The Emergence of Status Structures

PETER J. BURKE

INTRODUCTION

While much work in identity theory has shown the effect of social structure and one’s position within that structure on identity processes and verification (Burke 2008; Cast. Stets and Burke 1999), very little work has been done on the reverse process, that is, the effect of identities on the creation and maintenance of social structures. Savage et al. (2014), using experimental procedures, have shown that the fairness identity and its verification play a significant role in the development of structural inequality in networks. The present chapter will examine the way in which the task leadership identity influences the emergence of a status structure in naturally evolving (as opposed to experimentally controlled) groups. Bales and colleagues (Bales 1953; Bales and Slater 1955) discovered that status structures emerge among the participants in small, task-oriented problem-solving groups, even when the participants are status equals to begin with. The status structure consists of a reliable rank ordering of
the participants on a number of dimensions including total participation, providing best ideas for solving the problem, and doing most to guide the discussion. Persons rated highest on one dimension were likely to be highest on the others. In most groups there was a general consensus by the end of the problem-solving session on the rank ordering of group members on task status or contributions to solving the task of the group, thus demonstrating that a status structure was recognized to have developed over the course of the discussion.

It has generally been assumed that the status structures found in these apparently initially undifferentiated, small, task-oriented groups are in fact either there from the beginning or emerge rather quickly and become stable (Bonacich 1968; Fisek, Berger, and Norman 1991; Fisek and Ofshe 1970; Lewis 1970; Shelly and Troyer 2001). This idea goes back to the original work of Bales and Slater (1955), who found that in many groups the status structure did seem to be there almost from the beginning. The suggestion was made that there were personality and skill differences among the "status equal" participants. Because the groups are embedded in a larger, shared culture, the members had some degree of value consensus that allowed them to consensually evaluate the individual contributions of different members, thus giving rise to the status structure (Parsons, Bales, and Shils 1953).

The work to understand this emergence of structure in small, task-oriented discussion groups has been only moderately successful (Shelly and Troyer 2001). It has generally used behavior status theory (Fisek et al. 1991), which focuses on the differential evaluation of individuals based on their status characteristics and behavioral performances. Riley and Burke (1995) offered a glimpse at an alternative framework, identity theory, to understand this emerging structure. They examined the effect of a leadership identity on leadership performance but did not look at the full emerging structure of status.

THEORETICAL BACKGROUND

I begin with a brief overview of the two main theoretical formulations for understanding the emerging status structure in these small, task-oriented groups: identity theory and expectations states theory.
Identity Theory

Identity theory suggests that people act in ways that have meanings that are consistent with the meanings in the identity standards that define who they are. Additionally, when situationally self-relevant meanings are disturbed so they are not consistent with identity standard meanings, people act in ways to counteract the disturbance and bring the situationally self-relevant meanings back into alignment with the meanings of their identity standard (Burke 1991, 2004; Burke and Stets 2009). This latter process is one of self-verification.

To illustrate, a person who has a person identity that includes meanings of dominance will act in ways that convey to the self and others that the person is dominant. If for some reason others do not get this message, or feel the person is not dominant, or do not act in ways that convey this dominance, the person will act in a more dominant fashion. If others feel the person is aggressive rather than dominant and provide feedback to this effect, the person may back off of their “dominance,” so the person will be seen not as aggressive but only as dominant. People adjust their behavior to achieve the perceived level of meaning in the situation that is consistent with their self-meanings (Burke and Stets 2009; Swann 1983). In this sense, people are seen to have the goal of acting in ways to verify their identities, and they will work toward that using whatever mechanisms are appropriate.

By substituting task-leadership identity for dominance in the above example and following the work of Riley and Burke (1995), I suggest persons with a stronger task-leadership identity will act in ways to manifest that identity by participating more and taking a dominant role in task-oriented problem-solving groups. If they are temporarily prevented from doing so, they will more strongly act in ways to restore the congruence. This would also work for persons that have only a low task-leadership identity. They too will act to manifest this identity in their behavior and will act in ways to stay out of the dominant positions. Additionally, should persons with a low task-leadership identity temporarily find themselves in a high leadership position, they will act to take themselves out of the limelight in order to restore verification of their identities. The results of these efforts should produce a status structure in the problem-solving groups.
The purposive nature of the self in identity theory is seen in the goal of changing self-relevant meanings in the situation in order to achieve correspondence between the perceived self-relevant meanings in the situation and the self-defining meanings in the identity standard; that is, the goal of achieving self-verification. The self-verification process within a task-oriented problem-solving group involves each group member perceiving and acting to achieve and maintain verification of all the identities involved. This often means that the actions of each member are disturbances to the meanings being controlled by other group members until some coordination and mutual verification can emerge (Burke and Stets 1999). In this way the prediction of social outcomes is more difficult than isolated individual outcomes because it is not just the characteristics of the individuals that matter but also the relationship of those characteristics to characteristics of others with whom the individual is interacting in the situation. That is, it is not just a person’s task-leadership identity that matters, but also the task-leadership identity of others in the group. This distributional nature of characteristics of people interacting in groups is one of the more social aspects that sociologists must take into account (Burke and Stets 1999; Riley and Burke 1995). To the extent that there are different relative levels of the leadership identity in the group, we can expect there to be a distribution of leadership performance in the group that evolves over time to produce the status structure through the identity-verification process.

Expectation States Theory

According to expectation states theory, people develop expectations about the level of performance for self and others on the basis of the status characteristics that they and others have (Berger 1992; Berger, Cohen, and Zelditch 1972). These status characteristics are of two types, those dealing with specific abilities relevant to the task at hand (specific status characteristics), and those dealing with generally useful capacities (diffuse status characteristics). Behavior status theory (Fisek et al. 1991) outlines
how performance expectations are built up out of the evaluated contributions of individuals interacting in small, task-oriented groups in the way outlined by Bales (1953; Bales and Slater 1955).

Based on performance expectations (which in turn are based on the perceived status characteristics as well as contributions to the task at hand), individuals in task-oriented groups provide (or not) action opportunities to others, that is, opportunities to have a turn in the discussion in which to make a contribution to solving the task. After being given an action opportunity, there are a number of possible consequences that are more likely to occur for those with high-status characteristics (and less likely for those with low-status characteristics). If individuals have an action opportunity, they more (less) likely to take it and to provide some performance output such as a suggestion, opinion, or information for the group. Given a performance output, others are more (less) likely to evaluate it positively. This evaluation acts to reinforce (inhibit) those who have taken the action opportunity. And, finally, other group members are more (less) likely to acquiesce to the suggestions, ideas, and opinions of others.

As a result of this process, some individuals, based on perceived status characteristics, are given more action opportunities; their ideas and suggestions are more likely to be positively evaluated and accepted. These increased action opportunities for individual group members that are provided by other group members are external to the individual, while the positive reinforcement changes the internal state of the individuals to increase the likelihood that action opportunities will be used when provided. To the extent that persons in the group have differentiating status characteristics on which there is consensus among the members, this process will result in differential participation and power in the group.² Additionally, as group members’ task performances vary in terms of the contributions they make (even starting as status equals), new expectations will emerge based on actual performances. These expectations add to the perceptions of status and legitimacy of the group members for the differential status and power distribution in the group that makes up the emergent status structure (Ridgeway and Berger 1986).
In addition to expectations about others, people have expectations for themselves, and it is not just the absolute level of expectations that matters but expectations for themselves relative to expectations for others. Thus, while some are accorded more action opportunities by others because of their relatively higher status as indicated by their status characteristics, those persons with higher status also accord themselves more action opportunities because they feel they can make more of a contribution to the group than others with lower status characteristics. As this process continues, there develops a relatively fixed and stable status hierarchy based on status characteristics and participation. Those at the top have more power and prestige, contribute more, and are perceived to be leaders in the group.

Contextual Factors for Identities

A further expectation can be derived based on the distribution of task-leadership identities among the participants of a group. To illustrate, we might imagine some groups in which people have very similar levels of task-leadership identity and other groups in which there is a great deal of variability in task-leadership identities across the group members. In groups where members all have the same level of task-leadership identity, we would expect all of the members to try to take the same level of leadership with the result of more competition for the restricted space in which to play out the leadership role. For example, it would be difficult for all group members to engage in high levels of leadership or for all members to be very low in leadership. In groups with more variability on task-leadership identity among the members, we would expect that each person is likely to find their own niche, with some playing a stronger leadership role in accord with their strong leadership identity while others with weaker leadership identities may be content to forgo a stronger leadership role. From this reasoning, we can expect that the greater the variance of task-leadership identity scores across the group members, the less turnover there will be in the top position.
Approach to the Analysis and Hypotheses

In examining the emergence of a status structure in task-oriented groups, rather than examining the distribution of participation across all members of the group as has been done previously, I confine myself to examining who holds the top position in that emerging structure as a proxy for the full status ordering. While stability in who holds the top position is not a guarantee of stability at other levels, without stability in the top position, there is no stability in the status structure. In focusing on changes in the top position, there are two points of view that may be taken: gaining the top position in the group and losing the top position.

With respect to the first view of gaining the top position, I hypothesize from expectation states theory that because high-status persons are more likely to make contributions, members in general are more likely to defer to and accept the contribution of a higher status person. This will both facilitate gaining the top position and holding on to that position.

\[ H1a. \text{Possessing high-status characteristics should facilitate gaining of the top position.} \]
\[ H1b. \text{Possessing high-status characteristics should facilitate remaining longer in the top position.} \]

I also argue from identity theory that having a strong task-leadership identity (the meanings of which are derived from the larger culture and social structure) should facilitate the gaining of the top position, which would thereby verify or confirm the meanings of the high task-leadership identity as well as structure the status system. For a person with a high leadership identity, not having the top position would constitute identity disconfirmation and result in behavior that seeks to change the situation and confirm the identity by becoming the top person through more active task participation. These reasons would also predict that persons with high leadership identities would hold on longer to the top position.

\[ H2a: \text{The higher the leadership identity of a group member, the quicker that member will move into the top position in the status structure.} \]
H2b: The higher the leadership identity of a group member, the longer that member will remain in the top position in the status structure.

With respect to the effects of the variability of task-leadership identities within each group, less variability would provide more competition among members for the top position, because persons with the same level of task-leadership identity would be competing for the same position. This leads to the expectation of faster transitions both into and out of the top position.

H3a: The less variability in levels of task-leadership identity, the quicker will members of the group move into the top position in the status structure.

H3a: The less variability in levels of task-leadership identity the quicker will members of the group move out of the top position in the status structure.

These predictions are about stability at the top of the status hierarchy. An emerging stable status structure would be associated with increasing stability at the top. Hence, we expect that over time any instability at the beginning, indicated by turnover in the top position, would diminish over time. If a stable status structure exists in the beginning, then there should be very little instability, even at the beginning. If stability only slowly emerges, then the rate of change in the top position (by persons moving into or out of it) should diminish over time, but only slowly.

METHOD

I turn now to a consideration of methods by which these hypotheses are testing including the sample used, the measures and data collected and the fairly complicated analytic strategy used.
Sample

The sample analyzed for this research consists of 48 four-person laboratory groups, each composed of two males and two females. To form the groups, undergraduate students from a large Midwestern university were randomly sampled from the student body as a whole and invited to participate in a study of communication in small groups. All potential participants met collectively 2 weeks before the group discussions to be briefed on the study and to fill out a background questionnaire. Each group of two males and two females participated in four different discussions using choice dilemma protocols (two that dealt with status issues, problems 1 and 3, and two that focused on relationship issues, problems 2 and 4—see Appendix 7.A). These problems were used to provide the groups with a cooperative task in which they had to reach a consensus. The four discussions were held during the one session that the group met. Each session lasted about an hour, with each discussion problem lasting from a very brief two minutes (in which consensus was achieved immediately) to a very lengthy 51 minutes (in which consensus was finally achieved by capitulation) with an average of about 7 or 8 minutes each.

Each of the discussions followed the same format. The four individuals were seated in a semicircle, alternating male and female. Prior to the discussion, the individual members read each of the choice dilemma problems and wrote down their personal recommendation. Following this, the members were instructed to discuss the first problem and come to a group consensus for making a group recommendation. Each discussion followed one after another with the order of the discussion topics (choice protocols) randomized. Prior to the start of all of the discussions, one person was designated by the experimenter to be the coordinator for the group. That person was given a pencil and a form on which to record the group’s unanimous decision for each problem. For half of the groups, a coordinator was chosen who was male, and for half of the groups a coordinator was chosen who was female. In all cases, the coordinator was
chosen from an end seat in the semicircle. This allowed the coordinator
to be able to see all the members of the group without turning from side
to side.

Data and Measures

Each discussion was transcribed, and each transcription was coded, noting
the turns (having the floor) that individuals had at speaking (Duncan
1972, 1974; Sacks, Schegloff, and Jefferson, 1974). A turn is equivalent to
having the floor to speak. Not all utterances are turns. Two other catego-
ries are back-channel communications (Duncan 1974) that provide feed-
back to the current speaker without taking the floor, and noise, which
consists mostly of truncated and incomplete attempts at taking a turn.
Noise is seldom attended to by group members, who are generally focused
on the person who has the turn. Back-channel communications and noise
are excluded from the data, which consists only of turns of talk taken by
the members.

Following prior research, I examine the status structure based on
participation—those who participate the most are said to be at the top of
the status structure (Fisek and Ofshe 1970; Shelly and Troyer 2001). For
this, we need to know each person’s relative number of turns in the ongo-
ing discussion. I assess the status structure by examining the number of
turns (opportunities to speak) that each person has.

Much prior work has examined the cumulative proportion of acts, words, turns, action initiations, time speaking, or some other small units of participation/action engaged in by each group member over the
course of the discussion to show the developing stability of the status
structure or rank ordering of participation among the group members
(cf. Shelly and Troyer 2001). This method is illustrated with current data
for one group (group 112) in Figure 7.1 using the turn as a basic unit. The
clear, early emergence of a stable status structure (indicated by the relative
participation of group members) can be seen. Top and bottom ranks are
fixed by about turn 40, and the full ordering by about turn 125.
This cumulative proportion method, however, tends to hide potential variability that exists over time within groups. For example, by using cumulative proportion data, as in Figure 7.1, the contribution of each succeeding turn to the overall proportion for an individual becomes increasingly smaller. The first turn is worth 100% and moves an individual from no participation to having 100% of all turns (so far), while the 200th turn is worth about one half of 1% and can change the cumulated proportion for an individual very little. For example, if the top participator were to not participate at all during the last 20 out of 200 turns, their proportion would drop perhaps from 35% to about 32%. Clearly, it becomes increasingly difficult to change the rank ordering of participation as the discussion proceeds, and it thus appears that the emerging status structure is very stable.

Because this method masks potential individual variability, it also masks any variability in the process by which a status structure emerges. This masking reduces our ability to theorize about the process of the emergence of a status structure from the actions of the individuals. What is needed is a method that gives equal weight to each act throughout the length of the discussion.
To make each turn contribute equally to the emerging status structure, I use a different procedure than the cumulative proportion method. This procedure uses a moving-average of individual participation over a fixed span of turns. Figure 7.2 illustrates this for one group (the same group used in Figure 7.1) with a moving window of 25 turns. For each participant, an average is calculated over, in this case, the first 25 turns, and this is entered on the graph. Then the window is shifted forward one turn and the average is calculated over turns 2 to 26, and so on. Thus, each point represents the same scope of time. In this way, without the cumulative drag of history, the ups and downs of individual participation can be seen to the extent that individuals within a group participate more or less over the course of the problem-solving session. If the same early emergence of a fixed rank ordering is shown, we can rule out any methodological artifacts as bringing this about, and theories based on the current conventional understanding of the early emergence of a fixed structure stand. If, on the other hand, this is not the picture that emerges, new theories need to be developed.

Figure 7.2 shows that, at least for the illustrated group, a stable structure or rank ordering does not emerge early. Although the two figures
appear to be similar at the very beginning of the discussion, opportunities to participate change over the course of the discussion, as shown in Figure 7.2, which perhaps reflects the changing needs of the group and the various contributions different individuals can make. Thus, while one person may have more turns or chances to participate than others over the whole course of the discussion, at any point in time they may make fewer contributions as other persons emerge to dominate the discussion for a while. In this example, the top position thus can be seen to shift and change over the course of the discussion as different individuals temporarily move into or leave that position.

The size of the moving window can be varied. With the window set at one turn, we have the situation of people either participating or not at the turn. With the moving window set at some larger number of turns, say 25 turns as in the figure, the average becomes more stabilized, and the process of changing levels of participation takes on a smoother look. In the present analyses, I examine several windows ranging from 10 turns to 58 turns\(^7\) in order to see the extent to which results are independent of the relative size of the window, because no theory suggests the rates at which such changes take place. Shorter windows can capture more rapid change.

Normally, moving-averages are assigned to the midpoint of the window of observations. Because I am interested in what happens at given points in the discussion (as people move into or out of the top position based on the moving-average), this normal procedure would result in participation levels from future turns (observations beyond the midpoint to the end of the window) having influence before they occurred. To prevent this, the weighted moving-average across the fixed window of turns in the present analysis is calculated and assigned to the last turn of the window. In this way, each time-point observation of average participation incorporates only what has happened up to that point and nothing beyond that point.

Measures of potential status characteristics that are included are being male (1 = male, 0 = female), being authorized by the experimenter as the group coordinator (1 = coordinator, 0 = not coordinator), and being an older undergraduate student (1 = age 22 or older, 0 = age 21 or younger).
The measure of task-leadership identity follows the procedures of Riley and Burke (1995) and consists of five items from the background questionnaire that tap into self-meanings of task leadership in groups (see Table 7.1). An example item is “when I work on committees, I like to take charge of things.” These items form a single factor with an omega reliability of .80 (Heise and Bohrnstedt 1970).

Two contextual variables that may influence the outcome are also included. One is the variance within a group of the task-leadership identity scores. Again, a larger variance may prevent competition for the top position and lead to lower turnover rates as each person finds their own niche in the emerging structure. The second contextual variable is the discussion number. Three dummy variables were used to indicate discussion (order) with the first discussion (of the four) being the omitted category or comparison group. This captures changes that occur over time.

The means and standard deviations of these variables are given in Table 7.2.

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**TABLE 7.1  ITEM ANALYSIS OF TASK- AND SOCIAL-LEADERSHIP IDENTITY MEASURE**

<table>
<thead>
<tr>
<th>Task-Leadership Identity</th>
<th>Item Total Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>I try to maintain my own opinions even though many other people may have a different point of view</td>
<td>.54</td>
</tr>
<tr>
<td>When I work on committees I like to take charge of things</td>
<td>.70</td>
</tr>
<tr>
<td>I try to influence strongly other people’s actions</td>
<td>.64</td>
</tr>
<tr>
<td>When I work with a group of people, I like to have things done my way</td>
<td>.70</td>
</tr>
<tr>
<td>I try to be the dominant person when I am with people</td>
<td>.71</td>
</tr>
<tr>
<td>Omega reliability of scale: .80</td>
<td></td>
</tr>
</tbody>
</table>
TABLE 7.2  MEANS AND STANDARD DEVIATIONS FOR VARIABLES

<table>
<thead>
<tr>
<th>Variable</th>
<th>Losing Top</th>
<th>Gaining Top</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Status</td>
<td>.30</td>
<td>.31</td>
</tr>
<tr>
<td>Male Status</td>
<td>.50</td>
<td>.51</td>
</tr>
<tr>
<td>Being Older Status</td>
<td>.19</td>
<td>.19</td>
</tr>
<tr>
<td>Task Identity</td>
<td>.07</td>
<td>.07</td>
</tr>
<tr>
<td>Task Identity Variance</td>
<td>1.64</td>
<td>1.64</td>
</tr>
<tr>
<td>Disc 2</td>
<td>.17</td>
<td>.15</td>
</tr>
<tr>
<td>Disc 3</td>
<td>.19</td>
<td>.16</td>
</tr>
<tr>
<td>Disc 4</td>
<td>.42</td>
<td>.36</td>
</tr>
</tbody>
</table>

Mean Number of Turns: 12.43 per person per discussion, 199 total turns.
Average Length of Discussion: 7.56 minutes per discussion, 30.24 minutes total.

Analysis

In the present analysis, I use the Cox proportional hazard survival analysis to examine (separately) the time to two different events: (1) a person gaining the top position in the status structure or rank ordering of participation, and (2) a person losing the top position. The time points at which each of these transition events occurs is noted, where time is measured in terms of the turn number at which the rank ordering of the top person changes. Time is thus measured in turns, and the outcome may be conceived either as an analysis of the instantaneous rate of gaining (or losing) the top position or equivalently as the average number of turns it takes to gain (or lose) the top position depending on both status characteristics and leadership identity. Of course, these outcomes are contingent on a person being at risk of making the transition. A person who is at the top is not at risk for a change to becoming at the top (and is excluded from that
analysis), and a person who is not at the top is not at risk of losing the top position (and is accordingly excluded from that analysis).

The size of the moving window during which the average number of turns for each participant is calculated is not theoretically derived. Several sizes were tried, ranging from a short window of 10 turns to a long window of 58 turns. All analyses were conducted for each window size. As I indicate in the results, the size of the window did not make much difference for many of the results. Where it did make a difference, the variability in the results is discussed.

Within the first window, that is, from the first turn up to the length of the window, a weighted moving-average of all turns up to the current turn was used to "fill in" the data set. These initial data are less reliable. For this reason, spells of holding the top position that end within this first window are excluded from the analysis. For example, with the window set at 15 turns, any transition into or out of the top position that occurs before turn 15 is ignored.

Because the observations are not independent across individuals within a group, the residual errors for each person were allowed to correlate with the errors for other persons in the same group but remain independent of the errors for persons in other groups.

RESULTS

Before looking directly at the results, let me indicate that in the present data, each group session lasted about a half hour, and there was an average of about 200 turns taken during this time. The amount of turnover for the top position in participation varies according to the size of the window used in the analysis; the shorter the window the more turnover is observed. With the shortest window of 10 turns, there was an average turnover of 36.75 times over the course of the four discussion problems in the group session, while with the longest window of 58 turns turnover occurred 4.46 times on the average. As noted earlier, the longer the window, the more the apparent
stability (less turnover of the top position). In the present analysis using the moving-window approach, a stable leadership structure did not emerge quickly, but developed slowly and steadily over the full course of the discussion.

The Cox proportional hazards model estimates the hazard for a group member to gain the top position or to lose the top position. The Cox model assumes no particular shape to the hazard function and is the least constraining model to use. Results for a middle-sized window of 22 turns are contained in Table 7.3. Column one of the results shows the analysis of gaining the top position, and column two shows the analysis of losing the top position. Shown at the bottom of each column are the median number of turns in the sample before an individual gains or loses the top position, the incidence rate or rate per turn at which a turnover in the top position

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gaining Top Position</th>
<th>Losing Top Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Status</td>
<td>1.41**</td>
<td>.74**</td>
</tr>
<tr>
<td>Male Status</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>Being Older Status</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>Task Identity</td>
<td>1.16**</td>
<td>.84**</td>
</tr>
<tr>
<td>Coordinator x Task Identity</td>
<td>n.s.</td>
<td>n.s.</td>
</tr>
<tr>
<td>Task-Identity Variance</td>
<td>.90*</td>
<td>n.s.</td>
</tr>
<tr>
<td>Disc 2</td>
<td>.40**</td>
<td>.70**</td>
</tr>
<tr>
<td>Disc 3</td>
<td>.23**</td>
<td>.51**</td>
</tr>
<tr>
<td>Disc 4</td>
<td>.18**</td>
<td>.47**</td>
</tr>
<tr>
<td>Median turns to change</td>
<td>35</td>
<td>12</td>
</tr>
<tr>
<td>Baseline Incidence rate</td>
<td>.022</td>
<td>.043</td>
</tr>
<tr>
<td>Mean number of turnovers</td>
<td>14.5</td>
<td>14.5</td>
</tr>
</tbody>
</table>

** p ≤ .01, * p ≤ .05

*Calculated for a weighted moving-average window of 22 turns.
takes place, and the mean number of turnovers in a group. The median number of turns one waits on the average to gain the top position is about 35, with an estimated baseline transition rate of .022. The median number of turns one waits on the average to lose the top position is about 12, with an estimated transition rate of .043. These differences reflect in part the fact that in moving into the top position, one is competing against two others who are also at risk of gaining the top position. In losing the top position, there are three others who are at risk of gaining it. Hence, the "wait" to get into the top position is longer than the "wait" to get out.

The coefficients in the table indicate the changes in the incidence rate of gaining (or losing) the top position relative to the baseline incidence rate. Thus, the coefficient of 1.41 for being the coordinator in gaining the top position indicates that persons designated as coordinator increase their transition rate into the top position by a factor of 1.41 from the baseline rate of .022 to a rate of .031 (= .022 × 1.41). This may be viewed as an increase in the rate of moving into the top position of about 41%.

Looking first at the results for gaining the top position—in effect, wresting it away from the person who has the position—we see that having the status characteristics of being male or being older have no effect, but being the appointed coordinator increases the rate of attaining the top position by a factor of 1.41. Possession of the high category of a diffuse status characteristic does not necessarily facilitate movement into the top position, but having a position legitimized by the experimenter does. Having a strong task-leadership identity also facilitates movement into the top position. For every standard deviation increase in the task-leadership identity score, the rate of transition into the top position increases by a factor of 1.16, which doubles the transition rate over the range of the task-leadership identity measure (because the range is about 5 points, the change would be 1.16^5 = 2.10). Having a larger spread (variance) of task identities in the group does reduce the rate at which the top person is replaced, suggesting that with more space for the identities to find their niche, there is more stability to the emerging status structure.
Over time, as we move from the first to the fourth discussion, the rate at which the top person is replaced decreases, indicating that the status structure becomes more stable, with the top person staying in that position for longer periods of time. By the fourth discussion problem, the hazard has dropped by a factor of .18, resulting in about a fivefold (1 ÷ .18) increase in the waiting time in turns to take over the top person. Effectively, the expected wait is longer than the number of turns to solve the problem, so there would be few expected transitions into the top position for any given person during this last problem. Thus, one can say that, on the average, a relatively stable status structure has emerged by the end of the set of discussions, but not necessarily before that end.

Turning now to look at the factors that influence the hazard of losing the top position, Table 7.3 shows that having the status characteristics of being male or being older again have no effect. Being the appointed coordinator has the effect of reducing the rate of transition out of the top position by a factor of .74 (or, conversely, increasing the number of turns that one has in the top position before losing it). In addition, having a strong task-leadership identity similarly reduces the rate of transition out of the top position. For every one standard deviation increase in the task-leadership identity score, the rate of transition out of the top position is reduced by a factor of about .84. Persons with strong task-leadership identities hold on to the top position longer.

As in the prior analysis, as we move from the first to the fourth problem, the rate of losing the top position decreases again, indicating that the emerging status structure becomes more stable over time. By the fourth discussion, the rate of losing the top position decreases by a factor of .47.

Effects of the Size of the Window

Overall, the above results were relatively invariant across the range of sizes of the moving-average window (from a window of size 10 to a window of size 56), although two trends appeared. The effects of being appointed coordinator increased slightly for wider windows up to windows of about
42 turns then decreased in strength. The effects of task-leadership identity (and task-leadership identity variance within a group) were stronger for shorter windows and became nonsignificant in larger windows (above about 40 turns). Thus, it appears that the manifestation of stable structure due to the status gained by being appointed coordinator is more macro while the manifestation of stable structure due to identity process is more micro. At the end of the discussions, it is clear that both identities and status characteristics influence the final structure.

DISCUSSION

As indicated earlier, much of the work relating identities to social structure has demonstrated the effect of structure on identity processes. For a complete understanding of the relationship between the individual and social structure, it therefore becomes important to examine the reverse process, or the impact of identity processes on the emergence and maintenance of social structures. In the present study I have found that the task-leadership role identity has a significant impact of on the development of hierarchical status structures in small task-oriented groups, independent of the effects of status characteristics.

In identity theory, identities act to portray the meanings held in the identity standard, and to verify the identities in the sense of counteracting disturbances to the meanings in the situation. In this way an identity serves its “interests,” that is, verifying the meanings and expectations held in the identity standard. The result of these actions is to build, verify, and maintain a consistent definition of the situation in spite of disturbances. Persons with high levels of task-leadership identity act to put themselves into higher status positions; persons with high status derived from being appointed coordinator by the experimenter act to maintain their legitimated position. And, importantly, both of these counteract disturbances that would disrupt these meanings. To have an effect on the more macro properties of the group structure as it does, the patterns of action at the micro level must be persistent through time to be perceived as macro
characteristics. Perceptions of persistence become reified, labeled, and responded to (Stryker 2002 [1980]), especially as these perceptions are shared and acknowledged by all participants (cf. Ridgeway 2000, 2006).

To understand the effects of identity and status on the emergence and change of the status structure in small task-oriented discussion groups, I have examined how the relative rates of turn-taking of participants as an indicator of their status in the group change over time. Specifically, I have focused on the top of the hierarchy, looking at factors that move a person into or out of the top position.

The results of the analyses have shown that the two processes of gaining or losing the top position are generally, but not entirely, symmetric. That is, the factors that predict the likelihood of a person moving quickly into the top position are generally the same factors as those that predict a person staying in the top position (i.e., not moving out). Differences are possible because the risk set is different for the two types of movement. That is, persons at the top are not at risk of moving into the top position, while persons not at the top are not at risk of moving out of the top position.

Having a strong task-leadership identity increases the hazard of moving into that top position, and once there of maintaining that position. This holds equally for both males and females and for coordinators and noncoordinators. Additionally, when there is little variability in leadership identity levels within a group, and hence more competition among the members for the same level of leadership performance, the hazard of moving into the top position decreases. Having legitimacy by being appointed the coordinator increases the hazard of moving into the top position of participation (or, equivalently, reduces the waiting time to moving into that top position), and, once there, decreases the hazard of moving out of the top position. On the other hand, having the characteristics of being male or being older has no effect, suggesting that these characteristics do not have status implications in the present context and are therefore not status characteristics or are not salient status characteristics.

Finally, while there is considerable turnover of the top position in these task-oriented groups, the rate of turnover slowly but steadily diminishes as the group proceeds through each problem and from one problem to
the next. With each succeeding discussion, the hazard rate of turnover decreases to end at between 30% and 40% of the initial hazard.\textsuperscript{11} Put another way, the length of time (in turns) that the top person stays the top person increases two and a half to three times, putting the expected stay at the top nearly as long as the whole discussion. Thus, we do see increasing stability of the status structure (at least at the top) over time.

CONCLUSION

As suggested by identity theory, holding an identity standard that is high on task leadership facilitates both movement into the top position and the ability to stay there, thus helping to form and maintain the emergent status structure. Identity processes influence the development and maintenance of social structures. Likewise, certain status characteristics (but not others), derived from one's position in the larger social structure, also facilitate the movement into the top position of the emerging status structure.

This movement of participants into and out of the top position, while slowing considerably by the fourth problem, never quite goes away—there is a continued hazard of members gaining and losing the top position based in part on external status and internal identity factors. Identity processes and status characteristics each independently influence the development of status hierarchies within groups. The possession of a strong task-leadership identity and the possession of task-leadership legitimacy (authorization) do facilitate both movement into the top position and the ability to maintain that position. As these patterns persist and resist change, they become perceived as part of the shared understanding of the situation, becoming a stable status structure at the group level within which the actors continue to act.

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NOTES

1. Appropriate here is understood to mean consistent with maintaining the various meanings of the multiple identities a person has that are active in the situation.
2. In some of the early work on the issue, Heinicke and Bales (1953) noted that groups differed markedly in the degree to which the members were in consensus on the status rankings. The impact of consensus has not been explored in more recent work.
3. See Bales (1950).
4. See the works of Duncan and Sacks (Duncan 1972; Duncan 1974; Sacks et al. 1974).
7. Technically, the window is a weighted moving-average with least weight given at the beginning and end of the window and most weight given at the middle of the window. This weighted moving-average provides a smooth curve with most emphasis in the center of the window. It is the heavy center weighting that makes the transitions from one turn to the next very smooth. See Appendix 7.B for a full discussion.
8. Alternatively, one can think about the expected number of turns until a transition. A baseline rate of .022 transitions per turn is equivalent to about 45 turns per transition (1/.022). Being a coordinator reduces the expected number of turns until transition by the same factor of 1.41, from about 45 to about 32 turns until transition.
9. In the present study, the characteristics of being male and being older did not seem to act as status characteristics.
10. Because the coordinator was picked randomly, it is not likely that this person had inherently better ideas and earned more influence in this manner. On the other hand, those with a strong leadership identity may have better arguments or better arguing skills.
11. If one adds the current turn number as a variable into the hazard model and repeats the analysis, the effect of the current turn number is highly significant and reduces the effect of discussion number to zero. This suggests that at each turn the hazard rate of transition is getting constantly smaller and the increased stability is not due to moving from one discussion to the next, but is due to the inexorable march of turns (time).

REFERENCES


APPENDIX 7. A CHOICE DILEMMA PROBLEMS

1. Mr. A, an electrical engineer, who is married and has one child, has been working for a large electronics corporation since graduating from college five years ago. He is assured of a lifetime job with a modest, though adequate, salary and liberal pension benefits upon retirement. On the other hand, it is very unlikely that his salary will increase much before he retires. While attending a convention, Mr. A is offered a job with a small, newly founded company, which has a highly uncertain future. The new job would pay more to start and would offer the possibility of a share in the ownership if the company survived the competitions of the larger firms.

I would recommend the new job if

___ 1. the odds of success were at least 1 out of 10
___ 2. the odds of success were at least 3 out of 10
___ 3. the odds of success were at least 5 out of 10
___ 4. the odds of success were at least 7 out of 10
___ 5. the odds of success were at least 9 out of 10

2. Mrs. C, a newlywed, has been informed by her physician that a heart ailment makes it inadvisable for her to have children. Having been an only child, Mrs. C has always hoped to raise a large family herself. The physician suggests that a delicate medical operation could be attempted which, if successful, would
completely relieve the heart condition. But its success could not be assured and, in fact, the operation might prove fatal.

*I would recommend the operation if...*

3. Miss E is currently a college senior who is very eager to pursue graduate study in psychology leading to the PhD degree. She has been accepted by both University X and University Y. University X has a worldwide reputation for excellence in psychology. While a degree from University X would signify outstanding training in this field, the standards are so very rigorous that only a fraction of the degree candidates actually receive the degree. University Y, on the other hand, has much less of a reputation in psychology, but almost everyone admitted is awarded the PhD degree, though the degree has much less prestige than the corresponding degree from University X.

*I would recommend University X if...*

4. Mr. F is contemplating marriage to Miss G, a woman whom he has known for a little more than a year. Recently, however, a number of arguments have occurred between them, suggesting some sharp differences of opinion in the way each views certain matters. Indeed, they decide to seek professional advice from a marriage counselor as to whether it would be wise for them to marry. On the basis of these meetings with a marriage counselor, they realize that a happy marriage, while possible, would not be assured.

*I would recommend marriage if...*

**APPENDIX 7.B CALCULATING THE WEIGHTED MOVING AVERAGE**

The weights used in the moving average arise from the method used to smooth the contributions to the window. The weights arise from the fact that the average is calculated as a series of unweighted averages of averages of averages. The procedure for a window of size \( W = (3^N) - 2 \) to calculate an unweighted moving-average of an unweighted moving-average of an unweighted moving-average, each of size \( N \). An initial \( N \) of size four yields a final moving-average window of size \( W = 10 = (3^4) - 2 \), with the following weights in units of \( 1/64 \)th over the turns: 1, 3, 6, 10, 12, 12, 10, 6, 3, 1. Thus,
with an N of four, turns one through four are averaged, as are turns 2–5, 3–6, 4–7, 5–8, 6–9, and 7–10, yielding seven averages. Then, these resulting averages are averaged four at a time, yielding four averages of averages. Finally, these four averages are again averaged, yielding one average number over the first 10 turns with the weights given as above. The second window would apply these weights over turns 2 through 11, and so on. With a larger N, say six, the window size would be over groups of 16 turns. This is illustrated in Appendix Figure for group 112.
APPENDIX FIGURE 7B  Example Calculation of Weighted Moving-Average of 10 Turns for Group 112

<table>
<thead>
<tr>
<th>Turn</th>
<th>Four Turn Average</th>
<th>Average of Average</th>
<th>Average of Average of Average</th>
</tr>
</thead>
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<tr>
<td></td>
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<td>Seat 2</td>
<td>Seat 3</td>
</tr>
<tr>
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<td>0.500</td>
<td>0.250</td>
</tr>
<tr>
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<td>0.250</td>
<td>0.250</td>
<td>0.250</td>
</tr>
<tr>
<td>3</td>
<td>0.000</td>
<td>0.500</td>
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</tr>
<tr>
<td>5</td>
<td>0.250</td>
<td>0.500</td>
<td>0.000</td>
</tr>
</tbody>
</table>
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EDITED BY

JAN E. STETS
RICHARD T. SERPE

OXFORD UNIVERSITY PRESS