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Roland Kießling, Roland

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Contributions to the study of African languages from the Nordic countries

Arvi Hurskainen

1 Introduction

This chapter gives an outline of the study of African languages in various Nordic countries. The description is limited to the work of individual researchers as far as it was financed by these countries. Therefore, the work of each researcher is included only as far as the above criterion is fulfilled. Research of African languages has often been carried out as part of study on general linguistics, or other such research area that has made it possible to study also African languages. Only the University of Gothenburg, Sweden, has a professorship dedicated to the study of African languages. In Norway and Denmark, African languages have been studied mostly in departments of general linguistics. In Finland, the professorship at the University of Helsinki is defined as African studies, that is, the wide research field makes it possible to study also such subjects that normally would be studied in other departments - anthropology and history, for example.

2 Early initiatives

The motivation for studying African languages emerged initially as part of missionary activities. There was a need to be able to communicate using local languages. Missionaries had to learn the languages, and this was made possible by producing grammars and dictionaries. The pioneers had seldom formal linguistic training. Yet they produced valuable resources for many languages, which up today have remained standard language resources of those languages. The work of missionaries also included the creation of orthographies and production of teaching materials for schools. Finally, their contribution extends to such achievements as the translation of Bible or its parts to local languages. The Bible translations constitute today the most important resource and sometimes the only resource for computational applications, such as machine translation.

Very early, Rasmus Rask (1828) from Norway wrote an introduction to the Accra language on the Guinea Coast (modern Ghana). Finland made its contribution in Northern Namibia with regard to local Bantu languages. The earliest major achievement was the translation of Bible by *Martti Rautanen* into Oshindonga. The first draft of the whole Bible was ready in 1920, but it took more than thirty years, before it was published in 1954 in London. Later *Toivo Tirronen* worked on teaching materials, such as grammar (Tirronen 1977) and dictionary (Tirronen 1980) of Oshindonga. These were written from the viewpoint of Finnish users. Tirronen also published the Ndonga-English dictionary (1986). Based on the material left by Tirronen, *Lahja Lehtonen*, in cooperation with *Eljas Suikkanen*, edited the English-Ndonga dictionary (Lehtonen 1996).

3 Academic contributions

Below is a country by country description of Nordic academic contributions to African language studies.

3.1 Sweden

Research on African languages in Sweden is concentrated in two universities, Uppsala and Gothenburg. In Uppsala, the research was mostly in the hands of *Abdulaziz Lodhi*, an immigrant from Tanzania. He started as a lecturer of Swahili in 1974 in Faculty of Arts, Department of Linguistics and Philology (currently Faculty of Languages, Department of Semitic Languages). He became Associate Professor in 2002, full Professor in 2008, and he retired in 2012. Swahili teaching is continued by a lecturer in general linguistics, Swahili teaching being part of the duties.

He later also studied various aspects of Swahili language and culture, including foreign influences on the language. He pointed out lexical loans from a number of Asian languages, and also structural influences of those languages on Swahili (Lodhi 2000). He pioneered in Swahili-Swedish lexicography (Lodhi et al 1973, Lodhi and Otterbrandt 1987), and contributed to the compilation of Oxford dictionaries of Swahili (Lodhi et al 2007). His research interests include aspiration in Swahili adjectives and verbs as well as verbal extensions in Bantu languages (Lodhi 2004, Lodhi and Engstrand 1985).

The first professor studying African languages in Gothenburg University (Faculty of Arts, Department of Oriental and African languages) was *Tore Janson*. Initially having studied Latin, he shifted to African languages concentrating on comparative Bantu studies. After retiring in 2001 he was affiliated with Stockholm University. *Karsten Legère* followed Janson in the professorship from 2001 until retirement in 2010. Having received his academic education in Leipzig during the socialist regime, he worked as a researcher at Dar-es-Salaam University, and later in Windhoek at the University of Namibia, gaining large experience and publishing widely on African languages. The African Studies profile in Gothenburg was different from Uppsala. While in Uppsala the emphasis has been on concrete language teaching (Swahili), in this case Swahili, in Gothenburg the emphasis has been on research of African languages in general, without extensive African language teaching. The major achievement of Legère is the *Languages of Tanzania Project* (LoT), carried out in cooperation with the University of Dar-es-Salaam. He has also worked on endangered languages, in part in collaboration with Bernd Heine and Christa König. The Akie, a southern Nilotic language in Northern Tanzania, and Vidunda, a Bantu language in Central Tanzania, have been in special focus (Legère 2007; Legère et al 2015). Legère was a partner in SIDA funded linguistic cooperation projects with Maputo (2001-2003) and Dar-es-Salaam (2001 – 2010).

The following researchers are based in Gothenburg. *Christina Thornell* had worked within primary education in Central African Republic (CAR) in various pedagogical tasks, including the project for developing the orthography of Sango language. The need to understand linguistic processes more deeply led to formal studies in linguistics. From 1998 she worked in a post doc position at the University of Gothenburg. Characteristic to her work is thorough fieldwork, profiting from her long stay among the Sango, where she learned to speak that language. In her PhD dissertation she describes the Sango language and its lexicon from sociolinguistic and lexicosemantic perspective (Thornell 1997). Thornell also conducted linguistic research on Mpiemo and documented their speech. These recordings were analyzed in cooperation with phoneticians at the University of Lund in Sweden. She also made ethnobotanical studies investigating the knowledge and use of wild plants among the Mpiemo (Thornell 2005). Later Thornell studied a language and dialect cluster, which she terms as Ukhwejo. She has studied phonological and morphological features of these languages with the aim of establishing their linguistic distance from each other, and also from Mpiemo.

Helene Fatima Idris has studied mostly the linguistic situation in Sudan. She has studied the status and use of African languages in environments, where the Arabic language dominates. The focus was especially on the Nyala area (in Darfur) and Khartoum (Idris 2008). She has also participated in the study on language policies in selected African countries (Idris et al 2007).

Malin Petzell's research interests include Bantu languages, language description (documentation and analysis), nominal and verbal morphosyntax, language endangerment, and field methods (Petzell 2012). Petzell has studied Kami, an endangered language in western Tanzania, as part of a larger project of endangered languages. The aim was to document and analyse the language, keeping in mind the interests of the speaker community as well as of the research community. In another project Petzell studied tense, aspect and mood (TAM) systems in selected East Ruvu Bantu languages (Kaguru, Kami, Kwere, Kutu, Luguru and Zaramo) (Petzell and Hammarström 2013). The TAM features were studied in relation to their forms, meanings, functions and distribution.

Especially interesting in the project is to produce semantic verb property lists and describe their interaction with TAM markers, a task usually neglected in language descriptions.

Laura Downing followed Legère as a professor of African languages. She studied information structure in Bantu languages (Downing and Hyman 2016). She also headed a research project studying the prosodic system of Somali. The study of this language has theoretical interest, because Somali assumingly has a unique feature of combining lexical pitch and grammatically defined accent. This prosodic system falls between stress and tone, and is therefore difficult to study.

Eva-Marie Bloom Ström studied morphosyntactic variation in Xhosa dialects in the Eastern Cape area. The project focused on certain grammatical constructions including relative clause formation, the expression of focus and the so-called temporal mood - areas where variation is expected.

Tolve Rosendal's study aimed at identifying the reasons behind code-switching, the alternation between Ngoni and Swahili, in the Ruvuma Region in south-western Tanzania. The study addressed such questions as: Is code-switching a sign of language loss or a communication strategy, or both? Do the Ngoni lose their identity in this process or are possibly new identities developed?

Jouni Maho has compiled and maintained very extensive bibliographies of African language studies and other collections of sources and made them available on the web (1998).

3.2 Norway

In Norway, African language studies are concentrated mainly in the University of Oslo and in the Technical University of Norway in Trondheim. In Oslo, pure linguistic studies as well as studies on sociolinguistics and language policy are represented. In Trondheim, courses on Swahili language and culture have been given since 1980. In addition, the Department of Linguistics has been involved in supporting linguistic research in Africa by providing scholarships for African students and by involving in various research projects in Africa.

Rolf Theil Endresen at Oslo University was appointed as an Associate Professor of African languages (Hausa, Fulfulde) in 1978, and as a Professor of African languages in 1994. Around 2000 the position was changed as Professor of General and African linguistics. Endresen retired in 2017. The position is in the Department of Linguistics and Philosophy (currently Department of Linguistics and Scandinavian Studies) of the Historical-Philosophical faculty.

From 1990 until 2000, Endresen taught Fulfulde and Hausa, with an emphasis on Fulfulde, and most of the research was concentrated on African linguistics, mostly Fulfulde (West Africa) and the Non-Bantu Bantoid Nizaa (Cameroon). Since 2000, he taught general linguistics, like before 1990, but he gave courses in African linguistics until around 2010. He continued to do research on African linguistics, since 2002 primarily on Omotic languages.

The study on phonology included, for example, Nizaa, Kafa and Koorete (Endresen 1990/1991, 2007, 2011). He carried out grammatical studies on Fulfulde and Subiya, such as the etymological relationship between benefactive and causative suffixes (Endresen 2008). Endresen has supervised nine PhD students, seven of them from Africa. *Edgar Mberi* studied the status and functions of Auxiliaries in Shona (Mberi 2002). *Langa Khumalo* focussed on Ndebele passive constructions (Khumalo 2007). The subject of *Emmanuel Chabata* was the causative in Nambya (Chabata 2007). *Sisay Binyam* concentrated on Koorete verbal morphology (Binyam 2008). *Kjelsvik Bjørghild* studied emerging speech genres of teaching and learning interaction in Cameroonian schools and villages (Kjelsvik 2008). *Nomalanga Mpofu* focussed on the Shona adjective (Mpofu 2009). The subject of *Ngoshu Debela* was the semantics of Oromo frontal adpositions (Debela 2011). *Bizuneh Gebre* studied Shinasha noun morphology (Gebre 2014).

Kjell Magne Yri at Oslo University studied mostly Ethiopian languages, with special focus on Amharic and Sidaamu/Sidama Afoo. On Sidaamu, he studied the copula and case marking as well as nouns and adjectives, and also the phonology and orthography of the language (Yri 2013). On

Amharic, he compared the relative and genitive constructions and their assumed semantic relatedness (Yri 2009).

The research area of *Ingse Skattum* is sociolinguistics, language policy, multilingualism and orally transmitted literature. In Africa, she studied mainly Bambara and its use in various roles (Skattum 2008). The major part of her publications deals with the role of national languages in education in an environment, where the colonial language (French) functions as official language. Particular emphasis is on developments in Mali. She, together with *Birgit Brock-Utne* (Brock-Utne and Skattum 2009) and others, studied the introduction of national languages into primary schools in Mali, and its consequences on training. Mali works as a case study, but the lessons learnt there have bearing in other parts of Africa as well. Skattum has supervised several PhD and MPhil students in the abovementioned fields. In her PhD dissertation, *Kristin Lexander* (2010) studied a mixture of Wolof and French, but also Fulfulde, Arabic, Spanish and English, mainly in SMS, from both a quantitative and qualitative point of view. The study was carried out among the students of Dakar, Senegal. *Anne Knutsen* (2007) discussed the claim that French in the Ivory Coast can be considered a pidgin, but she rejects it. However, it is very deviant from standard French and borrows extensively from African languages. She studied language choice, French morphosyntax and language attitudes in correspondence with the linguistic profiles of the speakers. *Guri Bordal* (2012) focussed on the influence of the major African language sango on French prosody.

Marit Lobben is a scholar of the Afro-asiatic language Hausa and has worked within major linguistic theories such as Cognitive Grammar, grammaticalization theory and the prototype theory of linguistic categorization. She is a semanticist as well as a syntactician, and she wrote her PhD dissertation on the polysemous syntactic relationship of causative and benefactive constructions (Lobben 2010). In line with Adele Goldberg's Construction Grammar, she questions basic tenets of generative syntax, which dissociate syntactic form from meaning. Lobben studied Hausa at the School of Oriental and African Studies (SOAS), London. She carried out psycholinguistic fieldwork in Niger, Nigeria and Ivory Coast. Her research included studies on mental storage and memorization techniques of children and adults of the noun plural system in Hausa.

At the Norwegian University of Science and Technology (NTNU) in Trondheim, Professor *Assibi Amidu* has given courses in Swahili language, culture and history since 1980. Having born in Ghana he made his master's degree at the School of Oriental and African Studies, University of London in 1976. At the same institute he made the PhD degree in 1980. The same year he was appointed as a lecturer of Swahili in Trondheim. He has published extensively on various aspects of Bantu languages, having Swahili as the test language. The research subjects include gender and noun classes, transitivity and argument structure, pronouns and pronominalization, as well as lexical and grammatical borrowing (Amidu 2009, 2011).

Adams Bodomo made his MA examination at the University of Ghana in 1988, and continued his studies at NTNU. In 1993 he made the MPhil examination in linguistics/African studies, and in 1997 he made the PhD examination at the same institute (Bodomo 1997).

Lars Hellan at the Technical University of Norway has contributed to the development of language technology of African languages through various projects. Based initially on sign theory, he developed approaches for categorizing verbs on the basis of their behaviour in sentence. Together with his colleagues, *Dorothee Beermann* and *Mary Esther Kropp Dakubu*, he has even extended the work to multilingual environments. MultiVal, where Norwegian, Spanish and Ga (Ghana) were taken as test languages, is an example of such cooperation in this field (Hellan et al 2013; Hellan et al 2014). Such work leads to important repositories of structured data in the badly neglected field of verb semantics, benefiting also the study of African languages. Another important initiative is the construction of TypeCraft, a user-driven database for the creation and retrieval of small corpora of Interlinear Glossed Text (Beerman and Mihaylov 2014; Beermann 2015).

Norway has been a counterpart and a principal funder in such projects as Computational Lexicography, Typology, and Adult Literacy (The Legon-Trondheim Linguistics Project) in cooperation with the University of Ghana, sponsored by NUFU, for the periods 1996-2000, 2002-2007, and 2007-2009, and MaLEX "Malawi Lexicon Project", computational documentation of three Malawian languages, in cooperation with the University of Malawi, sponsored by NUFU, for the period 2007-2012. Main target here was dictionary building, although only one has come out so far, for Ciyawo, and two PhDs.

3.3 Denmark

In Denmark, there has been African linguistic research initiated by individual researchers. *Torben Andersen* from Aalborg University is an example of such self-to-do researchers. He worked a number of years as a lecturer in the Department of Communication and Psychology (The Faculty of Humanities) studying African languages as part of his duties. In 2012 he became Associate Professor in Comparative Linguistics. He has studied Nilotic languages, carrying out fieldwork, for example, in Sudan. Individual languages that he has studied include Dinka, Berta, Kurmuk, Jumjum, Mayak, Anywa and Pări. On Dinka, he studied verbal directionality and argument alternation, and interrogative sentences. He also studied the auxiliary verbs in Dinka. On Mayak he studied number inflection. He compared the phonology and morphophonology as well as morphosyntax of Anywa and Pări languages. On Mayak, he studied vowel harmony and vowel alternation.

William McGregor at the Department of Linguistics, Cognitive Science and Semiotics at Aarhus University has done research on the Khoisan language Shua (Mcgregor 2014, 2015).

Karl-G Prasse worked on a Tuareg-French dictionary containing about 40,000 entries and covering the two main Tuareg dialects of Niger, namely those of the Azawagh and Ayr regions, supplemented by a number of notes from the dialects of the Kél-Geres and Mali (Prasse 2003).

3.4 Finland

Fulltime teaching and study of African languages at Helsinki University started in 1980, when *Arvi Hurskainen* was appointed as lecturer of Bantu languages. The subject was enlarged as African studies in 1989, whereby also a professorship was established. Hurskainen was appointed to this position, where he continued until retirement in 2006. The lectureship of Bantu languages was continued by *Raimo Harjula*, and from 2004 onwards by *Lotta Aunio* (formerly Harjula).

Hurskainen's contribution to African linguistics lies largely in the field of language technology. The principal African language in developing this technology was Swahili. Among early outcomes of this research was the morphological analyzer of Swahili (1992). The work continued by developing the disambiguation component (1996). Later on, the emphasis has been on developing rule-based machine translation systems between Swahili and English, as well as on other applications facilitated by rule-based language technology. Major outcomes of these developments include the analyzed corpus of Swahili (Helsinki Corpus of Swahili 1.0, Helsinki Corpus of Swahili 2.0)¹, Swahili spelling checker that was included in Microsoft Word distributions (Hurskainen 1992), dictionary compiling system on the basis of text corpus (Hurskainen 2015), intelligent interactive language learning system (Hurskainen 2010), vocabulary compiler, and a bilingual corpus tagger. Using language technology methods, he also analyzed the performance of five

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<http://urn.fi/urn:nbn:fi:lb-2014032624> (main page of the corpus)

<http://urn.fi/urn:nbn:fi:lb-2016011301> (annotated version)

<http://urn.fi/urn:nbn:fi:lb-2016011302> (not annotated version)

Swahili dictionaries (Hurskainen 2002), trying to find out how well they cover the words used in prose text.

Another application of language technology was the program for converting disjoint writing into conjoint writing, as is the case with such languages as Kwanyama (Hurskainen and Halme 2001) and Northern Sotho (Hurskainen et al 2005).

In his research, Hurskainen paved the way to the type of such language technology that might be suitable for most African languages. Machine translation technology has shifted more and more to using such methods as statistical machine translation (Koehn 2010) and neural machine translation (Cho et al 2014). These technologies require extensive human-translated parallel corpora for training the system. They also require that the morphological structure of the language is fairly simple, and that the word order of the source language and target language is similar. No one of these requirements is satisfied with most African languages. In contrast to these approaches, the rule-based methods, such as those developed by Hurskainen, do not have those preconditions. The language technology systems are based on detailed linguistic and lexical description. This method makes it possible to describe exhaustively morphological structures of any complexity and translate the messages to another language. The language technology field is aware of the danger that many minority languages, especially those in Africa, are in danger of falling out of the main development trend in translation technology. In many cases Africa has benefited from technology transfer developed somewhere else. In this case, however, the transfer may lead to disaster and disillusionment, because the main trend methods simply do not suite to African languages. The danger should be widely acknowledged and measures should be taken in Africa to develop such language technology that is suitable and affordable. By using rule-based translation methods, African languages could be integrated into the global translation system, where any language can be translated to any other language. Each local language would need only one translation system, that is, a quality translation system between that language and interlingua (for practical reasons a variety of English) to both directions. This would facilitate the global communication between all languages.

Lotta Aunio wrote her PhD dissertation on the Ha language in western Tanzania, describing various aspects of the language, including tone (Harjula 2004). Later she made a comparative study of Bantu nominal tone, comparing tone in Ikoma, Nata and Isenye languages in western Tanzania (Aunio 2015).

She also initiated the Mara Project, where she, together with other researchers, studied more extensively the languages of the Mara area in Tanzania. The topic of this study was the comparative grammar of four lacustrine Bantu languages, adding also Ngoreme to the above-mentioned three languages. The project studied the grammar from the perspective of linguistic variation as an indicator of historical relations and language contact (Aunio et al, forthcoming).

Hurskainen was followed on the Chair by the German *Axel Fleisch*, whose PhD dissertation was on the morphosemantic analysis of Lucazi language belonging to a cluster of closely related varieties in south-eastern Angola known as Ngangela. The study focused on the grammatical description of the language in general, but also more specifically on the analysis of the verbal morphology and its interaction with lexical semantics (Fleisch 2000). Fleisch has also studied word order variation in two Berber dialects, Taqbaylit (Kabyle) and Tashelhit (Shilha). It was found that although Berber is considered a VSO language, pragmatics trigger the emergence of relatively stable discourse-configurationality, without giving rise to a VSO > SVO shift.

In another study of Berber languages, Fleisch (2007) elucidated the problem of classifying these languages along the twofold typology as either verb-framing or satellite-framing, concentrating mainly on Tashelhit (Fleisch 2007).

Fleisch carried out in-depth research on locativizing strategies in Southern Ndebele (Fleisch 2005). While Bantu languages have normally the threefold locative class system (definite, inside and indefinite), Southern Ndebele has lost it and instead developed a complex system, where upper

space plays a significant role. The expression of spatial notions is discussed on the basis of the four etymologically related terms *phezu* (kwa-+N), *phezulu*, *ngaphezu* (kwa-+N) and *ngaphezulu*. These terms serve to express orientational and topological notions referring to upper space. The locatives are best understood as etymologically-related radial categories which have undergone different diachronic developments with considerable overlap. The locative structures are context-sensitive and co-occur in certain landmark and trajectory noun phrases. Also verbs often have derivational morphology when used with these locatives. Therefore, it is problematic to classify Southern Ndebele as belonging to either verb-framed or satellite-framed languages. Perhaps Southern Ndebele, as well as other Nguni languages, is a borderline case, undergoing a diachronic move from rather verb-framed to more satellite-framed language types.

Fleisch also studied recent advances in comparative Bantu studies. He claims that two major trends in recent historical linguistics have found their way into more recent approaches to Bantu language history. One is that traditional philological work with its focus on historical particularities and the wealth of descriptive data has been extended into a line of investigation that is more concerned with the history of semantic change. An important question for this broadened approach is how to account for regularities in historical lexical semantics. The other notion is that if concepts are understood as radial categories, many of the often puzzling relations between different meanings of cognate lexical items can be accounted for in a more satisfactory way than before. By linking divergent meanings in cognitively plausible ways, there is no need to assume an unconvincingly high number of idiosyncratic innovations. It seems that approaches to Bantu historical semantics will have to integrate a notion that allows for similar semantic changes in different languages without necessarily regarding these as shared innovations.

Fleisch has also contributed to the study of theories and methods of African conceptual history (Fleisch 2016).

Doctoral and post-doctoral research in Helsinki covers a wide range of topics. Based on the morphological analyzer of Swahili (Hurskainen 1992), *Seleman Sewangi* from Dar-es-Salaam University wrote his PhD dissertation on computer-assisted extraction of terms in specific domains (Sewangi 2001). Based on the same analysis system, *Wanjiku Ng'ang'a* from Nairobi University wrote a PhD thesis on word sense disambiguation of Swahili using machine learning technologies (Ng'ang'a 2005). *Gregory Kamwendo* from the University of Malawi wrote his PhD dissertation on language policy and health services in a Malawian referral hospital (Kamwendo 2004). *Riikka Halme* wrote her PhD dissertation on the tone system of Kwanyama (Halme 2004). The PhD dissertation of *Don Killian* was on Uduk phonology and morphosyntax (Killian 2015). *Jonna Katto* wrote her PhD dissertation on the female guerrilla fighters of FRELIMO in northern Mozambique (Katto 2017).

Sponsored by the Ministry of Foreign Affairs, Hurskainen, together with the Institute of Kiswahili Research at University of Dar-es-Salaam, carried out the research project *Swahili language and folklore* in 1988-1992. The aim was to collect linguistic data on Swahili dialects in Tanzania, as well as to collect folklore in these language varieties (Hurskainen 1993). The collection contains wordlists of 610 items from all Swahili dialect areas of Tanzania, as well as over 100 hours of recorded speech from those dialect areas. The records were first transcribed into written form, and later they were also digitized into sound files.

Hurskainen also initiated the periodical *Nordic Journal of African Studies* in 1992. The periodical first appeared in printed form, but later the issues were moved to the web, where they are freely available to all.²

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² <http://www.njas.helsinki.fi>

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