

# An Economic Model of Friendship: Diversity, Minorities and Integration

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January 17, 2006

## Abstract

We analyze a model of friendship formation. Individuals come in different types and the benefits that they from friendships depend on the types of their friends. We analyze how the number of friendships they form, and the number of cross-type friendships, depend on the relative prevalence of different types in the populations. Under a variety of scenarios, minority types form fewer friendships overall and a larger portion of their friendships are cross-type. As the diversity of types is increased, the integration of the society increases, as more prevalent types of agents become more open to forming cross-type friendships.

## 1 Introduction

## 2 Some Empirical Background

Many social networks exhibit what is was named “homophily” by Lazarsfeld and Merton (1954). This refers to the fact that people are prone to interact mostly with people who are similar to themselves. This applies very broadly, as measured by age, race, gender, religion, profession and is generally a quite strong and robust observation (see McPherson, Smith-Lovin and Cook (2001) for an overview of research on homophily). It was first noted by Burton (1927) who coined the phrase “Birds of a Feather.” For example, based on a

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national survey Marsden (1987, 1988) finds that only 8 percent of people have *any* people of another race with whom they “discuss important matters.” Homophily is an important aspect of social networks since it means that some social networks may be largely segregated. This, for instance, has profound implications in the access to job information (e.g., see the survey by Ionnides and Datcher-Loury (2005)). It can also have profound implications for the spread of other sorts of information and behaviors.

The following table summarizes information about friendship links by ethnicity of students in a Dutch high school collected by Baerveldt, Van Duijn, Vermeij, and Van Hemert (2004). It illustrates homophily, as exhibited by the highest percentage being on the diagonals.<sup>1</sup> Beyond the clear tendency to link to own type, there is also another phenomenon.

Percent of Friends by Ethnicity:	Ethnicity of Students				
	Dutch n=850	Moroccan n=62	Turkish n= 75	Surinamese n=100	Others n=230
Dutch	79	24	11	21	47
Moroccan	2	27	8	4	5
Turkish	2	19	59	8	6
Surinamese	3	8	8	44	12
Others	13	22	14	23	30

Table 1: Percentage of Links Across Ethnicities in a Dutch High School; from Baerveldt et al (2004).

Minority groups are more likely to form relationships with other minorities. This is true, even after adjusting for numbers in terms of relative sizes.<sup>2</sup> While there may be many factors affecting cross-ethnicity friendship probabilities (e.g., common religions among some Turkish and Moroccan students), the higher tendency for minority groups to form inter-ethnic friendships remains after correcting for a variety of factors (e.g., see the discussion in Baerveldt

<sup>1</sup>The “others” category is an exception, but it is a conglomerate of a number of ethnicities.

<sup>2</sup>The fact that one group is larger implies that it will have a relatively lower percentage of links with a group of a smaller size. For instance, if there are only two groups and one is twice as large as the other, then it will necessarily have half as many cross-group links per capita as the smaller group. Nevertheless, Turkish students have less than three times as many friendships with Dutch students than with Moroccan students even though there are more than twelve times as many Dutch students as Moroccan students. So, Turkish students are forming more than four times as many friendships with Moroccan students compared with Dutch students, on a per-capita basis.

et al (2004) as well as Fong and Isajiw (2000)). There is also evidence that the percentage of inter-group links can vary nonlinearly and non monotonically with overall measures of heterogeneity in the population (e.g., see Blalock (1967) and Moody (2001)). There have been various theories proposed for this, for instance based on contact theory (e.g., Allport (1954), Blau (1977)) and power differences and competition (e.g., Giles and Evans (1986)).

We build a simple but powerful model of equilibrium friendship formation. This model provides a basis for understanding how cross-group friendship patterns might emerge, and how they depends on underlying population sizes.

### 3 A Search-Based Model of Links among Diverse Types

The model is a variation on search-based models, which have been used in a variety of contexts (e.g., labor markets as in Mortensen and Pissarides (1994)). It is distinct in that are that agents come in a variety of types and form many friendships. While very stark, the model provides interesting new insights relating relative friendship rates to population sizes.

#### 3.1 Agents, Types and Payoffs

Agents come in a finite variety of types  $T = \{1, \dots, K\}$ . These might correspond to ethnicities, religious affiliations, professions, age, etc., or some combinations of traits.

In each period an agent can choose whether or not to search for a new friend.<sup>3</sup> Searching for a new friend in any given period costs  $c > 0$ .

The value of friends to an agent depends on the mix of how many friend the agent that are of the same type as he or she is and how many friends the agent has of different types. For the purposes of this model, the agent only distinguishes between same type and different type, and does not distinguish between which type an agent beyond whether the agent is the same or different.

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<sup>3</sup>The word “friend” is used throughout, but this might also correspond to some other sort of relationship, depending on the application.