Endangered Languages of the Caucasus and Beyond

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Ramazan Korkmaz and Gürkan Doğan

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Contents

CHAPTER 18

Linguistic Topography and Language Survival

George van Driem

A number of heterogeneous factors determine the survival and death of languages. At Ardahan in 2014, I coined the term *linguistic topography* to denote the sociolinguistic situation of endangered languages in terms of the diverse factors which determine a language's prospects for extinction or survival.[1] The notion of linguistic topography is inspired by August Schleicher and Salikoko Mufwene and opposed to a distinct and, as I shall argue here, complementary approach to language, of which I am a proponent, inspired by Friedrich Max Müller. Charting the linguistic topography of any particular language embodies an attempt to distinguish, analyse and quantify the heterogeneous factors which determine the propensity of that language at any given time in its history to thrive or to fall into desuetude.

1 Two Darwinian Approaches to Language

Evolution as a phenomenon in the natural world resulting from cumulative changes in heritable traits from one generation to the next looms large in the writings of Pierre-Louis Moreau de Maupertuis (1698-1759), Georges-Louis Leclerc, Comte de Buffon (1707-1788), Jean-Baptiste Pierre Antoine de Monet, Chevalier de Lamarck (1744-1829) and Thomas Robert Malthus (1766-1834). Inspired by the writings of Malthus, the naturalist Alfred Russel Wallace conceived of natural selection as the key mechanism that drove evolution, and in 1856 at the age of thirty-three Wallace seeded the brain of Charles Darwin, then aged fourty-seven, with this seminal idea in a letter which he wrote from the Indonesian archipelago. Darwin eagerly incorporated Wallace's ideas into his own writings and propagated natural selection as the principal mechanism driving evolutionary change.

Generations of biologists have heaped obloquy onto Lamarck and his conception of evolution, for it is too easily forgotten that Darwin too was a

1 This paper was presented at the 1st International Caucasus University Association Conference on Endangered Languages at Ardahan Üniversitesi on the 15th of October 2014.

Lamarckian. Not only were Wallace and Darwin both deeply influenced by the 1844 English popularisation of Lamarck's work, entitled *Vestiges of the Natural History of Creation*, Darwin explicitly counted 'the inherited effects of use and disuse' as being amongst the 'general causes' and 'general laws' which govern whether or not variations are transmitted to offspring (1871, I: 9). Darwin's views are clearly spelt out in the *Descent of Man* (e.g. 1871, I: 116-121). He conceived of 'natural selection' as 'the chief agent of change, though largely aided by the inherited effects of habit, and slightly by the direct action of the surrounding conditions' (1871, I: 152-153).

With respect to the inheritance of characteristics acquired during the lifetime of an organism, Darwin was just as much a Lamarckian as Lamarck. As the celebrated linguist Friedrich Max Müller pointed out, 'Darwin's real merit consisted, not in discovering evolution, but in suggesting new explanations of evolution, such as natural selection, survival of the fittest, influence of environment, sexual selection, etc.' (1889: 273). Meanwhile, in light of the promiscuous intricacies of molecular genetics, the old polemic about Lamarckian vs. Darwinian evolution today appears a trifle dated, for our understanding of evolutionary dynamics has progressed well beyond such a simplistic confrontation of dogmas.

Charles Darwin's *On the Origin of Species* was published on 24 November 1859. The German translation by the palaeontologist Heinrich Georg Bronn appeared in 1860 as *Über die Entstehung der Arten*. The maverick German biologist Ernst Haeckel sent a copy of the German translation to his friend, the linguist August Schleicher. Inspired by this work, Schleicher adopted the view of individual languages as species, which compete against each other 'im Kampfe ums Dasein' (1863). A modern proponent of Schleicher's view of languages as species subject to natural selection is Salikoko Mufwene (2001, 2005a, 2005b). By contrast, Friedrich Max Müller conceived language as such to be an organism. On the 6th of January 1870, in the very first issue of *Nature*, Müller took issue with Schleicher's idea of language survival in terms of 'die Erhaltung der höher entwickelten Organismen' and instead argued that language survival was a more complex issue.

> Although this struggle for life among separate languages exhibits some analogy with the struggle for life among the more or less favoured species in the animal and vegetable kingdoms, there is this important difference that the defect and the gradual extinction of languages depend frequently on external causes, i.e. not on the weaknesses of the languages themselves, but on the weakness, physical, moral or political, of those

> who speak them. A much more striking analogy, therefore, than the struggle for life among separate languages, is the struggle for life among words and grammatical forms which is constantly going on in each language. Here the better, the shorter, the easier forms are constantly gaining the upper hand, and they really owe their success to their inherent virtue. (1870: 257)

Darwin (1871, 1: 60-61) adopted Müller's conception of language evolution in his *Descent of Man*. Over a century later, I voiced an essentially similar view, which at least in this one respect gives the appearance of being diametrically opposed to that of Schleicher and Mufwene.

> The survival of a language is not determined by its grammatical subtlety, its degree of refinement or the richness of concepts and notions which find expression in its lexicon, but by largely unrelated economic, demographic and political factors affecting the people who happen to speak the language. Languages which survive are not necessarily in any way superior to those that go extinct . . . The fecundity with which a particular language spreads and outcompetes another language may have little or, in some cases, nothing to do with its grammatical propensities or lexical richness and refinement. (2001: 113)

These two approaches, language as an organism vs. languages as species, represent distinct views of language evolution. In the Müller-van Driem approach, the emergence and evolution of language in hominids is viewed in terms of language as a semiotic organism which arose symbiogenetically within the human brain. Relevant to our understanding of the nature of this semiosis is the novel claim advanced by George Grace (1981, 1987) that language evolved primarily not as a system of communication, but as an epistemological system in order to organise the vast amount of sensory input and build conceptual models of possible realities. The communicability of language-borne constructs and categories would, in Grace's conception, be a secondary feature. The language organism model studies natural selection as operative at the levels of lexical and grammatical morphemes and language structures. This model of language evolution is called Symbiosism (van Driem 2015b).

By contrast, the Schleicher-Mufwene conception views individual languages as species in competition on a global scale. Whereas both models envisage natural selection as operating on observable linguistic diversity and driving language change, the units of selection are of a different order of magnitude.

Notwithstanding my initially skeptical stance with regard to the Schleicher-Mufwene conception, the premiss formulated by Schleicher and elaborated by Mufwene is an interesting and testable model, which merits elaboration in face of the global scale of the threat of language extinction today. I propose a programme of research which aims analytically to apply the Schleicher-Mufwene model to individual languages in order to assess the sociolinguistic and semiotic factors determining their viability. To do so requires distinguishing multiple levels of analysis. By enhancing our understanding of the anatomy of the relationship between language and its human host, linguistic topography unifies the two Darwinian approaches by the combined application of the analytical frameworks of both models.

2 Linguistic Topography

Such a programme would have to assess the applicability of the notion of inclusive fitness to grammatical structures and semantic systems in the light of competing linguistic developments in the cultural environment of a language community. Mathematical models have been developed to quantify inclusive fitness, e.g. Dawkins (1982), Demetrius and Ziehe (1994), Grafen (2009), Keller (1994), Maynard Smith (2000, 2004), but for languages weighted assessments of socio-economic, demographic and politico-historical factors affecting the vitality of individual languages would also have to be quantified and modelled. Without overstretching biological analogies, the utility and applicability of the notion of an extended phenotype manifestly holds promise for modelling the vitality of individual languages. One reason why such a programme of research has not been undertaken until now is the sheer difficulty and analytical complexity of conducting an empirically grounded study of all linguistic and other observable phenomena relevant to developing and testing the Schleicher-Mufwene model.

Another reason why this model has not been tested today is that the concept of individual languages as entities in competition goes back to the early days of language typology, at a time when the field was marred with a chequered history. After Pott (1848) distinguished the basic linguistic types, e.g. 'isolirend, agglutinirend, flexivische, einverleibend', a racist form of linguistic typology was developed by others who did not heed the exhortations of Julius von Klaproth and Max Müller not to confuse linguistic affinity and biological ancestry. Scholars such as Arthur de Gobineau, Heymann Steinthal and Ernest Renan used language typology to buttress a racist world view and arranged

language types hierarchically on a typological ladder of evolutionary development. If we keep this egregious episode of Social Darwinism in linguistics in mind as a cautionary example, it should be possible today to devise a programme of inquiry to explore and test the Schleicher-Mufwene hypothesis within a Darwinian framework devoid of ludicrous value judgements.

The inclusive fitness of a language is an important dimension of its linguistic topography. However, since language is a semiotic life form, and individual languages are entities borne by living and speaking populations of hominid hosts, various levels of analysis must be distinguished in order to make quantitative assessments and predictions about the prospects that a language may thrive or die and to discover hitherto unmooted factors which may determine the inclusive fitness and survival prospects of a language. The following provisional short list cannot yet claim to be exhaustive and will no doubt require augmentation and enhancement in due course. Yet the list specifies some of the sociolinguistic factors which form part of the assemblage of parameters characterising the linguistic topography of any given language.

(1) The domains of use of a language and the facility of use of the language
(2) What Wilhelm von Humboldt called the *Inhalt* of a language
(3) The demographics of the human population using the language as a mother tongue.
(4) The socio-economic situation of the language community in relation to competing or neighbouring language communities

The quantification and weighting of these various dimensions of linguistic topography is no trivial undertaking.

3 Domains of Use and Facility of Use

The domains of use constitute one determinant of the linguistic topography of a language, and closely tied to this issue is the facility of the use of the language. It might be expected that a person's native language should be the easiest language for that person to use in any given context. In 1569, one of the several arguments advanced by Goropius Becanus of Hilvarenbeek, alias Jan van Gorp, that Flemish or Dutch must be the original language of mankind was that, to his mind, as a medium of expression Flemish was more to the point than any other language, and Flemish words meant exactly what they signified. Although this naïve viewpoint was expressed in writing long ago, one may

on occasion still hear similar views innocently expressed by people with regard to their own native language, which for obvious reasons strikes them as being the most apt and most natural of all languages.

Yet for reasons which have nothing to do with the aptness, richness or precision of expression of a language, a language community may cede domains of usage to the tongue of another language community. The different sociolinguistic situations in which speakers of a language either decide to surrender or acquiesce to ceding a domain of language use to another tongue merit identification and study. Let us look at one such case, which is ongoing and easily observable. In 1989, Jo Ritzen became Minister of Education and Sciences in The Hague. Ritzen introduced the idea and later the practice of using English medium in university education in the Netherlands. Hitherto most scientific discourse, whether in experimental physics, astronomy, theoretical physics, microbial genetics, cell physiology, economics, medicine or linguistics, had essentially been conducted almost exclusively in Dutch. The language has for centuries had a continually expanding arsenal of precise specialised lexical terms in the sciences. Antoni van Leeuwenhoek did not bother to translate his letters to the Royal Society in London into English.

In terms of precision or richness of expression, nothing whatsoever is gained by replacing Dutch terms such as *eiwitmantel* 'capsid', *geleedpotigen* 'arthropods', *holtedieren* 'coelenterates', *tweezaadlobbigen* 'dicotyledons', *celvocht* 'cytoplasm', *bedektzadigen* 'angiosperms', *achterhoofdskwab* 'occipital lobe', *traagheid* 'inertia' and *trage massa* 'inertial mass' with their English equivalents. In fact, it can be argued quite defensibly that the English forms are inferior because of their semantic opacity. The motive behind Ritzen's policy was to tap into a lucrative global education market. The use of English medium in tertiary education enables Dutch universities to sell Bachelor's, Master's and Doctoral programmes more competitively to international students, just as do the universities in the Anglo-Saxon countries. Yet Ritzen's policies have set into motion the ultimate surrender of a vital domain of the Dutch language and may even have sounded the knell for Dutch as a language of science.

As a language of science, Afrikaans has been able to piggy-back on Dutch, with its over twenty-four million native speakers in the Netherlands, Belgium, the West Indies and Surinam. Afrikaans has nearly seven million native speakers, and policy makers in the Afrikaans language community have always been perceptive enough to recognise the importance of using their language as a medium of science. Scientific articles written in Afrikaans bearing titles such as *Die klassifikasie van 'n sianoprokarioot deur van ligmikroskopie, transmissie elektronmikroskopie en molekulêre tegnieke gebruik te maak* 'The clas-

sification of a cyanoprokaryote using light microscopy, transmission electron microscopy and molecular techniques', *Die effekte van verskillende n-3 en n-6 poli-onversadigde vetsure op die sekresie van insulienagtige groeifaktor I in MC3T3-E1 osteoblaste* 'The effects of various n-3 and n-6 polyunsaturated fatty acids on the secretion of insulin-like growth factor I by MC3T3-E1 osteoblast-like cells' or *Nuut-ontwikkelde metode vir die meting van triptofaan en triptofaan-metaboliete: kliniese toepassing* 'Newly developed method for quantification of tryptophan and its metabolites: clinical application' are typical and routine and have been taken here at random from a recent issue of the *Suid-Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie*.[2]

The examples of Dutch and Afrikaans clearly illustrate that loss of terrain is a matter of domain, and that language loss in many cases begins at home, for the developments in the Netherlands and South Africa have been precipitated by decisions taken at a political level. The Himalayan region as a whole, and the Eastern Himalaya in particular, represents one of the world's hot spots in terms both of linguistic diversity and of language endangerment. In terms of domains, the national languages of Bhutan and Nepal provide somewhat contrasting examples of linguistic topography. For both languages, the struggle is as much about not ceding domains of use to English as acquiring hitherto uncolonised domains of use for the language. Yet in terms of political motivation, the relative success of Nepali is due not so much to political decisions as much as it is to the vibrancy of the language community, whereas in Bhutan the best intentions of the Royal Government of Bhutan to advance the national language often appear to get foiled or at least be somewhat mitigated by a number of other factors.

Nepali is more robust than Hindi and has colonised and thrived in new domains more effectively than Hindi. Nepali terms that are part and parcel of normal lay speak and natural educated discourse include गुरुत्व आकर्षण *gurutva ākarṣaṇ* 'gravitational attraction', बहुदलीय प्रणाली *bahudalīya praṇālī* 'multi-party system', संविधान सभा *saṃvidhān sabhā* 'constitutional assembly', आतङ्कवाद *ātaṅkavād* 'terrorism', प्राकृतिक उपग्रह *prākṛtik upagraha* 'natural satellite', संग्रहालय *saṅgrahālaya* 'museum' and, obviously, countless other terms in such speech registers. The many indigenous languages of Nepal generally adopt the Nepali technical terms if such registers of discourse are not just conducted by their speakers directly in Nepali in preference to the native language. Of

2 In respective order, the authors of the articles named are L. Labuschange, M. Wescott, S. du Plessis, A. Venter and A. Levanets; E. Moseley, T. Steynberg and M. Coetzee; P. Bipath and M. Viljoen, and the issue cited is *Suid-Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie*, Jaargang 28 No. 2: Junie 2009.

course, Nepal is one of the few countries in Asia which managed to safeguard its sovereignty intact throughout the age of European colonial expansion.

In India, by contrast, English is generally used instead of the Hindi neologisms that have been coined to express certain notions. Of course, Hindi also has long coined neologisms, such as सूक्ष्म-दर्षक यन्त्र *sūkṣma-darṣak yantra* 'microscope' or दूरभाष संख्या *dūrbhāṣ-saṅkhyā* 'telephone number', except that these terms generally remain unused. In terms of ease or convenience, English *telephone number* may perhaps have little to recommend itself in preference to the Hindi neologism, which is just as apt. However, often enough the Hindi neologism is so extraordinarily clumsy as to render the coinage definitively unusable in any natural register of spoken language other than satire, such as भुमिगत पेदल पार पथ *bhumigat paidal pār path* 'underground foot crossing path' for 'subway', often seen written on signage in Delhi. Despite the far greater number of native speakers of Hindi, the linguistic topography of Nepali today is immeasurably healthier than that of Hindi, for Hindi has ceded numerous domains to English. The contrast can be most vividly illustrated in cases where Nepali and Hindi happen to use the same neologisms. Speakers of Nepali will usually be heard to say विश्वविद्यालय *viśvavidyālaya* 'university' and संग्रहालय *saṅgrahālaya* 'museum' in normal speech, whereas speakers of Hindi are far more likely than not to say what I have sometimes even seen written in Devanāgarī script as *yunivarsiṭī* 'university' and *myuziyum* 'museum'.

Whilst protagonists in Hindi films and speakers in Hindi talk shows glibly, perennially and almost invariably shift from English to Hindi and back, often within the same sentence, natural Nepali speech is seldom if ever characterised by the same coquettish code switching. The situation is yet different again in Bhutan, where Dzongkha has the status of national language and has long been used in legal, political and religious contexts as a spoken language throughout the kingdom. Native to western Bhutan, Dzongkha is also used throughout the country in official contexts. Dzongkha has only in recent history become a written language, although some traditionalist advocates might contend that the language has been used in writing for centuries under the guise of its literary exponent Chöke, which in reality, however, is a distinct language, the Classical Tibetan liturgical tongue.

In its traditional domains, the Dzongkha and Chöke terms are often identical, and Dzongkha suffers from no dearth of vocabulary for notions such as བཀའ་ཤོག (bKaḥ-śog) *kasho* 'edict, royal decree', སྤྲུལ་སྐུ (sPrul-sku) *trüku* 'reincarnation' or དབང (dBaṅ) *'wang* 'empowering benediction'. Dzongkha struggles to colonise domains which in Bhutan are presently dominated by English. In the political and administrative realm, Dzongkha neologisms have made easy inroads, e.g. རྒྱལ་ཡོངས་ཚོགས་ཏུ (rGyal-yoṅs Tshogs-ṭu) *gäyong tshôdu* 'national

assembly', ཆ་སྦྱོར་ (Cha-sbyor) *chajo* 'ratification', ཁྲིམས་དོན་ཚོགས་ཆུང་། (Khrims-don Tshogs-chuṅ) *thrimdön tshôchung* 'legislative committee', not least because the usage of such terms is required by the compulsory use of the national language in administration, but some of these coinages strike people as artificial so that in speaking they may often resort instead to the English word. Coinages are quite often devised by Bhutanese specialists in Chöke who happen not to be native speakers of Dzongkha. For new items of material culture some Dzongkha neologisms have met with success, although most are dismissed as clumsy and hence never adopted in actual usage. Some slightly more successful neologisms include བརྒྱུད་འཕྲིན་ཨང་། (brGyud-thrin Aṅ) *jüthrin 'ang* 'telephone number', སྨན་འཁོར་ (sNum-ḥkhor) *'numkho* 'car', དེད་གཡོག་ཚོགས་ཐམ་ (Ded-gyog Chog-tham) *deyo chôtam* 'driving licence', གནམ་གྲུ་ཐང་ (gNam-gru-thaṅ) *'namdru-thang* 'airport'. Yet science and modern technology remain exclusively English domains.

The acceptance or rejection of such neologisms does not, however, provide adequate insight into the precarious situation of Dzongkha in Bhutan. Like Nepal, the Kingdom of Bhutan was one of the few Asian countries not to be subjugated by a European imperialist power and so succeeded in preserving its sovereignty. Yet linguistically Bhutan has suffered from various forms of self-inflicted linguistic imperialism. One struggle is the process of vernacularisation, which is not unlike the mediaeval transition from Latin to French as a language of writing in France. Whilst རྫོང་ཁ་ (rDzoṅ-kha) *Dzongkha* 'language of the fort' is the official spoken language, native to western Bhutan, Classical Tibetan or ཆོས་སྐད་ (Chos-skad) *Chöke* 'language of the dharma' has for centuries been the traditional liturgical and literary language in Tibet, Bhutan and Sikkim. People spoke in Dzongkha, but they did not write in the vernacular. Therefore, when people in Bhutan say 'good Dzongkha', they generally used to mean a good command of the written language Chöke.

The spelling systems of English and French are esoteric works of art, but in fact only French orthography has been determined by a venerable council of aesthetes called *les Immortels*, who have been elected as members of *l'Académie française*, whereas English orthography is the poor legacy of a lexicographers' comprise. Although the vagaries of both spelling systems are notoriously arcane, the orthography of Dzongkha, despite piecemeal and unsystematic orthographic reforms since the 1960s, is still largely based directly on Chöke. Consequently, Dzongkha spelling remains unnecessarily complicated. For example, the Dzongkha consonant phoneme written as *j* in the phonological transcription, Roman Dzongkha, corresponds not only to the combination རྗ་ (rJ) in native Bhutanese 'Ucen script, but also to the spellings བྗ་ (brJ) *j*, ལྗ་ (lJ)

j, ཧཇ (hJ) *j*, མཇ (mJ) *j*, རྒྱ (rGy) *j*, ཧྒྱ (hGy) *j*, བརྒྱ (brGy) *j*, སྒྱ (sGy) *j*, བསྒྱ (bsGy) *j* and སྦྱ (sBy) *j*.

Practical experience has amply demonstrated that Dzongkha spelling is experienced as being overly complicated for Bhutanese learners. The complexity of Dzongkha spelling hampers the use of Dzongkha in new media such as internet chats, text messages and email. The use of *ad hoc* romanisations is often experienced as being so unsystematic in nature that in practice English is most usually used instead. A phonological orthography of Dzongkha in the native Bhutanese script will be publicly presented this year for the first time (Karma Tshering and van Driem, forthcoming). Hopefully this phonologically consistent spelling system in the 'Ucen script, called *Phonological Dzongkha*, will, alongside Roman Dzongkha, enhance the facility of use of the national language in contemporary written media.

Another challenge is that the Bhutanese educational system has severely restricted the domains into which Dzongkha has been permitted to venture. When the first two secular schools were opened in Bhutan during the reign of འབྲུག་རྒྱལ་པོ་ཨོ་རྒྱན་དབང་ཕྱུག King 'Ugä 'Wangchu (*imperabat* 1907-1926), Hindi was chosen as the medium of instruction because of the ready availability of inexpensive textbooks. Chöke remained the medium of instruction in the lamasery schools. In 1961, འབྲུག་རྒྱལ་པོ་འཇིགས་མེད་ཇོ་རྗེ་དབང་ཕྱུག King Jimi Dôji 'Wangchu decreed that Dzongkha was the national language. At one level, this decree simply recognised the status quo. At a deeper level, the intent was vernacularisation, a move away from Chöke to living Dzongkha. Another aim was to eradicate instruction in Hindi.

Until 1971, the 'Dzongkha' taught in the schools was in fact Chöke. As a consequence of the royal decree of 1961, new English-medium textbooks were especially developed for the Bhutanese schools. These new course books replaced the Hindi textbooks in 1964. In 1971, the རྫོང་ཁ་ཡར་རྒྱས་སྡེ་ཚན་ Dzongkha Division of the ཤེས་རིག་ལས་ཁུངས་ Department of Education was established in order to develop materials for instruction in Dzongkha. Textbooks and learning materials in Dzongkha were developed at a rapid pace for both primary and secondary education. Initially, English remained the medium of instruction for subjects other than Dzongkha, but nowadays virtually all subjects are taught in English. Only Dzongkha is taught in Dzongkha as well as some modules of certain subjects such as history and geography. Bhutan in effect chose a language policy in formal education diametrically opposed to the Malaysian policy of replacing English with Malay as the medium of formal education, including the coining of Malay neologisms for scientific terms. The results is that, with the exception of remote villages, young and upwardly mobile Bhutan, rather than Singapore, is the most English speaking country in Asia

today. In language endangerment, the loss and gain of domains of use represent one dimension determining the viability of a language and its potential for survival.

4 The Semiotic Content of a Language

Both ceding domains of use or failing to colonise new domains of use create a linguistic topography that is less favourable to the survival of a language. However, when neologisms merely denote new entities which have come into use in our material culture, then these new coinages do not enrich the notional repertoire of the language. Whilst French has *ordinateur*, Czech has *počítač* and Afrikaans has *rekenaar*, Dutch seems to make do with *computer*, and Japanese fares well with コンピュータ *konpyūta*. The use of native roots in coining apt and facile neologisms attests to the creativity and vitality of a language, especially when these coinages catch on by their own virtue and are not enforced by top-down measures, although administrative interventions too quite often prove effective. Yet these precise translation equivalents for referring to newly invented objects do not enhance the conceptual repertoire of a language more than would an English loan word. They fail to augment or diversify what Wilhelm von Humboldt called the *Inhalt* of a language.

The research programme spearheaded by Wierzbicka and Goddard sought to identify shared semantic primitives presumed to be common to all languages. Both Wierzbicka and Goddard as well as the participants in their research programme earnestly believed in the existence of semantic primes, yet they were unable to demonstrate the existence of shared universal categories of meaning without resorting to the methodologically indefensible ploys of polysemy, allolexy and so-called non-compositional polysemy in order to 'find' the purported 'exponents' of the hypothetical primes (van Driem 2004). The negative result of their quest represents one of the most significant contributions to linguistics in recent years, for their inadvertent and unwanted finding provides the strongest corroboration to date for the theory of linguistic relativity developed in the writings of Pierre de Maupertuis (1698-1759), Wilhelm von Humboldt (1767-1835) and other linguists and subsequently popularised in North America by Edward Sapir (1884-1939) and Benjamin Whorf (1897-1941). Grammatical and lexical meanings in different languages generally tend to embody semantically non-equivalent notional repertoires, and part of the resistance to the work on Pirahã by Daniel Everett stems from a lingering but recalcitrant reluctance to accept his empirical findings in many linguistic quarters still today.

The notional repertoire of English today is not the same as it was at the time of King Alfred. The categories of meaning available to an English speaker today, whether grammatically or lexically expressed, are not at all congruent with those available to a speaker of Old English in the 9th century. Whilst the language of Kind Alfred lives on today in the form of modern English by virtue of an unbroken continuity of speech history, it can also defensibly be stated that Old English is a dead language. Latin too is conventionally termed a dead language, although through a continuous unbroken line of use the language still exists as modern French, Romanian, Portuguese and the other Romance tongues. The inexorable and universal nature of change was long ago expressed by Heraclitus (ca. 535-475 BC), to whom the phrase πάντα ῥεῖ 'everything flows' is traditionally attributed, and this fact is personally experienced by all.

When proponents of linguistic diversity defend the use of native languages and combat language endangerment in order to preserve mankind's linguistic heritage, presumably they are aware that language does and will change. The relentlessness of change will cause one language to be replaced by another, whether this takes the form of an alien tongue, as when the Celtic inhabitants of Britain adopted the Teutonic tongue imported by Anglo-Saxon migrants, or of drastic cumulative change over time, as in the case of Latin turning into French or Old English ultimately becoming modern English. What is worthwhile preserving, or at least attempting to document, in addition to phonetic diversity and the panoply of different types of morphological systems operative in language is the language-specific repertoire of notions, meanings and concepts which are lexically, grammatically or idiomatically expressed in any given language. The danger to diversity is not change, but centripetal change in the same direction in order to conform to one single global semiotic repertoire.

The insidious peril of semantic assimilation through the globalisation of categories of meaning was a central theme in the writings of David Hubert Greene, alias Dáithní ó Huaithne (1913-2008). In the context of the Irish language, Greene explained what is meant by such semantic assimilation and convergence.

> Unfortunately, many people are under the impression that such modern terms as *development, influence, interesting* represent essential concepts of human thought, and that no language can afford to be without them; yet, although they are all of Latin origin, not one of them occurs in Latin in anything resembling its modern meaning . . . But most European languages, from Welsh to Russian, have accepted them either as loanwords, or calques, as these equivalents of influence indicate: German

> *Ein-fluß*, Russian *v-liyaniye*, Welsh *dy-lanwad*, where the second element in each case means 'flowing'. (1966: 57-58)

Greene further illustrated this with a random but well-chosen Irish example.

> An example is English *development*, for which Irish has no one equivalent. Rather than say 'await further developments', the fitting Irish expression in a similar situation might be *fanacht le cor nua sa scéal* 'waiting for a new turn in the matter'. In other contexts where the English meaning development would be appropriate, various different Irish categories of meaning have to be found in Irish: *forleathnú* (*smaoininmh*) 'widening out (of an idea)', *imeachtaí* 'proceedings', *saothrú* (*na haigne*) 'cultivation (of the mind)', *tabhairt chun cinn* (*ceantair*) 'advancing (of a district)', *tarlú* 'happening', *toradh* 'result'. Yet even Irish is not immune to the effects of globalised categories of meaning. In recent times, the Irish word *forbairt* 'growing, increasing' has been used increasingly as an equivalent for English 'development' in all contexts in which English 'development' could appropriately be used, even though Irish *forbairt* has never meant 'development' at any stage of its history. (1966: 59)

The observations made by Greene alert us to the danger of the loss of linguistic diversity without actual language death. Semantic assimilation of one language to another will reduce overall linguistic diversity. In fact, this insidious phenomenon exerts a far greater impact on diversity, yet remains less amenable to observation by the semantically unsophisticated, the monoglot and the linguistically naïve observer. This threat raises questions which present a fundamental challenge to the science of linguistics.

Will the languages of the future be more viable if these languages merely represent exact or nearly precise translation equivalents of each other? Will different languages become increasingly superfluous as they are all increasingly compelled by normative influences exerted in the process of globalisation, including automated translation, shared international discourse and the bullying scourge that is called political correctness, to give expression to the same conceptual repertoire and so to have the same semiotic content? At the same time, another pressing question which, given the current state, direction and biases of linguistics, presently defies answering is the following: Do certain types of conceptual repertoire render a language more resilient than another language or in some sense intrinsically valuable? Methodologies should be developed to address this central research query.

Instead, today a highly vocal segment of the linguistic community has responded to the research findings published by Everett by crying foul and alerting the Brazilian authorities, who have meanwhile undertaken linguistically and culturally to assimilate the Pirahã forcibly to the sedentary Occidental mainstream culture and national language of Brazil and so to expunge forever any and all trace of a conceptual repertoire and world view that was demonstrably distinct from our own and so proved to be embarrassingly at variance with the preconceptions of a subset of linguists that are blinded by essentialist notions and by their own typological and grammatical labels and biases. A current obstacle in the ongoing discussion about language universals and linguistic categories is precisely the presumed universality of putative linguistic categories for which labels have been coined and artificial 'test cases' have been devised by a certain common breed of language typologist, some of whom have recently gone into explicit denial regarding their Platonic agenda and the essentialist underpinnings of their approach to language.

5 Demography and Socio-economic Factors

In addition to the factors which bear directly upon the language, its domains of use and its semiotic content, there are sets of factors which determine language viability that are related to the human speakers of the language. Statistics and sophisticated methods of quantification appear ludicrous in some extreme cases where a language has disappeared, as very many have, because entire populations of speakers of these languages have been exterminated by rival groups. Not only has genocide been perpetrated at times during the colonisation of the Americas, Australia and the Andamans, but the wholesale slaughter of rival groups also features in the recorded history of the Old World. Sometimes populations are wiped out not just by violent aggression perpetrated by the rival group, but also equally by diseases introduced by an incursive population. Often the genocide is incomplete, and then the small contingent of survivors is afterwards easily linguistically assimilated so that often no trace of the original language remains. Yet demographic change is not invariably this drastic.

Sometimes demographicaly marginal groups hold on to a distinct ancestral language alongside an overwhelming linguistic majority, such as the astonishing resilience of Yiddish and Sorbian over time, whereas sometimes large populations abandon their languages, as in the case of the many now extinct Celtic languages of Europe and many languages of antiquity, such as Elamite,

Hittite, Hattic and Hurrian. The phenotypical, cultural, ritual or religious differences between populations of speakers also all play a role, as do the specific dynamics of any process of acculturation, conquest or domination. In future, it would be desireable to be able to quantify or meaningfully to characterise the affects of each of such factors. Demographic factors affecting the number and the fecundity of the population of speakers must be distinguished from those affecting the socio-economic circumstances of the given language community. Economy is a determinant of language vitality, but just how economic factors affect language viability has yet to be fully understood.

Herodatus famously recorded the linguistic experiment ostensibly carried out by the pharaoh Psammetichus I (664-610 BC) to discover the original language of man. Children were brought up by themselves on an island or at some remote locality, and, when they finally learnt to speak, they turned out to be saying *becos*, the Phrygian word for 'bread'. Yet was the man who supplied the tiny and isolated experimental population of children with their daily allowance of food not himself a Phrygian? The result of the legendary experiment may have more to say about the socio-economic factors which determine the direction of linguistic assimilation than about the original language of mankind. Languages are not all economically equally weighted. The languages that pop up at you from your computer screen each time that a new operating system of Apple is introduced reflect the economic weight in terms of consumer potential of a highly select group of the world's language communities. Certain language communities which are an order of magnitude more populous in terms of numbers of speakers, such as Bengali or Telugu, are not represented in the same way as the languages of certain affluent but small language communities in Europe, like Norwegian or Finnish, whose numbers of speakers pale in comparison with the burgeoning populations speaking many of the neglected languages.

The list of factors that determine the linguistic topography of a language adduced above requires refinement and enhancement. The aim of this paper has merely been to formulate the challenge to develop a programme of research to study the linguistic topography of individual languages. Analysing and charting the linguistic topography of a language should enable us to provide an insightful assessment of the viability of a language and a prediction of its potential for survival. Although the proposed research programme has been conceived within the Schleicher-Mufwene framework which envisages individual languages as species in competition, the inclusive fitness of a language can only be properly assessed and quantified when the anatomy of the relationship between language as a semiotic organism and its human host

is properly understood, the distinction between language as organism and individual languages as species is appreciated, and the interplay of various factors affecting each of the entities operative at the distinct levels of interaction is understood. Not only will new methods have to be developed, in the process certain ingrained biases prevalent in some quarters will have to be overcome. Both semantic precision and semiotic sophistication are indispensable prerequisites, as has been argued in the prolegomena to the synoptic Bumthang grammar (cf. van Driem 2015a). In future, the study of linguistic topography could yield recommendations for policy makers, educators and members of language communities based on an understanding and quantification of the sociolinguistic dimensions of individual language endangerment situations at different levels of analysis.

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