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IDENTITY AND FRIENDSHIP:
AFFECTIVE DYNAMICS AND NETWORK FORMATION

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ABSTRACT

This paper examines goodness and power in a hypothetical friendship structure premised on the assumption that individuals become friends in order to increase opportunities for enacting valued identities. Affect control theory simulations generated a simulated friendship network among actors whose identities systematically varied in goodness, power, and expressivity. Analysis of this simulated network suggests that actors' goodness was related to their presence in cohesion-based subgroups, while actors' power was more important in determining structural equivalence among the hypothetical actors. Relations were homophilous with respect to goodness but not power or expressivity. Powerful people seemed more willing to befriend relatively weak others than relatively strong others.

INTRODUCTION

Individual choices of interaction partners are among the most fundamental of social phenomena. From a sociologist's point of view, there is little not affected by patterns

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of social interaction. Such choices lead to decisions about hiring, dating, friendship, and marriage (among many others) and are linked to processes such as organizational affiliation (McPherson, Popielarz, and Drobnic 1991), attitude formation (Erickson 1988), and information transfer (Carley 1986), to name just a few.

How do we choose our friends? Certainly, choices of interaction partners are always from among constrained alternatives. Physical proximity strongly predicts the formation and strength of friendship ties (Festinger, Schacter, and Back 1950; Newcomb 1961; Verbrugge 1983). In addition, institutional structures place restrictions on interaction partner choices. For example, while an undergraduate student and a university president walk the same campus, a fellow student is a far more likely candidate for interacting with the young scholar than the university president. However, beyond the constraints of institutional and physical structures, there remains some volitional aspect of friendship formation. In this paper I briefly discuss several social psychological assertions about the manner in which we choose our friends and then consider some implications of one of those claims—namely, that individuals seek interactions with those who provide opportunities for maintaining valued identities.

IDENTITY AND FRIENDSHIP

Social psychologists' understandings of the relationship between self and society begin with social relationships. We typically think of the social self as deriving in large part from reflected appraisals of valued others (Cooley 1902; Mead 1934; Rosenberg 1979), from social comparisons (Rosenberg 1979), and from observations of our own actions toward others (Bem 1972). Consequently, a great deal of work recognizes the importance of social relations in the development and maintenance of social identities (e.g., Burke and Reitzes 1981, 1991; Hogg 1992; Serpe 1991; Serpe and Stryker 1987; Stryker 1981; Tajfel 1981, 1982; Tesser, Pilkington, and McIntosh 1989). Much of this work concerns identity as *object* rather than *agent*. Burke and Reitzes (1991, p. 239) point out, however, that to do a better job of understanding the effects of individual level processes on societal level outcomes, social psychologists must give more attention to the active self.

Social actors are often in a position to do behavioral work to negotiate identities. Among the behavioral strategies proposed is selective social interaction (e.g., Backman and Secord 1962; Robinson and Smith-Lovin 1992; Swann 1985, 1987). Through selective social interaction, actors can negotiate identities by choosing to interact with others who are likely to help produce specific outcomes.

Selective Interaction

To examine the implications of strategic action in choice of interaction partners, we must first consider possible motives for friendship formation. Empirical and theoretical work in social psychology suggest at least three alternative motives:

1. *People choose friends in order to gain access to valuable resources (social exchange).* Through both experimental and naturalistic studies, researchers have widely documented the involvement of network position in determining resources. Networks can serve as resources by providing access to information (e.g., Carley 1986), to social support (e.g., Suitor 1987; Suitor and Keeton in press), to influential others (see review in Campbell, Marsden and Hurlbert 1986) to trading power (e.g., Markovsky, Willer, and Patton 1988; Skvoretz and Willer 1991), and so on. Friends can help us achieve specific, identity-relevant goals either because of direct properties of themselves, or because of the their relations with others. Thus, one selective interaction strategy might be to choose friends on the basis of access to valued resources.
2. *People choose friends in order to enhance self-outcomes (self-enhancement).* Most of us are more attracted to those who like us than to those who do not (Berscheid and Walster 1978; Hays 1984). Self-enhancement theory (Taylor and Brown 1988) and self-evaluation maintenance theory (Tesser et al. 1989) suggest that this is part of a self-management strategy whereby we pursue more positive self views. Through selective interaction, we can manipulate our own reflected appraisals and produce selected referents for social comparison, weighting self-relevant evidence in our own favor.
3. *People choose friends in order to maintain valued identities (identity maintenance).* Symbolic interactionists (Cooley 1902; Heise 1979; Mead 1934; Stryker 1981) suggest that people strive for stable, coherent information about the self. According to this perspective, friendship choice can serve as an active strategy (in the same way described above) for eliciting consistent self-information.

Each of these identity-based motives is consistent with central theoretical traditions in social psychology. However, the first two motives for friendship choice have been more thoroughly explored in the social psychological literature. The present paper will focus on the third motive—identity maintenance—and explore some concrete implications of such a motive.

Affect control theory (Heise 1979; MacKinnon 1994; Smith-Lovin and Heise 1988) and identity theory (Burke 1980; Burke and Reitzes 1981, 1991; Stryker 1981) present symbolic interactionist formulations of identity in which the self is both object and agent. Both theories advocate measurement of identities based on semantic differentials. Both theories present cybernetic models in which there are forces promoting stability (Burke and Reitzes 1991). And, both theories imply that selection of friendships would be involved in identity formation and maintenance.

Identity theory describes identity-based action as deriving from commitment, which in turn arises through extensiveness and strength of connection to others who support that identity (Serpe 1991; Serpe and Stryker 1987). According to this theory, the frequency of role performance increases with the number of friends

who value that role and the extent to which an individual values the friends that support that role. Empirical research in this paradigm typically has respondents identify their network alters as being associated with one or more specific identities. In contrast, the present paper considers the properties of others that make them likely to support various identities. Affect control theory is well-suited for this endeavor by virtue of being formally stated in a set of equations that allow computer simulation of social events to explore the implications of the theories' assumptions and empirical grounding.

FRIENDSHIP FORMATION AS AFFECT CONTROL

Affect control theory (Heise 1979; Smith-Lovin and Heise 1988) is a model of social interaction that provides a testable account of the way we interpret and create events to maintain fundamental meanings. Affect control theory focuses on the individual's definition of the situation, including the perception of self and others as occupants of various identities. As implied by its name, affect control theory posits a cybernetic model, or control system (Powers 1973), assuming that people operate in identities that carry *fundamental sentiments* that they attempt to control. Identities are typically viewed as schema-like structures, hierarchically organized within the self, and activated through particular settings and vis-à-vis particular interaction partners. Affect control theory emphasizes the affective component of these cognitive structures. Affective meanings associated with particular identities (fundamental sentiments) are represented by the dimensions of evaluation, potency, and activity (EPA) identified by Osgood, Suci, and Tannenbaum (1959). Other aspects of social interactions—social settings, behaviors, attributions, and emotions—are also identified in terms of their associations on these three dimensions.

Events (in the form of [actor] [verbs] [object]) create *transient impressions* due to the nature of the setting, the identities involved, and the behaviors performed. Transient impressions are the affective meanings associated with the particular combination of identities, settings, behaviors, and emotions in the current situation. Like fundamental sentiments, transient impressions are represented in affect control theory by their associations of evaluation, potency, and activity (EPA). For example, the identity *grandfather*, has an EPA profile[1] of (2.2, 1.3, -1.8), suggesting that within this culture we consider grandfathers to be very good, somewhat powerful but rather passive actors. When an actor's (situationally produced) transient impression differs from his or her (stable, culturally defined) fundamental sentiment, a *deflection* results. Actors then are motivated to construct new events that realign transient impressions with fundamental sentiments. Deflection is operationalized as the sum of the squared differences between the fundamental sentiment and the transient impression on each of the three dimensions (*e, p,* and *a*) over each of element in the event (actor, behavior, object, and setting). Thus, in

the three *dimensional* semantic space, a deflection roughly corresponds to the distance between the fundamental sentiment and the transient impression.

Affect control theory presumes that this underlying control process is the same for everybody and that there is a large body of shared cultural meaning attached to common identities, situations, behaviors, and emotions. Evidence does suggest that within the United States these meanings are similar across socioeconomic status, age, and region (see review in Smith-Lovin 1990, p. 280). Differences in definition of the situation are modeled by differences in the labeling of behavior, identities, traits, and so on. For example, when a *father* asks his teenage *son* about his day at school, the father may view the situation as *father talks to son*, while the son may perceive the situation as *father interrogates son*. In this way, while the father and son have a similar understanding of the acts *talk to* and *interrogate*, they have very different understandings of the after school conversation.

Affect control theory is stated as a set of equations concerning the affective dimensions of elements of the social situation. These equations consist of impression-formation equations developed by Smith-Lovin (1987) and mathematical transformations of these equations to describe likely behaviors, emotions, and labeling (Heise 1991, 1992). The equations predicting impression-formation empirically derive from research using a sample of U. S. undergraduates.[2] The *impression formation* equations explicitly express the ways in which social events prompt affective reactions. The equations provide the detailed statement of affective dynamics that is necessary in order to examine implications of the affect control principle. To implement this principle, the impression formation equations are mathematically transformed into *impression management* equations. Operationalizing the affect control principle through the minimization of deflection, the impression management equations mathematically derive from the impression formation equations by solving for the event constructions that produce the lowest possible deflection. Using the EPA ratings of social interaction elements (e.g., identities and behaviors) as inputs and outputs, these impression management equations formally express the theory, including the affect control principle and the empirically derived statements about affective responses to events.

In summary, affect control theory uses information about the setting, actors, and behaviors in a social situation to predict information about impression formation and impression change. Actors resist change in their fundamental meanings. Such changes produce deflections—affective disruptions from their initial definition of the situation—that are signalled by the experience of emotion. Emotional experience communicates to the actor that deflection has occurred and prompts him or her to construct an event that would reduce that deflection and move impressions back toward his or her fundamental sentiments. The inputs and results of these equations are three-number profiles representing the ratings of evaluation, potency, and activity for each of the relevant social elements.

Affect Control and Interaction Choices

What does affect control theory have to say about actors' preferences for interaction partners? Affect control theory predicts actors' choices of behaviors *during* interaction but does not predict *whether* two individuals will interact. However, predictions about interaction partner choices should be within the theoretical scope of affect control theory. For example, one answer is that nice people will interact with nice people. If we take the equation predicting the evaluation of an actor after a particular event (Smith-Lovin, 1987, p. 48) and drop all terms whose coefficients are less than 0.10, the equation reduces to:

$$A_e' = -0.10 + 0.47A_e + 0.42B_e - 0.11B_a + 0.13B_eO_e \quad (1)$$

where A, B, and O refer, respectively, to properties of the actor, behavior, and object, and e, p, and a refer respectively to the evaluation, potency, and activity of the elements. The B_eO_e interaction term reveals that in addition to the nature of our behavior, the object (or recipient) of our behavior is important in determining how nice we are. Doing something nice to someone nice increases an actor's evaluation. In contrast, doing something nice to a negatively evaluated object mitigates, somewhat, the positive effect of the nice behavior.[3] So, actors striving to maintain positive identities should behave (nicely) toward nice people. Who are nice people? Again according to equation (1), nice people are those who do nice things (to nice others).

However, affect control theory predicts that only actors with nice identities will strive to maintain those positive associations. The more proximate goal is that of meaning maintenance. Within a particular social event, the deflection is given by,

$$D_i = (f_i - t_i)^2 \quad (2)$$

where f represents the fundamental sentiment, t represents the transient impression, and i represents the association of e, p, and a for each actor, behavior, object, and setting in the social event. According to Heise (1992), the "unlikelihood" (U) of an event is a function of the deflection it produces,

$$U = k + \sum w_i D_i \quad (3)$$

where k is a constant and w is a vector of arbitrary weights. MacKinnon and Heise (1987) report empirical support for the proposition that people perceive events with high deflections to be more unlikely than events producing lower deflections.

This suggests a strategy for eliciting affect control predictions about the relationship between identities and friendship choice. Relying on the affect control premise that individuals act to minimize deflection, we would surmise that when given a constrained choice between equally possible interaction partners, actors will choose the interaction predicted to produce the lowest deflection. Using this logic, Robinson generated affect control predictions about interaction partner choices simulating all possible interactions and searching for interactions producing the lowest deflection (Robinson 1992; Robinson and Smith-Lovin 1992). In other words, given an array of potential network alters who are equally possible interaction partners (with regard to physical and institutional constraints outside the affect control model), affect control theory predicts that actors will choose alters with whom interactions will produce acceptably low deflections.[4]

GOODNESS, POWER, AND EXPRESSIVITY IN A SIMULATED FRIENDSHIP NETWORK

As described earlier, affect control theory is based on the symbolic interactionist idea that individuals try to experience social life in ways that are consistent with their interpretations of their environments. Rather than grappling with the problem of measuring the qualitative richness of social cognitions, affect control theory uses affective measures to characterize these interpretations. Affect control theory assumes that all social cognitions evoke affective associations and that these associations can be indexed to a large degree on universal dimensions of response (MacKinnon and Heise 1993). To achieve this indexing, the theory relies on the semantic differential and exploits the work of Osgood and his colleagues (Osgood, May, and Miron 1975; Osgood, Suci, and Tannenbaum 1957) who have identified the dimensions of evaluation, potency, and activity as universal dimensions of meaning captured by the semantic differential.[5] These dimensions have been proposed to correspond with the social dimensions of status, (Kemper 1978; Kemper and Collins 1990), power (Kemper 1978; Kemper and Collins 1990), and Parson's concept of social expressivity (Heise 1987). Kemper and Collins (1990) argued that status and power are the fundamental dimensions of social life and deserve their places as such in our theories of both macro- and microstructures. Kemper and Collins relate Osgood and colleagues' potency dimension to control or dominance, which they call power, and they relate the evaluation dimension to acceptance and positive association. Traditional conceptions of status (see Ridgeway and Walker 1995), incorporating notions of esteem, deference, and influence, probably imply some combination of evaluation and potency.

How are these affective associations related to relationship choices? Since the 1930s and 1940s, sociometric techniques have been used to study power and popularity. Social network researchers have examined coerced and naturally occurring exchange, communication, and friendship relations to gain insight into the mechanisms of power, status, and gregariousness. In the following section I use simulated friendships to explore the dynamics of status, power, and expressivity in relationships among hypothetical actors whose goals are to maintain affectively stable identities.

Simulated Network Data

In order to make computation and interpretation using affect control equations more accessible to the researcher, Heise (1991; Heise and Lewis 1988) built these equations into a software program called INTERACT that allows researchers to simulate social situations and generate theoretical predictions about what behaviors are likely to occur, what emotions are likely to be experienced, and how actors and objects are likely to change their impressions of one another as a result of these behaviors and emotions. The predictions are reported in both numeric form—a three-number profile corresponding to the EPA rating of the concept (identity, behavior, etc.) and in common language form—a list of words (behaviors, identities, etc.) whose EPA ratings fall close to the predicted profile. These predicted behaviors, emotions, and identities come from a dictionary of words rated on EPA dimensions by a sample of U. S. undergraduates.

I searched this dictionary (Heise and Lewis 1988) for identities that were spread as evenly as possible across the semantic (EPA) space. To do this, I arbitrarily trichotomized each dimension into high (1 to 2), medium (-1 to 1), low (-2 to -1), and then chose 27 actors who had each possible combination of high-, medium-, and low-evaluation, -potency, and -activity. Table 1 shows the identity names that were used and their EPA profiles. Some areas in the semantic space are surprisingly bare of viable identities (Smith-Lovin 1990). These sparse areas frequently are filled in with mythical or fictitious identities (e.g., vampire, zombie). Accordingly, not only is the group of actors in this network unrepresentative of any naturally occurring group or population, some actors may not even be representative of any living *individual*.

Using INTERACT, I simulated the event *[Actor] Befriends [Object]* for all possible combinations of the 27 actors and objects (including friendships between actors with the same identity),[6] and recorded the deflections into a 27×27 asymmetric matrix. Because the (un-)likelihood of an event is presumed to be a function of the deflection (see equation [3]), high deflections suggest lower likelihoods of occurrence. To render the values more intuitively interpretable, I reversed the values in the matrix by subtracting each deflection from a constant ($k = 15$) to produce a "likelihood" matrix (shown in Table 2), with rows (i) and columns (j) where the elements refer to the likelihood of the event "i befriends j." For purposes of exploring affect control theory's predictions concerning identity-affect and the development of friendship networks, this likelihood matrix can be treated like a network matrix of tie "counts."

Goodness, Power, Expressivity, and Homophily

One of the most frequently invoked concepts in the research on friendship is homophily, the tendency of people to be friends with similar others (Feld 1981, 1982; Hallinan 1974; Johnsen 1986; Lazersfeld and Merton 1954; Marsden 1988;

Table 1. Social Identities in Simulated Network

Position in Semantic Space[1]		*EPA Profile*		
EPA Profile	*Identity Name*	*Evaluation (nice-mean)*	*Potency (strong-weak)*	*Activity (lively-passive)*
1. HHH	winner	1.53	2.17	1.63
2. HHM	surgeon	1.81	2.09	–0.21
3. HHL	grandfather	2.17	1.31	–1.77
4. HMH	playmate	1.92	0.46	1.95
5. HMM	darling	1.85	0.60	0.67
6. HML	grandmother	2.24	0.14	–1.92
7. HLH	baby	1.99	–2.56	2.49
8. HLM	maiden	1.63	–1.14	1.06
9. HLL	oldtimer	1.28	–0.82	–1.92
10. MHH	linebacker	0.14	2.06	1.92
11. MHM	sheriff	0.43	1.95	0.07
12. MHL	judge	0.89	2.34	–1.70
13. MMH	auctioneer	0.57	0.35	1.92
14. MMM	miner	0.07	0.28	0.28
15. MML	librarian	0.39	0.18	–1.53
16. MLH	newsboy	0.60	–1.31	1.63
17. MLM	midget	0.14	1.24	0.35
18. MLL	invalid	–0.57	–2.31	–1.35
19. LHH	brute	–1.95	1.70	1.92
20. LHM	mafioso	–1.77	2.09	0.32
21. LHL	vampire	–2.17	1.56	–0.57
22. LMH	maniac	–1.99	0.39	1.81
23. LMM	henchman	–1.85	0.50	0.28
24. LML	scrooge	–1.99	0.32	–1.99
25. LLH	crybaby	–1.67	–1.74	1.67
26. LLM	slave	–1.74	–2.38	0.11
27. LLL	zombie	–1.81	–1.95	–1.81

Note: Profiles taken from Heise and Lewis (1988).
Target criteria (approximately):
High = 1.5 to 2.5
Medium = -0.5 to 1.0
Low = -1.5 to -2.5

McPherson and Smith-Lovin 1986, 1987; Suitor and Keeton in press; Suitor, Pillemer, and Keaton 1995; Tuma and Hallinan 1979; Verbrugge 1977, 1979). Homogeneous relations can be either produced by or epiphenomenal to actors' motivation for such relations. Evidence suggests that both are true; homogeneous relations are in part a by-product of constrained opportunities (Feld 1981, 1982,

Table 2a. Simulated Friendship Network—Likelihood of *[Actor] Befriends [Object]*

	High			High Medium			Low			High			Medium Medium			Low			High			Low Medium			Low		
Evaluation																											
Potency	*H*	*M*	*L*	*H*	*M*	*L*	*H*	*M*	*L*	*H*	*M*	*L*	*H*	*M*	*L*	*H*	*M*	*L*	*H*	*M*	*L*	*H*	*M*	*L*	*H*	*M*	*L*
Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1	11.0	11.6	12.4	12.9	13.2	13.4	13.3	14.1	13.8	11.1	11.9	11.4	13.1	13.3	13.4	13.8	13.7	12.3	9.9	10.1	10.1	10.9	11.4	10.8	11.4	10.9	10.6
2	11.8	12.0	12.5	13.8	13.8	13.4	14.3	14.3	13.7	11.8	12.2	11.0	11.3	13.6	13.3	14.4	14.0	12.0	10.3	10.2	9.9	11.3	11.3	10.2	11.7	10.8	10.0
3	12.1	11.9	12.1	13.8	13.6	13.0	14.1	14.3	13.3	12.0	12.0	11.0	13.6	13.1	12.7	13.9	13.3	11.3	10.2	9.8	9.3	10.7	10.6	9.3	10.8	9.8	9.0
4	11.9	12.0	12.5	12.8	13.1	13.2	12.3	13.4	13.6	12.0	12.3	11.9	12.9	13.0	13.1	12.9	12.9	11.7	10.4	10.6	10.2	10.5	10.9	10.5	10.1	9.7	9.9
5	12.5	12.5	13.0	13.7	13.8	13.8	13.5	14.2	14.2	12.6	12.8	12.2	13.7	13.6	13.7	13.8	13.7	12.4	11.0	11.1	10.7	11.3	11.6	10.9	11.1	10.6	10.6
6	12.3	12.1	12.4	13.3	13.3	13.2	12.8	13.6	13.4	12.2	12.3	11.6	13.1	12.9	12.9	13.0	12.8	11.2	10.2	10.2	9.6	10.2	10.4	9.6	9.7	9.0	9.1
7	9.7	9.8	9.3	8.0	8.9	9.9	2.3	6.7	8.3	9.8	10.2	9.9	8.0	8.5	9.1	5.6	6.4	4.6	7.9	9.0	8.1	5.9	7.1	6.9	2.0	1.7	3.5
8	11.9	9.8	12.0	11.8	12.2	12.4	9.5	11.6	12.5	12.1	12.3	11.9	11.9	13.2	12.5	11.0	11.4	10.3	10.6	11.0	10.4	9.8	10.5	10.2	8.2	8.0	8.9
9	11.7	11.7	12.0	12.1	12.5	12.7	10.9	12.4	13.1	10.0	10.9	10.3	12.1	12.5	12.7	11.9	12.2	11.4	10.5	10.7	10.3	10.3	10.8	10.5	9.4	9.3	10.0
10	9.6	10.2	11.1	11.6	12.0	12.2	12.3	13.0	13.1	10.0	10.9	10.3	12.1	12.7	12.8	13.0	13.3	12.5	9.6	9.8	10.2	10.9	11.4	11.2	11.7	11.6	11.4
11	10.8	11.0	11.6	12.8	12.9	12.7	13.7	14.1	13.5	11.2	11.6	10.7	13.3	13.4	13.2	14.1	14.0	12.8	10.6	10.4	10.6	11.8	12.0	11.2	12.6	12.1	11.5
12	10.6	10.4	10.7	12.8	12.7	11.8	13.7	13.8	12.3	10.8	12.0	9.6	13.1	12.8	12.1	13.9	13.3	11.4	9.9	9.4	9.3	11.1	11.0	9.5	11.9	10.9	9.7
13	11.0	11.1	11.5	12.0	12.3	12.4	11.9	12.8	13.1	11.5	11.7	11.6	12.5	12.7	12.8	12.8	12.9	12.3	10.7	10.8	10.7	11.1	11.4	11.1	11.1	10.9	11.1
14	11.3	11.2	11.5	12.4	12.5	12.4	12.5	13.2	13.3	11.8	11.9	11.1	12.9	13.1	13.0	13.3	13.4	12.8	11.3	11.1	11.0	11.8	11.9	11.5	11.8	11.6	11.7
15	11.4	11.2	11.5	12.6	12.6	12.4	12.7	13.3	13.2	11.9	11.8	10.9	13.0	13.0	12.9	13.3	13.3	12.6	11.1	10.8	10.6	11.5	11.6	11.0	11.6	11.3	11.3
16	10.9	10.8	10.7	10.6	11.1	11.0	8.3	10.5	11.4	11.3	11.4	10.8	11.0	11.4	11.6	10.2	10.7	9.9	10.4	10.7	10.2	9.7	10.3	10.0	8.2	8.1	8.9
17	11.0	10.9	10.9	11.0	11.4	11.4	9.0	11.1	12.0	11.5	11.7	11.0	11.5	11.9	12.0	10.8	11.3	10.8	10.8	11.0	10.7	10.4	10.9	10.6	9.1	9.1	9.9
18	9.2	9.5	9.4	8.3	9.2	9.5	4.5	8.0	9.8	9.8	10.3	9.8	8.9	9.8	10.3	7.5	8.6	8.2	9.1	9.9	9.5	8.2	9.2	9.2	5.9	6.2	7.7
19	6.5	6.9	7.7	8.2	8.6	8.8	8.5	9.6	9.9	7.4	8.1	7.3	9.2	9.8	9.9	9.8	10.2	9.7	7.6	7.8	8.4	8.8	9.3	9.3	9.1	8.9	9.1
20	7.2	7.5	8.2	9.3	9.5	9.3	9.7	10.6	10.3	8.1	8.6	7.6	10.1	10.6	10.4	10.9	11.1	10.1	8.3	8.3	8.8	9.6	9.9	9.6	10.1	9.7	9.5
21	7.1	7.0	7.4	8.8	8.9	8.4	9.1	9.9	9.5	8.0	8.2	7.0	9.7	10.0	9.6	10.2	10.3	9.4	8.2	8.0	8.3	9.2	9.4	8.8	9.4	8.9	8.7
22	7.4	7.3	7.6	8.3	8.5	8.4	7.9	9.1	9.5	8.3	8.4	7.5	9.2	9.6	9.6	9.4	9.7	9.2	8.4	8.3	8.2	8.9	9.1	8.9	8.6	8.4	8.7
23	8.3	8.1	8.4	9.5	9.6	9.3	9.3	10.3	10.4	9.2	9.3	8.2	10.3	10.6	10.4	10.6	10.8	10.3	9.3	9.1	9.2	9.9	10.0	9.6	9.8	9.5	9.6
24	7.7	7.3	7.4	8.8	8.8	8.3	8.7	9.6	9.4	11.2	8.4	7.2	9.7	9.8	9.4	9.9	10.0	9.3	8.6	8.3	8.2	9.2	9.2	8.6	9.0	8.6	8.6
25	7.7	7.4	6.9	6.9	7.4	7.0	3.7	6.5	7.4	8.6	8.4	7.5	7.8	8.2	8.1	6.5	7.1	6.3	8.3	8.5	8.0	7.5	7.9	7.4	5.3	5.1	5.9
26	7.7	7.6	7.1	6.4	7.2	6.9	1.9	5.7	7.2	8.5	8.6	7.8	7.2	8.0	8.0	5.4	6.4	5.6	8.1	8.6	8.1	6.9	7.6	7.3	4.1	4.0	5.3
27	7.6	7.6	7.4	6.8	7.6	7.6	3.6	6.7	8.2	8.3	8.5	7.9	7.6	8.4	8.6	6.5	7.4	7.0	8.0	8.5	8.1	7.3	8.0	7.8	5.2	5.4	6.6

1984; McPherson and Smith-Lovin 1986, 1987) and in part a matter of choice (McPherson and Smith-Lovin 1987; Tuma and Hallinan 1979).

Given the overwhelming evidence of homophily with respect to numerous social dimensions, we might expect there to be homophily with respect to status, power, and expressivity in the simulated network. In fact, there is no clear tendency toward homophily with respect to all three dimensions concomitantly. The mean diagonal element is 9.96 while the mean off-diagonal element is 10.31, suggesting that these actors are slightly more likely to befriend objects with other identities than their own.

Goodness, Power, Expressivity, and Asymmetry

When measuring status and power in networks, researchers traditionally interpret asymmetric relations as evidence of the superior status of the individual on the receiving end of the esteem (e.g., Hallinan 1978-1979; Laumann 1966). Cohen (1979-1980, p. 72) remarks that homophily appears "when everyone desires contact with status superiors but settles for status equals." Are friendship choices in this simulated network asymmetric with respect to goodness and power? When the elements (e) of Table 2 are dichotomized according to the following rule,

$$e_{ij} = 1 \text{ if } e_{ij} > e_{ji}, \text{ otherwise } e_{ij} = 0, \quad (4)$$

we would expect there to be more 1s in the lower diagonal and more 0s above, if nice people were chosen as friends by less nice people more often than the reverse. In fact, the reverse is true. Nice actors are slightly more likely to befriend less nice actors. Similarly, when the actors in Table 2 are reordered according to power and dichomitized to look for asymmetry, we find the reverse of what we might expect. Namely, powerful people are more likely to befriend weak people than are weak people to befriend powerful people. The pattern of symmetry with respect to expressivity is less clear, with a nearly equal number of 1s above and below the diagonal.[7]

Goodness, Power, Expressivity, and Emergent Structure

What else can we learn from this network of hypothetical friendships? I subjected the simulated network to some conventional clustering analyses. Burt (1978) distinguishes between graph-theoretical techniques for determining cliques based on cohesion from blockmodeling techniques based on structural equivalence. Developed for analysis of naturally occurring network data, both types of techniques rely on computer algorithms to inductively generate groupings of nodes based on some set of criteria.

Cliquing techniques identify dense regions in the network composed of groups of individuals who like (are connected to) one another. In order to analyze the

Table 3. Clique Structure of Simulated Friendship Network

Clique	Clique Members
1	4, 5, 6, 8, 12, 13, 14
2	3, 4, 5, 6, 8, 11, 13, 14, 15
3	3, 4, 5, 6, 8, 10, 13, 14, 15
4	3, 4, 5, 6, 9, 13, 14, 15
5	1, 3, 4, 5, 6, 8, 9, 14, 15
6	1, 3, 4, 5, 6, 9, 14, 15
7	5, 11, 14, 15, 16
8	5, 10, 14, 15, 16
9	5, 6, 8, 11, 13, 14, 15, 17
10	5, 6, 8, 10, 13, 14, 15, 17
11	5, 6, 8, 9, 13, 14, 15, 17
12	16
13	17
14	18
15	19
16	20
17	21
18	22
19	23
20	24, 10
21	25
22	26
23	27

clique structure of the friendship network, the likelihood matrix was dichotomized using a mean split.[8] A clique analysis was performed using UCINET IV (Borgatti, Everett, and Freeman 1994). The clique structure of this network is presented in Table 3. The most striking feature of these results is that individuals who are low in evaluation are almost always isolates. In fact, the evaluation dimension seems to be heavily involved in clique membership with people who are medium and low in evaluation being shunned and people who are high in evaluation being members of multiple close-knit friendship groups.

Results of a blockmodel analysis using Breiger's CONCOR algorithm (Breiger, Boorman, and Arabie 1975) appear in Table 4. Blockmodels identify groups of structurally equivalent individuals—those who have similar sets of relations to others—in the hopes of identifying social *positions*, or *roles*. In contrast to the clique analysis, block membership appears to depend both on evaluation and potency, with power being heavily implicated. As seen in Table 4, block 11 is composed mostly of actors who are high in power and either neutral or high in good-

Table 4a. CONCOR Blockmodel Structure of Simulated Network

	block 11	1, 2, 3, 10, 11, 12, 20	High Potency
block 1			(High & Medium Evaluation)
	block 12	4, 5, 6, 9, 3, 14, 15	Medium Potency
			(High & Medium Evaluation)
	block 21	7, 8, 16, 17, 18, 25, 26, 27	Low Potency
			(Mixed Evaluation)
block 2			
	block 22	19, 21, 22, 23, 24	High and Medium Potency
			(Low Evaluation)

Table 4b. CONCOR Blockmodel Structure of Simulated Network

	block 11	block 12	block 21	block 22
block 11	1	1	1	1
block 12	1	1	1	1
block 21	0	0	0	0
block 22	0	0	0	0

ness; block 12 is composed mostly of actors who are neutral in power and either high or neutral in goodness; block 21 is composed mostly of actors who are weak; and block 22 is composed mostly of actors who are mean.

What does this say about the dynamics of power and goodness in network subgroups groups? In part, it seems to provide some converging theoretical support for techniques that have been used without strong theoretical underpinnings. It is somewhat reassuring to note that, when computer algorithms are used to generate subgroupings of actors, the groupings they produce "make sense" in ways that are consistent with common usage of the procedures. Here, actors' "niceness" seems to influence clique membership and actors' power seems to influence structural equivalence. However, such "bottom up" grouping of actors relies on an assumption that is not consistent with the present design—that actors in the present matrix represent some set of individuals (or categories) that might reasonably be found in a naturally occurring group. Without this assumption, any analysis based on second-order and higher relations among the group members is not interpretable in the traditional sense.

Goodness, Power, Expressivity, and Friendship Choice

Fortunately, the design of the simulated matrix enables us to make a priori groupings of actors based on the social dimensions that affect control theory assumes to be most important. By design, the likelihood matrix in Table 2 is already "blocked" according to evaluation. Table 5 shows a likelihood matrix by that blocking, giving us a highly reduced summary of how evaluation influences friendship choice.

According to this summary, homophily seems to operate among good and neutral identities, but not among bad identities. In fact, actors operating in bad identities cannot "befriend" anyone and maintain their own negative associations. Actors who are neutral in evaluation are relatively likely to befriend anyone.

Nice actors can befriend other nice actors and neutral-evaluation actors without doing damage to their identities.[9] While moderately symmetric in this reduced form, we see the direction of the asymmetry described previously—"good" actors are more likely to befriend "bad" actors than vice versa. In fact bad or mean actors are also more likely to befriend other mean actors than to befriend good or nice actors. The greatest likelihoods are for friendships among nice actors.

Table 6 displays the reduced likelihood matrix when actor order is rearranged and then blocked by potency. The most notable aspect of this image is the *lack of homophily among high power actors*. In fact, according to this summary, powerful actors will sooner befriend weak others than other powerful actors. Like neutral evaluation actors, neutral power actors seem able to befriend actors all over the potency dimension without disrupting their own identity-affect. Weak actors have difficulty befriending anyone, most of all other weak actors.

DISCUSSION

After examining associates labeled as "friends" by a large cross-sectional survey of adults, Fischer (1982) concluded that, compared to other close relations, we use the term *friend* to describe relations who are non-kin, who we've known a long time, with whom we have social (rather than intimate or material) relations, and with whom we do not have institutionally clear role-relations. According to the

Table 5. Reduced Likelihoood Matrix Blocked by Evaluation

	Good (1,2,3,4, 5,6,7,8,9)	*Neutral (10,11,12,13, 14,15,16,17,18)*	*Bad (19,20,21,22, 23,24,25,26,27)*
Good	12.24	11.93	9.78
Neutral	11.45	11.75	10.50
Bad	7.99	8.78	8.29

Table 6. Reduced Likelihoood Matrix Blocked by Potency

	Powerful (1,2,3,10,11, 12,19,20,21)	*Neutral (4,5,6,13,14, 15,22,23,24)*	*Weak (7,8,9,16,17, 18,25,26,27)*
Powerful	9.80	11.30	11.63
Neutral	10.42	11.32	11.29
Weak	9.66	9.47	7.84

Table 7. Reduced Likelihoood Matrix Blocked by Activity

	Lively (1,4,7,10,13, 16,19,22,25)	*Neutral (2,5,8,11,14, 17,20,23,26)*	*Passive (3,6,9,12,15, 18,21,24,27)*
Lively	9.66	10.09	10.03
Neutral	10.64	10.91	10.70
Passive	10.23	10.40	10.07

INTERACT dictionary, to "befriend" someone is a good, powerful, though not-so-lively act (1.56, 1.63, -0.4). We see the implication of these meanings in the findings that very bad, very weak, or very lively people cannot "befriend" others without doing some damage to their own identity-affect. The act of befriending (deliberately) does not capture the full repertoire of behaviors that could lead to a "network tie" in the sense that it is often used. Other behaviors, "to confide in," "to ally with," "to talk with," "to support," would be expected to yield somewhat different results. While not capturing the full complexities and ambiguities of naturally occuring friendships, the advantage of simulations in this context is the ability to focus on one specific form of relation—that based on the good, powerful act of "befriending."

This simulated network consisted of an artificial community—indeed, it contained some members who could not be sampled from any naturalistic population! Any results that take into account structure of relations to others (like cliquing and blockmodeling) are not interpretable in a traditional sense without making the unlikely assumption that these individuals might make up either some naturally occurring group or be comparable to some meaningful sample of individuals from a population. However, even results that take into account such higher-order relations are interpretable if we compare across goodness, power, and expressivity as varied in the design. So, while we would not put much stock into measures of centrality in this hypothetical matrix, we can find something of interest in the observations that bad actors did not find their way into emergent cliques and that potency had a large impact on the structural equivalence of actors in the group.

Our identities locate us in social space through relationships and memberships (Stone 1962). Sociologists have attended to the conception that identities

and identity-based action derive from social location. However, our theories also suggest that these locations are, in part, products of our identities. Affect control theory's generative, cybernetic model of social interaction allows us to consider the interactive and processual nature of the relationship between self and society.

While only a tentative theoretical exploration, hopefully, this work deepens our understanding of the role of power and status in structuring human interaction. The logic of these simulations suggests a potentially important extension to affect control theory—expanding our ability to model the role of affective dynamics in shaping both our social actions and, consequently, our social environments. If the theory's assumptions are valid and its empirical base well-grounded, then theory based simulations of friendship likelihoods should produce intuitive patterns of results in the form of testable predictions of the theory.

Indeed this simulated friendship network did produce, in part, findings that are consistent with intuitions and existing empirical evidence. The friendship likelihoods revealed a tendency toward homophily respect to goodness, cohesion-based subgroups that seemed related to goodness, and position-based subgroups that appeared related to power. In addition, however, the simulations produced some less intuitive, but testable predictions: (1) powerful people are relatviely unlikely to befriend other powerful people, and (2) nice people more likely to befriend mean people than vice versa. These predictions require both testing and reconciliation with existing claims (theoretical or empirical).

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NOTES

1. This profile comes from the INTERACT U.S. (male) dictionary, available in Heise and Lewis (1988). For the United States, Smith-Lovin and Heise (1988) have compiled EPA ratings for a corpus of 345 social settings, 765 identities, 600 social behaviors, and 440 emotions/person modifiers. In this dictionary, EPA profiles for each word are based on the mean ratings of approximately 25 male and 25 female undergraduates at a southern U.S. university. This dictionary contains the EPA profile of concepts outside the context of social events. These profiles form the affective points of reference that affect control theory terms *fundamental sentiments*.

2. INTERACT 2 also contains separate equation sets and dictionaries for Germany, Japan, and Canada. This software is available through direct correspondence with David R. Heise, Department of Sociology, University of Indiana, Bloomington, Indiana.

3. The B_eO_e interaction also implies that one can qualify the negative effects of a negative behavior by directing it toward a mean object. In contrast, one can intensify the negative effects of committing a harmful behavior by directing it toward a nice person.

4. What constitutes acceptable levels of deflection is not clear from current formulations of affect control theory. In this, and previous work, I sidestep this problem in part by considering comparative deflections.

5. While evaluation, potency, and activity have been demonstrated to be fundamental dimensions of meaning in 21 different language communities worldwide (Osgood, May, and Miron 1975), affect control theory assumes that the EPA measures for particular stimuli to vary across culture. Within culture (or subculture), EPA measures for the various components of social interactions (social identities, interpersonal acts, environmental settings, etc.) are assumed to be general across different individuals.

6. Simulated actors also befriended actors who shared their identity profiles (because I consider these role-identities rather than individuals).

7. Specific values for these analyses can be obtained by applying the rule to various arrangements of Table 2 or directly from the author.

8. The choice of the mean cutoff was arbitrary. Other reasonable cutoff values yielded similar results. When the cutoff is higher, however, the number of cliques with more than one member decreases.

9. Although I am discussing deflection in terms of disruption to identity-meanings, it is important to keep in mind that deflection is an interaction-based term—it reflects meaning disruption in all elements of the social event (actor, object, behavior, setting). In the reported simulations all elements other than actor identity and object identity are constant. Therefore, it is appropriate to interpret deflection comparisons as reflecting differing amounts of disruptions in the identities of the actor and object.

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