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Religion, friendship networks, and home visits of immigrant and native children

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Abstract

Using data from a school survey of N=1190 children at the age of 10 in N=20590 directed dyads and p^* models for network data, we investigate the impact of religion on migrant and native children's friendships and visits at home. Deriving hypothesis from the formation of religious in-groups, our analyses show that having the same or a different religious affiliation as well as regularly attending worship has an impact on having a tie in friendship networks. Visiting alter's home depends more on similarity in worship attendance. These results indicate that religious diversity can be an additional factor increasing actual levels of immigrant-native segregation in social networks.

Keywords

Immigration, religiousness, ethnic boundaries, social networks, integration

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Introduction

Studies investigating the social networks of young immigrants and natives in host countries show that ethnic intra-group preferences play a crucial role in the formation of friendship ties (Hallinan and Teixeira, 1987; Baerveldt et al., 2004; Vermeij et al., 2009; Wimmer and Lewis, 2010; Baerveldt, 2013). This preference has also been referred to as *ethnic homophily* (McPherson et al., 2001). Recently, in academic and public debates on immigrant integration, *religious* diversity in European host countries like Germany became an important issue (Verkuyten, 2007; Fleischmann, 2011). While ethnic homophily still operates as a segregating factor in children's friendship ties, religious homophily might further exacerbate the problem of ethnic segregation. This is especially true if large immigrant groups originate from countries where the dominant religion is different from that of the host country, thus making religious boundaries an additional source of social segregation in the host country. Religious homophily can be defined as a tendency of actors to form social ties to others who share the same religious affiliation or the same kind of religious ideas. Religious boundaries become even more important if there is a high level of hostility toward an ethnic minority's religion. Many European host countries are currently witnessing a vigorous debate about immigrants of Islamic origin which is expected to reinforce existing social boundaries (Wohlrab-Sahr and Teczan, 2007). Yet there are at best only a few studies on religious boundaries in social networks.

We follow a social-network perspective on inter-group contact and investigate *religious* homophily, which could be an additional factor of segregation of ties in social networks. The bulk of existing research on religious homophily, however, is on adults. But religious homophily in the early life-course can be important for the integration of immigrants because religious identities are rather stable across adolescence (Lopez et al., 2011). In this study, we focus on school-children, which is not only due to the fact that schools provide more interethnic contacts than other social settings. Our study is rooted theoretically in a developmental psychology framework. From a developmental perspective, childhood and early adolescence constitute a potentially formative period for (among other things) interethnic relations. The importance of interethnic group contact during childhood and adolescence is indeed empirically confirmed by a growing number of studies (Tropp and Prenovost, 2008; Killen and Rutland, 2011). Children's early experiences of interethnic contact are likely to impact on their attitudes and behavior in later life by generating a kind of (non-deterministic) path dependency. Empirical research shows that, as Allport's (1954) contact hypothesis suggests, interethnic group contact can reduce racial prejudice and segregation, with cross-group (interethnic) friendships being the most salient factor. School-classes are social environments where

Allport's criteria for interethnic contact without prejudice can be achieved. Thus it might be rather easy to establish interethnic friendships within the class context even though there is still a considerable degree of *ethnic* segregation in school-class networks (Baerveldt et al., 2004). However, it remains to be seen whether this also holds true for *religious* segregation. Moreover, ties in social networks can go beyond the nomination of friendships. In contrast to most existing network studies, our perspective is not limited to friendship nominations in the classroom context, but also focuses on children's visits to their classmates' homes. Concerning the possible impact of religious differences on children's ties, home visits might be significant since they affect families' private spheres and are, in most cases, regulated by children's parents. It has been shown that the perceived parental attitude toward interethnic contact indeed has an effect on interethnic friendships (Edmonds and Killen, 2009). If religious parents tend to prevent their children from having contact to religious out-group peers, the effects of religious homophily might be even higher in visits-at-home than in friendship networks.

Using social network data of 10-year-old children, collected in a school-class based survey, we analyze whether religious homophily operates as an additional determinant for segregation in networks. In the following section we elaborate on the basic social mechanisms leading to religious homophily (II). We then describe the data source (III) and methods (IV) and present the empirical results (V). The article concludes with a brief discussion (VI).

Theoretical background: Why study religious homophily?

In contrast to classical modernization theory, recent sociological research has demonstrated that there is no steady trend in secularization, but rather a tendency of religious revitalization and mobilization (Phalet et al., 2008). In their famous overview about the tendency to form social relationships with similar others, McPherson et al. highlighted the significance of religious homophily by stating that "homophily in race and ethnicity creates the strongest divides in our personal environments, with age, religion, education, occupation, and gender following in roughly that order" (2001: 415). Religion defines values and conceptions of "good people," as Wuthnow argues: "We tell ourselves that good people behave in ways that reflect their understandings of moral responsibility. The definition of these responsibilities is, in turn, legitimated by beliefs about the sacred and by routine practices through which these beliefs are expressed" (2007: 96). Thus, the new religious diversity in many host countries may be an influential factor in the formation of social ties between immigrants and natives.

Religious homophily results from meeting at focal points, like churches and mosques, but also from trust in social relationships. Assume that ego and alter recognize that they are believers in the same monotheistic religion: from ego's perspective, alter has made the right choice and vice

versa. Both actors assume that the respective other accepts the behavioral guidelines inherent in the religious doctrine. Adherence to the same religion thus increases *trust*. Since most monotheistic religions are mutually exclusive, they also demand a normative group commitment (Verkuyten, 2009). Those who believe in a different religion act according to different normative standards and must be “wrong” (Dennett, 2006: ch. 10.2). This is in line with Allport’s (1954: ch. 28) early argument that most world religions must assume that the respective other’s religion is a mistake. As a result, the level of trust should be lower between individuals following different religions than in a relationship of coreligionists (Ruffle and Sosis, 2006; Welch et al., 2004).

Another argument for the emergence of religious homophily comes from *rational choice theory*. It is argued that investment in costly religious activities implies irreversible costs (“sunk costs”) (Stark and Finke, 2000), namely the costly investment of time and effort as well as high opportunity costs, which come at the expense of other activities. Hence people attempt to conserve their religious capital they have invested in, which leads to path dependency and an avoidance of activities and social ties that threaten this investment. The higher these costs are, the more rigid the social boundaries between religious in- and out-groups become. This might result in religious segregation within networks, also because children’s parents might suspect that religious out-group contact can weaken children’s faith (Munniksma et al., 2012: 577).

Finally, from the “*memetic*” point of view (Blackmore, 2000; Dennett, 2006), religious doctrines are systems of ideas that reproduce themselves in human minds and in communication. Similar to biological systems, “memes” are basic elements of ideas and ideologies. They compete for opportunities to reproduce in environments with limited carrying capacities. Institutionalized knowledge, such as religious doctrines, results from an evolutionary process of meme variation, inheritance, and selection. Successful religious doctrines incorporate memes that increase their reproductive energy, such as Christian altruism, but also the idea that non-believers deserve damnation and that apostasy will be punished (Tellenbach, 2006). Accordingly, boundaries between religious in- and out-group members can result from certain ideas inherent in the religious narrative.

To sum up: if religious focal points structure opportunities and if religious doctrines reinforce in-group preferences, we expect religious homophily to be an additional factor for the segregation of social network ties. Scheilke and Krappmann (2003) have shown that 10-year-old children are already aware of religious belonging. Moreover, religious homophily is more pronounced concerning children of religious Turkish parents due to the influence of their

parents, who exert a much higher level of social control over their children's social ties than native German parents do (Reinders, 2009).

Several studies point to the relevance of religious homophily (Louch, 2000; Marsden, 1988; Phalet et al. 2008) and to the effect of religion on social capital (Wuthnow, 2002). According to Glanville et al. (2008), religious participation has a positive effect on social capital, measured as higher educational resources, pro-school values, and good habitus. Thus it increases academic achievement. A striking result in Heitmeyer's et al. (1997) study on adolescent Turkish immigrants in Germany was that 60% strongly agreed that his/her spouse should belong to the same religion. Having the same religious affiliation turned out to be even more important than originating from the same country. In a recent study, Diehl and Koenig (2009) showed that religiousness has not declined in the second generation of Turkish immigrants in Germany, and the importance of religious ceremonies has even increased (see also Diehl and Ruckdeschel, 2009). In the Dutch context, high levels of Muslim identification correspond closely with positive attitudes towards the Muslim in-group (Verkuyten, 2009). Here, empirical results also indicate that immigrant parents tend to resist their children's interethnic relations, and this resistance depends on levels of *family reputation vulnerability* as well as the degree of (Muslim) *religiousness* (Munniksmas et al., 2012).

Many studies using data on complete networks are limited to the analysis of friendship nomination (Moody, 2001; Mouw and Entwisle, 2006; Quillian and Campbell, 2003). Exceptions are studies by Lubbers (2004), Knecht (2007), Rodkin et al. (2007), Gest et al. (2007), Espelage et al. (2007), and Windzio (2012), but these studies do not focus on religious homophily. It has been well established in these studies that social networks of children and young adolescents are highly *segregated by gender*, which has been explained in the literature not only by parental socialization, but also by cognitive factors that become strikingly important when children choose play partners (Maccoby, 1998). These studies also show that there is a considerable degree of *ethnic segregation*, which cannot be fully explained by socioeconomic differences. However, none of the above-mentioned studies have simultaneously examined the *religious and ethnic segregation* of immigrant and native 10-year-old children on the basis of *complete* social networks. It is a rather new approach to compare friendship nomination with dimensions of closer social ties involving also children's parents (Windzio, 2012), which is the case when children visit each other at home during leisure time.

We expect that religious homophily is an additional factor in increasing the ethnic segregation of friendships. We also hypothesize that religious homophily might be even more pronounced

if we consider networks of visits to classmates' households because of the involvement of children's parents.

Survey Design and Data

The following network analyses are based on a school survey conducted in the federal state of Bremen, which consists of the cities of Bremen and Bremerhaven. Classroom-based interviews of 10-year-old 4th-graders were conducted during spring 2009. Overall, 1604 students in 105 out of 247 registered classes in 50 schools provided usable interviews. 9 classes listed in the register actually seemed not to exist. Yet, including these 9 classes, the response rate at the classroom level was 42.5%. While the vast majority of school principals were willing to participate in the study, class non-response was mainly a result of teachers' decisions. Due to unit non-response at the student level, not all classes could be included in the network analysis. Only classes where at least 15 students or 75% of all students were present were used in the analyses. In the end, 1289 students in 76 classes were available, and this figure is further reduced to 1190 due to item non-response.

The network generator is a combination of 15 network-related items in the questionnaire and visible identifying numbers placed on each student's desk in the classroom. By entering their own ID-numbers and the ID-numbers of their fellow classmates in the questionnaire, students could report all their network links for each of the 15 dimensions. Regarding birthday-party visits as objective events, the reliability of the network generator could be assessed by comparing ego's information on who visited him/her at his/her birthday party with alter's information on whose birthday he/she attended. This procedure yields a Cohen's Kappa inter-rater reliability of .709 and an accordance rate of 91%, which is a good level of reliability.

Two different dependent variables were investigated. First, we asked the children to report the identifying number of classmates they consider *friends*, without restricting the total amount of nominations. Second, children reported the identifying numbers of those they repeatedly *visit at home*. The *density of a network* is defined by dividing the number of all ties by the number of possible ties (Wasserman and Faust, 1994: 129). The mean density of both network dimensions over the 76 classes included in our sample is 29.2% in the *friendship* network and 8.3% in the *visits-at-home* network.

A comparison between the upper and the lower part of figure 1, which shows the friendship network and the visit-at-home network of the same class, reveals the different character of both types of networks investigated here. While the friendship network is highly dense and there are no isolates, the density of the home-visits network is much lower and there is a considerable number of isolates.

Figure 1: Networks in class no. 10072

#here#

Ethnic group was measured by the mother's and father's countries of origin. Children are defined as "German", "Turkish", and "Russian" when both biological parents are either of German, Turkish, or Russian (including Kazakh) origin. For reasons of data privacy, we were only allowed to collect information on the ethnic origin for the largest groups, which were identified through official statistics. With a share of 11.3% (N=181) in the overall sample of 1604 students/children, Turks constitute by far the largest immigrant group in the sample, followed by children from Russia or Kazakhstan, who make up 6.0% (N=97) (see table 1). Due to the small sample size, we merged children of Polish, Yugoslav, and African origin in the category "other" for the multivariate analyses. "German1P" indicates that one parent is a native German whereas the other is an immigrant; this applies to 16.1% of our sample (N=258). Table A2 (appendix) shows the ethnic origin of immigrant spouses or partners of native German fathers and mothers. German fathers tend to be married to or live with women from Poland (18.48%) and Turkey (14.13%), whereas German mothers predominantly have Turkish (28.31%) or African (11.45%) spouses or partners. All other immigrant groups, as well as children of ethnically mixed couples are in the heterogeneous category defined as "other" migrants (N=217, 13.5%). 53.1% (N=851) have two German parents or a German parent with a German spouse or partner, respectively. The definition of ethnic group could be more sophisticated, but due to the small sample size and data privacy regulations only this rough measure was available for this paper.

Children's religious affiliation was categorized as Christian, Muslim, other religion, no religion, and "don't know". That children are not aware of their religion indicates its rather low relevance in their everyday social interactions, which is why the two latter categories were merged into one. For each dyad, the religious constellation of ego and alter was measured. For example, Christian→Christian indicates that ego and alter are both of Christian affiliation, while Islam→Christian applies to an ego who is Muslim and reports whether he or she has a tie to a Christian alter. The reference group is formed by a constellation where both are not affiliated with any religion.

As an indicator of religiousness, we used the information on *worship attendance*. We asked whether the respondent had visited a church, mosque, or synagogue in order to attend a worship service at least once during the last four weeks. The reference group is a dyadic constellation

where neither of both children attended worship. We are well aware of the fact that membership and worship attendance (“*belonging*”) do not automatically mean that children actually *believe*. Luckman’s (1967) famous critique against the confusion of belonging and believing would also apply to our study. With regard to the *choice of children’s ties in social networks*, however, membership and worship attendance are evident and visible characteristics of a more or less sophisticated and subjective perception of the sacred. Hence, even though a more detailed measurement of the meaning and content of religious belief would be desirable, our measurement is valid in the context of a study on network ties.

Aside from ethnic group, religious affiliation and religiosity, we used several control variables, which are coded in a way to capture homophily. We follow McPherson et al. (2001) and argue that social inequality creates clear differences with regard to significant characteristics. The mechanisms of homophily entail an organization of network ties according to this inequality. Regarding the solid theoretical foundation of the homophily argument and the strong effects of some of our homophily-related control variables in table 2, this is a parsimonious way of measuring the impact of inequality on social networks.

In order to control for cultural capital (Bourdieu, 1986) in ego’s family, *homophily: number of books* was included in the model. Absolute differences in the numbers of books between ego and alter were multiplied by -1. The wording of the question was: “how many books do you have at home?” Response categories were: “1. none, or just a few (0-10)”, “2. one shelf (11-25)”, “3. one rack (26-100)”, “4. two racks (101-200)”, “5. three or more racks (201 and more)”. Although this is a categorical measurement, the number of books was considered as a metric variable because of its approximate normal distribution. Values were recoded into the midpoints of the interval, which is $1(0-10)=5$, $2(11-25)=18$, $3(26-100)=63$, $4(101-200)=150$, $5(201+)=300$. The resulting values were divided by 10, so that a change of one unit in this variable reflects the effect of a reduction of a ten-book difference.

As an indicator of material living conditions we use the type of house the children and their families live in. Either both families live in a one-family house, or in a less comfortable 6-story (or more) apartment block, or in other housing constellations, which is the reference group. Furthermore, whether ego’s and alter’s families are both affected by *unemployment* was controlled for.

Mother’s monitoring of children’s leisure time (*mother: control leisure*) is measured by a scale consisting of three items that are coded from “1. never” to “4. always”: “my mother knows what I do”, “my mother knows where I am”, and “my mother knows with whom I am”. For each dyad, the difference in mothers’ monitoring behavior was multiplied by -1 and thus measures

similarity. In addition, the ego-specific values were used as well (*ego: mother's control leisure*) because the mother's control might affect ego regardless of alter's mother's behavior. Mouw and Entwisle (2006: 397) argue that children living close to each other often meet at focal points in their neighborhood, like bus stops, and are thus more likely to be friends. In our data, the *spatial proximity* of places was measured by one item in the network generator: "who lives close enough to your home that you can walk to him or her in a few minutes?".

In order to account for the effects of the ethnic composition of the class, we included a *percentage* of children with one immigrant parent ("Germ1P%"), both Turkish parents ("Turk%"), both Russian parents ("Russ%") and other ("Other%"). In addition, the religious composition of the class was also controlled by "Christian%" and "Muslims%". Since these context characteristics are considered as control variables, their effects will not be substantively interpreted.

Method of Analysis

To account for the non-independence of ties in networks, exponential random graph models for networks, also known as " p^* " models, were developed (Anderson et al., 1999). Such models were estimated to predict the odds of the presence of a tie conditional upon all other ties in a network. By using the "prepstar" software (Crouch and Wasserman, 1997), values of transitive and cyclic triads were computed and added to the data set, and the p^* models were estimated by logistic regression. Lubbers and Snijders conclude from their comparison of models: "for testing covariates, it is important to control for structural effects, but the precise specification of the structural part (...) seems to matter less" (2007: 506). Our aim is indeed to test covariates, since we analyze *religious* and *ethnic* boundaries in *directed* dyads. Similar to Mouw and Entwisle (2006) we analyze how each specific combination of ego's and alter's characteristics (e.g. german→turkish) determines the odds of a tie in the respective network, for both friendships and visits at home. Hence, following a rather conventional approach (Quillian and Campbell, 2003), we estimate our models using logistic regression. In the empirical models we control for transitive triads, cyclic triads, mutuality, indegree, and outdegree.

The question of whether the effects of covariates are stronger in the visits-at-home network than in the friendship network implies a comparison of coefficients across logit models, which is not trivial (Long, 1997: 70). We computed *average marginal effects* (AME) (Bartus, 2005) indicating for each network dimension (friendship or visits at home) the mean marginal effect of the independent variable over the total number of individuals on the probability $P(y=1|x)$. However, the evaluation of a marginal effect size also depends on the mean probability. For instance, a 0.02 change in a probability is low when the mean probability is 0.50, but is rather

high when the mean probability is only 0.10. Therefore we will divide the AME by the mean probability in each network ($AME/mean(P)$). In addition, to check the validity of our procedure, we also compute the *fully standardized regression coefficients* on the log odds (Long, 1997: 70).

We estimate logistic regressions for ties in social networks (p^*), accounting for the non-independence of observations in class-rooms by a multilevel-level design. Since school-classes can be very heterogeneous with regard to ethnic and religious diversity, it is important to base the analysis on a large number of classes ($k=76$). Table 1A (appendix) shows the descriptive statistics ($N(\text{Dyads})=20590$).

Empirical Results

In table 1 we see a cross-tabulation of ethnic origin and religious affiliation for the sample of 1604 usable interviews as well as for 1190 cases of the analysis sample. Overall, these figures do not severely differ from each other. Based on children as units of observation, the distribution in the analysis sample (cursive figures) shows that 83% of Turkish children are of Muslim affiliation, 9% of another affiliation and 5% either have no religious affiliation or do not know about it. Almost two thirds of the German children report a Christian affiliation (65%), 34% no religious affiliation. The majority of children from the former Yugoslavia are Muslim (65%); high shares of Muslim affiliation also exist for African children (28%), children with only one native German parent (17%), and children of “other” ethnic origins (39%). Thus, the association between ethnic origin and religious affiliation is strong but far from perfect (Cramér’s $V=0.443$, $p\leq.000$).

Table 1: ethnic origin and religious affiliation, $N=1604^+$, $N=1190^*$, in percent

here

The following analyses are based on *dyads*. We present the results of binary logistic regression multilevel models for ties in two different networks types, namely friendships and visits at home. Table 2 shows the effects on ties in *friendship networks* and the effects on ties in *visits-at-home networks*.

Model 1 includes the effects of religious affiliation, worship attendance and the ethnic composition of dyads on *friendship ties*. The significantly positive effects of “*same religion*” and “*both worship*” on *friendship ties* indicate that there is indeed religious homophily.

When we apply a differentiated measure of religious affiliation and worship attendance in model 3 we find a significantly negative effect of “*christian→islam*” which indicates that,

adjusted for social and ethnic homophily, Christian children seem to span boundaries against Muslim children. Moreover, the odds of friendship increase if both children regularly attend worship (vs. both do not attend worship).

Moreover, in models 1-3, the odds of having a friendship-tie are comparatively high in *same-sex* dyads. In addition, the odds of friendship increase, the more similar the children's mother's controlling behaviors are, the more similar the number of books at home (10% level only), living in a single-family house, and living in spatial proximity to each other. In model 2 we find an interesting interaction effect: mother's control of ego's leisure time significantly reduces the odds of a friendship tie, but only in *interethnic* dyads ("*different ethnic group*ego's mother control leisure*"). This indicates that interethnic friendships depend also on the mother's behavior. Aside from that, neither "*same religion*different ethnic group*" nor "*worship*same religion*" are significant. Likewise, we also find a considerable level of ethnic homophily if we regard the ethnic origins. For instance, compared with the reference group of two native German children, in "*german→turk*" dyads the odds of friendship are reduced by a factor of .663 (model 3). In sum, our results are in favor of the general homophily thesis since they show that ethnic and religious homophily as well as homophily in living conditions also exist in networks of 10-year-old children. The opportunity structure of the classroom does not have any significant effect, even if we estimate the interaction terms of the religious constellation (*islam→christian * christian%*, *christian→islam * muslims%*) with the relative size of the respective out-group. When it comes to ties in networks in regard to *visits in other children's homes*, we find a significantly negative effect of ego's mother's controlling behavior, which is significant at the 10% level in models 4 and 6. This result indeed suggests that higher levels of mothers' control of their children's leisure time tend to prevent children from visiting other children's homes. The interaction effect "*different ethnic group*ego's mother control leisure*" is similar to the interaction in friendship networks: mother's control of ego's leisure time significantly reduces the odds of visits at home only in *interethnic* dyads ("*different ethnic group*ego's mother control leisure*"). Similar to the friendships network, the effect of "*same religion*" is positive. However, even though the direction of influence of the odds ratios indicates religious homophily in model 6, none of the coefficients is significant. In contrast, the effects of worship attendance are significant: whereas two worship attendees do not differ from the reference group of two non-attendees, the odds of visiting alter at home are reduced if one child regularly attends worship, but the other does not (odds ratios of .811 and .728 respectively in model 6). However, the interpretation of these effects is more complicated since it is not clear from which side ethnic religious boundaries are spanned. Religious segregation in the visits-at-home

networks (“*worship*→*no worship*”) may result from the religiously active children’s side (“*worship*”) who do “not like” to visit religiously inactive children (“*no worship*”) or whose parents prevent them from visiting them. Yet, religious boundaries could also be spanned from the other side, for instance if parents of religiously inactive children deter their children from hosting a religiously active child.

In model 6, we still notice some ethnic segregation in visits-at-home networks, but significant effects (at the 5% level) are limited to “*germanIP*→*other*” and “*german*→*turk*” dyads. In visits-at-home networks, we find effects of similarity in children’s living conditions which are quite similar to patterns we find in friendship networks.

Finally, the effects of the structural embeddedness of ties show the same basic pattern in both network types: the change in the number of transitive triads due to the presence or absence of ties has a positive effect; the change in the number of cyclic triads has a negative effect on friendship and visits-at-home ties. The definition of transitivity in triadic relationships implies that the probability of the existence of one tie depends on the presence of two other specific ties (Wasserman and Faust, 1994: 245), which is why they imply a hierarchy in popularity (indegree) or activity (outdegree), whereas cyclic triads show no such hierarchy. Hence, in visits-at-home as well as in friendship networks, many triadic relationships follow such a hierarchical pattern, and comparatively few are non-hierarchical.

Table 2: Determinants of *network ties*, two-level logistic regression (p^*), odds ratios

here

We further expected the effects of religious homophily to be stronger in visits-at-home networks than in friendship networks. When we compare the average marginal effects (AME) of homophily for “*same religion*”, “*both no religion*”, “*both worship*” and “*different ethnic group*” based on models 1 and 4, effects seem to be weaker in visits-at-home networks than in friendship networks in table A3 (appendix) at first sight. However, in contrast to the AME, the AME/mean(P), as well as the fully standardized coefficients show that the absolute values of all coefficients are considerably *higher* in visits-at-home networks, except for “*both worship*”, which is insignificant in model 4 in table 2 (visits-at-home networks). As a result, ethnic homophily indeed tends to be more pronounced in visits-at-home networks where, in most cases, children’s parents are also involved. With regard to religious homophily, we get a similar results: the effect of *same religion* is in line with our expectation, whereas the effect of *both worship* is not significant in model 4 (visits-at-home).

Altogether, these results offer several insights. First, homophily is an important mechanism which generates ties in social networks. Ethnic homophily seems to be even somewhat stronger in the home-visits network, which might be accompanied by “stronger ties”, than the network of simple friendship nominations. Although religious homophily effects are confounded with the effects of ethnic homophily – what results from the specific ethnic and religious composition of immigrants in Germany – religion is an independent effect. Third, if both actors attend religious services, their odds of being friends increase. In addition, model 6 shows what we would expect according to the religious homophily hypothesis, namely that the odds of visits at home are decreased if one child attends worship services, but the other child does not.

Conclusion

Similar to other European host countries, the largest immigrant group in Germany is of a different religious affiliation than the native majority. As religion is a salient factor in the perception of the “other” as well as a core element of most cultures in the world, one could expect effects of religious homophily on the formation of social ties. We are currently witnessing a religious revitalization and remobilization, but also hostility towards Muslim immigrants in Western countries. As a consequence, religious affiliation is likely to contribute to the formation of social boundaries between immigrants and natives. The empirical results of our analyses of the social network data of 10-year-old children in school-classes are in line with these considerations. In addition to ethnic homophily, religious affiliation and worship attendance do indeed accentuate social boundaries between immigrants and natives. Overall, these results indicate that religious diversity is an additional factor in increasing actual levels of immigrant-native segregation in social networks. We also expected that the effects of religious homophily are more pronounced in visits-at-home networks because of the involvement of children’s parents. In sum, the empirical results thus corroborated our expectation.

The present study is one of the first to investigate the effects of religion on social integration and social assimilation using complete network data of 4th-graders in classrooms, but there are still limitations. It is not always clear what the ultimate causes of these boundaries are. Obviously, parents influence visits at home and can thus contribute to the emergence of social boundaries. But is not yet clear to what extent parents cause the boundaries since we could not include measures of parents’ prejudice or preference for in-group contacts in our study.

In addition, according to the empirical analysis, it is not exactly clear whether religious homophily is driven by propinquity, i.e. by meeting at focal points before or after worship attendance, or by preference. Moreover, specific items indicating belief for 10-year-old children

should be developed because such measurements would enable researchers to directly analyze the effects of religious belief.

Nevertheless, we assume that research on interethnic and interreligious group contacts in childhood can make an important contribution to developmental research. Because of non-deterministic path-dependencies, early experience with ethnic and religious diversity can have a sustained influence on attitudes, even into adolescence and adulthood. In the future, this should be analyzed by using longitudinal data.

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Appendix

Table A1. Descriptive Statistics, N(Dyads)= 20590

Variable	Mean (SD)	Variable	Mean (SD)
Friendship (0/1)	0.29	turk→german (0/1)	0.05
visits at home (0/1)	0.08	turk→german1P (0/1)	0.02
		turk→turk (0/1)	0.02
no religion → no religion	reference	turk→russian (0/1)	0.01
islam→islam (0/1)	0.05	turk→other (0/1)	0.02
christian→christian (0/1)	0.32	russian→german (0/1)	0.02
		russian→german1P (0/1)	0.01
islam→christian (0/1)	0.07	russian→turk (0/1)	0.01
christian→islam (0/1)	0.07	russian→russian (0/1)	0.01
other relig. constellation (0/1)	0.41	russian→other (0/1)	0.01
worship→worship (0/1)	0.16	other→german (0/1)	0.06
worship→no worship (0/1)	0.22	other→german1P (0/1)	0.02
no worship→worship (0/1)	0.22	other→turk (0/1)	0.02
		other→russian (0/1)	0.01
boy→boy	reference		

boy→girl (0/1)	0.25	other→other (0/1)	0.03
girl→girl (0/1)	0.25		
girl→boy (0/1)	0.25	Germ1P%	16.05 (9.64)
		Turk%	10.32 (11.09)
mother: control leisure	-0.73 (0.61)	Russ%	4.95 (7.70)
no. of books / 10	-10.26 (9.77)	Other%	13.53 (11.90)
own house (0/1)	0.28		
apartment block (6+ floors) (0/1)	0.15	Christian%	53.74 (22.36)
unemployment of parents (0/1)	0.02	Muslims%	16.32 (16.36)
spatial proximity (max. 5 min. walk) (0/1)	0.12		
		<i>friendship network</i>	
german→german	reference	transitive triads	4.90 (5.41)
german→german1P (0/1)	0.09	cyclic triads	1.56 (1.89)
german→turk (0/1)	0.05	mutuality (0/1)	0.31
german→russian (0/1)	0.02	indegree (%)	28.82 (14.73)
german→other (0/1)	0.06	outdegree (%)	27.43 (15.03)
german1P→german (0/1)	0.09		
		<i>Visits-at-home network</i>	
german1P→german1P (0/1)	0.03	transitive triads	0.34 (0.91)
german1P→turk (0/1)	0.02	cyclic triads	0.10 (0.35)
german1P→russian (0/1)	0.01	mutuality (0/1)	0.08
german1P→other (0/1)	0.02	indegree (%)	8.19 (7.41)
		outdegree (%)	7.77 (6.78)

Note: “0/1” indicates a dummy variable

Table A2. Origin of spouse or partner if one parent is native German, N= 258

		Origin of spouse or partner						
		Turkey	Poland	Serbia/ Croatia/ Bosnia	Russia/ Kazakhstan	Africa	other	total
Father German	N	13	17	4	10	2	46	92
	%	14.13	18.48	4.35	10.87	2.17	50.00	100
Mother German	N	47	11	7	5	19	77	166
	%	28.31	6.63	4.22	3.01	11.45	46.39	100

Table A3. Coefficients of religious homophily in different metrics

	AME		AME/mean(P)		fully std. logit	
	friends	visits	friends	visits	friends	visits
different ethnic group	-0.0144	-0.0116	-0.0492	-0.1396	-0.0257	-0.0600
same religion	0.0163	0.0128	0.0559	0.1537	0.0262	0.0465
both no religion	0.0104	0.0075	0.0356	0.0901	0.0101	0.0176
both worship	0.0308	0.0020	0.1054	0.0244	0.0378	0.0063

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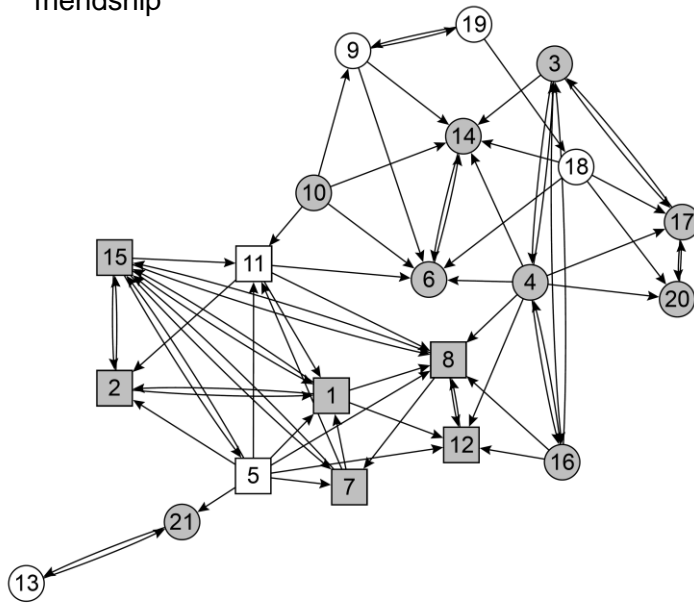
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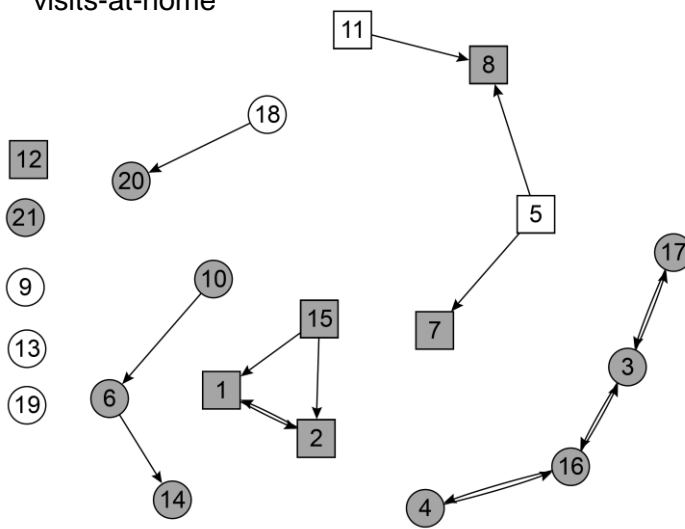
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Figure 1. Networks in class no. 10072

friendship



visits-at-home



○ native girl ● Immigrant girl □ native boy ■ immigrant boy

Note: Figure 1 shows ties in two different network-dimensions in the same class, namely friendship ties in the upper panel and visits-at-home in the lower panel

Table 1. Ethnic groups and religious affiliation, in percent

	christian		islam		other		no religion / don't know		N ⁺	total % ⁺
German	64.2	<i>64.7</i>	0.5	<i>0.5</i>	0.8	<i>0.9</i>	34.6	<i>33.9</i>	851	53.1
German 1 parent	41.8	<i>42.0</i>	16.0	<i>17.1</i>	4.3	<i>5.2</i>	38.0	<i>35.8</i>	258	16.1
Turkish	1.7	<i>2.3</i>	82.9	<i>83.2</i>	8.8	<i>9.2</i>	6.6	<i>5.3</i>	181	11.3
Polish	71.7	<i>75.8</i>	8.7	<i>6.1</i>	6.5	<i>9.1</i>	13.0	<i>9.1</i>	46	2.9
Yugoslav	28.00	<i>25.0</i>	64.0	<i>65.0</i>	4.0	<i>5.0</i>	4.0	<i>5.0</i>	25	1.6
Russian	71.1	<i>76.2</i>	2.1	<i>3.2</i>	2.1	<i>1.6</i>	24.7	<i>19.1</i>	97	6.0
African	59.3	<i>52.4</i>	22.2	<i>28.6</i>	7.4	<i>9.5</i>	11.1	<i>9.5</i>	27	1.7
other origin	31.1	<i>35.1</i>	44.5	<i>39.4</i>	11.0	<i>10.6</i>	13.5	<i>15.0</i>	119	7.4
	51.1	<i>51.9</i>	17.2	<i>17.2</i>	3.4	<i>3.8</i>	28.3	<i>27.1</i>	1604	100

Notes: N=1604⁺: usable interviews

N=1190*: analysis sample of 76 classes, after listwise deletion of non-respondents

Table 2. Determinants of *network ties*, two-level logistic regression (p^*), odds ratios

	friendship ties			visits at home		
	model 1	model 2	model 3	model 4	model 5	model 6
ego: mother controls leisure	0.992	1.091	0.994	0.908+	1.007	0.909+
<i>dyadic similarity effects</i>						
same religion	1.177**	1.105	-	1.306**	1.225+	-
both no religion	1.112	1.100	-	1.184	1.172	-
other constellations	reference	reference	-	reference	reference	-
islam→islam	-	-	0.909	-	-	1.079
christian→christian	-	-	1.054	-	-	1.157
islam→christian	-	-	1.008	-	-	0.855
christian→islam	-	-	0.668*	-	-	0.713
other relig. constellation	-	-	0.905	-	-	0.896
no religion → no religion	-	-	reference	-	-	reference
worship→worship	-	-	1.291**	-	-	0.932
worship→no worship	-	-	0.941	-	-	0.811*
no worship→worship	-	-	1.074	-	-	0.728**
no worship→no worship	-	-	reference	-	-	reference
both worship	1.299***	1.279*	-	1.048	1.027	-
same sex	4.616***	4.627***	4.721***	5.986***	5.990***	6.034***
mother: controls leisure	1.182***	1.178***	1.176***	1.210**	1.203**	1.213**
no. of books / 10	1.004+	1.004	1.004+	1.010**	1.010**	1.010**
own house	1.162*	1.162*	1.154*	1.191*	1.191*	1.225*
apartment block (6+ floors)	0.970	0.964	0.948	0.914	0.908	0.897
other housing constellations	reference	reference	reference	reference	reference	reference
unemployment of parents	1.007	1.010	1.013	0.912	0.923	0.909
spatial prox. (max. 5 min.)	2.784***	2.789***	2.803***	3.214***	3.232***	3.273***
different group	0.832***	0.793***	-	0.718***	0.675***	-
same ethnic group	reference	reference	-	reference	reference	-
<i>interaction effects</i>						
same rel.*diff. ethnic gr.	-	1.127	-	-	1.157	-
diff. ethnic gr.*	-	-	-	-	-	-
ego: mother controls leisure	-	0.837*	-	-	0.798*	-
worship*same religion	-	1.028	-	-	1.035	-
<i>ethnic composition</i>						
german→german	-	-	reference	-	-	reference
german→german1P	-	-	0.709***	-	-	0.676**
german→turk	-	-	0.663**	-	-	0.538*
german→russian	-	-	0.821	-	-	0.716
german→other	-	-	0.815+	-	-	0.873
german1P→german	-	-	0.880	-	-	1.015
german1P→german1P	-	-	0.709*	-	-	1.054
german1P→turk	-	-	0.744	-	-	0.619
german1P→russian	-	-	0.969	-	-	0.977
german1P→other	-	-	0.925	-	-	0.590+
turk→german	-	-	0.766+	-	-	0.832

... table 2 continued	friendship ties			visits at home		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
turk→german1P	-	-	0.819	-	-	1.254
turk→turk	-	-	1.132	-	-	1.090
turk→russian	-	-	0.886	-	-	0.460
turk→other	-	-	0.982	-	-	0.791
russian→german	-	-	0.811	-	-	1.081
russian→german1P	-	-	1.191	-	-	1.018
russian→turk	-	-	1.180	-	-	0.722
russian→russian	-	-	0.763	-	-	1.668
russian→other	-	-	0.891	-	-	0.565
other→german	-	-	0.771*	-	-	0.958
other→german1P	-	-	0.911	-	-	0.903
other→turk	-	-	0.901	-	-	0.534+
other→russian	-	-	1.018	-	-	0.682
other→other	-	-	1.077	-	-	1.046
<i>classroom context</i>						
Christian%	0.997	0.997	0.996	0.995*	0.995*	0.995*
Muslims%	1.003	1.003	1.002	1.002	1.002	1.001
christian→islam*musl.%	0.996	0.997	1.004	0.984	0.986	0.995
islam→christian*christ.%	1.004	1.004	1.006	0.998	0.998	0.999
<i>network structure</i> (respective dimension)						
transitive triads	1.252***	1.251***	1.248***	1.458***	1.457***	1.450***
cyclic triads	0.796***	0.796***	0.799***	0.509***	0.507***	0.519***
mutuality	12.937***	12.952***	12.991***	48.124***	48.166***	47.711***
indegree	0.954***	0.954***	0.954***	0.901***	0.901***	0.902***
outdegree	1.072***	1.072***	1.073***	1.173***	1.173***	1.174***
N	20590	20590	20590	20590	20590	20590
rho	.038***	.037***	.037***	0	0	0
R ² (McKelvey&Zavoina)	.672	.673	.675	.567	.569	.573

Notes: *** p<=.001 ** p<=.01 * p<=.05 + p<=.1