Lineage patterns in a dual-ethnic society: ethnolinguistic registration across four generations in contemporary Finland

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Abstract

We study how ethnolinguistic background affects ethnolinguistic identity in contemporary Finland. This is a society where two ethnolinguistic groups have coexisted for centuries, and mixed unions are increasingly common. Using multigenerational data from the population register, we determine the unique ethnolinguistic registration of young persons, their parents, grandparents, and great grandparents. Within the minority group, we find substantial diversity in ethnolinguistic background, but also strong lineage persistence in ethnolinguistic registration. Within the majority group, most individuals have an ethnolinguistically stable background. Mother's ethnolinguistic affiliation is much more important than father's for the ethnolinguistic registration of the child. There is a strong maternal bias also with respect to maternal grandmothers and great grandmothers, although it tapers off with lineage distance. If the prevalence of births within mixed unions and the current preferences for ethnolinguistic registration of children within them remain, the minority group is not under any immediate threat of extinction.

Keywords: lineages, ethnicity, linguistic groups, gender, population registers

1. Introduction

In many societies around the world, ethnic groups coexist. With increasing globalization, most nations have seen increasing diversity of ethnic, racial, and non-native born groups. Acquiring such identities are a key part of intergenerational socialization, and are typically shared with both parents. However, in most societies there is substantial intermarriage across groups. Over many generations this means that substantial shares of the population will have a mixed background where ethnic identity of the child is not obvious.

Ethnic identity is fundamentally a trait that is culturally contingent and subjectively defined, typically by individual themselves, but also at a structural level by other actors (Nagel 1994; Waters 1990). To some extent, mixed ethnic identification is possible (Rockquemore and Arend 2002; Waters 2000), but eventually many descendants of mixed marriages will face a choice about which identity is most salient. Specific combinations of multigenerational descent may shape the ethnic identity, for example differing by gender of the descent lines. In some cases, ethnic groups may differ in their status or importance in society.

In this paper, we study multigenerational descent in contemporary Finland, where the ethnic identity studied refers to either being a Swedish-speaking Finn or a Finnish-speaking Finn. Both groups trace back their history for more than 500 years and are widely described as being status-wide equal, while maintaining coexisting identities and institutions (McRae 1997; Härtull and Saarela 2014). Both identities are respected by the Finnish state, and every individual is in the population register recorded as either a Finnish speaker or a Swedish speaker. The registration has practical consequences, such as the language on all government information an individual receives, and for educational choices.

We explore ethnic identity over three and four generations, using Finnish register data on ethnolinguistic registration. We document a phenomenon that is of importance all over the world, but in a unique context of two status-wise equal groups, though of different size, that have been largely demographically stable over several generations. By creating a multigenerational kinship-structure by means of national population registers, we apply a time-constant, objective, reliable, and consequential measure of ethnolinguistic identification. Thus, we examine how unique combinations of ethnolinguistic identity among parents, grandparents, and great grandparents affect and shape the ethnolinguistic identity of their descendants. Consequently, we can make robust and powerful quantifications of topics that previously have been primarily examined either in immigration contexts (Hout and Goldstein 1994), or through primarily qualitative approaches (Waters 1990).

With the multigenerational data at hand, we document the large rate of ethnolinguistically mixed unions in contemporary Finland, and how this has created kinship with great variation of descent patterns. We follow such results by documenting how the different possible descent patterns over three and four generations affect the ethnolinguistic registration of young men and women in Finland. By exploring these issues, we assess how mixed background relates to identity in terms of how the individual is registered as being a Swedish speaker or a Finnish speaker. We also explore if such differences are gendered, differing not only by parental ethnolinguistic affiliation, but also how combinations of affiliation of a dominantly matrilineal, patrilineal or mixed descent affects the registration of the child. Furthermore, we examine the relative importance of having a descent pattern in which one side has a stronger representation, relative more balances, and mixed descent patterns.

Beyond furthering the understanding of ethnic identity and its relationship to ethnic fluidity and intermarriage, our study is relevant for another important contemporary topic, namely the threat of demographic minorities to maintain their cultural identity (De Vries 1990). Linguistic and cultural extinction of minority cultures has accompanied globalization and nation-states throughout the last two centuries. The loss of unique linguistic, ethnic and cultural heritages, following globalization and the industrial revolution has been described as one of the great tragedies of the 20th and 21th centuries (Harrison 2008; Maffi 2005). Such processes do not typically take place by the demographic extinction of a distinct sociocultural group, where deaths outnumber births, but by groups gradually abandoning a minority culture for the majority culture, pioneered by individuals of mixed descent following intermarriages. Understanding these processes are of high relevance, though poor quantitative data sources with reliable longitudinal information on ethnic identity have made this knowledge scarce. There are several bi- och multilingual nation-states (e.g. Switzerland, Belgium, and Canada), in which the government acknowledges more than one language of the state, and where this situation has deep historical roots. There has been quantitative research on such high-income contexts (Kandler 2009; Kandler, Unger and Steele 2010; Minett and Wang 2008; Verdoodt 2017), although based on a lack of longitudinal data, and generally focussed on persons of monolingual rather than mixed identity. Thus, the intergenerational component is often missing. We therefore also make a contribution to linguistic demography.

2. Formation and transmission of ethnic identity

Interest for kinship among social scientists studying contemporary western populations was limited throughout the 20th century (Kolk, 2014). This has changed in recent years and the prevailing view nowadays is that the analysis of social connections beyond parent to child is necessary to understand social processes (Mare, 2011). Our analysis is inspired by a growing literature that takes a multigenerational approach and analyzes the importance of kinship structure for socio-economic outcomes. For instance, Kolk and Hällsten (2017) use data from Swedish registers and parishes to analyse how family size and socio-economic position of great grandparents shape demographic and educational outcomes of their great grandchildren. Chu et al. (2019) use Taiwanese registries to look at wealth correlations among kinship members and find that the patterns are to some extent gendered, with male-line correlations being stronger than female-line correlations.

The ethnic structure of kinship, henceforth also referred to as heritage, is one of the principal determinants of individual ethnic identity. Focusing on the experiences of Mexican Americans, Duncan and Trejo (2011) claim that studies on the intergenerational transmission of ethnic identity should ideally contain complete information on ancestry. Such information has been rarely available to researchers so far. Our data, however, allow us to adopt this multigenerational perspective by taking into account the heritage over three generations of ancestors. By doing so, we obtain a more fine-grained picture of the impact of intermarriage on ethnic awareness and the size of the minority (Swedish-speaking) community in Finland than has been the case in previous studies. The relevance and novelty of our study is not confined to the Finnish context. As this is, to the best of our knowledge, one of the first studies that take into account detailed ethnic composition of kinship when analyzing the ethnic identity of descendants, we make a significant contribution to the general contemporary literature on ethnic identity.

In cases where the heritage is homogeneous, the descendants' ethnic identity rarely deviates from that of their ancestors, especially in non-migrant groups. Our results confirm this clearly as well. Preferences are, along with heritage, another major force determining the individual ethnic identity. The importance of preferences is stronger for individuals of mixed ethnic heritage as well as for individuals who live in social contexts heavily dominated by other ethnic groups, such as children of immigrants. At early ages, it is mainly parental preferences on ethnic identity that will matter, whereas own preferences are formed at later ages (Xie and Goyette, 1997). Preferences are most often unobserved in empirical studies, but they can be assumed associated with a number of family-level and contextual characteristics. Also, preferences interact with gender and the kinship structure when determining the ethnic identity. In mixed couples, each partner is supposed to prefer to transmit his or her own ethnicity, rather than the partner's, to the children. However, partners in mixed couples may not have equally pronounced preferences to share the ethnicity with their descendants. These differences are often gendered, whereby it is believed that the ethnic awareness is higher among women. Indeed, in some contexts, such as in Finland, intermarried mothers transmit their ethnicity more often than fathers (Obućina and Saarela, 2019). This is not a universal pattern, though. Qian (2004) finds that American intermarried couples in which the minority partner is male are more likely to identify their children as a minority than couples with a female minority partner. The fact that in most social contexts children of mixed couples inherit the father's surname, which is an important marker of ethnic identity, is considered a significant factor shaping this pattern (Xie and Goyette, 1997).

It is, however, likely that looking beyond parental generation can provide additional insights for the understanding of the intergenerational transmission of ethnicity. For instance, when parents decide about children's ethnicity, it is safe to assume that parents who are of mixed heritage themselves will have weaker ethnic awareness than parents who grew up in a mono-ethnic family setting. We can also assume that, later in life, when individuals have more agency in deciding about their ethnicity, a preference for affiliation to an ethnic group will be positively associated with a strength of personal relationship to kinship members from that ethnic group. The literature shows that children have a closer relationship with maternal grandparents than with paternal grandparents (Coall and Hertwig, 2010). The matrillineal bias is also shown in studies including other kinship members. Jeon and Buss (2007) and Pashos and McBurney (2008) show that children have the closest relationship, and are most willing to act altruistically, to maternal aunts, and the least willing to act altruistically to paternal uncles.

Unlike many kinship systems in the world, Finnish, Swedish, and northwest European ones are bilateral, where kinship is traced both through women and men, and where both ancestry through female and male kinship is given roughly equal weight (Murray 1983; Parsons 1943; Schneider 1968). However, researchers from high-income western populations have stressed how kinship networks are primarily maintained by women (Di Leonardo 1987; Schneider and Cottrell 1975; Schneider and Smith 1973; Young and Willmott 1957). This is both reflected in the strength of interpersonal relationships (Coall and Hertwig 2010; Young and Willmott 1957), in behaviours responsible for maintaining large kinship networks (Di Leonardo 1987), and when individuals recollect the total size of their known kin (Boholm 1983; Schneider and Cottrell 1975). In a population with substantial intermarriage, the bilateral kinship network will by nature include families where descent includes many combinations of mixed heritage, where some families may have predominantly one type of ancestry on either the male or female side. Exploring gendered expressions of ancestry and kinship over multiple generations of ancestry will be central in our analyses, in particular when ancestry is ethnically mixed due to intermarriage in preceding generations.

As discussed, our analysis contributes to the contemporary literature on ethnic fluidity and the size of minority groups across generations. Just as they are the principal factors determining the individual ethnic identity, the prevalence of intermarriage and preferences are among the major forces affecting the size of an ethnic group in the long term. Birth rate within the ethnic group in question is a third key factor (Hout and Goldstein 1994). In certain contexts, such as the one studied here, two additional factors are at play. First, an increased outmigration can substantially affect both the absolute and relative size of an ethnic group. Second, the institutional infrastructure, such as the education system and media, matters for the maintenance of ethnic and, even more so, linguistic identity of minority groups.

3. Context

The Swedish-speaking community in Finland currently constitutes around 5.2 percent of the total population, meaning that approximately 300,000 persons are registered as Swedish speakers. Swedish has been one of the two official languages of Finland since the very foundation of an independent Finland, and also well before that. This has allowed the Swedish-speaking community to develop a considerable political, social and cultural infrastructure. It can thus be argued that Swedish has been one of the most protected minority languages in Europe throughout the 20th century. In spite of a long history of peaceful coexistence, intermarriage was not so common before the second part of the 20th century. This has, however, changed and nowadays around four out of ten Swedish speakers have a Finnish partner (Finnäs, 2015). In spite of a high level of institutional protection, intermarriage was long considered an important factor contributing to a reduction of the Swedish-speaking community in Finland. This trend has reversed in recent decades, as a majority of children of ethnolinguistically mixed unions are registered as Swedish speakers. In earlier decades, birth rates were lower among Swedish speakers than among Finnish speakers, but today there is no clear difference. Swedish speakers have consistently been overrepresented among emigrants, and underrepresented among return migrants (Saarela and Scott, 2017). In the 1950s and 1960s, emigration induced a net loss of approximately 15 per cent of the Swedish-speaking population. Since then, emigration rates have been notably smaller.

In Finland, a person can be registered with only one mother tongue, which is considered the principal marker of individual ethnolinguistic affiliation. The registration usually occurs at birth and is made by the parents. It is possible to switch the affiliation in the central population register, but quite few persons actually do so. For later-born cohorts, switches from Finnish to Swedish are more common before age 18, while switches from Swedish to Finnish are somewhat more frequent at age 18 or later (Obućina and Saarela, 2017). Within endogamous Swedish-speaking and endogamous Finnish-speaking unions, the choice of ethnolinguistic affiliation is straightforward. If the child has an entirely Swedish-speaking background it is registered as a Swedish speaker, and if it has an entirely Finnish-speaking background it is registered as a Finnish speaker. For ethnolinguistically mixed families, on the other hand, the registration procedure is much more an issue. In practice, most children in contemporary mixed families can speak both Finnish and Swedish, and the parents' choice of ethnolinguistic affiliation for their child has few, if any, binding and immediate consequences. The child may go to a Finnish-speaking school if Swedish-registered, and to a Swedish-speaking school if Finnish-registered. In this sense, Swedish registration in the context of Finland can therefore be considered a manifestation of symbolic ethnicity and cultural relations (Gans, 1979). But, in most cases, the choice of mother tongue is a strong indicator of whether the parents want Finnish or Swedish to be the dominant language in the child's environment.

Given non-negligible differences in socio-economic outcomes between the two groups, this choice may indeed be consequential.

The Swedish-speaking population has been thoroughly mapped, and there has been research on the parents' choice of ethnolinguistic registration of the children (Finnäs and O'Leary, 2003; Obućina and Saarela, 2019). The studies strongly suggest an important role of gender for the ethnolinguistic affiliation, given that children of intermarriage in Finland are much more likely to be affiliated to the minority (Swedish-speaking) community if the mother is Swedish-speaking. A positive association between parental education and income, on the one hand, and minority affiliation, on the other hand, is another common finding in this literature. Income- or education-based bargaining between the parents does not nevertheless seem be important strategies when choosing the child's ethnolinguistic affiliation (Obućina and Saarela 2019). The language structure of the place of residence is, naturally, a significant determinant of the language registration of the children. However, the previous literature tells us little on how group-specific traits are maintained between more than two generations when individuals form mixed unions, which is the issue in focus of this paper.

In relation to the increase of ethnolinguistically mixed marriages mentioned above, the prevalence of births in ethnolinguistically mixed families, where one parent is a Swedish speaker and the other is a Finnish speaker, has increased considerably in Finland during the past decades. The share of mixed births in relation to all births with one or two Swedish-speaking parents increased from about 25 per cent in the early 1950s to about 50 per cent in the early 1980s, whereafter it has fluctuated only modestly (Figure 1). Across all child birth cohorts, the parental combination where the mother is Finnish and the father is Swedish is notably more common than the parental combination where the mother is Swedish and the father is Finnish. The asymmetry might have to do with stronger ethnic awareness of and outside pressure on Swedish-speaking women/mothers as compared with Swedish-speaking men/fathers (Saarela and Finnäs, 2014; Obućina and Saarela, 2019).

(Figure 1 here)

This ratio has fluctuated around 1.25. It was smallest for the child-cohorts born from the mid-1980s to early 2000s, which should presumably not be interpreted as induced by reduced ethnic awareness or smaller outside pressure. This is because in the same birth cohorts, an increasing proportion of the children was Swedish-registered, and particularly so if the mother was a Swedish speaker (Figure 2). The share of Swedish-registered children in mixed families has increased considerably, and it is notably higher if the mother is a Swedish speaker than if the father is a Finnish speaker. Around a third of the children born in mixed families in the early 1950s were registered as Swedish speakers, and over 60 per cent of those born in the early 2010s. Barely half of the children born in mixed families today are registered as Swedish speakers if the father is a Swedish speaker, but almost 80 per cent if the mother is a Swedish speaker.

(Figure 2 here)

The peak in Swedish-registration for children born in the early 1970s was predominantly induced by a shift in the registration procedure (Finnäs, 1986; Saarela and Finnäs, 2016). In the data from the 1970s, the information stems from the 1970 census, in which the question refers to a person's *main language*. This basically meant the most common language used. Since 1980, the information stems from the central population register and refers to a person's *mother tongue*, which can be understood as

ethnicity. Thus, the revised meaning of the concept resulted in a peak in Swedish-registered children in the early 1970s, which was particularly pronounced if the mother was a Swedish speaker. The switch from main language to mother tongue can be considered a Finnish variant of the idea of boundary shifting, which takes place when social criterias for an affiliation to an ethnic group change (Loveman and Muniz 2007). However, the impact of the change in Finland was moderate, as the vast majority of people is nevertheless categorised in the same manner irrespective of the criterion applied. Only eight per cent of all persons in these birth cohorts had changed their ethnolinguistic affiliation over the observed life course.

The above illustration suggests that there are strong reasons to be concerned with ethnolinguistic registration across generations, and the gendered structure associated with it. There is only one previous paper (Finnäs 2015) that have used a three-generations setup to study issues of this kind. The study, which was succinct and descriptive in nature, analysed the cohorts born 1953-1988, based on a 50 per cent sample of Swedish speakers and an eight per cent sample of Finnish speakers. The purpose was to see how own ethnolinguistic affiliation, ethnolinguistic background (the ethnolinguistic affiliation of each parent), and the partner's ethnolinguistic affiliation affected the Swedish-registration of the first-born child. We have replicated and developed those findings, and present them in the results section.

4. Data and methods

The data used contain all individuals who lived in Finland 1971-2015, which means that they were observed in the population register at the end of any year 1970, 1975, 1980, 1985, and 1987-2015. Each person can be observed longitudinally, and there is information on all births and deaths 1971-2015. All information is accessed in Statistics Finland's FIONA system. Contract number is TK-52-694-18, project number is U1054_a, and usage permission number is TK-53-1370-17.

Each person in the data can be linked to his or her mother and father, subject to that the parent had not died before the end of 1970. There are no other restrictions on the number of generations that can be linked. Biological and adopted children can be separated, but the latter group is so small that we make no distinction in the analyses. Foreign-born immigrants cannot generally be linked to their parents. This is not an impediment for our study, since we are concerned with native Swedish and Finnish speakers.

The structure of the data, which is illustrated by Figure 3, implies that four-generations analyses are doable, while a five-generations study will become limited because not many persons in the oldest generation were alive at end-1970. In total, there are 7,888,477 persons in the data (Figure A1 in the Appendix). The mother can be identified for 4,935,500 of these persons, the father for 4,698,128 of these, the mother's mother for 2,527,624, the mother's mother's mother for 687,409, etc. In terms of the number of identifiable ancestors, there are in total 2,167,622 mothers, 2,036,666 fathers, 806,806 mother's mothers, 209,633 mother's mother's mothers, etc. (Figure A2 in the Appendix). The number of ever-registered Swedish speakers are 505,186 for the index persons (the egos), 127,631 for the mothers, 125,928 for the fathers, 46,471 for the mother's mothers, and 11,723 for the mother's mother's mothers (Figure A3 in the Appendix).

(Figure 3 here)

In the paper, Swedish speaker means that the person has ever been registered as a Swedish speaker. Shifting the criteria to mean consistently registered as a Swedish speaker will not change the conclusions to any considerable extent. The group would then be reduced with less than 8.5 per cent. Since the data make it possible to link children and parents for persons alive from end-1970, the setup and description refers to the children (egos) and their year of birth, not to marriages or cohabiting unions of (prospective) parents. Where comparable, the patterns as reported here nevertheless mirror the development of the prevalence of ethnolinguistically mixed marriages as documented by previous research (Finnäs, 1986; 2013).

In order to have reasonably many persons who can be linked across generations, and for whom we have information about all ancestors in two previous (Generations 2-3) or three previous generations (Generations 2-4), we study the index population (egos of Generation 1) born in 1990-2015. Of all Finnish- or Swedish registered egos in these birth cohorts, both parents can be linked for 98.5 per cent, all four grandparents for 87.8 per cent, and all eight great grandparents for 12.2 per cent. All analyses are restricted to index persons and ancestors who are either Swedish-registered or Finnish-registered. In the analyses of three generations presented in section 5.2. below, there are 1,220,914 Finnish-registered egos who fulfil the above criteria, and 78,094 Swedish-registered egos. In the analyses of four generations presented in section 5.3. below, the corresponding numbers are 150,525 and 8,809.

The primary goal with the analyses, which are largely descriptive in nature, is to examine ethnolinguistic structure by heritage in contemporary Finland. In particular, we are interested in the extent to which kinship beyond the parent is predictive of ethnolinguistic registration of children, and how gender interacts with kinship depth. We begin by presenting the results of the replication and extension of previous research, and then proceed with a more detailed investigation of kinship structure and ethnolinguistic registration over three and four generations, respectively.

5. Results

5.1. Replication and extension of previous research

As mentioned above, there has been only one previous Finnish study (Finnäs 2015) on Swedish-registration with a three-generations setup. The basic structure of the register-based data used was similar to ours, apart from some important discrepancies. First, the study had no information about the other parent, and used the partner of the index person as the other parent. We have information about both parents. Second, the last observation year was 2003, whereas in our data it is 2015. The later-born cohorts studied were consequently very young, meaning that a considerable proportion had not yet become parents. In our replication, all persons are at least 27 years old when we reach the end of the observation window. Third, it did not link the partner of the index person to his or her parents, meaning that the ethnolinguistic affiliation of the partner's parents was not known. This has no consequences for the results of the replication, since ethnolinguistic background here refers only to parents of the index person and not of the partner (the other parent). However, in order to fully understand ethnolinguistic registration across more than two generations, as we are concerned with in this paper, it is certainly relevant to incorporate, as we do in Sections 5.2 and 5.3.

The results of the replication are presented in Table 1, where the findings of Finnäs (2015) are given within parentheses. As expected, the findings are basically the same. In some instances, the numbers

differ more than just a few percentages, which primarily is because of the difference in the length of the observation period.

(Table 1 here)

First, we see that the total effect of ethnolinguistically exogamous (mixed) unions on the Swedish-registered population has been negative. Only one-third (33.5 per cent) of all individuals with mixed background had reproduced Swedish, that is, registered their children as Swedish speakers. Second, for persons with mixed background, own ethnolinguistic affiliation is important. Approximately two-thirds (65.4 per cent) of those registered as a Swedish speaker had registered their children as Swedish speakers, while only one in tenth (10.5 per cent) of those registered as a Finnish speaker had done so. Third, own ethnolinguistic affiliation affects partner choice in terms of the other parent's ethnolinguistic affiliation, which in turn affects the ethnolinguistic registration of the children. Approximately 40 per cent of Swedish-registered persons with a mixed background had a Swedish-registered partner, while the corresponding number for Finnish-registered persons with a mixed background was only 11 per cent. Furthermore, in the former group, almost all children (97.4 per cent) were registered as Swedish speakers, while in the latter group, the corresponding number was 71 per cent. If the partner is Finnish-registered, only three per cent of Finnish-registered individuals with mixed background had registered their children as Swedish speakers, while 45 per cent of Swedish-registered individuals with mixed background had done so. Much of these apparent behavioural differences are related to the ethnolinguistic structure (the proportion of Swedish speakers) of the place of residence. Fourth, mother's ethnolinguistic affiliation is more important than the father's for the ethnolinguistic registration of the child. Finnish-registered women with mixed background and a Swedish-registered partner had thus reproduced Swedish to a lower extent than Finnish-registered men with mixed background and a Swedish-registered partner (61.2 vs 82.1). Likewise, Swedish-registered women with mixed background and a Finnish-registered partner had reproduced Swedish to a higher extent than Swedish-registered men with mixed background and a Finnish-registered partner (55.6 vs 34.2). Fifth, Swedish-registered individuals with mixed background differ from those with endogamous Swedish background. Only two-thirds (65.4 per cent) of the former had reproduced Swedish, as compared to almost 90 per cent of the latter. This is largely dependent on the choice of partner, as only 40 per cent of the former had a Swedish-registered partner, and over 70 per cent of the latter. If the partner is Finnish-registered, 45 per cent of the former had registered their children as Swedish speakers, and 65 per cent of the latter. Again, these behavioural differences relate to the ethnolinguistic structure of the place of residence.

In sum, mixed unions seem to have had, in total, a negative effect on the demographic development of the Swedish-registered population in Finland. Without more detailed information about the ethnolinguistic composition of kinship, this is nevertheless an issue to be investigated. With the data available, we can study ethnolinguistic heritage in much more depth than ever before, with linkages across three and four generations.

5.2. Three generations

In the three-generations setup, a grandchild can have 16 different grandparent combinations, here referred to as lineage type. This is illustrated in Table 2, which contains the distribution of this variable, together with a coding scheme for ethnolinguistic heritage in terms of the ethnolinguistic balance, the lineage bias, the proportion Swedish-registered grandparents, and the proportion Swedish-registered

egos within each category. In the first column, the first letter refer to the maternal grandmother (S for Swedish-registered and F for Finnish-registered), the second letter to the maternal grandfather, the third letter to the paternal grandmother, and the fourth letter to the paternal grandfather.

(Table 2 here)

Almost 90 per cent of all index persons have an entirely Finnish (0.00 Swedish) background, meaning that all four grandparents are Finnish-registered. For the others, we see that persons with dominant Finnish (0.25 Swedish) background are about four times as many as those with dominant Swedish (0.75 Swedish) background. Approximately half of all persons who do not have an entirely Finnish or dominant Finnish background have an entirely Swedish (1.00 Swedish) background. Persons with the background split half at each (maternal and paternal) side are about twice as many as those with dominant (and not entirely) Swedish background. Mixed background at both sides is uncommon. Within the categorisation according to ethnolinguistic balance, mixed background in which the paternal side is Swedish and the maternal side is Finnish is more common than mixed background in which the paternal side is Finnish and the maternal side is Swedish.

To illustrate the interrelations, we have drawn bars for the proportion Swedish-registered index persons and the proportion Swedish-registered grandparents in Figure 4, where the lineage type, the ethnolinguistic balance and the lineage bias are indicated on the x-axis. We see that persons with entirely endogamous background never deviate. Thus, if all grandparents are Swedish-registered, the probability that the grandchild is Swedish-registered is unity, while it is zero if all grandparents are Finnish-registered. There is an overregistration of Swedish-speaking index persons; for almost all exogamous combinations, index individuals are more likely to be Swedish-registered than Finnish-registered, given the proportion Swedish-registered grandparents. There is a majority bias in the sense that three Swedish grandparents give a higher than 0.75 probability that the index person will be Swedish-registered, and vice versa from the Finnish perspective. There is also a strong maternal bias, in particular with respect to maternal grandmothers, as index persons are more likely to be registered according to the ethnolinguistic affiliation on the mother's side than to that on the father's side. This bias is most apparent with respect to the maternal grandmother, and it is extra strong for persons with the background split half at each maternal and paternal side.

(Figure 4 here)

5.3. Four generations

We begin the four-generations presentation by providing the unconditional proportion Swedish speakers in each category of parents, grandparents and great grandparents (Figure 5). The status of each other category is consequently not considered. We see that, on the maternal line, but not on the paternal one, there has been sociodemographic growth of Swedish speakers, meaning that they are more common in younger generations than in older ones. Swedish background is thus more frequent on the paternal side than on the maternal side, since mixed unions with Swedish father and Finnish mother have been more common than births with Finnish father and Swedish mother. Due to the maternal bias the sociodemographic growth of Swedish speakers is larger on the maternal side, and particularly on the grandmaternal side.

(Figure 5 here)

The importance of the maternal bias is further illustrated in Figure 6, which gives the proportion Swedish-registered ancestors of Swedish-registered index persons (upper part) and Finnish-registered index persons (lower part), respectively. Swedish-registered index persons are more likely to have a Swedish-registered mother than a Swedish-registered father. They are also slightly more likely to have a Swedish-registered maternal grandmother than a Swedish-registered paternal grandmother, or any other grandparent that is Swedish-registered. The maternal effect is more important in immediate kinship terms, while it disappears with lineage distance; in the grand grandparent generation (Generation 4) there is basically no difference in the proportion Swedish-registered persons between mothers and fathers. There is nevertheless persistence of Swedish-registration across generations. Swedish-registered index persons are very likely to have remote kin who are Swedish-registered, and the proportion Swedish-registered persons increase over generations on both the maternal and paternal side.

The picture for Finnish-registered index persons is notably different. The proportion Swedish-registered ancestors is consistently very low, saying that almost all Finnish-registered individuals have a predominantly Finnish background. It is more likely that a Finnish-registered person has a Swedish father and some Swedish heritage on the paternal side, than a Swedish mother and some Swedish heritage on the maternal side. This is, again, related to the maternal bias. Finnish speakers are more likely to have Swedish kin in their remote kinship network than in their close kinship network. This is due to the lower prevalence of Swedish-registration in mixed unions in older generations as compared to younger ones. Finnish speakers are also more likely to have paternal Swedish kin than maternal Swedish kin, because unions of Swedish-registered men and Finnish-registered women have been more common than unions of Finnish-registered men and Swedish-registered women.

(Figure 6 here)

Figure 7 gives the proportion Swedish speakers in Generations 1, 3 and 4 by the four different parental ethnolinguistic combinations (Generation 2). In endogamous (Swedish mother and Swedish father, and Finnish mother and Finnish father) unions there are no large differences in ethnolinguistic registration by lineage type. The ethnolinguistic registration of children (the index persons in Generation 1) largely mirrors what have been mentioned earlier, and will therefore not be discussed at length. Perhaps most noteworthy is that exogamous parental unions have notably more unstable ethnolinguistic backgrounds than endogamous ones, which might have to do with more fluid ethnolinguistic identity. For instance, Finnish women who partner with Swedish men and give birth are more likely to have a Swedish father than a Swedish mother. Likewise, Finnish men who partner with Swedish women are more likely to have a Swedish father than a Swedish mother.

(Figure 7 here)

6. Discussion and conclusion

Linguistic and cultural extinction of minority cultures has accompanied globalization and nation-states throughout the last two centuries. Such processes typically take place by a process in which groups gradually abandon a minority culture for the majority culture, and this is generally pioneered by individuals of mixed descent following intermarriages. The ethnic structure of kinship is one of the principal determinants of individual ethnic identity. Studies on the intergenerational transmission of ethnic identity should ideally contain complete information on ancestry, but such information has been

rarely available to researchers. The data used in this paper has facilitated such an approach, and thus allowed us to adopt a multigenerational perspective, by taking into account the ethnolinguistic heritage of the native Finnish population over three generations of ancestors. Unlike most studies on ethnic groups, those concerned here, Finnish speakers and Swedish speakers, are widely described as being status-wide equal, while maintaining coexisting identities and institutions.

Using unique register data on ethnolinguistic identity of the entire population of Finland, we document a phenomenon that is of importance all over the world, but in a context of two ethnolinguistic groups that have been largely demographically stable over several generations. Thus, we have created a multigenerational kinship-structure by means of national population registers, and applied a time-constant, objective, reliable, and consequential measure of ethnolinguistic identification. By doing so, we have examined how combinations of ethnolinguistic identity among parents, grandparents, and great grandparents affect and shape the ethnolinguistic identity of their descendants.

Like many other European kinship systems, the Finnish one is bilateral, meaning that kinship is traced through both women and men, and ancestry through female and male kinship should be given roughly equal weight. Research on high-income western populations have nevertheless stressed that kinship networks are primarily maintained by women, which is reflected both in the strength of interpersonal relationships and in behaviours responsible for maintaining large kinship networks. Our findings support this argument. Mother's ethnolinguistic affiliation is much more important than the father's for the ethnolinguistic registration of the child. There is a strong maternal bias, in particular with respect to maternal grandmothers, as children are more likely to be registered according to the ethnolinguistic affiliation on the mother's side than to that on the father's side. This lineage bias is most apparent with respect to the maternal grandmother, and it is extra strong for persons with the ethnolinguistic background split half at each maternal and paternal side.

The maternal effect is more important in immediate kinship terms, while it disappears with lineage distance. In the great grandparent generation there is basically no difference in the proportion Swedish-registered persons between mothers and fathers. There is nevertheless persistence of Swedish-registration across generations. Swedish-registered index persons are, if not equally, at least almost as likely to have remote kin who are Swedish-registered as they are to have Swedish-registered parents.

We also see that persons with an entirely endogamous background never deviate. Thus, if all grandparents are Swedish-registered, the probability that the grandchild is Swedish-registered is unity, while it is zero if all grandparents are Finnish-registered. Furthermore, there is an overregistration of Swedish-speaking index persons in the sense that for almost all exogamous combinations, index persons are more likely to be Swedish-registered than Finnish-registered, given the proportion Swedish-registered grandparents. There is also a majority bias in the sense that three Swedish grandparents give a higher than 0.75 probability that the index person will be Swedish-registered, and vice versa from the Finnish perspective.

The total effect of ethnolinguistically mixed unions on the Swedish-registered population has been negative. Only one-third of all individuals with mixed background had reproduced Swedish, that is, registered their children as Swedish speakers. For persons with mixed background, own ethnolinguistic affiliation is important, as it affects partner choice in terms of the other parent's ethnolinguistic affiliation as well as the ethnolinguistic registration of the offspring. Swedish-registered individuals with

mixed background are less likely to reproduce the minority affiliation than those with endogamous Swedish background, which probably is because of a more fluid ethnolinguistic identity.

However, it needs to be stressed that since the mid-1980s, more than half of the offspring born in mixed unions are registered as Swedish speakers. If these preferences, and the prevalence of births within ethnolinguistically mixed unions remain at current levels, the Swedish-registered minority group in Finland is not under any immediate threat of extinction.

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Table 1. Percentage share with Swedish-registered children of all parents born 1953-1988, by sex, ethno-linguistic affiliation, ethno-linguistic background, and partner's (the other parent's) ethno-linguistic affiliation, and percentage share with Swedish-registered partner

		% with Swedish-registered children, by partner's ethno-linguistic affiliation						% with Swedish partner	
		Finnish		Swedish		Both			
Exogamous background, Total	Men	12.9	(13)	93.4	(89)	30.1	(30)	21.4	(23)
	Women	20.5	(18)	86.8	(85)	36.7	(34)	24.5	(24)
	Both	16.7	(16)	89.8	(87)	33.5	(32)	23.0	(24)
Exogamous background, Finnish	Men	2.4	(4)	82.1	(73)	10.7	(12)	10.5	(12)
	Women	3.4	(2)	61.2	(52)	10.3	(7)	12.0	(11)
	Both	2.9	(3)	70.9	(62)	10.5	(9)	11.3	(11)
Exogamous background, Swedish	Men	34.2	(39)	97.9	(97)	57.7	(64)	36.9	(43)
	Women	55.6	(59)	96.9	(98)	72.7	(76)	41.5	(45)
	Both	44.7	(50)	97.4	(97)	65.4	(71)	39.3	(44)
Endogamous Swedish background	Men	52.8	(52)	99.6	(99)	85.4	(84)	69.7	(69)
	Women	78.4	(76)	99.7	(100)	94.2	(94)	74.3	(73)
	Both	64.5	(63)	99.6	(99)	89.8	(89)	72.0	(71)
Endogamous Finnish background	Men	0.2		66.2		1.3		1.8	
	Women	0.2		44.2		1.1		2.2	
	Both	0.2		53.5		1.2		2.0	

Results of Finnäs (2015) are in parentheses.
The calculations are based on first-born children only.

Table 2. Coding scheme for grandparent combinations, distribution, and share of Swedish-registered egos

Lineage type	Distri-bution, per mille	Ethnolinguistic balance	Lineage bias	Proportion Swedish-registered grand-parents	Proportion Swedish-registered egos
SSSS	27.5	Entirely Swedish-registered	None	1.00	1.00
SSSF	2.0	Dominant Swedish-registered	Maternal side Swedish-registered	0.75	0.96
SSFS	2.7	Dominant Swedish-registered	Maternal side Swedish-registered	0.75	0.97
SFSS	2.6	Dominant Swedish-registered	Paternal side Swedish-registered	0.75	0.93
FSSS	3.0	Dominant Swedish-registered	Paternal side Swedish-registered	0.75	0.89
SFSF	0.6	Mixed at both sides	None	0.50	0.65
SFFS	0.7	Mixed at both sides	None	0.50	0.68
SSFF	8.5	Half at each side	Maternal side Swedish-registered	0.50	0.81
FFSS	11.5	Half at each side	Paternal side Swedish-registered	0.50	0.55
FSSF	0.7	Mixed at both sides	None	0.50	0.50
FSFS	0.8	Mixed at both sides	None	0.50	0.52
SFFF	8.7	Dominant Finnish-registered	Maternal side Finnish-registered	0.25	0.27
FSFF	11.1	Dominant Finnish-registered	Maternal side Finnish-registered	0.25	0.17
FFSF	9.3	Dominant Finnish-registered	Paternal side Finnish-registered	0.25	0.13
FFFS	11.8	Dominant Finnish-registered	Paternal side Finnish-registered	0.25	0.14
FFFF	898.4	Entirely Finnish-registered	None	0.00	0.00

In the first column, the first letter refer to the maternal grandmother (S for Swedish-registered and F for Finnish-registered), the second letter to the maternal grandfather, the third letter to the paternal grandmother, and the fourth letter to the paternal grandfather.

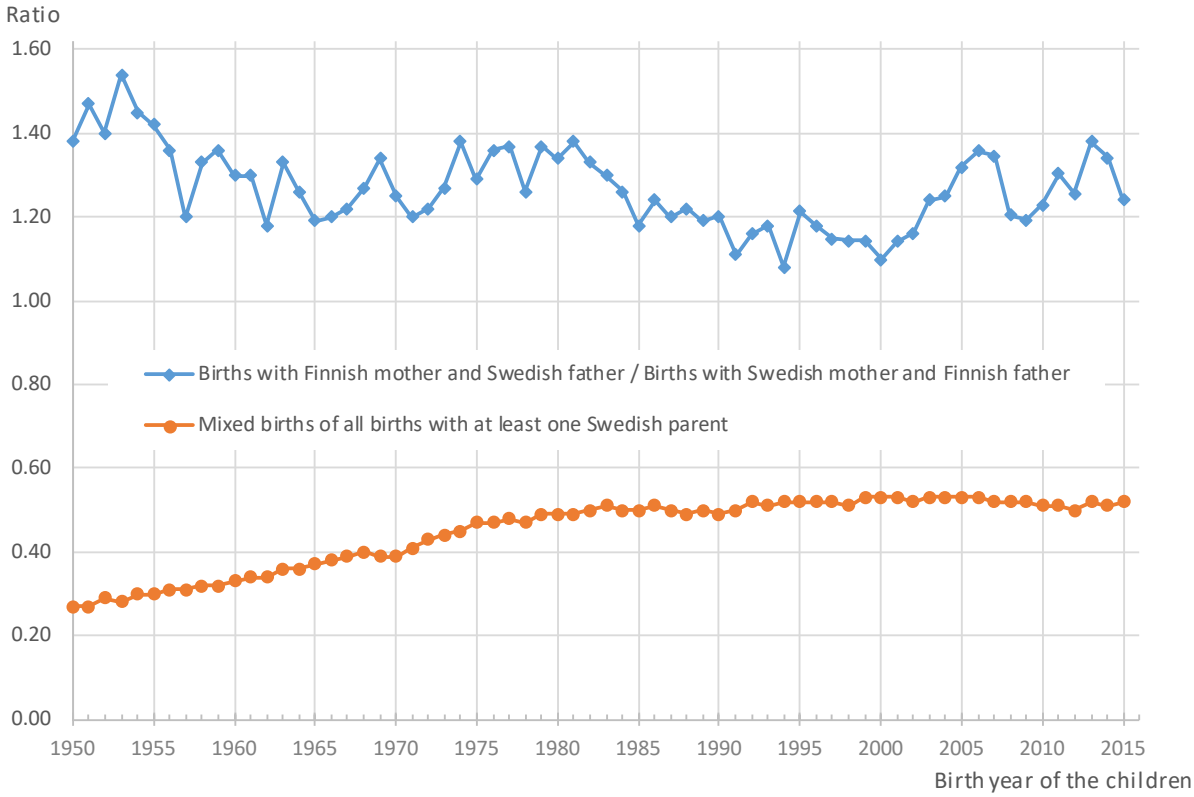

Figure 1. Prevalence of ethno-linguistically births and their parental ethnolinguistic composition by birth year of the children

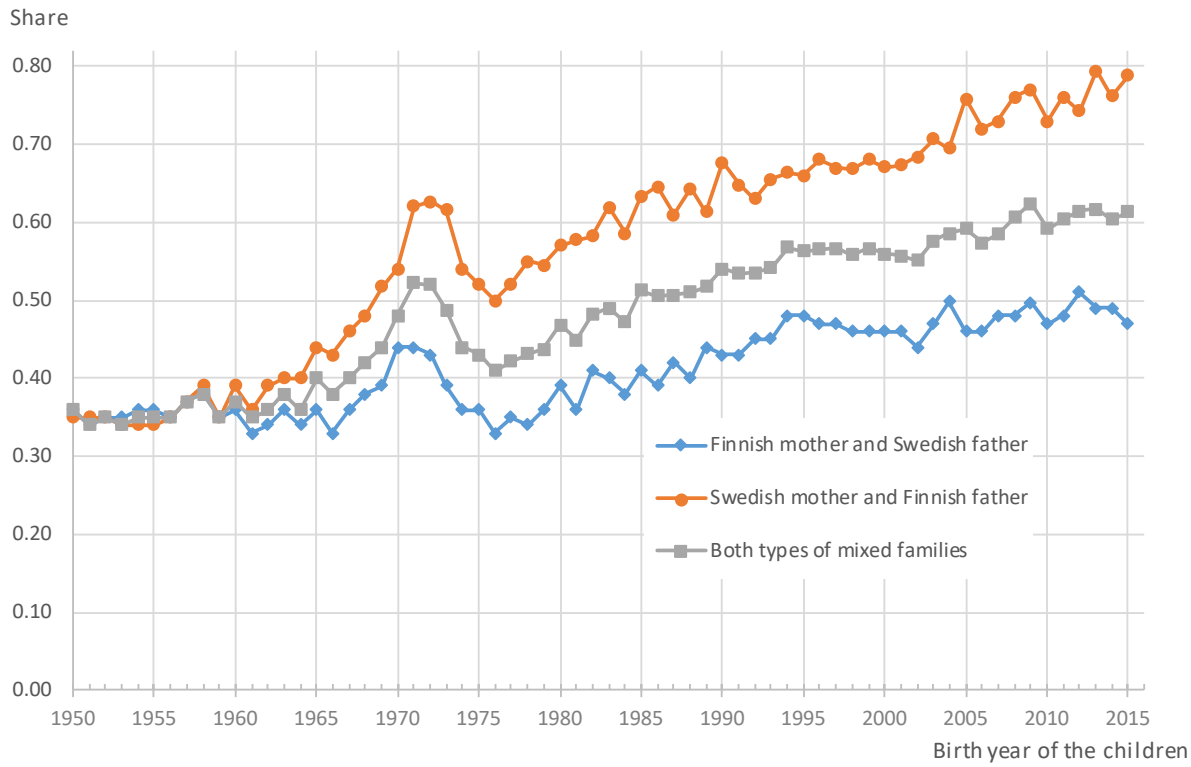

Figure 2. Swedish-registered children of ethno-linguistically different parents by birth year of the children and the parental ethnolinguistic composition

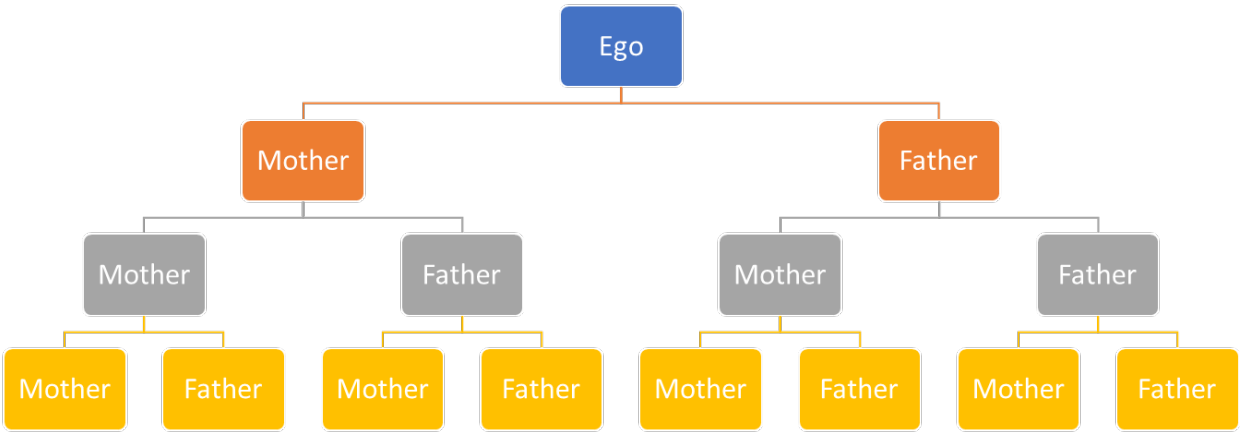

Figure 3. Structure of the data for four generations

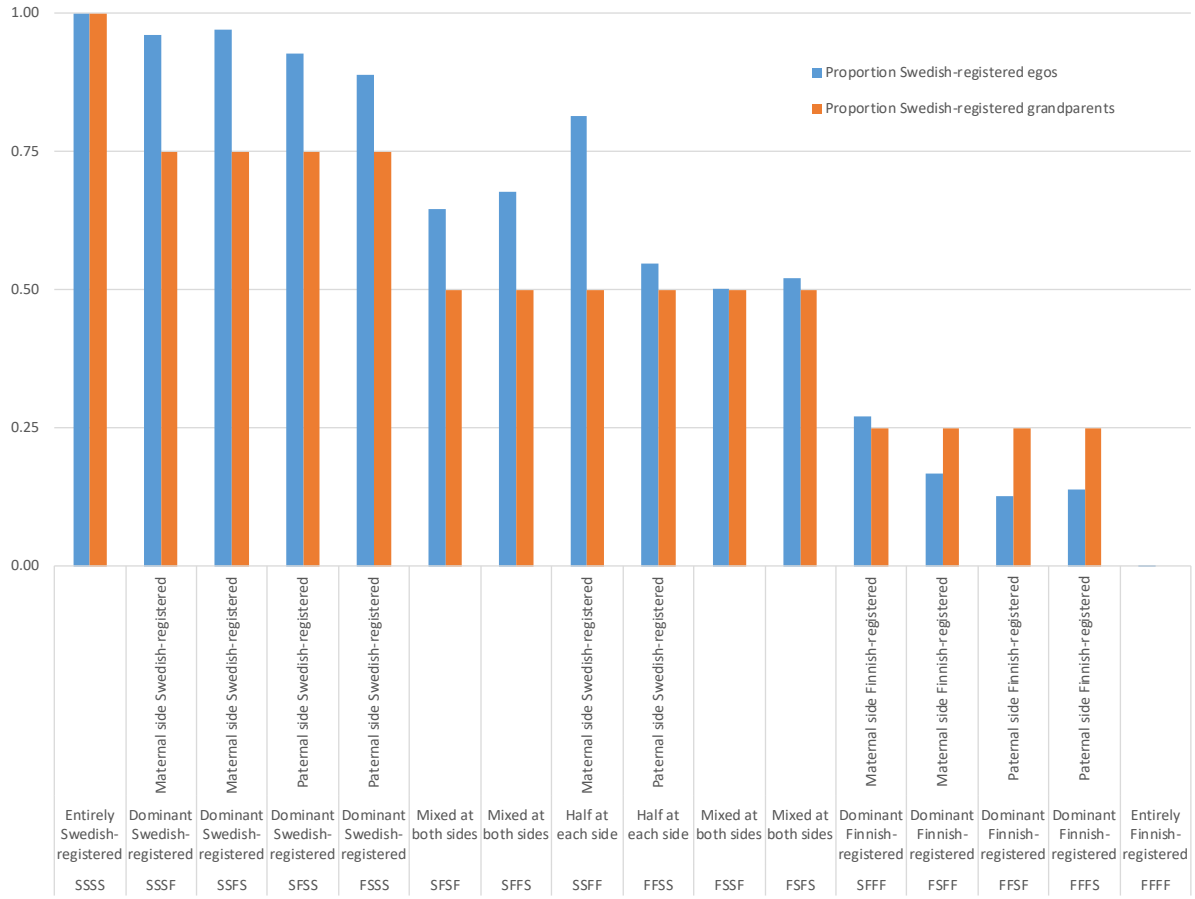

Figure 4. Proportions Swedish-registered egos and Swedish-registered grandparents by lineage type, ethnolinguistic balance and lineage bias

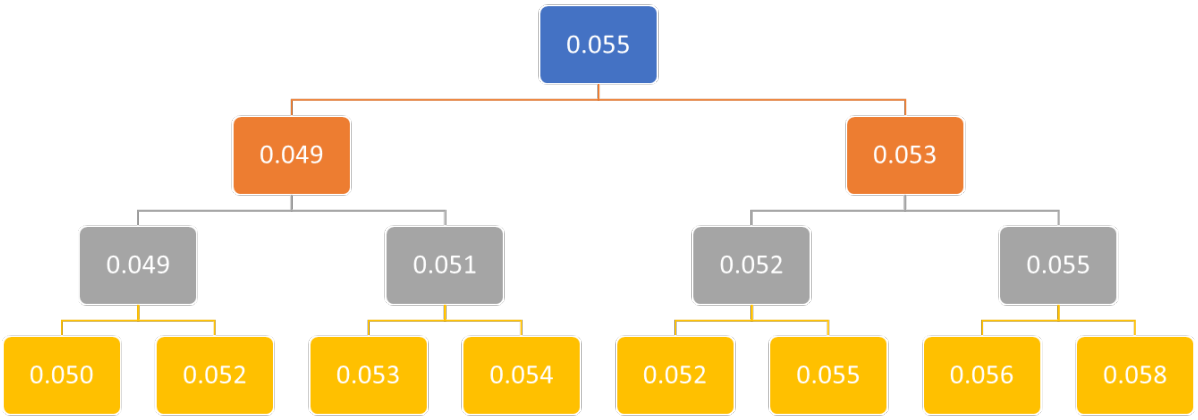

Figure 5. Proportion Swedish-registered persons in the study population

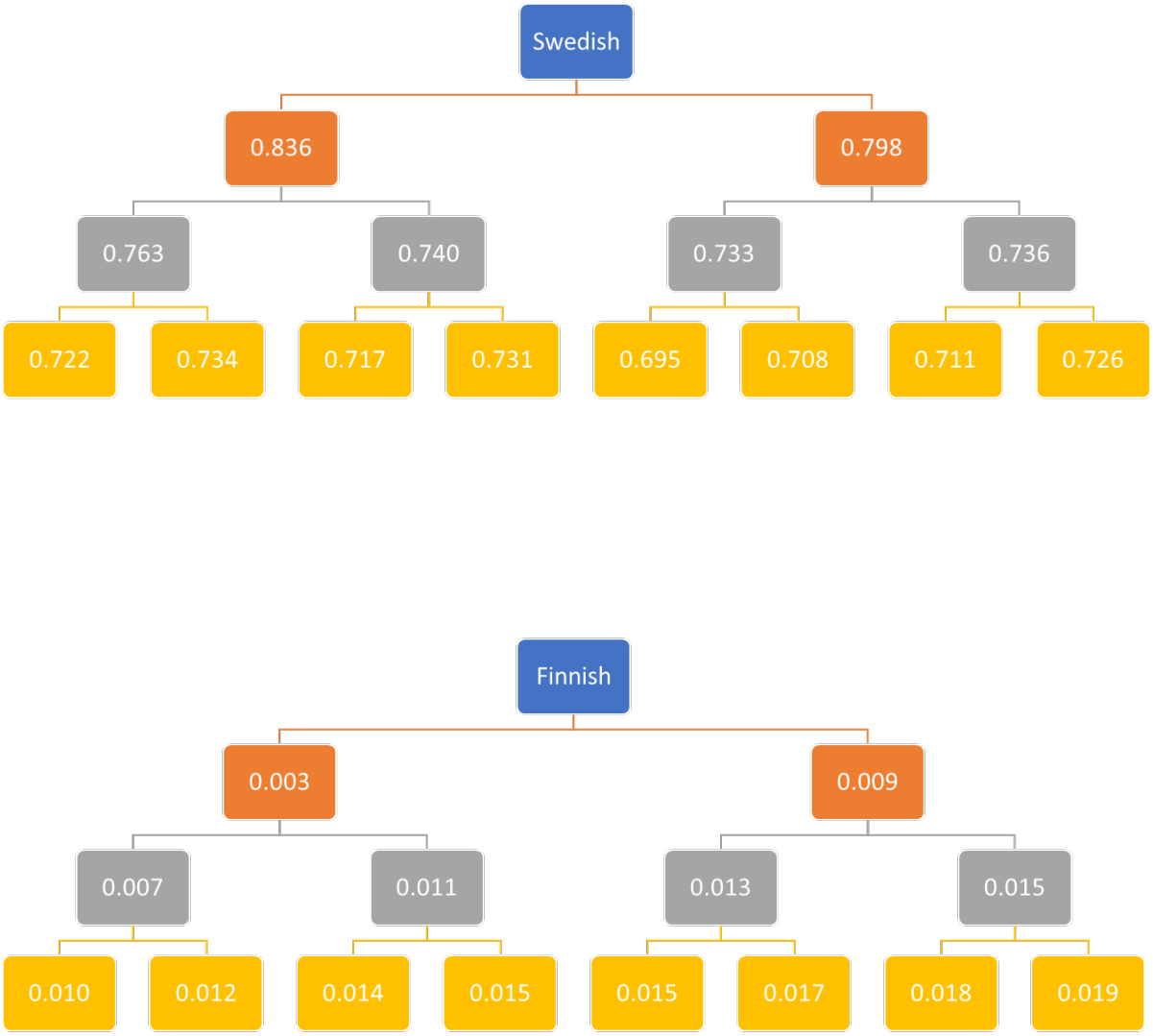

Figure 6. Proportion Swedish-registered ancestors of Swedish-registered and Finnish-registered index persons, respectively

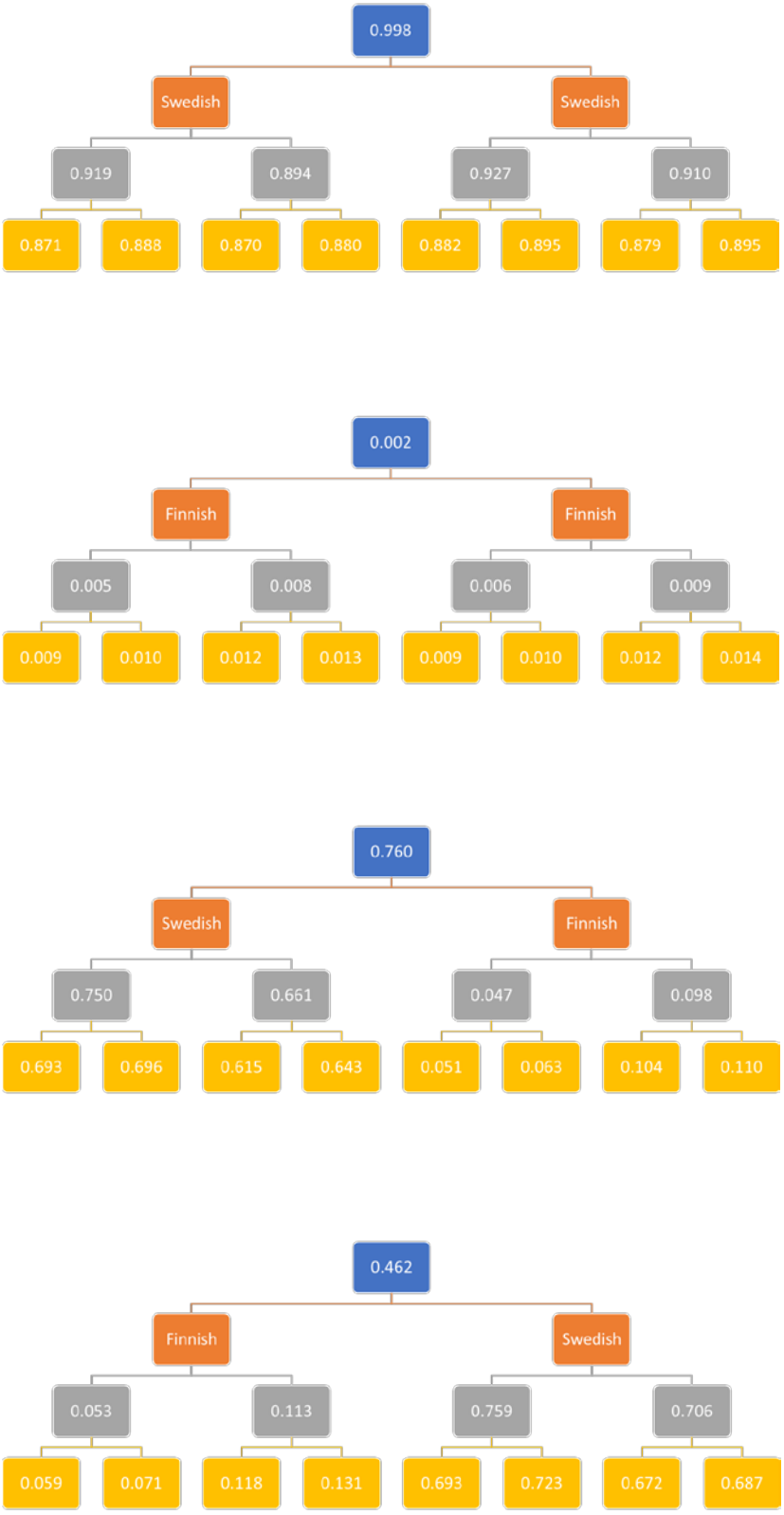

Figure 7. Proportion Swedish-registered persons in Generations 1, 3 and 4 by parental ethnolinguistic composition

Appendix

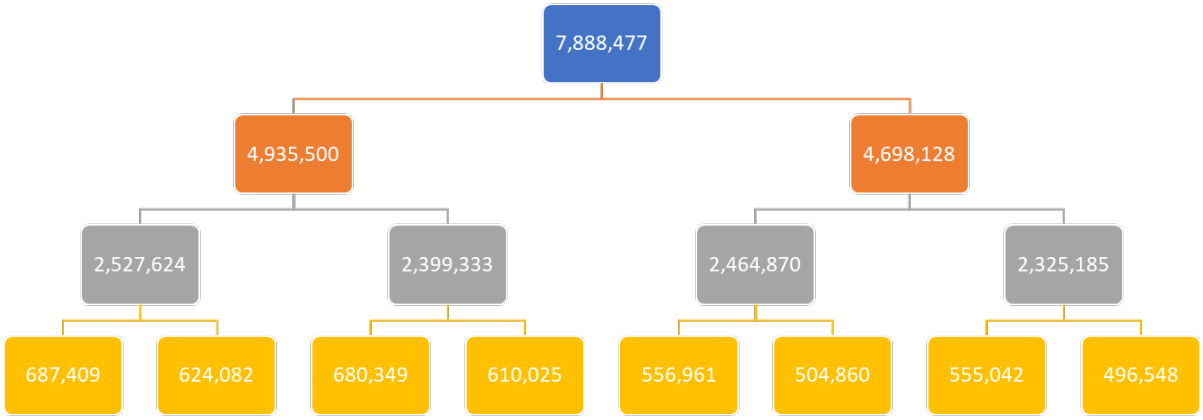

Figure A1. Number of individuals (egos) with identifiable ancestors in three previous generations, total population of Finland 1971-2015

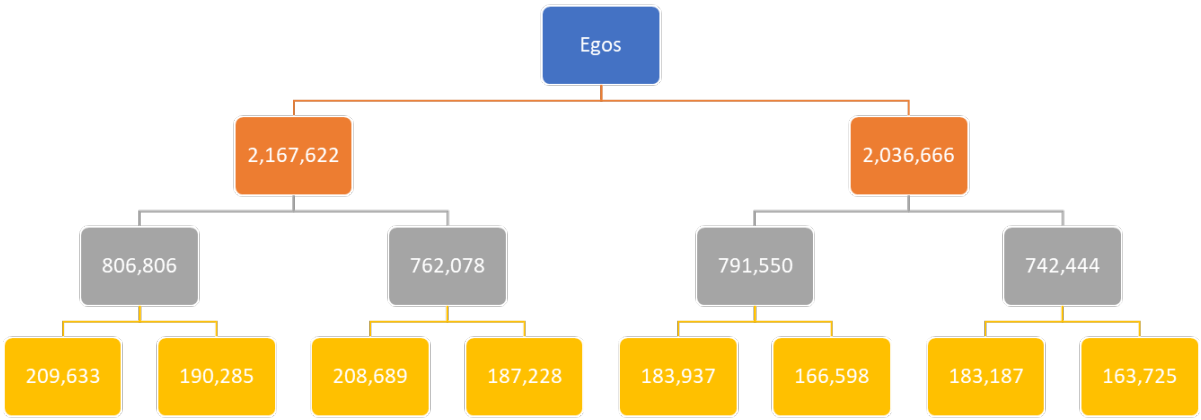

Figure A2. Number of identifiable ancestors in three previous generations, total population of Finland 1971-2015

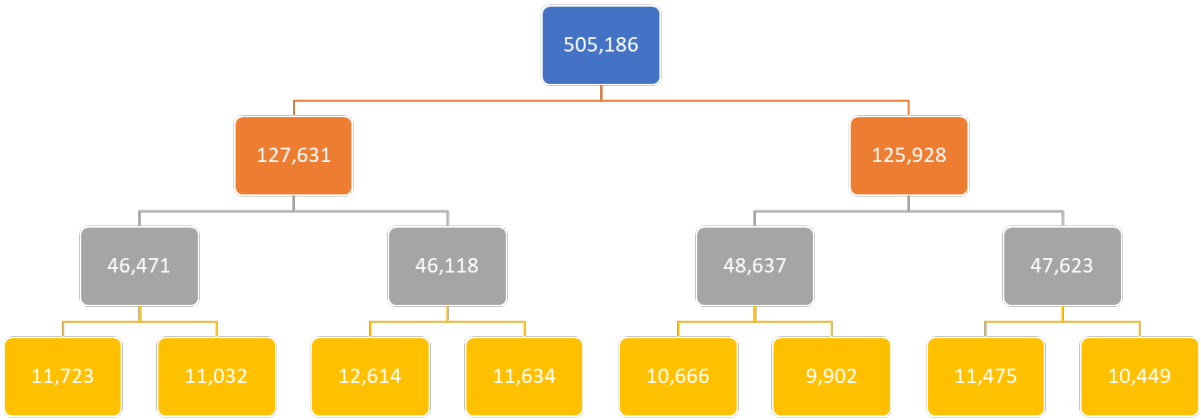

Figure A3. Number of persons ever registered as a Swedish speaker in four different generations, total population of Finland 1971-2015