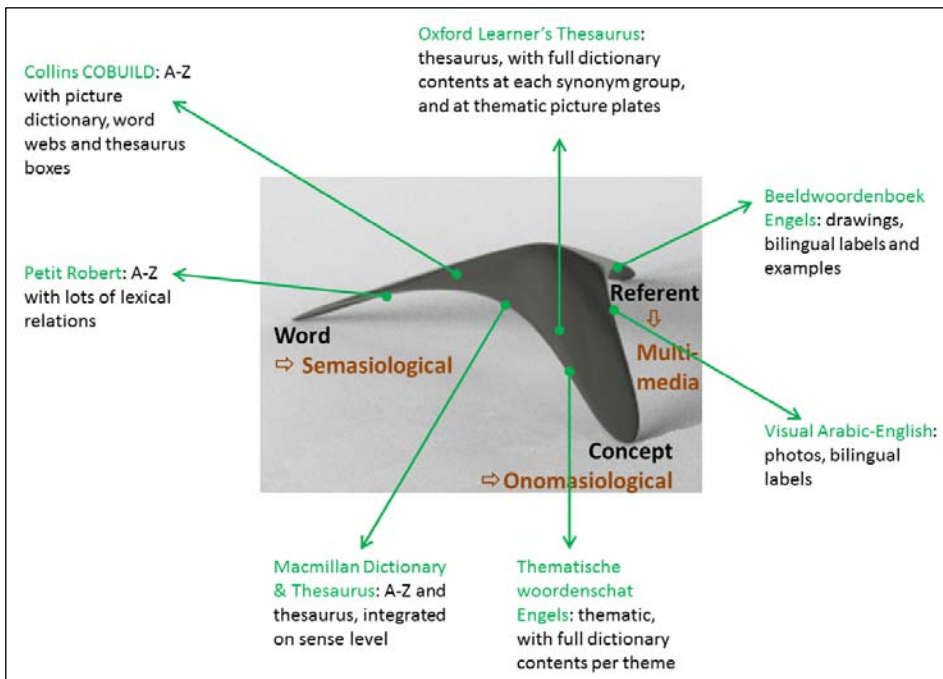
Figure 7: Using the lexicographical draped tripod to catalogue dictionaries.

Rather than a plain triangle, the three continua between the three vertices are allowed to blend into one another, creating the three dimensional surface shown. The visualisation is three-dimensional rather than two-dimensional, as the idea is to visualize the positive multiplication effect of combining features: the higher on the draped tripod — all other things being equal — the better the lexicographic product. This is best illustrated by placing the seven dictionaries and thesauri discussed in Section 4 on this shape, as done in Figure 7.

Five of the seven dictionaries combine features of just two vertices, and are thus positioned on the edge of the three dimensional shape. The distance from a vertex and the height from the base are meaningful to interpret the type of dictionary one is dealing with. Two dictionaries, the *Collins COBUILD Advanced Dictionary* (which stands for any of the Big Five learners' dictionaries) and the *Oxford Learner's Thesaurus: A Dictionary of Synonyms* move away from the edge, onto the surface, indicating that they combine features from the three vertices. The position again reveals the exact mix.

At this point we are in a position to introduce our new lexicographical model, which is the logical furtherance of the combination of the three lexicographical approaches in a digital environment — semasiological, onomasiological and multimedia — with which we end up near the apex of the lexicographical draped tripod. We have baptized this model **alphaconceptual⁺** (with "+" pronounced "plus"), as it amalgamates the alphabetical (i.e. the approach that departs from the word) and the conceptual (i.e. the approach that departs from the idea), to which a multimedia level is added. It needs to be stressed that what is envisaged is an *integrated* amalgamation, not the mere juxtaposition (or even automatic indexation and hyperlinking) of the various levels. Graphically, an alphaconceptual⁺ dictionary may be visualised as seen in Figure 8.
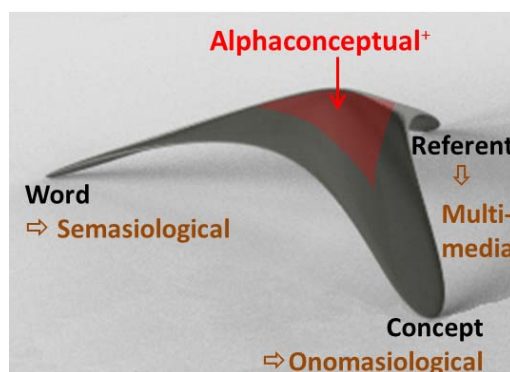
Figure 8:   Visual representation of an alphaconceptual⁺ dictionary.

6.   Compiling an alphaconceptual⁺ dictionary for Luganda

In an alphaconceptual⁺ dictionary, the search for lexical information starts from either the orthographic word, from the concept, or from a picture plate. Rather than a proof of concept, we will briefly outline how the compilation of such a dictionary could be undertaken for Luganda. The crux of the method, however, is that the entire lexicon would be built around picture plates such as the one seen in Addendum 7b, the electronic version of which is shown in Addendum 7c. As a starting point the classification proposed in Kawalya (2006) would be checked against a recently built Luganda corpus, and modified based on this corpus evidence. Rather than obscure, formulaic labels, a *hierarchy* (ontology) of concrete labels would be used. These labels — at least one, typically several — would be assigned to each sense as appropriate. The point is thus that one may very well compile an A-to-Z dictionary, as long as the onomasiological information is added as one proceeds, and that these two types of information thus end up to be fully integrated. For each group of headwords at the lowest level in the label hierarchy, a sensible number of picture plates would then be composed, to which the headwords would be linked. This aspect, too, would need to be prepared in the same dictionary compilation environment, to assure a seamless integration. In professional lexicography software such as TLex (De Schryver 2011a), it is already possible to change the view from a traditional A-to-Z list, to one based on labels, or indeed, to one where the lexicon is grouped around picture plates. An actual digital dictionary product would thus only need to replicate such a compilation environment, at which point the user will also truly be dealing with an alphaconceptual⁺ dictionary. In order to test the various proposals in this section, work has begun on the corpus-driven compilation of an alphaconceptual⁺ dictionary for Luganda, cf. Addendum 8.[7]

7.   Conclusion

An alphaconceptual⁺ dictionary is advantageous because it combines the virtues of the traditional semasiological dictionaries, those of onomasiological dictionaries, and those of picture dictionaries, while at the same time solving the shortcomings of each of those types in isolation. A user can approach the dictionary from the alphabetical angle and proceed to the typical lexicographic information. From there, users can also move on to (or concurrently inspect) the thesaural aspects. Because all entries are likewise linked to appropriate picture plates, users also have the bi-directional option of either moving from word or concept to picture or from picture to word or concept, where either choice enhances the understanding of the word or concept in question. In an electronic environment there is also no need for alphabetical indexes where the thematic information is listed. This considerably reduces the time and stress involved in moving back and forth connecting the words in the index to the words in the main body of the dictionary. The starting point and indeed all

preliminary dictionary compilation work was the result of our wish to produce a new, modern type of dictionary for Luganda, for which there is a dire need. The model itself is of course language-independent.

Endnotes

1. Although Kipfer (1986) labels Urdang's 1986 'Grosetto Workshop' paper as "forthcoming", when selected papers of that landmark workshop were eventually published, as Walker et al. (1995), Urdang's paper was not included.

2. Wilkins (1668) invented the principle on which the Roget's thesaurus is based two centuries before Roget (cf. Hüllen 2004: 285; De Schryver 2008: 422).

3. That Uganda's President, Y.K. Museveni, is an adept and accomplished lexicographer became clear when he launched the first monolingual Lusoga dictionary (Nabirye 2009) in Kampala on 8 October 2010 (cf. e.g. Jaramogi 2010, De Schryver 2011). On that occasion his laudatio included an in-depth analysis of the power of African languages and the need for dictionaries for these languages — a talk that could easily have passed as a keynote at Afrilex.

4. The shop visited was the FNAC, in the city of Ghent, Belgium, on 25 November 2011.

5. Unfortunately, the indexing and hyperlinking is typically an automated process, which results in quite a large number of nonsensical links. For example, clicking on "Bailey" in the example sentence _Bailey became increasingly aggressive in his questioning of the witness_, at sense 1 of _aggressive_, leads to the definition for _bailey_ as "an area of land between the outer and inner walls of a castle". Likewise, clicking on "becoming" in the first definition for _quell_, "to get rid of unpleasant thoughts or feelings, or to prevent them from becoming stronger", leads to the following definitions for _becoming_: "1. making you look attractive; 2. suitable or correct for you or the situation that you are in". Clearly, not what it should be. (On the cluttered page, one does find a box with "Related dictionary definitions", however, where _become_ VERB and _become of_ PHRASAL VERB are listed, but that means far more clicks where a single one should have sufficed. Plus, at _bailey_, the only other option is a link to 'the old Bailey', i.e. the Central Criminal Court in London, which in combination with the example sentence under _aggressive_ will only confuse even more.) In making the index, the dictionary data should have been lemmatised, so nouns at least lead to entries for nouns, verbs to entries for verbs, etc. This will avoid that a click on "drink" in _food and drink_ (under _help_ VERB) will lead to the verb _drink_, or that a click on "helping" in _He'd been helping himself_ ... (in the same article) will lead to the noun _helping_.

6. Even though the picture plate is labelled "bird", this may not be a fair assessment. The front matter explains: "'Word Webs' present topic-related vocabulary through encyclopedia-like readings combined with stunning art, creating opportunities for deeper understanding of the language and concepts." (p. viii). This particular picture plate is actually about the _Sinornithosaurus_, an avian dinosaur, from which modern birds may have evolved.

7. At this stage, the label ontology has not yet been (re)developed; the aim was to see if the TLex software could handle the various aspects of the model.

Acknowledgement

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Addendum 1: *Beeldwoordenboek Engels* (Van Humbeeck 2001: 9)

Addendum 2: *Arabic–English Visual Bilingual Dictionary* (Salih et al. 2009: 65)

Addendum 3:   *Thematische woordenschat Engels* (Häublein et al. 2011: 191)

10 Vrije tijd, ontspanning, sport, spel

10.1 Vrije tijd, hobby, spel   track 31

relaxation *n* [ˌriːlækˈseɪʃⁿn]	ontspanning
relax *v* [rɪˈlæks]	(zich) ontspannen
time *n uncount* [taɪm]	tijd
What do you like to do most in your **leisure time?** *BE*	Wat doe jij het liefst in je vrije tijd?
In his kind of job, Geoffrey doesn't get much **free time.**	Met een dergelijke baan heeft Geoffrey maar weinig vrije tijd.
In our **spare time** we like to help out at our church.	In onze vrije tijd helpen we graag in de kerk.
leisure *n* [ˈleʒə]	vrije tijd
recreation *n uncount form* [ˌrekriˈeɪʃⁿn]	recreatie; tijdverdrijf
Steve's **main form of recreation** is playing golf.	Steve brengt zijn vrije tijd vooral door met golfen.
relaxing *adj* [rɪˈlæksɪŋ]	ontspannend
activity *n* [ækˈtɪvətɪ]	activiteit, bezigheid
event *n* [ɪˈvent]	gebeurtenis, evenement
Our town fair is a popular summer event.	De kermis in onze stad is een populair zomerevenement.
a **cultural/social event**	een cultureel/sociaal evenement
cultural *adj* [ˈkʌltʃⁿrəl]	cultureel
culture *n uncount* [ˈkʌltʃə]	cultuur
leisure centre *BE n* [ˈleʒəˌsentə]	(sport- en) recreatiecentrum
recreation center *AE n* [ˌrekriˈeɪʃⁿnˌsentˌə]	(sport- en) recreatiecentrum
recreational *adj* [ˌrekriˈeɪʃⁿnl]	recreatie-, vrije tijds-
facilities *n pl* [fəˈsɪlətiz]	faciliteiten; voorzieningen
The town has built new **recreational facilities** which are open to residents and visitors.	De stad heeft nieuwe recreatievoorzieningen die open zijn voor zowel inwoners als toeristen.
fun *n uncount* [fʌn]	plezier
What do you do when you want to **have fun?**	Wat doe jij als je plezier wilt maken?
entertain *v* [ˌentəˈteɪn]	gastvrij ontvangen; vermaken
We love to entertain friends at home.	We nodigen thuis graag vrienden uit.
entertainment *n uncount* [ˌentəˈteɪnmənt]	vermaak

Addendum 4: *Le Nouveau Petit Robert: Dictionnaire Alphabétique et Analo-gique de la Langue Française* (Rey-Debove and Rey 2011: 49)

Addendum 5: *Macmillan Dictionary & Thesaurus* (Rundell et al. 2013)

(5a)   The dictionary entry *agile* in this online dictionary:

(5b)   Clicking on "Thesaurus" in (5a) shows basic thesaurus information:

agile - thesaurus entry

ADJECTIVE

1   able to move quickly and easily
      Synonyms or related words for this sense of agile
      Words used to describe fast movement: *fast, quick, swift, speedy, nimble, brisk,
      high-speed, agile, deft, at full speed/tilt/pelt/throttle...* more

2   able to think quickly, solve problems, and have new ideas
      Synonyms or related words for this sense of agile
      Words used to describe intelligent or wise people: *genius, intelligent, wise, brilliant,
      clever, bright, brainy, discerning, clear-sighted, no/nobody's fool...* more

(5c)   Clicking on "more" in (5b) presents the full thesaurus information for a
         particular sense (here sense 1):

Words used to describe fast movement

fast ADJECTIVE
able to move quickly

quick ADJECTIVE
able to move fast or do something fast

swift ADJECTIVE
moving quickly

speedy ADJECTIVE
happening very quickly

nimble ADJECTIVE
able to move quickly and easily

brisk ADJECTIVE
moving or acting quickly

high-speed ADJECTIVE
moving or operating very quickly

agile ADJECTIVE
able to move quickly and easily

deft ADJECTIVE
deft movements are made quickly and with skill

at full speed/tilt/pelt/throttle
as fast as possible

Addendum 6: *Collins COBUILD Advanced Dictionary* (Sinclair et al. 2009: 491)

eco-   491   economist

Word Web   eclipse

When the **earth** passes between the **sun** and the **moon**, we see a **lunar eclipse**. When the moon passes between the sun and the earth, we see a **solar eclipse**. A total eclipse of the sun happens when the moon covers it completely. In the past, people were frightened of eclipses. Leaders of some civilizations understood eclipses. They pretended to control the sun in order to gain the respect of their people. The next total eclipse of the sun visible in the United Kingdom will be 23 September, 2090.

is no longer noticed because the second thing gets all the attention. ❑ [be v-ed + by] *The gramophone had been eclipsed by new technology such as the compact disc.*
→ see Word Web: **eclipse**

eco- /iːkoʊ-/ PREFIX **Eco-** combines with nouns and adjectives to form other nouns and adjectives which describe something as being related to ecology. ❑ *...the eco-horror of the North Sea oil spill.*

eco-friendly ADJ **Eco-friendly** products or services are less harmful to the environment than other similar products or services. ❑ *...eco-friendly washing powder.*

eco|logi|cal /iːkəlɒdʒɪkᵊl/ **1** ADJ [ADJ n] **Ecological** means involved with or concerning ecology. ❑ *Large dams have harmed Siberia's delicate ecological balance.* •**eco|logi|cal|ly** /iːkəlɒdʒɪkli/ ADV [ADV adj/-ed, ADV after v] ❑ *It is economical to run and ecologically sound.* **2** ADJ [ADJ n] **Ecological** groups, movements, and people are concerned with preserving the environment and natural resources, so that they can be used in a sensible way, rather than being wasted. ❑ *Ecological groups say that nothing is being done to tackle the problem.*

ecolo|gist /ɪkɒlədʒɪst/ (**ecologists**) **1** N-COUNT An **ecologist** is a person who studies ecology. ❑ *Ecologists argue that the benefits of treating sewage with disinfectants are doubtful.* **2** N-COUNT An **ecologist** is a person who believes that the environment and natural resources should be preserved and used in a sensible way, rather than being wasted. ❑ *In the opinion polls the ecologists reached 20 per cent.*

ecol|ogy /ɪkɒlədʒi/ (**ecologies**) **1** N-UNCOUNT **Ecology** is the study of the relationships between plants, animals, people, and their environment, and the balances between these relationships. ❑ *...a senior lecturer in ecology.* **2** N-VAR When you talk about the **ecology** of a place, you are referring to the pattern and balance of relationships of plants, animals, people, and the environment in that place. ❑ [+ of] *...the ecology of the rocky Negev desert in Israel.*
→ see **air**

Word Link   e = electronic : e-book, e-commerce, e-mail

e-commerce N-UNCOUNT **E-commerce** is the same as **e-business**. [BUSINESS] ❑ *...the anticipated explosion of e-commerce.*

eco|nom|ic ✦✦✦ /iːkɒnɒmɪk, ek-/ **1** ADJ [usu ADJ n] **Economic** means concerned with the organization of the money, industry, and trade of a country, region, or society. ❑ *...Poland's radical economic reforms.* ❑ *The pace of economic*

growth is picking up. •**eco|nomi|cal|ly** /iːkɒnɒmɪkli, ek-/ ADV [ADV adj/-ed, ADV after v] ❑ *...an economically depressed area.* ❑ *Economically and politically, this affair couldn't come at a worse time.* **2** ADJ If something is **economic**, it produces a profit. ❑ *The new system may be more economic but will lead to a decline in programme quality.*

eco|nomi|cal /iːkɒnɒmɪkᵊl, ek-/ **1** ADJ [oft ADJ to-inf] Something that is **economical** does not require a lot of money to operate. For example a car that only uses a small amount of petrol is **economical**. ❑ *...plans to trade in their car for something smaller and more economical.* ❑ *It is more economical to wash a full load.* •**eco|nomi|cal|ly** ADV [ADV after v] ❑ *Services could be operated more efficiently and economically.* **2** ADJ Someone who is **economical** spends money sensibly and does not want to waste it on things that are unnecessary. A way of life that is **economical** does not need a lot of money. ❑ *...ideas for economical housekeeping.* **3** ADJ [usu v-link ADJ] **Economical** means using the minimum amount of time, effort, or language that is necessary. ❑ *His gestures were economical, his words generally mild.* •**eco|nomi|cal|ly** ADV ❑ *Burn's novel, vividly and economically written, is a sombre reflection on fame and its cost.*

Thesaurus   economical   Also look up:
ADJ.   cost-effective, inexpensive **1**
       careful, frugal, practical, thrifty **2**

Word Link   ics = system, knowledge : economics, electronics, ethics

eco|nom|ics ✦✦◦ /iːkɒnɒmɪks, ek-/ **1** N-UNCOUNT **Economics** is the study of the way in which money, industry, and trade are organized in a society. ❑ *He gained a first class Honours degree in economics.* **2** → see also **home economics** **3** N-UNCOUNT The **economics** of a society or industry is the system of organizing money and trade in it. ❑ [+ of] *...the economics of the third world.* ❑ *He is regarded as a committed supporter of a radical free-market economics policy.*
→ see Word Web: **economics**

econo|mies of scale N-PLURAL **Economies of scale** are the financial advantages that a company gains when it produces large quantities of products. [BUSINESS] ❑ *Car firms are desperate to achieve economies of scale.*

econo|mist ✦◦◦ /ɪkɒnəmɪst/ (**economists**) N-COUNT An **economist** is a person who studies, teaches, or writes about economics.

Word Web   economics

The study of **economics** explores how a society distributes its **wealth**. This subject is divided into two main areas: **macroeconomics** and **microeconomics**. Macroeconomics looks at how a society as a whole handles money, **capital**, and **commodities**. Microeconomics focuses on individuals and businesses. A key microeconomic principle is the law of **supply and demand**. This theory says that prices of **goods** and **services** are based on a balance between two factors. The first is how much of something is available (supply). The second is how much people are willing to pay for it (demand).

Addendum 7a: *Oxford Learner's Thesaurus: A Dictionary of Synonyms* (Lea et al. 2008: 466)

enchanted /ɪnˈtʃɑːntɪd; *AmE* -ˈtʃæntɪd/ (*written*) placed under a spell (= magic words that have special powers): *The children made their way through the enchanted forest, their hearts beating fast.* ❶ **Enchanted** is often used in children's stories to talk about places where fairies and other magical creatures live.

occult /əˈkʌlt; ˈɒkʌlt; *AmE* ˈɑːk-/ [only before noun] (*written*) supernatural, especially when it is connected with evil and secrecy: *They assured us that their organization did not follow occult practices.*

transcendental /ˌtrænsenˈdentl/ [usually before noun] (*written*) going beyond the limits of human knowledge, experience or reason, especially in a religious or spiritual way: *He said that it was transcendental meditation that brought him inner peace.* ❶ **Transcendental** is most often used to talk about an *experience, meditation, reflection or a state.*

other-ˈworldly (*written*) concerned with spiritual thoughts and ideas rather than with ordinary life: *There was an other-worldly quality to her performance that night.* ❶ **Other-worldly** is usually used to talk about strange experiences, noises, states or qualities, which give the impression of being in a dream-world.

magnificent *adj.* See also the entries for BEAUTIFUL 2 and WONDERFUL

magnificent · impressive · spectacular · grand · glorious · majestic · imposing
These words all describe things that are extremely attractive and make you feel admiration.

impressive	grand	magnificent
imposing	majestic	spectacular
		glorious

PATTERNS AND COLLOCATIONS
▸ a magnificent / an impressive / a spectacular / a glorious / a majestic **sight**
▸ a magnificent / an impressive / a spectacular / a glorious **display / array**
▸ magnificent / impressive / spectacular / grand / glorious / majestic **scenery / views**
▸ magnificent / spectacular / glorious **countryside**
▸ a magnificent / an impressive / a spectacular **waterfall**
▸ a magnificent / spectacular / glorious **coastline / sunset**
▸ magnificent / spectacular / majestic **mountains**
▸ a magnificent / an impressive / a grand / a majestic / an imposing **building**
▸ a magnificent / a grand / a majestic / an imposing **castle**
▸ a magnificent / a grand / an imposing **palace / staircase**
▸ glorious / majestic **beauty**
▸ **quite** magnificent / impressive / spectacular / grand
▸ **truly / rather** magnificent / impressive / spectacular / grand / glorious
▸ **absolutely** magnificent / spectacular / glorious
▸ **very** impressive / spectacular / grand / majestic / imposing

magnificent /mægˈnɪfɪsnt/ extremely beautiful in a way that makes you feel wonder and admiration: *The Taj Mahal is a magnificent building.* ◇ *She looked magnificent in her wedding dress.* ◇ *It was an absolutely magnificent performance.*
▸ **magnificence** *noun* [U]: *the magnificence of the scenery*
▸ **magnificently** *adv.*: *The city boasts a wealth of magnificently preserved temples and palaces.*

impressive making you feel admiration, because it is very large, attractive or well or expensively made or built: *A large portico provides a suitably impressive entrance to the chapel.* ◇ *This is one of the most impressive novels of recent years.* ❶ **Impressive** is often used when you feel great admiration for a place or thing but do not necessarily find it beautiful. See also **impressive** → IMPRESSIVE

spectacular /spekˈtækjələ(r)/ (especially of scenery or a performance) extremely beautiful and impressive: *The coastal road has spectacular scenery.* ◇ *In the evening, there will be a spectacular display of fireworks.* See also **spectacular** → IMPRESSIVE, **breathtaking** → AMAZING

grand impressive and large or important: *It's not a very grand house.* ◇ *The wedding was a very grand occasion.* ❶ When **grand** is used to describe a thing, it is usually sth relating to a building or part of a building such as a house, villa, hotel, castle, palace, staircase or entrance. When **grand** is used to describe an occasion, it is usually one that involves rich people or the spending of a large amount of money. See also **grandeur** → LUXURY

glorious /ˈɡlɔːriəs/ extremely beautiful and impressive: *We sat on the beach and gazed at the glorious sunset.* ◇ *Both her daughters had glorious red hair.* ❶ **Glorious** is used especially to describe things that are bright and connected with summer or the colours of the sun — yellow, orange or red. See also **glory** → LUXURY

majestic /məˈdʒestɪk/ very impressive because of its size or beauty: *The college is close to Edinburgh's majestic castle.* ◇ *The Rockies are majestic in size.* ❶ **Majestic** is usually used to describe large and impressive buildings such as castles, mansions or hotels, or high natural features such as mountains or cliffs.
▸ **majestically** *adv.*: *The cliffs rise majestically from the ocean.*

imposing /ɪmˈpəʊzɪŋ; *AmE* -ˈpoʊz-/ impressive to look at; making a strong impression: *The Tower House is not a particularly grand or imposing building.* ◇ *She was a tall imposing woman.* ❶ **Imposing** people or things are likely to make you feel respectful, but also rather small or unimportant.

main *adj.* See also the entry for TOP

main · major · key · central · principal · chief · prime · primary · number one · predominant
These words all describe sb/sth that is the largest or most important of its kind.

PATTERNS AND COLLOCATIONS
▸ to be key / central **to** sth
▸ a / the main / major / key / central / principal / chief / prime / primary / number one / predominant **concern**
▸ a / the main / major / key / central / principal / chief / prime / primary / predominant **purpose / source / factor**
▸ a / the main / major / key / central / principal / chief / prime / primary **aim / focus / function / objective / task / reason / consideration**
▸ a / the main / major / principal / chief / prime / primary **object**
▸ a / the main / major / key / principal / chief / prime / primary / number one **cause**
▸ a / the main / major / principal / chief / primary / predominant **effect**
▸ a / the main / major / key / central / principal / chief / prime **attraction**
▸ a / the main / major / key / central / principal / predominant **theme**
▸ a / the main / major / key / central / principal / prime / primary / predominant **role**
▸ a / the main / major / principal / prime / number one **contender**
▸ the main / chief / prime / number one **suspect**
▸ a / the main / major / principal **road / town / city**
▸ the main / key **thing** is to...
▸ to be of major / key / central / prime / primary **importance**

main [only before noun] largest or most important: *Be careful crossing the main road.* ◇ *We have our main meal at lunchtime.* ◇ *The main course was roast lamb.* ◇ *Reception is in the main building.* ◇ *Please use the main entrance.* ◇ *Poor housing and unemployment are the main problems.* ◇ (*spoken*) *The main thing is to remain calm.*
▸ **mainly** *adv.*: *They eat mainly fruit and nuts.* ◇ *The population almost doubles in August, mainly because of the film festival.*

Addendum 7b: *Oxford Learner's Thesaurus: A Dictionary of Synonyms* (Lea et al. 2008: 896)

Addendum 7c: *Oxford Learner's Thesaurus: A Dictionary of Synonyms* (Lea et al. 2008; CD-ROM version, here a picture plate ("Topic map") can only be accessed through the text of the thesaurus)

Addendum 8: Work in progress on a (bilingual) alphaconceptual+ dictionary for Luganda