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Language ecology and genetic diversity on the African continent

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Africanists have been criticized by comparative linguists working on language families in other parts of the world for being lumpers. The present contribution reviews current views among specialists on genetic diversity on the African continent. In addition, some of the causal mechanisms behind this language diversity are investigated. More specifically, the role played by innovations in subsistence economies and climatological changes are discussed. Special emphasis, however, is put on attitudes towards the role of language as a marker of social identity and their effect on language diversity.

1. The genetic classification of African languages: A brief state of the art

How well-established are the genetic units or phyla proposed some 45 years ago by Joseph Greenberg in his seminal contribution on the genetic classification of African languages (Greenberg, 1963)? Among the four phyla originally proposed by him, the one most securely established today probably is Afroasiatic. Here, Greenberg followed up on pioneering work by nineteenth century scholars such as Müller (1867-1888) on what was then called Hamito-Semitic, and twentieth century scholars like Delafosse (1914), who seems to have coined the term “afroasiatique”. In his initial series of studies on the genetic classification of African languages, published between 1949 and 1954 and reprinted as a monograph in 1955, Joseph Greenberg accepted this phylum as a valid genetic grouping. But he also added a branch, Chadic, which included languages spreading out in various directions from Lake Chad. As pointed out in Greenberg (1955), the term “Hamito-Semitic” for this
phylum should be avoided, for Semitic constituted but one of the five branches; moreover, the concept “Hamitic” had developed racist connotations during preceding decades, in particular after Meinhof’s (1912) publication of *Die Sprachen der Hamiten*, which constituted a mixture of genetic and typological as well as (physical) anthropological criteria; Hamitic languages, according to Meinhof, originally were spoken by stock-keeping peoples of Caucasian stock.

In a sequel to Greenberg’s classification of African languages published in 1963, Fleming (1969) proposed to excise one group referred to as West Cushitic from Cushitic, and to accord it the status of a separate primary branch within Afroasiatic; for this new branch, Fleming proposed the name Omotic (after a major river in the area, the Omo). Although its Afroasiatic affiliation has been disputed, the allocation of Omotic within this phylum is now well-established, based on the attestation of morphological properties which this family shares with other Afroasiatic branches; compare Hayward (2000) for a succinct survey.

At the same time, it has to be concluded that Greenberg’s intuitions on the genetic unity of Khoisan could not be confirmed by subsequent research. Today, the few scholars working on these languages treat the three units which Greenberg grouped together under one super phylum, Northern Khoisan, Central Khoisan and Southern Khoisan, as independent language families which cannot or can no longer be shown to be genetically related. Here, Greenberg may indeed have been misled to some extent by the extensive borrowing which occurred between different languages in the Khoisan area. Compare, for example, the study by Traill and Nakagawa (2000) on borrowing between the Northern Khoisan language !Xôó and the Southern Khoisan language Gui. Interestingly, Greenberg (1963) also included two languages spoken in Tanzania, Sandawe and Hadza, in the same Khoisan phylum. As Güldemann and Elderkin (To appear) show by way of the comparative method, Sandawe probably forms a genetic unit with Central Khoisan and the extinct language Kwadi (formerly spoken in Angola); Hadza on the other hand constitutes a linguistic isolate, according to modern views.
Niger-Congo (called Niger-Kordofanian by Greenberg 1963) is sometimes presented as the best established language phylum on the continent. But this optimistic view is not shared by all specialists. According to Greenberg, this phylum consists of Atlantic, Gur (Voltaic), Mande, Kwa, Benue-Congo, and Adamawa-Eastern; in addition, he included a group of languages spoken in the Nuba Mountains (Sudan), which have come to be known as Kordofanian, in this phylum. There is indeed a core of language groups (each of which is fairly well-established as a genetic unit itself) which includes Greenberg’s Benue-Congo and Kwa (which probably form a subgroup within Niger-Congo) as well as Gur plus Adamawa (which may also form a subgroup; compare, for example, Kleinewillinghöfer 1996). These can be shown to be genetically related beyond any reasonable doubt. The evidence is not only lexical in nature, it is based primarily on a range of cognate grammatical morphemes. The so-called “Eastern” branch of Greenberg’s Adamawa-Eastern, however, does not fit in; “Eastern” probably constitutes an independent language family, now usually referred to as Ubangian.

The status of Greenberg’s Atlantic group within Niger-Congo is still unclarified. The issue was addressed at a Workshop at the University of Hamburg (Germany) in 2007. The internal diversification within this presumed primary branch indeed is so huge that some scholars would argue that “Atlantic” is primarily an areal grouping representing a number of independent, early descendants of Niger-Congo; a few have challenged this view and would go as far as saying that some of the languages originally included in this family may not even belong to Niger-Congo.

Actual comparative evidence for Niger-Congo as a family using classical Neogrammrian methods has come forward in particular through the scholarly work of the late John Stewart. Compare the obituary by Mous (2007) for a full list of Stewart’s publications. In his comparative endeavours, Stewart (e.g. 2002, 2007) focused on a systematic phonological comparison between members of this language family, in particular between Kwa and Bantu (as a major subgroup within Benue-Congo). He further compared his
Proto-Potou-Akanic-Bantu (Proto-PAB) with languages from Greenberg’s Atlantic branch, and argued that “…Proto-PAB has the potential to serve as a pilot Proto-Niger-Congo in essentially the same way as a “Proto-Germanic-Latin-Greek-Sanskrit” served the pioneers of linguistic reconstruction as a pilot Proto-Indo-European” (Stewart 2002:197).

It is probably no coincidence that Stewart did not include two other families assumed by Greenberg to constitute primary branches of Niger-Congo, Mande and Ubangian, in his comparative studies. The actual comparative evidence for a Niger-Congo affiliation is indeed rather slim, and no convincing seems to have been put forward over the past decades. Consequently, Mande and Ubangian are best treated as independent language families.

The inclusion by Greenberg of a group of languages spoken in the Nuba Mountains of central Sudan, which have come to be known under the name Kordofanian, into a larger phylum termed Niger-Kordofanian by Greenberg (1963) and subsequently renamed Niger-Congo by Williamson (1989), has received wide acceptance among scholars. Greenberg (1963) assumed that the Kordofanian branch consists of five subgroups, today usually referred to as Heiban, Talodi, Rashad, Katla and Kadu. But as argued by Schadeberg (1981a), the Kadu(gli) group should be excised from Kordofanian, or Niger-Congo, and be included in the substantial search for Nilo-Saharan affiliation. More recent research on these languages has made clear that the four remaining subgroups manifest more internal diversity than originally thought. But their affiliation to Niger-Congo is beyond any reasonable doubt. Not only do they have reflexes of widespread, cognate noun-class markers as found across Niger-Congo, they also manifest an amazingly detailed formal identity in their verbal derivational morphology to, for example, Proto-Bantu. This is not due probably to the fact that Bantu (or Benue-Congo) and these languages in the Nuba Mountains are closely related, but rather because these languages and other language groups in the peripheral zones of Niger-Congo (such as Atlantic) appear to be more conservative in their morphological structure, retaining cognate verbal derivational markers or noun class markers.
As is common with respect to other proposed language phyla, there is no agreement on the internal stratification of Niger-Congo. Whether the Dogon languages or Ijoid constitute separate early Niger-Congo descendants or instead are part of other established subgroups is not clear at this point in time. But these discussions do not affect their principled status as members of the Niger-Congo phylum.

As stated by Bender (2000: 43), “[o]f the four ‘Greenbergian phyla’…. Nilo-Saharan is probably the least widely accepted.” Indeed, this view seems to be widespread, in particular among non-specialists. But it is not clear what this scepticism is based upon; there may in fact be a psychological reason for this. To the outsider it may look as if Greenberg simply grouped together a range of languages formally treated as isolated units and situated mainly between Afroasiatic languages to the north and Niger-Congo languages to the south. But contrary to a widely held belief that Greenberg was just lumping together left-over languages, in actual fact his classification was based on a judicious evaluation of the existing evidence. As was the case with other linguistic groupings, Greenberg elaborated upon research of earlier investigators, starting with his own identification of a Macro-Sudanic phylum in 1955, which was subsequently renamed Chari-Nile. In his 1963 classification, language groups and languages formerly considered to be isolated units, such as the Songhai cluster, Saharan, the Maban group plus Mimi, Fur, the Kunama cluster, and the Coman group plus Gumuz were grouped together in a new phylum called Nilo-Saharan. More and more grammatical evidence has emerged over the past decades for a Nilo-Saharan phylum, as a result of improved descriptions and historical-comparative studies on lower-level units. But two groups do not appear to fit in with the emerging historical reconstructions, Songhai and Coman plus Gumuz. Nicolaï (2003) has reviewed the historical evidence for the affiliation of Songhai to Nilo-Saharan, and concludes that the actual evidence is very poor indeed. Similarly, very few of the more widespread nominal and verbal morphological markers of Nilo-Saharan are attested in the Coman languages plus Gumuz, which are spoken in the border area between Ethiopia
and Sudan. Their genetic status remains debatable, mainly due to lack of more extensive data. Fortunately enough, a number of Coman languages plus Gumuz are currently being studied in more detail. Paucity of new linguistic material on these and other extant languages is indeed a major handicap for our comparative endeavours. But this makes Joseph Greenberg’s deep insights on genetic relationships even more impressive, with the establishment of a Nilo-Saharan phylum probably being his most important contribution to the genetic classification of African languages.

The only all-embracing comparative study of the Nilo-Saharan today is Ehret (2001), who in fact includes Songhai and Coman as members of this phylum. The author presents some of the grammatical evidence for Nilo-Saharan now available, e.g. with respect to case marking, number marking, and the morphology of major categories like nouns and verbs. But as pointed out by Blench (2000, also available on his homepage www.rogerblench.info), there are a range of methodological flaws in Ehret’s study. The actual number of convincing cognates is still too small to be able to reconstruct the original sound system, and much more comparative work needs to be done at lower level genet units within Nilo-Saharan in order to understand the historical development of phonological and grammatical systems.

In summarizing the current state of knowledge, the following can be stated: Apart from Afroasiatic, Niger-Congo, and Nilo-Saharan (the latter two in a modified or “reduced” form) the following language families or phyla can be identified: Northern Khoisan, Central Khoisan plus Sandawe (and the extinct Kwadi language), Southern Khoisan, Mande, Songhai, Ubangian, Kadu, and the Coman language group plus Gumuz. Whether all languages originally included by Greenberg (1963) in his Atlantic branch of Niger-Congo in fact belong in there will remain a bone of contention in years to come. Next to these eleven (plus) language families or phyla, there are several isolates consisting of a single language only. Apart from one isolated language already mentioned above, Hadza, there are a number of others, e.g. Bangime in Mali, Dompo and Mpra in Ghana; which have been reported upon
by Blench (1999, To appear). Further towards the east we find Jalaa in Nigeria (Kleinewillinghöfer 1996), and Laa in Chad. Boyeldieu (1977) states that the latter language shows grammatical and lexical similarities to Adamawa (Niger-Congo), Chadic (Afroasiatic) as well as an unknown source. The problem of historical “layering” of inherited and borrowed language material, as Aikhenvald (2006:7) has called this process, is indeed the main reason why it is probably no longer possible to arrive at more convincing hypotheses about genetic relationships in these cases. This problem also applies to two linguistic isolates in southern Ethiopia, Ongota (Biraile) and Shabo. This would bring the total number of languages families (or phyla) on the African continent, including those with single language members, to nineteen.¹ Several of them may indeed constitute the last representatives of language families which have become extinct. It is rather striking, when plotting these isolates – many of which are endangered - on a map, that most of them are spoken at the fringe of so-called spread zones (in the sense of Nichols 1997) like Nilotic, Bantu or Cushitic.² Compare Map 1, produced by Monika Feinen (Institut für Afrikanistik, University of Cologne), who also prepared the other two maps; her help is kindly acknowledged here.

The revised picture on the classification of African languages shows that the genetic diversity probably is more extensive than assumed in Greenberg (1963), also because some of the language isolates mentioned above were not known to him or other scholars at the time. It seems equally likely that in certain areas genetic diversity was much bigger in the past, and that expanding language families absorbed these speech communities linguistically. It further makes clear that some areas are still much more diversified genetically than others. Genetic diversity is particularly prominent in southern Africa, the Nigerian river belt, the Nuba Mountains (Sudan), the Ethiopian Highlands and southern Africa, also in terms of number of languages. Some of the potential causes of this historical situation are discussed next.

¹ The list of linguistic isolates is not necessarily exhaustive, as several areas are still poorly studied.
² Compare Dimmendaal and Voeltz 2007 for a recent survey of endangered languages on the African continent.
2. Accretion zones, spread zones, and their ecological bases

The “Khoisan” area, claimed by Greenberg (1963) to constitute a genetic grouping but now widely held to be an areal grouping instead, embraces three distinct language families spread across southern Africa: Northern Khoisan, Central Khoisan and Southern Khoisan. In spite of some common typological traits, the most prominent one probably being the use of clicks or the widespread use of verb concatenation, the typological distinctions within the Khoisan area are huge, as argued by Güldemann (1998). The Khoisan area thus constitutes an accretion zone in the terminology of Nichols (1997), i.e. an area with a high genetic and structural diversity. Here, climatological conditions varied considerably in the past; during a dry period between 5500 BC and 2500 BC some areas were uninhabited. The most dramatic innovation in subsistence economy probably involved the introduction of agriculture and pastoralism some 2000 years ago, when speakers of Central Khoisan languages entered the area from the northeast, where they had likely acquired agriculture from the expanding Bantu at a time when the Kalahari was more amenable to agriculture (Güldemann, 2006). The subsequent dessication of the Kalahari lead to the readoption of a hunter-gatherer economy with some groups. It may be assumed that here - like elsewhere on the continent - ethnic fission and fusion accompanied by language shift occurred, leading towards both linguistic convergence and divergence over the past millennia.

The Khoisan area as an accretion zone is interspersed with representatives from a Niger-Congo subgroup, namely Bantu languages, which cover major areas from Cameroon in the northwest towards Kenya in the east and south of this area all the way towards South Africa. The Bantu subgroup constitutes a proto-typical spread zone within the Benue-Congo branch of Niger-Congo. The Bantu expansion probably involved a number of independent movements (Vansina 1995:191).

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3 As pointed out by Watkins (2001) there may be both divergence and convergence in situations of so-called equilibrium as well as punctuation in the sense of Dixon (1997).
One consequently may observe spread zones and accretion (or residual) zones in neighbouring areas. This raises the more general question what drives phylic dispersals.

It is a widely held view by archaeologists that technological innovations played an important role in the expansion of specific groups and, consequently, of languages they spoke.\(^4\) Blench (2006) has argued that such a model is problematic when applied to Africa in general, because no terms unambiguously related to agriculture have been successfully reconstructed in the protolanguage of any of the African language phyla. The evidence for agriculture in sub-Saharan Africa is late; there is no evidence for any cultivated plants before 4000 BP. The main expansions of African language phyla therefore must have taken place when the speakers were hunter-gatherers or possibly livestock managers.

It has been pointed out in the archaeological literature, e.g. by Muzzolini (1993), that West Africa was populated sparsely by modern humans until the end of the Pleistocene (around 12,000 BP). This hyperarid palaeo-geological phase was followed by a much wetter Holocene period. It seems likely that during this later period "inquisitive minds" exploited new territories suitable for human habitation because of wetter climatological conditions, and gradually migrated into previously unoccupied areas or territories. Such expansions do not necessarily require technological innovations, although the invention of the bow and arrow and the introduction of domesticated dogs probably improved the success of foraging economies (Blench 2006:129). The expansion of the Niger-Congo family presumably is related to both climatological and technological changes. Linguistic isolates like Banga me, Dompo, Jalaa, Laal, and Mpra, but also larger units like Songai and Mande most likely constitute remnants of an earlier diversity that must have characterized West Africa, as well as other parts of the continent.

Climatological changes probably affected the linguistic picture dramatically in a number of regions, e.g. in what is now the eastern Sahel zone. One dramatic consequence of the wetter

\(^4\) In the case of the Bantu expansion from the Nigeria-Cameroon borderland across major regions of central, eastern and southern Africa, knowledge of iron working among agriculturalists is thought by specialists to have played a major role.
climatological conditions setting in around 10,000 BC was the emergence of a major riverine system, the Wadi Howar or Yellow Nile, which connected the Ennedi Mountains in eastern Chad with the Nile between the third and the fourth cataract, according to Pachur and Kröpelin (1993:20). These aquatic resources teemed with flora and fauna roughly between 8500 BC and 1500 BC, when marginalization of the area set in again. Whereas the earliest humans inhabiting this ecological zone were hunter-gatherers, pastoralism was introduced into the area probably as early as 5000 BC. There is solid archaeological evidence that the Wadi Howar played an important role in the diffusion of material culture among cattle-keepers in the area, also revealing intensive contacts with the Nile valley. The Lower Wadi Howar was mainly occupied between 5000 and 3000 BC, and seems to have been abandoned by the third millennium BC, whereas the occupation of the Middle Wadi Howar continued to the second millennium BC. As argued in Dimmendaal (2007a), the archaeological findings provide a plausible explanation for a number of linguistic phenomena, which remain enigmatic otherwise. These include the following:

1. The current distribution in particular of Eastern Sudanic, the largest and well-established subgroup within Nilo-Saharan. One finds representatives of the Northern subgroup within Eastern Sudanic, the Tama group and Nubian languages in the border area between Sudan and Chad and in the Nuba Mountains (Nubian, and Nyimang plus Dinik) as well as Eritrea (Nara). Rilly (2004) has provided convincing evidence that the extinct Meroitic language also belonged to Northern Eastern Sudanic. Compare Map 2 for further details. The Central subgroup, consisting of the (Eastern) Jebel languages (number 6 on Map 2), is found east of the Nuba Mountains, whereas members of the Southern subgroup (containing Temein plus Keiga Jirru, the Daju group, Surmic, and Nilotic) are spoken in the Nuba Mountains as well as west and south of this area. The principle of least effort suggests a center of gravity or original homeland for Eastern Sudanic in the vicinity (north) of the Nuba Mountains. For this reason, the diffusion has been referred to as the “Wadi Howar diaspora” by Dimmendaal (2007a).
2. As pointed out first in Heine (1976), Nilo-Saharan language stretching from Ethiopia and Eritrea in the east across northern Sudan towards Chad in the west manifest typological similarities in terms of constituent order (involving a verb-final structure) and extensive case marking with Afroasiatic languages in Ethiopia. Additional typological features for this apparent convergence area, covering Nilo-Saharan subgroups like Nubian, Taman, For, Maban and Saharan, are described in Dimmendaal (2007b). They include Differential Object Marking as a case-marking strategy, the frequent use of light verb plus coverb constructions (‘do/say x’), and the use of coverb constructions. Today, however, the Nilo-Saharan languages sharing these typological features with Afroasiatic languages in Ethiopia are found in a non-contiguous area of northern Sudan plus Chad (compare Map 2). But the presence of a former contact zone in the Wadi Howar region (as already evidenced through similarities in material culture) provides a natural historical explanation for these typological features, which probably spread through multilingualism.

3. Central Eastern Sudanic and Southern Eastern Sudanic groups deviate radically from this typological pattern found in Northern Eastern Sudanic, although remnant features may still be found in the Southern subgroup (Dimmendaal, 2004). The latter languages are typologically similar to the Niger-Congo languages in the Nuba Mountains in terms of constituent order and the use of extensive verb morphology in order to express clausal relations. Also, several Nilotic and Surmic languages developed split ergativity, a phenomenon also found in Niger-Congo languages in the Nuba Mountains like Tima.

The earliest speakers of Eastern Sudanic languages probably were pastoralists, since roots related to this subsistence economy can be reconstructed for its earliest stages (Dimmendaal 2007a). As pointed out above, there is evidence for convergence (structural borrowing) between Niger-Congo
languages in the Nuba Mountains and Eastern Sudanic (Nilo-Saharan) groups like Nilotic and Surmic. This is supported by evidence for lexical borrowing. For example, the widespread Nilo-Saharan root for a typical savannah dweller as ‘elephant’ is also attested in at least one Niger-Congo (Kordofanian) branch in the southeastern Nuba Mountains, the Heiban group. Schadeberg (1981b:159) reconstructs a root *- for Proto-Heiban. This is also the common Nilo-Saharan form. Compare, for example,  in Tama (spoken in Darfur), and  in Southeastern Surmic Tirma (spoken in southern Ethiopia), or  (plural form) in Western Nilotic Anywa (southern Sudan). There also appear to be common kinship between Niger-Congo languages in the Nuba Mountains and surrounding Eastern Sudanic (Nilo-Saharan) languages, e.g. for a word meaning ‘maternal uncle’ (see Dimmendaal 2007a for further details). The lexical and grammatical convergence suggests that Eastern Sudanic (Nilo-Saharan) pastoralists of the savannah surrounding the Nuba Mountains and agriculturalists in the latter area speaking Niger-Congo languages were in contact with each other, thereby reducing ecological risks.

The southward migration of some Eastern Sudanic groups (the ancestors of Nilotic and Surmic groups) illustrates the important role of pastoralism for language expansion in the area. Other Eastern Sudanic groups ended up in the Nuba Mountains, where they now concentrate on agriculture (although most groups in the Nuba Mountains do have some livestock as well). Along the southern range of the Nuba Mountains, we find the Kadu languages, which probably constitute an independent family or phylum; compare Map 3. The closest linguistic relatives of the Niger-Congo languages are spoken thousands of miles further west. The genetic and typological diversity in the Nuba Mountains thus probably is not the result of an ancient diffusion zone for human occupation as with the Khoisan area in southern Africa; rather, we are dealing with a refugium or retreat area essentially due the desertification of areas surrounding the Nuba Mountains. Another such linguistically diverse area functioning as an ancient refugium zone probably is found in the Ethiopian Highlands,
where Afroasiatic as well as Nilo-Saharan languages are spoken, as well as the linguistic isolates Ongota and Shabo.

In the Bantu case the adoption of new cultivation systems lead to demographic and linguistic expansion from the Cameroon-Nigeria area. This historical process thus supports the farming-and-language dispersal model of Bellwood and Renfrew (2003). Bellwood (2001) asserts that, whether the agriculture was being spread by converting hunter-gatherers or range-expanding farmers, both groups would have become subject to population increase in good environments. This is probably true for Bantu. But for the Nuba Mountain area this scenario is less convincing. Instead, we are dealing with non-expansionist or non-spread “agricultural languages”; compare Campbell (2003) for a discussion of other such cases elsewhere in the world.

Obviously, in a brief synoptic survey like the present it is not possible to go into the details of all potentially relevant parameters. But from this brief survey it may already be concluded that a combination of climatological changes and changes in subsistence economies probably led to the spreading, displacement and reduction of language families in Africa as it did in other parts of the world. But the social factors and cultural choices made by humans should not be neglected either, as argued next.

3. Esoterogeny, metatypy and other miracles of language contact

One frequent effect accompanying shift from a source language into a target language involves interference, as pointed out by Thomason and Kaufman (1988) in their classic contribution on language contact phenomena. Below, one such case of so-called shift-induced interference as well as two other types of contact-induced language change in an African context are presented, in order to show how and why such processes may influence the picture on linguistic diversity.

The Nilotic (Nilo-Saharan) language Luo, spoken in western Kenya as well as neighbouring regions of Tanzania and Uganda, today is spoken by well of three million people. One important
reason for this appears to have been a massive shift in language solidarity from neighbouring Bantu languages. The result was a dramatic restructuring of the Luo language. The task of distinguishing inherited from diffused material becomes difficult, if there are no closely related languages, as in the case of Laal or Ongota discussed above. But in the case of Luo this is not problematic. Luo is part of a cluster of closely related languages, to which also Alur, Kumam, Acholi and Lango belong. None of the other members of this cluster manifest a strong influence from Bantu, either lexically or grammatically. Luo developed three past tense markers on the verb from adverbs of time. The result was a tense-marking system which parallels that of neighbouring Bantu languages. Whereas Luo has retained two Nilotic number-marking suffixes in its nominal morphology, it has also developed nominal class prefixes, again parallel to neighbouring Bantu languages. The prefixes came about, not only through extensive borrowing from neighbouring Bantu languages, but also through language-internal developments whereby former compounds were reinterpreted as nominal prefixes plus roots, e.g. φαλου/φυλο ‘Luo person/people’. Whereas neighbouring Bantu languages tend to use a class prefix κι- in order to express instruments, the Nilotic language Luo uses a prefix ρα-. The prefix κι- is also used in these Bantu languages to refer to individuals with specific handicaps; exactly the same phenomenon is found in Luo: ρα-Nιψ ‘mirror’ (compare 骙괛 ‘recognize’); ρα-N(GUI ‘handicapped person (GUI ‘be handicapped, limp’); compare Dimmendaal (2001a) for further details.

The second case study concerns Baale, a language spoken by a community forming an ethnic unit with the neighbouring Tirma and Chai, called Suri (or Surma), all of whom live in the border area between southwestern Ethiopia and neighbouring Sudan. Baale is closely related to the Didinga-Murle languages, with which it forms the Southwestern branch of Southern Surmic. The Tirma-Chai-Mursi dialect cluster on the hand is part of the distantly related Southeastern branch of Southern Surmic (which is part of the Eastern Sudanic branch within Nilo-Saharan). The Baale number around 9,000 or less, whereas the number of Tirma-Chai speakers is estimated at around 30,000. The latter see themselves as transhumant pastoralists (although a major part of their diet may consist of
agricultural products), whereas the Baale concentrate on agriculture (in particular because they live in an area infected by tsetse flies). Most Baale are bilingual in Tirma and/or Chai, but the latter rarely speak Baale. Whereas the Baale form one ethnic group with the Tirma and Chai, they did not give up their language, presumably because they still form a tightknit community with a partly separate identity from the pastoral Tirma-Chai. Nevertheless, the use of the inter-community language Tirma-Chai apparently has been so extensive, that a dramatic phonological restructuring and massive grammatical calquing, i.e. the copying of constructional meanings from Tirma-Chai, occurred in Baale. We thus have a classic case of what Ross (e.g. 2001) has called metatypy. Unlike the closely related Didinga-Murle languages, for example, Baale does not allow closed syllables in word-final position. Thus, the Didinga and Murle word for ‘axe’, μΕΕλΕκ corresponds to μΕΕλΕ in Baale. Similar calquing towards Tirma-Chai can be observed in Baale morphology and syntax. Unlike the closely related Didinga-Murle languages, which are verb-initial, Baale has a relatively free constituent order, allowing for SVO, VSO, OVS, SOV depending on the pragmatic context in which a sentence occurs. This system parallels that of Tirma-Chai. Similarly, one finds that lexical idioms, e.g. compounds are formed after a pattern also attested in Tirma-Chai. Thus, Baale Ṣƙƙ ‘nipple’, literally ‘breast-mouth’, corresponds to Tirma Ṣƙƙ ‘breast-mouth’ for ‘nipple’. For additional instances of metatypy in Baale the interested reader is referred to Dimmendaal (2001a) and Moges Yigezu (2006). The result again is an increase in linguistic diversity, because of dramatic structural innovations in Baale. Unlike the case in Luo, the restructuring process did not result from imposition of second-language learners in a language shift situation, but rather from calquing.

The third and final case discussed here, again showing how people’s construction of their social environment may affect the linguistic picture, involves a poorly understood aspect of historical language modification, deliberate language change. (Also compare the succinct survey by Thomason, 2007). It is well attested as such in modern youth languages from a range of African metropoles, as shown by Kießling and Mous (2004). Other authors (e.g. Ross 2001) have argued that such
restructuring processes whereby speakers of a language add linguistic innovations that increase the complexity of the language in order to highlight their distinctiveness from neighbouring groups, characterized language change among entire speech communities in the Pacific, a process referred to by Ross as esoterogeny. As shown in Dimmendaal (In press), the Tima community in the Nuba Mountains of central Sudan (whose language belongs to the Niger-Congo family) also have an oral tradition referring to such deliberate changes by their ancestors, so that neighbouring groups could no longer understand the Tima language. But when comparing Tima with the closely related Katla language, one does not find an elaboration of the lexicon, or an obvious increase in the frequency of opaque idioms (as proclaimed properties of esoterogeny) in the former. Both languages have a rather complex verb morphology, with at least twelve slots for verbal inflectional and derivational markers, with a plethora of allomorphs conditioned by vowel harmony, fronting harmony, and other types of morphophonemic processes. What appears to make Tima more complex is the fact that its constituent order (SVO, OVS, VSO, SOV) is strongly governed by pragmatic principles, rather than having a fairly strict SVO structure as in Katla. The variable constituent order in Tima affects the inflectional morphology of the verb, i.e. the presence or absence as well as the shape of person and tense-aspect markers amongst others. This is what makes Tima morphology particularly complex. Multilingualism is common in the area, and some people speak up to eight languages. But there is a widespread view that the Tima language is extremely hard to learn, and Tima people are aware of these stereotypical views. However, as argued in Dimmendaal (In press), the deviant structure probably resulted, not from language manipulation (as oral traditions would have it), but rather from another type of contact-induced change, the imposition of structural properties from specific source languages into the target language Tima in a language shift situation. The oral tradition of the Tima community of deliberate language change among their ancestors thus probably is based on a post hoc rationalisation, in order to explain why their language is so different. Their language also became an important emblematic sign of ethnic identity this way, a process reminiscent of Hill’s “localist” strategies of closed agricultural language communities in Central America which did not expand.
either, and whose “insider/outsider” boundaries are marked by correspondingly abrupt linguistic discontinuity (Hill 2001).

The Tima speech community is one of over forty communities in the Nuba Mountains most of whom are self-sufficient without any larger networks for the exchange of material (or immaterial) culture. Consequently, no lingua francas (other than Arabic, which is a more recent development) or larger convergence zones developed in the Nuba Mountain area. Where individuals have large and dispersed social networks, one may expect linguistic uniformity; where social networks are small and tightly self-contained, many distinct languages will ultimately evolve, as argued by Nettle (1999:59). This is indeed the pattern one observes for the Nuba Mountains. Similar patterns seem to have emerged among predominantly agricultural economies in central and northern Nigeria, where numerous Chadic (Afroasiatic), Benue-Congo, and Adamawa (i.e. Niger-Congo) languages are spoken.

Apart from these language contact situations discussed above, there are of course others, e.g. pidginisation (and creolisation) or the formation of syncretic (or intertwined) languages (as a typological characterisation). The best known examples outside Africa for the latter probably are Michif or Mednyj Aleut, or the more recent case of Gurindji Kriol, as described by McConvell and Meakins (2005). But similar restructuring may have taken place in northern Songhai lects such as Tadaksahak (Mali), or Songhai varieties in Niger and the Algeria-Morocco border area all of which appear to be strongly influenced by Berber (Afroasiatic).

Nettle (1999:150) has argued that the ethnolinguistic map is a product of people’s social behaviour, a view also defended here. But the same author also claims that social behaviour is motivated by the economic necessities of subsistence, the latter in turn being linked to the ecological setting. It would seem, however, that reducing all social behaviour and people’s (rational) choices to changing economical and ecological settings would do no justice to reality. These factors may set a frame, but they cannot predict whether people shift language solidarity or not, for example.
The emerging picture on language ecology and corresponding genetic (and typological) diversity in Africa – and elsewhere - is rather more likely to be one resulting from linguistic change mediated by social factors, enacted by humans whose behaviour is only predictable to a certain extent.

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