## SYSTEMS OF TERMINOLOGICAL MODERNIZATION OF LUGANDA

# CONCLUDING REMARKS

Werner (1972) identifies *Eindeutigkeit* (precision), *grosse Anzahl* (huge number) and *internationale Verwendbarkeit* (international usability) as the three criteria for terminologicality in the biosciences. These are the criteria of precision , systematicity and internationality. Since systematicity entails bound-morphemic generativity which, in turn, entails economy, biological nomenclature must be precise, economical, generative, international and systematic. For the sake of expressional transparency in Luganda, the Luganda expression formation processes must undergo considerable extrapolation. This extrapolation I have conducted in the Sections IV.1 and IV.2. Five issues emerge from the extrapolation.

Firstly, many Luganda speakers will certainly remonstrate against the artificiality of many of the morphemes I have proposed. I very much doubt whether a Luganda lexicon of science with Luganda as its base will ever fail to evoke negative emotions at least at the time of its inception. Emotional hostility against the expressional artificiality is only likely to be muted if the scientific lexicon of Luganda is left to evolve. But I take heart at the fact English experienced pangs of artificiality in its development to expressional maturity, for Flood (1961 : xi-xiv) reports:

> " The largest group of scientific words are those which have been invented. The advance of science during the last few centuries has been so rapid and so extensive that no language has been capable of providing, ready-made, all the words which were required. Further, the classical languages do not contain words appropriate to modern discoveries, inventions and concepts. (There is no Latin word, for example, for photography!) Hence the scientist has had to invent new words for his own purpose.

> " It is very rare for a scientist to make up a word 'out of his head'; the term *ester* for a compound formed by the interaction of an alcohol and an organic acid was perhaps such an invention. A small but interesting group of terms comprises those based on proper names. In the naming of the chemical elements recourse has been made to the names of places (as in *polonium, ytterbium*), of gods and goddesses (as in *thorium,* vanadium), of planets and asteroids (as in *uranium, curium*), and of scientists themselves (as in *curium, gadolinium*). Scientists' names have also been used to provide the names of units (e.g. *watt, volt, gauss, joule*) and hence the names of measuring instruments (e.g. *voltmeter*). Among the other terms based on the names of scientists are *daltonism, nicotine, bakelite and mendelism*. A number of plants, e.g. *fuchsa, dahlia* are named after botanists.

" In his task of inventing new terms, however, the scientist has usually turned to the classical languages for his raw material. He has taken 'bits and pieces' -roots, prefixes, suffixes - from these languages and joined them together to form the terms he needed. Thus, when he needed a general name for animals such as snails and slugs which apparently walk on their stomachs, he took the Greek roots *gast (e)ro-* (stomach) and *pod* (foot) and formed the new word *gastropod*. When he wanted a word to describe a speed greater than that of sound he took the Latin prefix *super-* (above, beyond ) and the Latin root *son-*(sound) and coined the adjectives *supersonic*. Thousands of scientific words have been built up from classical word-elements in this way.

" It may be asked why the scientist should have turned to the classical languages for the words and word-elements which he needed. By turning to a language other than his own he is certainly able to find words and elements which were distinct from those of ordinary speech but he turned to the classical languages for an important historical reason. The fifteen and sixteeth centuries witnessed that great revival of classical learning which is commonly called the Renaissance. Latin was regarded as the universal language of scholarship; it was the 'perfect' language of philosophy, theology and science. This classical tradition persisted into the seventeenth century - both Harvey and Newton wrote their great works in Latin - and it was not until towards the end of that century that English was fully accepted as an adequate and suitable language for a scholarly exposition of science.

" During this period many words were taken into the scientific vocabulary and many new words were constructed (chiefly in the form of Latin words) from classical elements. The tradition of using the classical languages as a source of scientific words remains.

Greek was not used in the same way as a medium of expression but it was held in respect as the language of the people who at one time led the world in art, science and philosophy. Morever, it provided a particularly suitable basis for scientific language. It had been developed by a long line of philosophers as a medium for accurate expression and its elements were such that derivatives and compounds were readily formed. The scientists therefore mainly went to the Greek for the new terms which they needed (though, as has been pointed out, the terms were at one time often framed in Latin form). Greek is still the source of most of the new

terms of science and more than half of the words of the great vocabulary of science are ultimately of Greek origin.

" Sometimes both Greek and Latin elements are combined in the same word. *Television* is a well known example; the prefix *tele-* (from afar) is Greek and the root *vis-* (seeing) is Latin. (The "all-Greek" word *teleorama* would have been more satisfying to the purists but it is unlikely to be adopted). The formation of "hybrid" words of this kind may be considered objectionable if "pure" alternatives are readily available and equally convenient. Thus the term *odoriphore* is a needless hybrid; the "all-Greek" term *osmophore* would serve just as well. There appears to be no justification for the invention of the hybrid word *pluviometer* (rain gauge) when two all-Greek terms, *hyetometer* and *ombrometer*, are available. And chemists still seem not to have made up their minds whether to use Latin or Greek prefixes of number before the Latin root-*valent*.

" Undoubtedly some hydrids have been formed because of thoughtlessness or ignorance, but many have been formed because certain prefixes and suffixes have become well known and have been found to be convenient. Thus the familiar Greek root-*meter* (measurer) has been added to all sorts of stems, e.g to a Latin stem in *audiometer* and to an English stem in *weatherometer*. (Note the insertion of the o before-*meter*; in all -Greek terms an *o* normally arises as the ending of the stem.) The Greek element-logy (often regarded as *-ology*) is now freely added to stems of various kinds and origins; the three common medical elements - itis (inflammation), *-oma* (growth, tumour) and *-osis* (morbid state) are not infrequently added to Latin stems (e.g. as in *gingivitis, fibroma,* and *silicosis*). Certain prefixes of classical origin, e.g. *re-, pre-, micro-, sub-, tele-,* are still 'living' and are freely used in combination with words of any origin, e.g.in *re-oxidise, pre-Cambrian, microfilm, substandard* and *telecommunication*.

" The process of word-building has certanity resulted in some peculiar-looking words. e.g. *heterochlamydeous, otorhinolaryngology and postzygapophysis* (in which one prefix of Latin origin and two of Greek have been added to the Greek word *physis*), but many of them readily break down into their components parts and reveal their meanings. Some of the ugliest words, perhaps, are found in the field of medicine but the longest words are the names given to certain chemical compounds. *Tetrahydronaphthylamine*, with twenty-three letters, is a very humble example; some names contain over sixty letters. These long names, however, are easily understood by a chemist, for they are logically constructed and provide detailed descriptions of the compounds to which they are given."

Even to the present-day chemical morphemes being invented.

> *So many endings are already in such use that IUPAC felt it desirable to propose the noncommital but strange and unaesthetic suffixes '-un' 'une', and 'ur' (urgh!) for new trivial names. Whether these will be accepted instead of the long -used '-in' (insulin, penicillin, inulin, etc.) remains to be seen.*
>
> (Cahn and Dermer(1979: 151)

Secondly, related to artificiality is the overloading of some alredy-existing morphemes. For instance, I have proposed more load for *ka-, -li-* and especially *-nna-*. Not only English had its morphemes from proto-Germanic and Greco-Latin assigned more expression formation tasks but also a non-Indoeuropean languages like Indonessian. Alisjabana (1976: 90) writes:

> " It is clear that in the social and cultural change which goes together with a change in the structure of thought, a shift occurs in the frequency of the use of the various affixes. Some affixes become less used since the thought expressed by it (sic) decreases in the context of the new culture, while other affixes are used more frequently....(The) use of the affixes *pe-an* and *ke-an* increases through the abundance of abstract concepts which poured into the Indonesian language through its modernization"
>
> Alisjabana (1976 : 90)

Thirdly, many Luganda speakers will raise their eyebrows at my adoption of unusual vowel and consonant clusters, and graphemes like *h* and *th* in chemical terminology. I have not opted for radical lugandisation for the sake of discernibility of the alien origin of the term concerned. Economy has also been an additional objective; *Kristo* is more economical than *Kulisito* "Christ" *Eriyo* for "helium"would be advocated by the Bible Society of Uganda (1979). But *helio* is more traceable to "helium". Furthermore, I have treated chemical names like proper names which are to be recast into Luganda graphic shape. Consider F. *Pierre*, Ger. *Peter*, Lgd. *Petero*, Ksw. Petro for E. "Peter". The case of Lgd. *Petero* deserves further comment. I am objectively aware that Luganda is in contact with English. The question, therefore, why E. "Peter" does not or did not become Lgd. *Pita*.

The answer is found in the systematic lugandisation of Biblical names. For the purpose of translating the Bible the Bible Society of Uganda defines Classical Hebrew and Classical Greek as the source languages of the Old and New Testaments respectively. The version of the New Testments, prepared jointly by Protestants and Roman Catholics, contains examples in (36).

**(36)**

| Transliterated Greek | Luganda |
|---|---|
| Christos | Kristo |
| Phrygia | Furugiya |

| | |
|---|---|
| Phortunatos | Forutunaato |
| Titos | Tito |
| Tiberias | Tiberiya |
| Timotheos | Timoteewo |
| Syria | Siriya |
| Saulos | Sawulo |
| Petros | Petero |
| Pamphylia | Panfuliya |
| Lysias | Lusiya |
| Johannes | Yowanne |
| Kypros | Kipuro |
| Iesous | Yesu |
| Herod | Erode |
| Thessalonike | Tessalonika |
| Hermes | Erume |
| Agabos | Agabo |
| Alphaios | Alufaayo |
| Amphipolis | Anfipoli |
| Knidos | Kuniido |
| Ioel | Yoweeli |
| Markos | Mariko |
| Stephanos | Steefano |
| Phanuel | Fanuweli |
| Tychikos | Tukiiko |
| Tyros | Tiiro |
| Euboulos | Ewubulo |
| Dekapolis | Dekapoli |
| Gallion | Galiyo |
| Hesron | Ezirooni |
| Zaboulon | Zabulooni |
| Zeus | Zeewo |

On the basis of the data in (36), let me compare the transliteration of classical Greek into Latin with the transliteration of the same Classical Greek into Luganda. I do this for two reasons. Firstly, in the biological nomenclature, Classical Greek is latinised. Secondly, English, the language which immediately influences Luganda, drew and still draws heavily on the Classical Greek and Latin.

**(37)**

| Transliterated Greek | Latin Equivalent | Luganda Equivalent |
|---|---|---|
| -os | -us | -o |
| -e | -a | -a |
| -on | -um | -o, -ooni |
| a | -a | -a |
| o | o | o |
| i | i | i |

| | | |
|---|---|---|
| e | e | e |
| ai | ae | ayi |
| ei | i | |
| oi | oe | oyi |
| eu | eu | ewu |
| au | au | awu |
| y | y | u, i |
| ou | u | u |
| ph | ph | f |
| ch | ch | k |
| th | th | t |
| ps | ps | pus |
| k | k, c | k |
| | h | ℜ |
| x | x | kis |
| | j | y |
| oe | oe | owe |

My adaption of graphemes in (38)

**(38)** ai, oi, au, eu, uo, oe, -o, -oni,
bs, h, th, x, ks

may well be rejected by some Luganda speakers. They may resist the adoptions in (39)

**(39)**

| | |
|---|---|
| *aktinio* | *galio* |
| *helio* | *fluori* |
| *bromu* | *oksigenio* |
| *klori* | *ksenoni* |
| *iodi* | *thorio* |
| *ruthenio* | |

citing probably anglophilia or even anglophobia. I am trying to optimise traceability and economy. Pronunciation need not pose any significant problem, for the actual phonetic realisation will depend on the scientist's familiarity with English. As a matter of fact, it does not matter whether an English physicist pronounces "weber" (the unit of magnetic flux) as (40)

**(40a)** /veibe/
**(40b)** /webe/
**(40c)** /ve : be/ (Ger. pronunciation of the German physicist's name
/ve : be/ Weber honoured)

The suffix *-ine* is superfluous as (41) shows.

**(41)**

| | | |
|---|---|---|
| Ger. | *Brom* | "bromine" |
| | *Chlor* | "chlorine" |
| | *Jod* | "iodine" |
| | *Fluor* | "fluorine" |

I go along with Alisjabana on the question whether English should or should not phonologically influence those languages which are spoken in its spheres of influence. He writes:

> [A] problem faced in the Malaysian language is that the English spelling deviates considerably from the spoken word. There is a tendency in the Malaysian language to prefer the spoken language above the written word, so that, for example, in Malaysian is written : *steshen* for station, while in Indonesian is used *stasion* or *setasion*. The English ton (1000kg) becomes in Malaysian *tan*, (in Indonesian *ton*), the English card becomes *kad* (in Indonesian *kartu*), television becomes *talivishen* (in Indonesian *televisi*), the English police becomes *polis* (in Indonesian *polisi*), the English agent is *ejen* (in Indonesian agen). I am of the opinion that it is preferable to take the written word in the European language as basis of the modern vocabulary, since there is greater similarity in the written international vocabulary than in the spoken language as is specially exemplified by the English spelling.
>
> Alisjabana (1976: 81)

Fourthly, although for the biological nomenclature neo-Latin is stipulated, English derivatives as in (42)

**(41)**

| | |
|---|---|
| chordates | (from the phylum Chordata) |
| hominids | (from the family Hominidae) |
| felines | (from the subfamily Felinae) |
| carnivores | (from the order Carnivora) |
| felids | (from the family Felidae) |

can easily and even more systematically be rendered into Luganda by applying the nomenclatural system I have enunciated.

Fifthly, neo-Latin is not mandatory in nosological nomenclature.