1. Introduction

In recent years the view on language contact has fundamentally changed. Whereas the phenomenon of languages in contact was for a long time considered to be a special case of marginal (socio-)linguistic research interest, it is now commonplace to see languages in contact situations as the default case, and not as some kind of exceptional situation (Nicolaï 2007). This is especially true in the field of African languages, where the issue of language classification and the establishment of the four traditional phyla recently came under critical revision due to insights from contact linguistics (Heine and Kuteva 2001, Dimmendaal 2001, Güldemann 2008). It is therefore surprising that not many Africanists have devoted studies of contact situations to the overall goal of the evaluation of existing models and theories of contact-induced language change.

A joint research project of the Goethe-University of Frankfurt/Main and the Humboldt-University of Berlin, titled ‘Historical stratification of the Mande-Gurunsi language contact: Research on sociolinguistic patterns and normative forces in social networks of Pana and Samo’¹, sets out to do just that. The project is designed as a micro-study of a language contact situation in an African rural environment that is held to be typical of the majority of languages along the West African Sahel belt. Many speech communities in this area share comparable social and historical features that also appear in the chosen Samo and Pana communities, thus making these communities good examples in many ways.

The overall goal of the project is twofold:

• Firstly, theories of linguistic innovation and diffusion of change should be evaluated in the context of a contact situation in an African rural environment.
• Secondly, the possibilities of application and the relevance of the social network approach to such a situation should be tested.

To expand on these goals, the research team is investigating the spread and change of linguistic variables in two neighbouring speech groups, and comparing the results with some general findings from works on linguistic innovation and related diffusion processes. Closely connected to this is the application of a mix of sociolinguistic methods with a special

¹ Many thanks to the Deutsche Forschungsgemeinschaft (German Research Foundation) for funding this project.
emphasis on the social network approach. In other words, we are trying to evaluate the general findings of scholars like Lesley and James Milroy (1978, 1980, 1985, 1997, 2003, etc.) and others, while at the same time testing the potential of the social network approach in a rural African context.

The present paper describes a first step of this research program. It demonstrates how variationist methodology can be used in an African setting and looks at some first results of this application. It concentrates on a restricted set of linguistic variables in a given speech community and tries to shed light on the question of whether this variation is internally motivated or contact-induced.

The paper is organised as follows: Section 2 is a brief introduction to the findings of the Milroys concerning the correlation between personal network ties and linguistic innovations. It also hints at critiques and limitations of the approach. Section 3 presents the speech community under investigation and demonstrates how the network approach can be operationalised in this context. It also describes the sociological questionnaire and the linguistic variable analysed in this paper. In the fourth part some first results of the investigation are presented. After the description of some co-variations between the social data and the linguistic variable, an overview of other possible linguistic variables and prospects for further research is given. The paper concludes with some remarks on the relationship between the observed processes and the previous findings of the Milroys.

Given the fact that a large amount of the linguistic data from recent field research is still waiting to be analysed, the first results presented here are of a tentative nature. I do however think the results are worth being displayed and that they will lead to further research along the proposed lines.

2. Theoretical Background

Beginning with the pioneering work of Weinreich (1963) through Thomason and Kaufmann (1988) to numerous other scholars in recent years, the importance of contact-induced language change has been paid increasing attention by researchers in the field. In this context the ‘actuation problem’ (Weinreich et al. 1968:102) continues to play a central role today. Accordingly, the question of agency in the field of language change has led to the description of social settings where this change is likely to take place first. Generally speaking, language change, be it internally or externally induced, starts in individuals and eventually spreads throughout a linguistic community. To cover the different phases of these processes, the sociolinguistic historians Lesley and James Milroy coined the terms ‘linguistic innovator’ and ‘early adaptor’ (Milroy and Milroy 1985:367). Both terms were originally derived from sociological work on innovation and diffusion (Rogers 1962) and describe the person who initiated a given innovation and the agent of its diffusion respectively.

In the context of language change, an innovator is rather difficult to pinpoint, whereas the social characteristics of an early adaptor are much more easily described. Numerous studies of language change situations have contributed to our understanding of this crucial actor in the diffusion process of linguistic innovation (Labov 1972; Gal 1979; Milroy and Milroy 1985; Trudgill 1986; Lippi-Green 1989).

In their now classic Belfast study (Milroy 1980, Milroy and Milroy 1978, 1985), the Milroys also introduced the network approach into sociolinguistic methodology. Looking at different Belfast working-class communities, they were the first to systematically study the relationship between social network structures and linguistic variation (Chambers 1995:67; Marshall 2004:22). Their major contribution was to display a robust correlation between linguistic variables used by individuals and these individuals' grades of integration into local social networks. Numerous examples in the Belfast study show that the network approach helps to explain linguistic variation where a pure socioeconomic class approach fails. Thus, some linguistic variations among speakers in Belfast could not be satisfactorily explained by looking only at classical attributes such as social class, gender, age, family background,
education, etc. The only apparent difference between speakers with otherwise equal social attributes was the degree of integration into local community networks (Milroy 1980:152-153). From these studies the hypothesis was derived that “closeness to vernacular speech norms correlates positively with the level of integration of the individual into local community networks” (Milroy 1980:133,134).

In the present paper the above-stated hypothesis and its implicit counterpart will be under scrutiny. Following Granovetter’s hypothesis of ‘the strength of weak ties’ (Granovetter 1973), the Milroys also demonstrated that linguistic actors whose network ties are uniplex, weak and at the same time widespread are the most likely linguistic innovators in a given speech community. Only this kind of marginalised actor is in the position to disrespect local group norms and thus bring in a linguistic innovation from the outside (Milroy and Milroy 1985:370-375). However, to become a real linguistic change, it is still necessary for such an innovation to be taken up by the ‘early adaptor’. Finally, the Milroys formulated the general conditions for language change in the following hypothesis: “Linguistic change is slow to the extent that the relevant populations are well established and bound by strong ties, whereas it is rapid to the extent that weak ties exist in populations” (Milroy and Milroy 1985:375).

In a later defence of the network approach Lesley Milroy explains the relationship to attitudinal approaches such as Eckert’s community-of-practice model (Eckert 2000). In Eckert’s model, linguistic variation is the outcome of social practice and not a mere function of individual social network structures. While the community-of-practice approach is used “to locate the interactional sites where social meaning is most clearly indexed by language, and where language variation and social meaning are co-constructed” (Milroy and Gordon 2003:118), the network approach focuses on individual speech behaviour (use of variables) and how these correlate with individual social network structures (Milroy and Gordon 2003:119).

As it stands now, the social network approach is just one tool from the sociolinguistic toolbox which functions well in the description and analysis of language change processes seen from a micro-perspective. It can neither capture the pure individual psycholinguistic level, nor can it serve as a descriptive tool for linguistic group behaviour or even linguistic variation on the level of social strata. The network approach is in particular attractive for the study of small groups where speakers are not discriminable on any kind of social class index. As the approach is intrinsically related to local practices and not dependent on any predetermined social category, it is easily adaptable to various types of societies (Milroy and Gordon 2003:120).

Given the adaptive force of the network approach, it is surprising to note that it has so seldom been used in African contexts (Russell 1981; Salami 1991; Graham 2001). Related to this observation is the fact that most studies contributing to our understanding of the different forces operating in language change in general have been conducted in speech communities which are characterised by clear-cut normative linguistic forces and well-documented language histories. Moreover, the majority of these linguistic change and/or contact studies were designed against a background of established language dominance and prestige profiles, often in the context of well-studied western style stratified speech communities.

It is thus a major challenge to test hypotheses that are built on the aforementioned foundation with empirical data that come from different language contact situations. It will be interesting to see whether these hypotheses hold true in the case of languages and speech communities that are characterised by the absence of documented (written) language histories, normative devices such as, for instance, an established writing system, and the socially stratified model of western societies. If we assume that—on a global scale—language contact situations are (and have been) more often than not an encounter between groups of speakers without the above-mentioned features, it becomes clear that more data from these kinds of situations are needed in order to refine the models and theories.
3. The research project

The theoretical background indicates a need for empirical sociolinguistic data from speakers that live in contact situations that are of a ‘non-western’ type. Henning Schreiber, from the Johann-Wolfgang Goethe University of Frankfurt, a specialist in East Mande languages, and myself, working on Gur\(^2\) languages, decided to have a closer look at a contact situation already known to us. The setting in an African rural environment seems to be a good example of such a non-western contact situation. Our research area is located on the east bank of the upper Sourou River, along the border of Burkina Faso and Mali (see Map 1). The region is characterised by its multilingual context, where speakers of the unrelated or only distantly related languages Marka-Dafing (West Mande), Northern Samo (East Mande), Pana (Gur) and Dogon (isolate within Niger-Congo) settle close to each other and are socially and historically linked. Moreover, different languages of wider communication such as Mooré (Gur) and Jula (West Mande) are competing against each other in this area and sometimes coexist even within one village.

The aim of the research project is to identify the relevant external social factors that influence the process of linguistic adjustment in a specific context, thereby contributing to the goals formulated in the introduction. As no established procedure exists for the gathering of sociological and linguistic data in such contexts (Schweizer 1988:19), the following section will set out the design of the research project in some detail. Given the need to gather data that reflect the social practices and normative forces governing the everyday life of speakers, some knowledge of and insights into the culture are required. In the case of the Pana-speaking community, I gained insight through a sequence of fieldtrips that I undertook to gather linguistic data for a grammatical description of the endangered Pana language.\(^3\) My acquaintance with the local people, their culture and their language took me to the village of Donon; this became the basic unit for the investigation of the Pana-speaking community. The inhabitants of Donon are known for their cultural and linguistic connections with the neighbouring village of Pini to the east, where the East Mande language Samo\(^4\) is spoken (see map).\(^5\) My longstanding familiarity with the region assisted me in designing the social questionnaire.

\(^2\)This term is used in the Anglo-Germanic tradition while the term ‘Voltaic’ is used in francophone writings.

\(^3\)From 1998 to 2001 I spent over 30 weeks in the Pana-speaking area, devoting the majority of this time to the study of the linguistic variety of the village of Donon. This variety also forms the basis for my grammar of the Pana language (Beyer 2006a). The research on network data and the recording of individual linguistic variables was done over three fieldtrips, each of about five weeks, between 2006 and 2008.

\(^4\)For more information on the Mande side of the research project, see Schreiber (2009) and Beyer and Schreiber (forthcoming).

\(^5\)The map also shows different degrees of language use in Panaland: a double line under a village name means that speakers already switched to Jula as a first language. The dotted lines mean that some inhabitants have switched to Jula while others still speak Pana on a regular basis (e.g. with their children). Villages marked with a single line are part of the southern dialect area that is different from the ‘standard’ Pana spoken as a first language in all the other villages.
Map 1. The Pana language and its neighbours (adapted from Beyer 2006a: 10)
3.1. How to define the networks

The village of Donon has approximately 575 inhabitants. Given time and money constraints, a complete survey of all existing and non-existing social relations between all adult inhabitants of the geographically defined research structure ‘village of Donon’ was not possible. These circumstances directed me to a procedure that combines geographic criteria with the observable behaviour of the actors and the so-called ‘snowball-method’ (Jansen 1999:65ff.). I began by identifying central figures in the social life of the village who might serve as nucleus for the ‘snow balls’. Through these central actors I worked my way into the different networks of friends, neighbours, kin relationships, etc.

Precisely, the procedure worked as follows: Donon is divided into five sections representing a clear geographical sub-structure. Each of the sections has its own ‘hangar’, a kind of open public rest place with a thick straw roof where mostly men meet during the hot period of the day to relax and converse. Observations at these hangars led to the identification of certain men who often led the discussions and who were apparently well respected by the others. Additional questioning contributed in identifying the generally accepted ‘big man’ of each section. These apparently important men were then asked for an interview. The interviews contained—among other things—questions on different network relations (see below) that generated further names of people. Every actor also named his closest relatives, such as wife/husband, parents, siblings and children. All the people mentioned in this first round were also asked for an interview, provided that they lived in the village and were not under the age of seventeen. These people generated further names and the procedure was continued until three ‘circles’ around the original ‘big men’ were completed. The snowball system thus generated individual actors who were connected with each other in several social networks. I also tried to balance the group of actors according to age and gender. In the end the survey covered 44 male and 50 female actors ranging from 17 up to approximately 90 years. This group of actors constitutes a representative subset of all inhabitants of Donon.

3.2. The sociological data

The questionnaire was designed to yield biographic data and data on kinship relations, as well as different network relations. As the emphasis of this study lies on the individual’s integration into local networks, the questions were mainly planned to trigger answers related to a given ego’s social relations in the village. In the following, I first lay out the network related questions and then comment on the section of the questionnaire relating to social attributes.

3.2.1. Network-related questions

- **Family**: Every actor was asked to name first- and second-degree relatives that are still alive as well as their places of residence. Interlocutors were also asked about the frequency of interaction with their relatives. Family members living in the same village usually visit each other on a daily basis, but there are differences in the length and frequency of these visits. It also means that an actor who has many

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6 The design and analysis of the network data are based on some excellent (German) textbooks. A general introduction to network approaches is given by Jansen (1999). Schweizer (1988, 1996) discusses specific problems for a network analysis from an anthropological viewpoint. The technical side of the analysis, e.g. the statistical appraisal of the data, the interpretation and presentation thereof is extensively described in Wassermann and Faust (1994).

7 This figure was given to me by the head of the village (délégué) Antoine Tieré, who regularly reports cases of birth and death to the prefect of the district and thus has a good overview of the numbers since the last census (Interview with A. Tieré, 9.03.2006).

8 ‘Hangar’ is the term commonly used in the Mali/Burkina variety of West African French and as such it is also used by local people. The Pana term would be ‘zəmɛlɛ’.
relatives living in the village devotes a relative high proportion of his time to maintaining his family network.

- **Help:** This part of the questionnaire was directed towards the networks of mutual help. As this kind of common work is gender specific, different examples were given. Apart from their regular household duties where women work together with others living in the same household, they also have some duties where they are free to choose company on their own. Such occasions are the regular excursions to the bush for collecting firewood, the pounding of millet in some open space away from the compound, and the work in their own (small) fields. Accordingly, women were asked to name and rank persons whom they would like as company when they leave the village for collecting firewood, for pounding millet or when working in their fields.

Men usually direct labour on the family fields. During the rainy season the whole (extended) family regularly works together on these fields. In the dry season, a typical men’s duty involving collaboration with other people is the construction or reconstruction of houses, granaries, walls, etc. It is common practice for a builder to ask for assistance in preparing the clay bricks and the plaster, in laying the bricks to form walls and in plastering them. Friends and family are usually asked for help, and self-proclaimed professional bricklayers are sometimes asked to handle the plumb line.

- **Leisure:** During the dry season people are relatively free, and have some leisure time. Christians and animists frequently meet to drink millet beer. The beer is usually brewed every five days in certain household and it is sold there for the sole financial benefit of the woman who has prepared it. Women and men gather together in the afternoon to drink and discuss daily matters, sometimes until late at night. People usually tend to sit in groups with friends and relatives. These people are often also the ones they like to meet when just having a friendly evening talk or the like. In Muslim contexts the beer drinking habit is replaced by the tea ceremony. This common tea-drinking is much less regulated in terms of time and place, and different gender and age groups do not mix to have tea together. Despite these differences, respondents of all faith groups were able to answer the questions regarding the persons with whom they spend most leisure time with, without any difficulties.

- **Advice:** People in Donon tend to seek the advice of persons of high prestige when they are faced with difficulties of any kind. Problems may regard, for instance, monetary or family matters, questions of labour migration or interpersonal problems. People seek to talk to the most reputable person, who is held in high esteem, who has good common sense, and general knowledge of the ‘things of the world’. The head of the extended family was often named as the first advisor in such cases.

### 3.2.2. Questions on social attributes

The questionnaire also aimed at collecting attributive data of individual actors. Apart from questions on data such as age, gender, religion, ethnic background and residence we also asked about the level of education (public school, adult education and literacy skills) and duration of absence from the village due to labour migration. A question about other languages spoken and a self-estimation regarding proficiency in these languages was also included in the questionnaire. The usual pattern in Donon is to have Pana as a first language and either Jula and/or Samo as second (third) language. Additional competences are sometimes claimed in Moore, French and other languages from places people migrated to. Another point of interest was the actor’s local mobility. As some people are involved in
different kinds of trade activities they move around the region quite regularly, while others rarely leave the village.

- **Migration**: Many Pana—both men and women—have some experience in labour migration. In the 1970s and 1980s it was only young men or young married couples that left for periods of up to two years for the Ivory Coast in order to work on the plantations there. Nowadays migration patterns are changing radically. People often seek different destinations, such as the capitals of Burkina Faso, Mali, Senegal and the Ivory Coast, or they even try to reach Europe. These ‘adventurers’ are not only young men but also young women. While men mostly still work as farm hands or try to get into any kind of urban small-scale business, women mostly seek jobs as domestic workers. It is however difficult to judge the differences according to the linguistic environments that these different work schemes might bring about. During our survey we also enquired about the times people spent abroad and how long ago they had decided to return and stay in Donon.

- **Mobility**: To get a clear profile of the local mobility of actors involved in various kinds of trade (or local mobility for other reasons), we recorded the frequency of local mobility and the places visited. Some actors move around only in the Pana area to buy chickens or cattle, which they sell again at the big district market in Di. Others travel regularly to the markets of the Samo in the east, or they cross the river Sourou in the west, to reach Dogon and Dafing markets in order to trade. Some people hold offices in the church, in a political party or in the public administration and are sometimes asked to travel to attend meetings. Others, however, never move out of the village.

- **Education**: Donon has had a primary school since 1981. Before that time, boarding schools in far away villages were the main possibility for Pana children to get regular education. Apart from that, the so-called ‘rural’ schools were available in some neighbouring villages. These schools served adult men and women and were meant to teach basic reading and writing skills as well as basic mathematics and general issues like sanitation and health care. Education in these kinds of schools generally lasted three dry seasons. Today, secondary education starting from class seven onwards is only possible in boarding schools in the district centres, and the rural schools have been replaced by literacy programs.

- **Occupation**: All adult inhabitants in Donon are peasant farmers. The rainy season is usually devoted to work on the millet fields. Some people also cultivate groundnuts, sesame, rice or corn. By the middle of November the harvest is finished and people usually start a second business. As already mentioned, some are traders, others are bricklayers, mechanics, etc. All of these occupations trigger a certain level of mobility which we captured in the mobility section of the questionnaire.

The interviews for the sociological section were always conducted in the presence of my field research assistant. Even though I speak the local lingua franca Jula and have some knowledge of the local language Pana, it was often necessary to give additional clarifications and examples in ‘good’ Pana. The answers were—wherever possible—cross-checked with other locals and repeated with the same person at other occasions.

### 3.3. The linguistic data

Usually, the sociological part of the interview was directly followed by a linguistic section. Both the sociological and the linguistic parts were recorded with a digital recording device in MP3-format. Three types of texts were recorded for all 94 test persons. These texts range from formalised translations of stories and grammatical questionnaires to the telling of a picture story and free conversation.
The two stories which people were asked to translate were read sentence by sentence in Jula, the main lingua franca in the village. People were asked to give the closest as possible translation of the Jula sentences in the ‘best’ Pana they could think of. The stories contained words and phrases that were previously known as being prone to variation (see ‘variables’ below). This part was followed by some sentences that were originally used to elicit data on the use of plural noun classes, the perfective/imperfective differentiation, and negation patterns.

The second type of text was less formal since interlocutors were asked to tell a story in their own words from a series of nine related pictures. Those people with a predominantly low level of education had difficulties with this task. They sometimes had problems grasping the idea of an ongoing story from one picture to the other, and needed some additional explanation.

The third type contained texts that were not guided at all. Either discussions of small groups were recorded while the researcher was present, or test persons were asked to carry a small MP3-recording device around during their daily activities. For this purpose, a small microphone was applied near the collars of the interlocutors who also carried the recorder in their pockets or wrapped it in their clothing. As the batteries lasted around 6 hours, these recordings yielded many hours of language data. Given the fact that test persons tended to forget that they were carrying these small devices, I regard these recordings as probably the closest to natural speech that one could get. On the other hand, the transcription and comprehension of these texts proved to be a demanding and time consuming task that needed constant help from my local research assistants. For the transcriptions of these data I concentrate on the persons wearing the recorder. Again with the help of my assistants, I was however able to identify most of the people the test persons were talking to. Many times, the conversation was with other actors that are also part of the network survey so that it is even possible to look out for an individual’s special speech behaviour in response to different partners in the conversation.

Since it was unclear at the outset whether a given variation is motivated by language-internal factors or is contact-induced, I tried to cover all language subsystems with the linguistic questionnaire. This was also done in order to see whether there are linguistic subsystems that are more prone to variation through contact than others, as is proposed by different authors (Myers-Scotton 2002; Thomason and Kaufmann 1988; van Coetsem 2000). For this purpose I took into account variation that was already known to be of some importance in the language, as became clear from the linguistic description of Pana (Beyer 2006a). Some of the variables are even discussed by Pana speakers themselves as being part of Pana’s youth register. However, one has to choose a set of variables that are on the one hand relatively easy to detect, and on the other hand, have some relevance in terms of frequency (see Section 5).

In the following, I give a description of the linguistic variable that is analysed in the present paper. Other possible variables that are prone to socially related variation will be briefly mentioned in the final part of the paper:

3.3.1. Labialisation

On the phonological level, an interesting synchronic variation between labialised and non-labialised consonants occurs. This variation includes vowel dissimilation operating with the feature ‘roundedness’: CV1 [+round] ↔ CWV2 [-round]. The feature ‘roundedness’ is either attached to the vowel or comes out as secondary labialisation of the preceding consonant plus the corresponding unrounded vowel.

Labiovelars have been reconstructed for Pana’s proposed ancestor languages Proto-Gurunsi (Manessy 1969:27,28) and for Proto-Central-Gur (Manessy 1979:30,31). There are some reflexes of the reconstructed Proto-Gurunsi labiovelar *kp/*gb in Pana lexemes, allowing for the labialised variant kw/gw. There are also cases where this variation cannot be
traced back to such a double articulation in the proto-language. Furthermore, Pana allows this kind of labialisation in connection with other consonants, e.g. kwiri ~ kúri ‘louse’, bwéne ~ bòné ‘level’, pwèré ~ pòlé ‘yeast’, swéni ~ sòni ‘twenty’, etc. (Beyer 2006a:25,26). This variation thus seems generalised in the context of word-initial obstruents.

Generally speaking, labiovelar sounds have a very special status in Africa. Maddieson’s (1984:215-6) data on a world sample of more than 900 languages showed that these sounds are virtually restricted to Africa. Güldemann (2008:156-158) presents comparative data using labiovelars as a highly marked areal feature of his so-called Macro-Sudan-Belt. While the major lingua franca in the Pana region—Jula—does not display this kind of labialisation, Pana’s southern contact languages Samo and Marka-Dafing both are described as having labialised velars as recurrent variation of their synchronic phonological systems (Diallo 1988, Vol I:102ff.; Schreiber 2008:161 ff., 244ff.).

Regarding labialised velars, Pana seems to be situated on the north-western fringe of their West African spread zone. Given the relatively high frequency of this phonological variation in Pana and its apparently ambivalent status as an area-defining feature, which is also reconstructed for Proto-Central-Gur, it seems an interesting variable to look at.

3.4. Operationalising the data

The most difficult part of the methodological exercise is the operationalising of the two different sets of data. The question is, how can answers from the sociological questionnaire and results from the linguistic analysis be quantified in a meaningful manner? The final goal of this operation is to be able to carry out correlation tests between the two sets of variables.

3.4.1. Quantifying the social data

The first step towards the analysis of social relations is to transfer the answers from the questionnaires into matrices that are readable for the UCINET 6.0 software (Borgatti et al. 2006). Such matrices contain binary data (e.g. ‘X passes leisure time with Y’—yes/no) that may also be directional (e.g. ‘X asks Y for advice’ but ‘Y does not ask X for advice’) so that UCINET can calculate simple ties as well as in- and outgoing relations between the nodes of the network. The nodes represent actors or speakers and the relations between them are called ties or edges.

The most common criteria for the calculation of an individual’s integration into a given network are so-called centrality factors like reach efficiency and betweenness. The underlying algorithms calculate the number of steps to be taken to reach every other member of the network (reach efficiency) and the number of paths between several actors where ego occupies the connecting node (betweenness) (Wassermann and Faust 1994:177-191).

UCINET also calculates different forms of broker roles that an individual can occupy in a given network. Brokers are considered central in social networks as they occupy strategic positions that control information that flows between parts of the whole network. Broker roles focus on different aspects like the pure connection between different network clusters (liaison), the gate-keeping function where the broker is the only connecting tie to other clusters in the network (gate keeper), or the representative function where the broker displays a specific pattern of in- and outgoing ties so that he is representing a specific cluster within a given network (representative) (see Trappmann et al. 2005:97ff.). Analyses of these roles were run for all actors in the different networks. Actors were then arranged on a brokerage scale according to the quantity of such positions they occupy in the different networks.

A further criterion for the centrality of an actor is his number of multiplex ties. This is calculated through the inclusion of an ego’s relationships in at least two different networks. In the present case it might be that actor X names actor Y as being part of, for instance, his family, help and leisure network. He then displays a triple multiplex tie to this actor Y. The idea is that an actor who has many multiplex relations is more central and prestigious in a
given society than an actor who only has few multiplex and/or uniplex ties (e.g. is only connected via one single network to another actor).

These calculations were carried out for the four different networks (family, help, leisure, advice) and yielded percentage figures of centrality, broker roles and multiplexity for each individual actor. First correlation tests can already be run with these data on single individuals’ networks. However, following the Milroy model (Milroy 1980:139ff.), a further abstraction was introduced with the compilation of a network score for each individual actor.

This score was generated as follows: average figures for reach efficiency, betweenness, brokerage and multiplexity were calculated for all 94 actors. Every actor was then assigned to one of four groups, taking the average as the first cut-off point and calculating the 25 % highest and lowest figures from there for further cut-off points. The assignment of actors to one of the four groups was repeated for all networks with all criteria so that every actor was finally labelled either low, below average, above average or high on the scale of centrality in local community networks.

In addition to the question of the relationship between network position and linguistic variables, a correlation between the latter and the attributive social data of speakers is also of interest. As we want to find out whether it is an actors' network position or his independent social attributes that influence linguistic variation most, we also need to calculate these data. Consequently, speakers’ attributes were likewise quantified according to local categories and actors were assigned to respective groups. For instance, the level of education is ordered in groups: 1) no education, 2) basic education (basic literacy or some years in primary school, 3) higher education (finished primary school and further on). Likewise, age groups were defined as adolescent (< 25 years), young (25 - 45), middle aged (46 - 65), old (< 65). Furthermore, actors were classified in three mobility groups ranging from immobile (very rarely leaving the village), via mobile (leaving the village at least once a month) to highly mobile (leaving at least twice a week). All these social data for the 94 speakers were transferred to EXCEL tables that are readable for SPSS software, which in turn is used to calculate correlations between the different variables.

3.4.2. Quantifying the linguistic data

For the time being, only the phonological variable ‘labialisation’ has been treated quantitatively. To this end, a type-token ratio for each of the speakers was calculated based on the two translated texts and the telling of the picture story. A correlation test for the data from these two different types of texts shows that a speaker who displays a high percentage of labialisation in the translation task also has a high percentage of labialisation in the telling of the picture story. The two text types can thus be considered reliable sources for the combined quantifying approach.

The preliminary calculation of a type-token ratio for each individual speaker is based on the assumption that not everybody is using the same lexical items that are prone to labialisation in the different tasks. Furthermore, the number of sentences uttered by each individual during the tasks may vary considerably. While the translation test comprises a limited set of 28 sentences for every speaker, the telling of the picture story yields between 5 and 21 sentences per speaker depending on the individual. Calculated over all sentences, one individual speaker produced between eight and nineteen types with an average of thirteen that would allow for labialisation. None of the speakers has an absolutely clear-cut record of labialisation; percentage figures run from 22% to 75% of labialised tokens. For statistical purposes again, four groups of speakers were defined with the average labialisation ratio of 47 % as the cut-off point. From there, two steps of approximately equal range (~ 12.5%) were calculated to both sides: Group I has the lowest range of labialisation (22-33.9%), group II is

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9 The correlation test was run using Pearson’s correlation-coefficient (r = 0.768) for the variable ‘labialisation’ in translated_texts and all_texts and (r = 0.541) for ‘labialisation’ in all_texts and picture_story. This correlation is highly significant with a probability of error p at 0.01.
just below average (34-46.9 %), group III are slight labialisers just above average (47-61.9 %) and group IV contains the actors that display the highest type-token ratio for labialisation (62-75%).

3.4.3. Correlation tests

After the treatment of the social data with UCINET and the quantification of the phonological variable ‘labialisation’, the correlation tests between these two data sets were run with the SPSS program. Besides the treatments of the nominal values (the groups) of both social and linguistic data, it is sometimes of interest to check different levels of binary groupings as well. One could, for instance, look at the correlation between labialisation and different groups of actors, each time grouping them according to other cut-off values. Another interesting field for statistical testing is to look at correlations between linguistic variables and attributes of speakers such as age, gender and mobility, as described above. In the following, I will try to explain the procedures and ideas behind the statistics as clearly as possible, without delving too deep into the details.

4. Preliminary results

Some preliminary results on the relationship between linguistic variables and the social profile of Pana speakers will help to evaluate the usefulness (and shortcomings) of the network approach. As already explained, I concentrate on the phonological variable ‘labialisation’ (see above). Out of the 94 actors, I could only use data from 87 speakers for the statistics. The other seven speakers could not be used for different reasons: some of these seven people were deaf, or experienced some hearing problems and thus had difficulties listening and understanding; others had problems concentrating on the task and translated completely aberrant meanings; still others did not respond freely but always sought advice from some bystanders, so that these recordings do not reflect their personal way of speaking Pana.

4.1. Labialisation as marker of attribute-defined groups

First of all, it will be interesting to observe whether ‘labialisation’ correlates with any social attributes of the speakers. To this end, a series of so-called statistical hypothesis tests ((student’s) t-test) were run but no significant correlation between the linguistic variable and age, sex, mobility or religion of the speakers could be demonstrated.

There is, however, a tendency concerning the ethnic background of the speakers. Eight women from the sample were born and raised in Samo villages and married Pana men. The t-test reveals a tendency (T: -1.757; p < 0,1) towards labialisation in these Samo women:

Table 1: Labialisation correlated with ethnicity

<table>
<thead>
<tr>
<th>Ethnicity of speaker</th>
<th>Realised labialisation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pana average</td>
<td>58.1424</td>
</tr>
<tr>
<td>N</td>
<td>79</td>
</tr>
<tr>
<td>standard deviation</td>
<td>13.47216</td>
</tr>
<tr>
<td>Samo average</td>
<td>67.1875</td>
</tr>
<tr>
<td>N</td>
<td>8</td>
</tr>
<tr>
<td>standard deviation</td>
<td>17.85555</td>
</tr>
</tbody>
</table>

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As this is not a robust correlation,\(^{10}\) the figures can only be taken as a hint towards the idea of Samo speakers bringing in this feature into Pana. Given the fact that six of these Samo women had no education and the two others only basic education, they also fit into another group of ‘labialisers’. However, comparing the average numbers from Table 1 and Table 2 it becomes clear that Samo woman living in Donon display a labialisation rate even above the average of non-educated speakers in general.

Statistical analysis of variance (ANOVA) reveals a connection between the level of education and the percentage of labialisations of the speakers (\(p < 0.05\)). In other words, the higher the level of education, the lower will be the rate of labialisation:

**Table 2: Labialisation correlated with level of education**

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Realised labialisation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>average 61.2245</td>
</tr>
<tr>
<td></td>
<td>N 49</td>
</tr>
<tr>
<td></td>
<td>standard deviation 12.95843</td>
</tr>
<tr>
<td>basic</td>
<td>average 58.0988</td>
</tr>
<tr>
<td></td>
<td>N 33</td>
</tr>
<tr>
<td></td>
<td>standard deviation 14.66732</td>
</tr>
<tr>
<td>higher</td>
<td>average 45.4365</td>
</tr>
<tr>
<td></td>
<td>N 5</td>
</tr>
<tr>
<td></td>
<td>standard deviation 14.31737</td>
</tr>
</tbody>
</table>

Observing further correlations between attributes of speakers and liability to labialisation, some more tendencies (all at \(p < 0.1\)) present themselves. Actors who hold some sort of official post (head of an association, representative of a political party, delegatee) tend to use less labialisation. This is of course due to the higher level of education that is required for office holders, who should at least be able to read and write some French. The same tendency holds for people with multiple language competences: the more languages an actor speaks, the less labialisation is audible in the translated Pana texts.

The results from the correlation between attributes of speakers and the labialisation variable show that the de-labialised forms of the linguistic type in question seem to be on their way to becoming a linguistic marker of intellectuals (as understood in West Africa) and cadre groups. Whether this is a tendency that will affect the linguistic norm in Donon in the long run has to remain an open question for the time being. I will now look at the same variable from the viewpoint of network positions of the individual actors.

### 4.2. Labialisation and network position

As already explained in the theoretical background (see Section 2), the Milroy hypothesis states that integration into local community networks correlates positively with local vernacular speech norms. A high degree of centrality to these networks, as measured with the aforementioned procedures, can be considered equivalent to such integration. It is therefore conceivable to define the local vernacular norm as the form of the variable that is spoken by the most central and well integrated actors of the community.

\(^{10}\) The different statistical tests are usually valued according their probability of error \(p\). If \(p\) is below 10\% (\(p < 0.1\)) the statistic is considered to display a ‘tendency’ in the data; if it is below 5\% (\(p < 0.05\)) statisticians speak of ‘robust’ or ‘significant’; accordingly, \(p < 0.01\) is considered as ‘highly significant’.

In order to give some insights into the building of the scale of centrality (network score) for the actors in the speech community of Donon, I start with some statistical evaluations of the single layers used for that purpose:

- **Reach efficiency in all networks:** An ANOVA test of ‘reach efficiency’ in all networks reveals a tendency at p < 0.1 of differing variances when looking at two groups (above and below average). The t-test comparison of the average values (av) confirms (T: -1.3; df: 85): actors with low ‘reach efficiency’ in their networks have a lower level of labialisation (av: 43.91 sd: 11.89) than actors with high ‘reach efficiency’ (av: 47.75, sd: 11.43).

- **Betweenness in all networks:** The same relationship holds for the ‘betweenness’ factor in all networks: the percentage of labialisation is significantly (p < 0.5) lower with speakers that score under average for betweenness centrality (av: 46.36, sd: 11.52). Speakers with an elevated score of ‘betweenness’ also display an elevated average (av: 49.54, sd: 11.46).

- **Brokerage in all networks:** The student’s t-test (T: -2.189, df: 86, p < 0.05) confirms the hypothesis that the percentage of labialisation is significantly higher with actors scoring above average on the brokerage scale (av: 66.34%, sd: 16.81) than with speakers not showing so many brokerage roles (av: 57.57%, sd: 13.13).

Generally speaking, the statistics above hint at a connection between a central position of an actor in the social networks and an elevated level of labialisation. This picture is corroborated by the statistic analysis of the centrality network score that is built on these aforementioned relations:

- **Integration in local community network:** Looking at dichotomised data, the hypothesis of a connection between centrality and labialisation is confirmed. A comparison of the averages of the two groups shows that speakers with a below-average centrality score produce a labialisation rate (av: 43.58, sd: 8.68) significantly below those that are ranked in the central group (av: 47.50, sd: 12.00). The ANOVA test confirms this as a tendency. The t-test confirms this hypothesis at p < 0.05 (T: -1.163, df: 85).

The same relationship holds true when we look at all four groups of speakers, as the graph in Figure 3 makes clear. The statistical appraisal of the relationships displayed in this graph is however uncertain, as the test of homogeneity of variances shows. This is due to the wide range of labialisation scores for some individuals within the different integration groups. For instance, within the group labelled ‘above average’ on the integration scale, labialisation rates range from 25% to 75%, while in the ‘high’ integration group the maximum labialisation rate is at 66.76% and the minimum at 30%. This configuration of the data brings down the significance level to a probability of error at p > 0.3.
Given this statistical analysis one could argue that the actual linguistic norm in the speech community of Donon adheres to a phonological form that is prone to labialisation, whereas speakers that are not in central positions tend to avoid this variant of pronunciation. While most of the statistics reveal at least a tendency to labialisation, with a probability of error below ten percent (p < 0.1) or even below five percent (p < 0.05), one should keep in mind that most of the results only show up with dichotomised data. When metric data are taken into account (e.g. individual’s network score correlating with individual’s labialisation index), they show at best a slight tendency, but this is mostly below the threshold of statistic significance.

There are even contradictory results from the statistical evaluations. One of the most basic criteria for centrality in a given community is the density of ego's networks. An ego that realises most of the possible relations in a given network is supposedly well connected and thus considered central to the network. One would thus expect a positive correlation between high density and high ratio of labialisation. The results from the networks in Donon, however, indicate the opposite:

- **Density of networks**: An ANOVA test shows that the percentage of labialisation in the texts is higher for speakers that are ranked below average according to the density calculated over all four networks: actors with low density in all networks (N = 21) display an average percentage of labialisaton (av: 51.55, sd: 12.11) that is significantly (p < 0.05) above those that display a density above average (N: 66, av: 45.38, sd: 11.39). This correlation is also confirmed by a t-test (df: 85; T: 2.17).

One possible explanation for this apparent contradiction would be that networks that are quite big (e.g. 94 actors) usually have a low density ratio anyway (e.g. it is rare that an actor has relationships with everybody else in a given network) so that the shallow variation of the density figures does not reflect sufficiently the centrality of the actors.

So far, a somewhat vague picture emerges, showing that the variable ‘labialisation’ has a tendency to correlate with actors that—according to some parameters—hold central positions in the Donon community. Following the Milroy hypothesis, these actors would also reflect the actual speech norm in the village. On the other hand, there seems to be some change going on...
as well. Given the correlations with some attributes of speakers (e.g. education, number of languages spoken) it seems likely that the norm is changing towards non-labialisation as speakers who have relatively high prestige tend to avoid this kind of pronunciation (see section 4.1 above).

4.3. Qualitative Interpretation

The correlation between linguistic variables and speakers’ positions in local community networks can also be exemplified by a look at some individual actors and their personal network relations. A combination of such a qualitative approach and the quantitative treatment of the data is often useful. While quantitative statistics reveal relationships between different sets of variables and thereby hint at connections that might otherwise be hidden, a qualitative account is more helpful when it comes to explanations. Quantified data do not tell the story behind whereas a qualitative look at individual actors may help to better understand the quantitatively revealed connections.

Taking actors F2 and F3 as an example, we first of all ascertain that they resemble each other very closely when attributes such as age, education, time abroad, marital status, etc., are compared. They are both middle-aged men (just over 45 years) with just basic (F3) or no education (F2). Both left the village in their youth for labour migration and are nowadays head of a household with one wife and several children. The fact that they belong to different faiths—F2 being Christian and F3 being Muslim—does not account for the differences in pronunciation as the separate tests for this attribute have already shown (see 4.1). Nevertheless, their pronunciation is different as far as the variable ‘labialisation’ is concerned. While the actor F2 shows 66.60% realised labialisations in the texts, F3 has only 23.97%. Most of their attributes being equal, this difference in the use of the linguistic variables can best be explained in terms of their individual network ties. Looking, for instance, at the respective ego-networks extracted from the question on mutual help for construction works, the difference between the two actors becomes clear. While actor F2 (centre of left graph) is well connected and has many ties, F3 (centre of right graph) only has three possibilities for help in construction work.

One could now delve into the individual biographies of the two actors and try to come up with explanations as to the reasons for their different levels of connectedness within the village. The actor F2 was born and raised in one of the central quarters of Donon. In his youth he left the village to work in the Côte d’Ivoire for 12 years but he has been back for more than 15 years. He is a very friendly and open character and has many friends and a good reputation in the village. F3 also left the village to work in the Côte d’Ivoire for four years and has been back for more than twenty years. Although he was also raised in one of the central quarters of Donon he has recently moved his household and constructed a new homestead in the plain surrounding the village. This may be due to the cramped situation in the centre but it also
shows his willingness to be on his own and underlines the fact that he is not very well integrated in the local community. Apparently, this lack of social control also affects his way of speaking. As a metal worker he offers his services on nearby markets and mostly uses Jula for that purpose. As the normative control that is usually executed through strong and multiplex network relations is weak in his case, it seems that the non-labialised variant that is the norm in the Jula of the region is apparently gaining ground in his speech.

4.4. Evaluation of the first results

The first question to ask is, of course, about the reliability of the data and the analysis. No doubt actors in Donon show significant differences according to their degree of incorporation into local community networks. But it is also true that so far the statistic account of the co-variation between social and linguistic data mostly yield significant results only when they are dichotomised. The explanatory value of correlations between such bipartite datasets is limited in comparison with a metric or a finer grained group analysis. One possible solution would be to arrange the cut-off points differently in order to capture the more extreme ends of the possible relationships, but then the numbers often become too small for a reliable statistical analysis.

Another question to ask concerns the relevant network features that translate social centrality and adherence to local norms in the given community. As I have shown above (see section 4.2), it seems that the feature ‘density of the network’ is not a good parameter in the community under scrutiny, as it produces contradicting results compared with the other centrality features. Future tests may also show that my approach via a relatively complex abstraction of the data (network score calculated from different networks and the counting of different roles and positions therein) has to be altered. It is perhaps more promising to look at single networks individually and discuss their explanatory potential from an emic perspective.

Furthermore, both sets of data—sociological and linguistic—may not be completely free from observer’s paradox interferences. The still pending analysis of linguistic data from the recordings of free speech seems to offer a promising corrective for this problem.

These somewhat vague results of co-variation between network position and linguistic variable may also be due to other factors that blur the connection investigated. Apparently, individual attributes of the actors also play a role, and considerations of prestige and ethnic background should not be neglected. As the analysis of attributes brings out, women from neighbouring Samo speech communities are high frequency ‘labialisers’ and it is likely that they have some influence on the linguistic norm in Donon. A contrary influence in the development of the current speech norm comes through the lingua franca Jula and possibly even through French. Both languages are held in high esteem, as Jula is the language of the economy and the Muslim faith, and French is the language of higher education. Both languages do not have anything like labialisation, which seems to be the reason that this feature has acquired a reputation as a marker of being rural and uneducated.

Keeping the above-mentioned shortcomings in mind, the first results allow a tentative description of the actual status of labialisation in Donon. Given the Milroy hypothesis about central actors with strong network ties being close to a local vernacular speech norm, these results can be interpreted as follows: central actors in the local community of Donon use the phonological variable ‘labialisation’ very frequently and thereby set the phonological norm

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11 The same is true for ‘degree of centrality’, which simply counts the ties an actor entertains in a given network. This feature is generally also accepted as a basic criterion for centrality but the statistic analysis of co-variation with labialisation did not yield any significant results with the Donon data.

12 A comparison with frequency counts of labialisation in other Pana speaking communities supports this assumption. A first look at new data from the neighbouring Pana village of Nasari (Mali) shows that labialisation is much more frequent there. A possible explanation is that the more numerous family ties (on the female side) between households in Nasari and neighbouring Samo villages support this feature in the Nasari vernacular (Beyer in prep.).
for contemporary Pana in the village. On the other hand, this feature seems to be on a slow retreat as peripheral actors reduce its frequency significantly. Some of these non-central actors also seem to bear a higher prestige due to their level of education and the offices they hold. In terms of network analysis these non-central but prestigious actors would be labelled ‘early adaptors’ and are likely to lead the ongoing change of the vernacular speech norm.

On the basis of these assumptions one can even speculate about future developments. It seems likely that the Pana language—at least in Donon—is retreating from the ‘labialisation area’ of which it used to be part, as the reconstruction of its ancestor language suggests. The prevailing speech norm in Donon (still) reflects influences from contact languages such as the Pini dialect of Northern Samo (see Schreiber 2009) and Marka-Dafing (see Harrison and Harrison 2002), both belonging to this labialising area. The apparent tendency to ‘de-labialisation’ among speakers that are not so closely tied into local community networks (early adaptors) indicates a future development in this direction.

Given the fact that Pana is situated on the northern fringe of the labiovelar area, I think it is possible to conceive of this feature as oscillating between two possible states. The realisation of this feature could thus be understood as an array of pronunciation possibilities between the extremes [kp] and [kV] with the pendulum actually swinging to the [kV]-side.

5. Outlook

The analysis of the phonological variable presented so far is neither complete, as the data from free speech are still missing, nor will the latter data be sufficient to account for a complete picture of actual speech norm in Donon and possible contact-induced innovations. In the following, I briefly mention some other linguistic variables that seem promising for a more complete account of ongoing language change in Pana.

- **Morphology**: Pana has, in principle, a noun class system—like all Gur Languages. However, there are big differences throughout the language family in the realisation of noun class systems. While at least 25 classes can be reconstructed (Miehe and Winkelmann 2007:10-16) with fully-fledged concordance systems still in place, others have completely lost them or have reduced their noun classes to scarce remains. In Pana the noun class system has undergone severe reduction. Synchronically, only three genders, two singular/plural pairings, and one single class are in operation. There is no concord system left, and the anaphoric pronouns only display a human/animate versus non-human/inanimate distinction. There are, however, some irregularities that help to reconstruct a former noun class system that is relatively close to the Proto-Gurunsi system (Beyer 2006a:54-64). Some of these irregularities can be interpreted as a variation where an ‘old’ gender specific plural marker is in competition with the ‘new’ general plural marker. This kind of variation is easily detectable since it has a relative high frequency.

- **Syntax**: Variation in syntax is frequent but nonetheless difficult to pinpoint. As there is always more than one ‘right’ way to express a given phrasal or sentential meaning, the task of measuring variation in this field is not easy. In the Pana context I have realised that people use different negation patterns quite regularly. When negative sentences are elicited Pana speakers normally employ a double negation pattern with a final marker yà. In colloquial speech however, this pattern is often altered and the final yà is missing. The negation pattern of verbs in the imperfect aspect also shows variation. In elicited statements verbs in the imperfect show a negative suffix -re, while in colloquial language this is sometimes not the case. Negation in these contexts is then only marked by the sentence final negation element yà (see Beyer 2009).

Syntactic variation is also found in the expression of existential and locative phrases. Where the usual way would be to use the existential/locative copula wùní, some speakers use another copula yé in combination with a final marker bè. This
syntactic frame and the copula yé may well be borrowed from the predominant lingua franca of the region, Jula.\footnote{These variations are also treated in an article on morpho-syntactic contact-induced changes in Northern Samo and Pana. (see Beyer and Schreiber, forthcoming)}

- **Lexicon:** The Pana language is clearly marked by influences from the neighbouring languages and the most obvious signs are to be found in the lexicon. As shown elsewhere, Pana’s lexicon includes around 9% of loanwords from various sources (Beyer 2006b). The number of loans that are already in general use in Pana has to be substantially augmented when considering words that are still competing with indigenous Pana words. These items can be considered as occasional interferences from other language but do not seem to fit an analysis in terms of code-switching.\footnote{There are no hints as to a special purpose or function of these interferences. People do not seem to pay special attention to them. It is therefore difficult to define any kind of situational features triggering an intentional code-switch.} Most of these interferences come from Jula and French although there are also some words originating from the neighbouring Samo language. To establish the difference between a loanword and an occasional interference (which would be the variable), I try to make sure that whenever a non-Pana word shows up in the texts I could identify its source and determine whether an original Pana word is still in use by other speakers.

6. Concluding remarks

As stated in Section 1, one of the goals of this project is the testing of the possibilities and fruitfulness of the network approach in an African rural environment. I think the first results presented here demonstrate the potential of such an approach. It is true, the approach requires time and in-depth knowledge of the speech communities in question, and no fast results can be expected. There is a lot of fine-tuning to be done in terms of operationalising the network data, in extracting the salient network features from a local perspective and in defining the most telling statistic operations. But once the social networks in a given speech community are established and the fine-tuning is done, the insights gained from an analysis of co-variation with linguistic data help a great deal in understanding ongoing processes of language change.

This is true for both internally-motivated and contact-induced language change. As contact between languages is in fact contact between speakers, it is not surprising that it leaves its traces in the social tissue of the communities involved. Consequently, a clearer picture of the forces shaping a given vernacular emerges when we conceive of the speakers as actors in social networks.

Furthermore, a qualitative interpretation and comparison of individuals yields additional insights that help to formulate new questions and hypotheses in the field. It would also be interesting to compare different social types and the roles they play in a given community. This would lead to more fine-grained typologies of linguistic actors such as ‘innovators’ and ‘early adaptors’.

For a complete picture of all processes involved in language change, we need, of course, more than just the network approach. It is clear that factors such as individual social attributes and the forces of group identities also shape the outcome of language change substantially. The network approach must therefore be considered as a powerful tool from the sociolinguistic tool box, that can be used to start an in-depth observation of a given contact situation on the micro-level. The project has already demonstrated that the approach is well suited for use in non-western societies as its combination of anthropological and quantitative methodology is very easily adaptable to such circumstances.

In the concrete Pana case it is still too early to give a full account of all the processes of ongoing language change. However, I believe that the forthcoming analysis of more data from...
Donon and neighbouring Northern Samo Groups (see Schreiber 2009) and their comparison with the vernacular forms in other Pana villages will lead to a higher level of understanding of contact-induced language change in the upper Sourou River area. It will also help to predict whether this language can resist attrition, or whether the innovations that are changing the local language norms are such that the speakers will finally shift to another language.

References


Beyer, Klaus. in prep. The Upper Sourou Contact Zone.


