



Where do intra-organizational advice relations come from? The role of informal status and social capital in social exchange

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ABSTRACT

Social status and social capital frameworks are used to derive competing hypotheses about the emergence and structure of advice relations in organizations. Although both approaches build on a social exchange framework, they differ in their behavioral micro-foundations. From a status perspective, advice giving is a means to generate prestige, whereas asking advice decreases one's relative standing. At a structural level these motivations are expected to result in an overrepresentation of non-reciprocal dyads and non-cyclical triadic structures in the advice network, as well as in active advice seekers being unlikely to be approached for advice, especially by active advice givers. From a social capital perspective, advice seeking creates obligations for the advice seeker. At the structural level, this results in an overrepresentation of reciprocal dyads and cyclical triads, and active advice seekers to be unpopular as targets of advice seeking, especially for active advice givers. Analyses of four waves of a longitudinal sociometric study of 57 employees of a Dutch Housing Corporation provide partial support for both approaches. In line with the social capital perspective, we find reciprocal advice relations to be overrepresented at the dyad level. Results at the triad level support the social status arguments, according to which high status individuals will avoid asking advice from low status individuals. The implications for macro-structural properties of intra-organizational advice network are discussed.

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1. Introduction

It has often been argued that the viability of modern knowledge intensive organizations increasingly depends on their problem solving and intra-organizational learning capacities (Kogut and Zander, 1996; Nahapiet and Ghoshal, 1998; Powell and Snellman, 2004; Szreter, 2000). Two interrelated organizational characteristics are considered to be important to achieve this objective.

First, it requires that all members of the organization freely share their knowledge, experience and expertise with each other. A vibrant advice network can be an important organizational resource for successful problem solving and learning (Blau, 1955; Cross et al., 2001a; Cross and Parker, 2004; Krackhardt and Hansen, 1993). Advice relations are a multidimensional and complex construct. Organizational scholars frame it in terms of knowledge transfer, information transmission, mentoring, and joint problem solving (Cross et al., 2001b). In most cases, advice relations are composed of a combination of these elements. In a functioning advice network, colleagues will be more inclined to consult each other if

they cannot solve a problem on their own, and they freely share their expertise with those who can benefit from it. The beneficial effects of advice networks on employee well-being, job satisfaction (Flap and Volker, 2001; Morrison, 2004), getting ahead (e.g. Burt, 1992; Podolny and Baron, 1997) and organizational performance (e.g. Lazega et al., 2007; Roberts and O'Reilly, 1979; Sparrowe et al., 2001) have been amply documented. A crucial assumption underlying this reasoning is that mutual support and knowledge sharing among professionals is best achieved in the context of settings high in "social capital", where the relational dimensions of trust, norms, and obligations trigger the motivation to openly disclose information and exchange knowledge (Nahapiet and Ghoshal, 1998, p. 255).

Second, it is important that knowledge sharing and problem solving are not constrained by the formally specified lines of communication or authority where the nature of the problem or task requires this. This holds in particular for organizations operating in turbulent and uncertain environments (Lawrence and Lorsch, 1967; Thompson, 1967; Galbraith, 1977). In "traditional" organizations, where communication and advice relationships are structured along the lines of the classical Weberian hierarchical authority model, information flows are supposed to consist of downward transmission of commands and upward flows of feedback about tasks and performance. In knowledge intensive organizations, communication patterns are expected to follow a

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rational coordination mode, in which information exchange is not restricted to the lines of formal authority, but also involves lateral and cross-level sharing of information (Stevenson, 1990). Contingency scholars contended that the “organic” and non-hierarchical structure of the emerging communication network is a crucial condition for such organizations to survive (Burns and Stalker, 1961; Krackhardt, 1994). Several empirical studies do indeed confirm the performance enhancing effects of non-hierarchical communication and advice networks that consist of “dense, lateral, diffuse and reciprocal relations” (Shrader et al., 1989; see also Allen, 1977; Krackhardt and Stern, 1988; Lazega et al., 2007; Roberts and O’Reilly, 1979; Sparrowe et al., 2001).

Given these beneficial effects of non-hierarchical advice networks, the question arises how such structures come about in the first place. However, unlike research on the effects of advice networks, studies addressing their individual and organizational level antecedents are comparatively rare (Dolfsma et al., 2009). In addition, their findings seem to be considerably at odds with the ideal-typical image of advice networks as non-hierarchical and flat communication structures emerging from individual employees’ dedication to knowledge sharing norms. First, status considerations seem to play a very prominent role in advice relations (Blau, 1955; Montgomery, 1996; Flynn, 2003), sometimes even at the expense of complying with strong professional knowledge sharing norms (Freidson, 1975; Lazega et al., 2011): individual employees may be afraid to ask for advice because this may signal incompetence and may lead to a loss of professional prestige (Goffman, 1961). Second, research on group processes posits that informal organizational networks tend to evolve into hierarchical structures rather than into “flat” and non-hierarchical ones (Gould, 2002; Guetzkow and Simon, 1955; Krackhardt, 1994), and that communication and advice relations reflect the formal hierarchical structure (Brass, 1981; Shrader et al., 1989; Tichy and Fombrun, 1979; Tichy et al., 1979), i.e. employees in lower hierarchical positions ask advice to those in higher formal positions (e.g. supervisors) rather than vice versa. As a result, dyadic advice ties tend to be asymmetric rather than reciprocal, and the emerging microstructures on the triad level tend to be non-cyclic rather than cyclic.

The purpose of the present study is to contrast the behavioral mechanisms underlying the *social capital* perspective with those of the *social status* perspective, and assess their implications for the emerging structure of intra-organizational advice networks. Our contribution to the field is twofold. First, we disentangle the behavioral micro-foundations of two major theoretical perspectives on social networks and derive their consequences for the *structure* of the advice network. By doing so we extend previous research on the choice of advice partners, which tends to be restricted to the level of the dyad and does not address the effects on the overall structure of the advice network (see Lazega et al., 2011 for an exception). Second, we empirically test the resulting competing hypotheses using longitudinal social network data.

In the next section we elaborate the theoretical background and develop testable hypotheses. Section 3 describes the data and methods that enable us to disentangle these mechanisms. In Section 4 we subsequently test the relative importance of the different mechanisms. We conclude by discussing the implications and limitations of this study.

2. Theory and hypotheses

Organizations are partly driven by instrumental goals (getting ahead, doing one’s job, etc.) and partly by more social goals (being liked, being looked up to, etc.) (cf. Flap and Volker, 2001). Such motivations can have important implications for organizations, and in

particular for the exchange of advice. As a result, two major reasons can be defined to explain the motives for the exchange of advice in an organizational context.

According to the *social capital* perspective on advice relations, the main objective of actors in an organization is of an instrumental nature and involves obtaining the necessary resources to increase one’s performance (e.g. Sparrowe et al., 2001). Asking (and receiving) advice creates obligations to reciprocate for the advice seeker, whereas being asked for advice (and giving advice) creates entitlements to future benefits for the advice giver. According to the *social status* perspective, actors in groups also have a primary social objective, which involves trying to obtain informal status. Asking (and receiving) advice² lowers the status of the advice seeker, whereas giving advice increases the status of the advice giver (Blau, 1955).

Although both the *social status* and the *social capital* perspectives build on social exchange reasoning (Cook and Whitmeyer, 1992), they differ with regard to the behavioral assumptions underlying the exchange processes and the potential (unintended) social consequences of advice seeking. Both mechanisms will result in different patterns for advice networks, which we will elaborate below. Whereas previous studies focused either on one or the other perspective, more recent research suggests that most likely both mechanisms are at work simultaneously and should therefore be studied in combination (Lazega et al., 2011). More specifically, Lazega et al. (2011) argue that normative constraints resulting from reciprocity obligations are necessary to mitigate the potentially detrimental effects that status games related to advice giving can have on knowledge sharing (see also Gould, 2002).

2.1. Social status perspective

Status concerns can be a strong motivator for behavior (Frank, 1985). Individuals do not only care about their relative position in social groups (e.g. Huberman et al., 2004), but they also actively try to improve their status position (Loch et al., 2001). Such status stratification processes are a very common phenomenon in organizations (Ravlin and Thomas, 2005) and intra-organizational advice can be an important factor in defining status in an organizational context (Wittek, 1999).

Social status has been defined as being respected or admired by others (Krackhardt, 1990) and forms a basis for hierarchy (Magee and Galinsky, 2008). Status can emerge as a result of four types of characteristics: economic status follows from wealth and the accumulation of goods, political status is based on power and authority, informational status is based on skills and learning, while social status follows from honor prestige and deference (Sorokin, 1927; Flynn et al., 2006).

Although social status is based on perceptions and is therefore inherently (inter)subjective, there generally seems to exist some consensus about who has status in a group. Whereas power is mainly related to resources, status is defined as individual expertise and competence, which can be directly or indirectly defined by those involved (Krackhardt, 1990). Three major approaches to model the emergence of status structures can be discerned in the literature.

The first and leading approach is *expectation states theory* and its later network analytic elaboration, *E-state structuralism*. Expectation states theory (Berger et al., 1972; Berger and Zelditch, 1997; Ridgeway and Berger, 1986; Ridgeway and Walker, 1995) argues that individuals use characteristics of other actors – like gender or age – to differentially evaluate their social worth, and to

² Throughout the paper we will generally assume that asking advice is likely to result in receiving the required information, as some recent studies indicate (e.g. Flynn and Lake, 2008). We will return to this point in the conclusion.

form expectations about capabilities based on status characteristics. Individuals allocate esteem to people possessing high status characteristics. Once a specific belief about a status characteristic is activated, individuals will act as if this status characteristic is relevant to task performance (Wagner and Berger, 2002). *E-state structuralism* (Skvoretz and Fararo, 1996) attempts to synthesize expectation states theory with social network analysis. Their dynamic network approach clarifies under which conditions status orders – based on expectation states – develop into transitive hierarchies or remain incomplete status orders. The expectation state literature shows strong evidence for a systematic relationship between status characteristics and performance expectations (Kalkhoff and Thye, 2008): high status individuals, among others, “(1) receive more opportunities to perform, (2) perform more often, (3) are evaluated more positively for their performance” (Thye, 2000, p. 412).

Expectation state theory and E-state structuralism have two major limitations. First, their scope was restricted to collective, task oriented groups, thereby excluding mixed motive settings (Thye, 2000, p. 428). Second, by assuming directionality – i.e. the attribution of status from one actor to another actor – their representation of social structure risks to remain incomplete (Cook and Whitmeyer, 1992, p. 120). For example, the status attribution from ego to alter may precede or follow the transfer of another resource from alter to ego. Put differently, expectation states theory is less explicit about the motives driving the allocation of status in exchange relations.

The second approach to the emergence of status structures, *social exchange theory*, tackles these problems (Cook and Whitmeyer, 1992; Montgomery, 1996). Blau’s (1955) early exchange theoretical framework plays a pivotal role in this approach. Blau emphasized the informal status implications of advice relationships. Building on a micro-economic actor model, he argued that giving advice leads to opportunity costs for the advice giver, e.g. in terms of time that could be used for other activities. These costs can be compensated if advice giving produces social rewards like deference from the advice seeker and prestige in the group as a whole. Being asked for advice confers expert status to the advice giver, while asking for advice lowers the status of advice seekers. Montgomery (1996) formalized Blau’s reasoning. His game-theoretical framework models the stability of exchange network structures, but does not address the emergence of such structures through time.

Thye’s more recent *status value theory* of power (Thye, 2000) integrates elements from expectation state and social exchange theory. It addresses earlier doubts about whether social exchange theory was compatible with the expectation state approach, because expectation state theory’s actor model at that point had insufficiently specified the degree to which individuals were motivated by interest, reward, and punishment (Cook and Whitmeyer, 1992, p. 116). The key idea in the status value theory of power is that exchangeable resources will be perceived as more valuable if they are controlled by high-status actors than if they are controlled by low-status actors. Experimental evidence shows that “subjects connected to a high-status and a low-status partner indicated they (1) tried harder to acquire the goods associated with the high-status partner, (2) would prefer to be awarded those goods, and (3) attached greater value to their acquisition.” (Thye, 2000, p. 427). Thye’s model differentiates between network structures with and without relative power advantages, but takes network structures as given.

Building on these more recent refinements, we identify three key assumptions of the *social status perspective*:

- (1) Individuals strive for status as a means to improve their relative social position in a group.

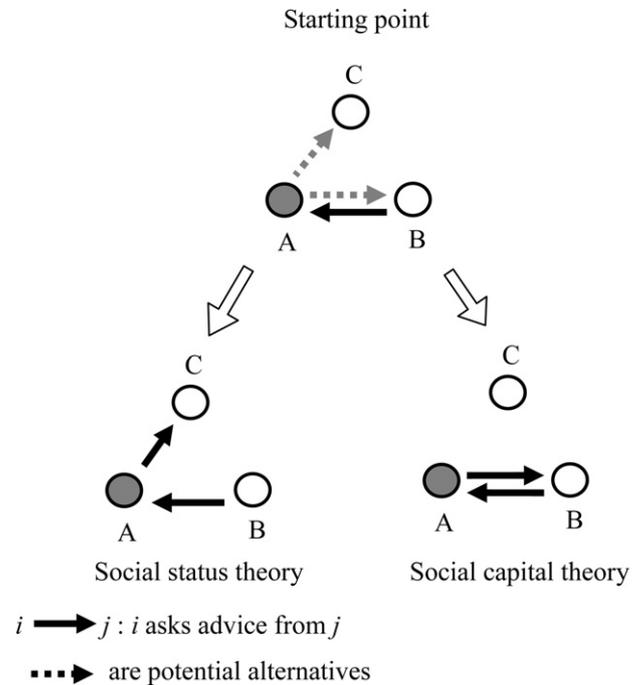


Fig. 1. Reciprocity.

- (2) An individual’s status is the combined result of engaging in transactions that improve his or her relative status (advice giving), and refrain from transactions that are likely to decrease his or her relative status vis-à-vis other group members (advice seeking).
- (3) Advice obtained from high status individuals is considered as more valuable than advice obtained from low status individuals.

The combination of these behavioral assumptions has several empirically testable implications for the shape of the emerging advice network structures.

2.1.1. Non-reciprocal dyads

A first important consequence of the above assumptions pertains to the reciprocation of advice in dyads. From a social status perspective, reciprocation of advice in dyads is unlikely for two reasons (see Fig. 1).

First, it follows from the first two assumptions that individual (A), who gained a status advantage through being asked for advice from a specific other colleague (B), will attempt to preserve this status advantage. In case they need advice, they will therefore rather approach a third party (C) to whom they did not give advice before. Employee (A) will avoid asking employee (B), because this would result in (A) losing his or her status advantage. Furthermore, from the perspective of third party (C), it will be beneficial to give advice because of the resulting status increase. Second, once an individual (A) has given advice to a specific other colleague (B), the latter’s relative standing in the group decreased. In line with the third assumption, this implies that in the eyes of (A), colleague (B)’s advice will be considered as less valuable than the advice of colleagues who are not advice seekers. Both processes reinforce each other, leading us to our first social status hypothesis:

Social Status Hypothesis 1 (Non-Reciprocity): If an actor (B) asks advice from an actor (A), actor (A) will be less likely in turn to ask advice from actor (B).

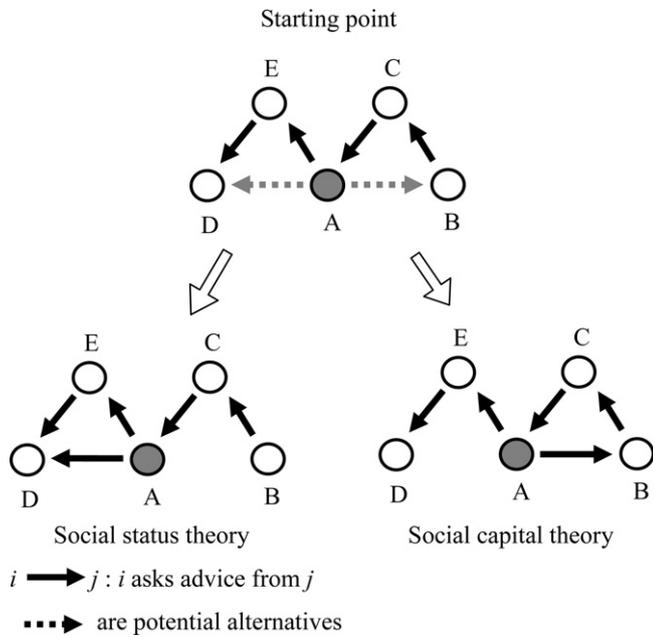


Fig. 2. Triadic cyclicity.

Major building blocks of hierarchical structures (Shrader et al., 1989) are not only a low degree of direct reciprocity, but also a lower degree of indirect reciprocity. Indeed, informal relations in mechanic organizations were found to have a high degree of non-reciprocal relationships, and advice to be status driven (Shrader et al., 1989; cf. Krackhardt, 1994, p. 98).

2.1.2. Non-cyclical triads

Based on the third assumption, according to which advice from high status persons is likely to be considered a more valuable resource than advice acquired from low status persons, advice relations tend to be transitive and non-cyclical: asking advice from the mentor of your own teacher is less damaging to your status than asking advice from your student's disciples. Formulated in more technical terms: an advisor (A) will not ask advice from those (B) who consulted with their advisees (C), but will prefer to consult the advisor (D) of his advisor (E).

From a social status perspective, cyclical triads are less rather than more likely for two reasons. First, consider the case where an actor (B) receives advice from (C) and (C) receives advice from (A) (Fig. 2). If high status individuals (A) prefer to retain their status, they are less willing to ask advice from individuals (B) who are considered as lower in the 'informal status hierarchy' by others (C) who are already lower in status than themselves (A). Instead, (A) will prefer to retain his or her status advantage over (B) by turning to others for advice. Second, it also follows from the third assumption that the perceived value of advice decreases along the chain of advice giving. Actor (A) will value advice from advisees (B) of his or her own advisees (C) – e.g. the pupils of their own students – as less valuable than the advice of their own students (C). Similarly, advice from the teachers (D) of one's teachers (E) will be considered as even more valuable than advice from one's teachers (E). Both mechanisms again reinforce each other and lead to our second social status hypothesis:

Social Status Hypothesis 2 (Non-Cyclicity): If an actor (B) asks advice from a number of actors (C, ...), who themselves ask advice from actor (A), focal actor (A) will be less likely to in turn ask advice from actor (B).

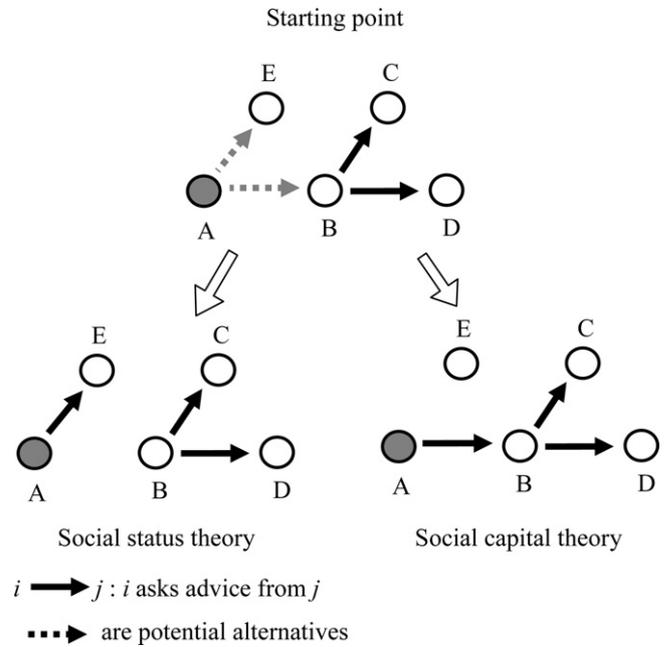


Fig. 3. Popularity of outdegree.

2.1.3. Generalized status value

The previous two hypotheses addressed the condition in which an individual (A) has given advice to a colleague (B). (A)'s subsequent decision whether or not to ask advice from (B) is informed by his or her personal and firsthand knowledge of colleague (B)'s lower status. However, (A) can also be informed about the relative standing of those colleagues with whom he or she does not have an advice relationship. Particularly in small or medium sized organizational contexts, reputations concerning (lack of) professional status are likely to be common knowledge, and consensus concerning the perceived relative status of group members will be high (Labun et al., submitted for publication). It follows from assumption three that an individual (A) will be unlikely to approach those alters (B) for advice who are frequently seeking out advice from many different others (i.e. who have a high outdegree in the advice network) (see Fig. 3).

(A) is unlikely to approach low status alters (B), not only because of the low perceived value of their resources, but also because doing so can have an additional negative signaling effect: asking advice from low status persons lowers one's own status more than when asking advice from high status others (Bonacich and Lloyd, 2004). To the extent that the time of high status actors is scarce and has high opportunity costs (Blau, 1955), being considered worthwhile of attention from high status persons in itself may lead to a "basking-in-reflected-glory" effect (Cialdini et al., 1976). The workings of this generalized status value mechanism have been described by Lazega et al. (2011) in their study of advice relations among judges, who "do not seek out advice from other judges who themselves seek out advice". This reasoning leads us to our third hypothesis:

Social Status Hypothesis 3 (Generalized Status Value): The higher the number of third parties (C, D, ...) from whom actor (B) asks advice the less likely it is that focal actor (A) will in turn ask advice from (B).

2.1.4. Relative status value

A final social status hypothesis that we will consider involves a more strict version of the generalized status value proposed above. The assumption underlying the generalized status value hypoth-

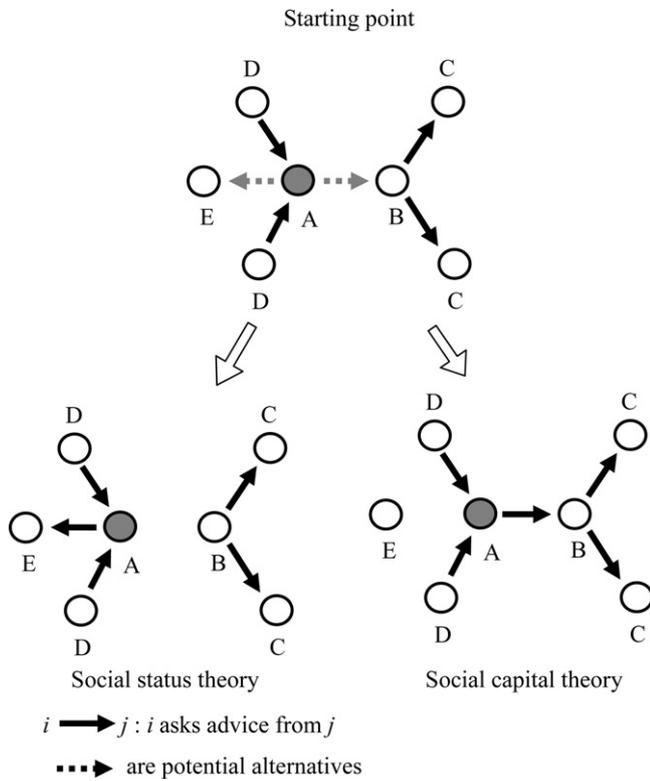


Fig. 4. Indegree to outdegree relation.

esis, described above, is that an individual (A)'s advice seeking behavior is merely affected by the status of potential advisors (B) (i.e. those who are often consulted by others and rarely have to approach others for advice), leaving the advice seeker's own status unspecified. A stricter formulation of this argument would take into consideration that the relative status loss incurred by a potential advice seeker (A) depends on the status of both the potential advice giver (B) and the advice seeker (A).

Overall, it is less damaging for one's status to approach a high status colleague who is widely considered as an expert (i.e. employees who do not need advice from others like (E) in Fig. 4), than to approach colleagues who signaled their non-expert status by being very active advice seekers themselves (B). However, high status individuals also have more to lose than low status individuals: the more colleagues consider (A) an expert, the more damaging it will be for (A)'s reputation if he or she has to ask a low status colleague (B) who is an active advice seeker. Being connected to high status alters, rather than to low status alters, is particularly important for high status individuals, as several previous studies have demonstrated (Bonacich and Lloyd, 2004; Goffman, 1961). Other findings show that this mechanism is most likely reinforced by tendencies towards status homophily (Marsden, 1988; Centola et al., 2007). In sum, high status individuals will have a particularly strong preference to ask advice from other high status individuals (i.e. colleagues who are approached by others for advice) and to avoid asking advice from low status individuals (i.e. colleagues who frequently ask others for advice). Our fourth social status hypothesis summarizes this argument:

Social Status Hypothesis 4 (Relative Status Value): The higher the number of alters (D, . . .) who ask advice from actor (A), and the higher the number of alters (C, . . .) who actor (B) asks advice from, the less likely it is that actor (A) will in turn ask advice from actor (B).

2.2. Social capital perspective

The influential *social capital* perspective (e.g. Adler and Kwon, 2002; Portes, 1998; Borgatti et al., 1998; Flap et al., 1998; Gabbay and Leenders, 1999) builds on the assumption that ties to other individuals provide potential access to useful resources and other services. As a result, individuals are likely to invest in social relations by creating and nourishing ties to resourceful others (Flap and Volker, 2001; Sparrowe et al., 2001). Such "investments" can take many forms, like spending time with somebody or giving gifts. Although the social capital approach is also rooted in social exchange theory, its behavioral micro-foundation for the emergence of advice relations differs from the social status perspective discussed in the previous section. Two key motives govern this exchange relationship: the normative obligation to comply with reciprocity and equity expectations (Gouldner, 1960; Molm et al., 2007; Uehara, 1995), and the instrumental goal of acquiring access to valuable resources, such as knowledge and information.

First, reciprocity and equity norms prescribe that who receives should also give: individuals are not supposed to benefit from other person's benevolence without providing an appropriate compensation in return. Equity concerns also proscribe that the exchange relationship should not become too unbalanced through over- or underinvestment by specific exchange partners (Uehara, 1995; Klein Ikkink and van Tilburg, 1999). Reciprocity can take different forms on at least the following three dimensions: repayment can be effectuated immediately or at a later point in time (delayed reciprocity); it can be delivered towards the person from whom one received the good or service (direct reciprocity) or to another group member (generalized reciprocity); and it can consist in restituting the same or a different type of item or service than the one received. The social status and the social capital perspective differ in particular with regard to the latter: whereas the social status perspective assumes that the advice receiver reciprocates with deference and the allocation of esteem, the social capital perspective in its pure form suggests that the beneficiaries of advice are obliged to provide advice themselves. Where a disproportionate imbalance emerges between the advice they receive and the advice they give, this non-reciprocation may be perceived as an attempt to free ride. Potential advice givers will therefore be reluctant to further invest in their relationship with these individuals (Walker et al., 1994, p. 64). Individuals who build up such a negative reputation risk sanctions in the form of exclusion from the advice network (Uehara, 1995; Klein Ikkink and van Tilburg, 1999). In exchange relations where reciprocity and equity concerns are salient, individuals are concerned with compliance to these norms. Although this motive does not exclude the allocation of status and esteem based on advice giving, the status motive is likely to play a minor role or even to be de-emphasized due to its potentially damaging effects for the creation and maintenance of durable exchange relations (Lazega et al., 2011).

The second key motive for both the provider and the receiver of advice is to get access to valuable information and knowledge. First, advice seekers will approach those colleagues who are most likely to provide the best advice related to the issue at hand, independently of their overall status in the group, or their relative status towards the advice seeker. Unlike the social status model, the social capital model claims that advice seekers put a premium on the substantive value of the resource itself. Second, advice givers collect "credit slips" (Coleman, 1988, 1990; Nahapiet and Ghoshal, 1998) from their advice seekers, who "owe" them a favor in return. The favor does not need to be compensated immediately. It is a gift, which creates the obligation towards reciprocation at a later stage. Hence, social capital can be conceptualized as the accumulation of credit slips. Through this indebtedness of others, advice givers can gain access to highly sought after resources in the future. To the

degree that an individual's generosity with advice becomes known beyond the dyad within which the exchange took place, it might also enhance the reputation of the advice giver as a pro-social individual in the eyes of other group members (cf. Dolfsma et al., 2009). Individuals who actively contribute to the welfare of the group and its members can in turn count on increased cooperative behavior towards themselves, also from those who did not yet benefit from their contributions in these exchanges (Willer, 2009). The following three assumptions summarize the reasoning underlying the *social capital perspective* on advice relations:

- (1) Individuals strive for access to valuable resources like information, knowledge, and expertise. Frequent receiving advice signals the accumulation of knowledge.
- (2) An individual's social capital is the combined result of engaging in transactions that lead to indebtedness of others (advice giving), and of avoiding transactions that create new indebtedness to others (advice seeking).
- (3) Advice obtained from highly knowledgeable individuals is considered as more valuable than advice obtained from less knowledgeable individuals. Frequent advice seekers are considered as important sources of knowledge.

In the remainder of this section, we build on these assumptions to derive testable hypotheses. We proceed in the same order as in the section for the social status perspective.

2.2.1. Reciprocal dyads

Given the reciprocal obligations as specified in the second assumption, those who have received advice are obliged to return the favor, whereas asking advice from somebody else would increase one's indebtedness. This implies that individuals (A) are more likely to ask advice from others (B) whom they have given advice to before – i.e. those who are already indebted to them – than from persons that are not indebted to them, since the latter would create indebtedness for ego (A) (compare also Fig. 1). Hence, where the status model predicts a tendency towards non-reciprocity in advice relations, the social capital model predicts that reciprocal advice relations should be the rule rather than the exception (Cropanzano and Mitchell, 2005; Podolny, 1993; Skvoretz and Agneessens, 2007). Indeed, many empirical studies demonstrated that reciprocity prevails in different types of ties and contexts (Komter, 2007; Molm et al., 2007; cf. Mandel, 2000; Cook and Emerson, 1978; Molm, 1990; Skvoretz and Willer, 1993; Willer, 1999; Uehara, 1995; Klein Ikkink and van Tilburg, 1999), including the exchange of advice (Lazega and Van Duijn, 1997; Lazega and Pattison, 1999; Skvoretz and Agneessens, 2007). For example, in Lazega et al.'s (2011) longitudinal study, judges were found to ask advice from those whom they previously have given advice to directly.

Social Capital Hypothesis 1 (Reciprocity): If an actor (B) asks advice from an actor (A), actor (A) will be more likely in turn to ask advice from actor (B).

2.2.2. Cyclical triads

A second mechanism concerns more generalized forms of exchange (Ekeh, 1974). According to the first social capital assumption, an individual's major concern is to acquire valuable resources, and the accumulation of credit from the group provides the major means to achieve this objective. They will prefer to do so by "cashing in" an old debt, rather than incurring a new debt with somebody else, as stated in the second assumption. But where concerns about the substantive value of the advice are salient, individual (A)'s previous advisee (C) might either not be the best provider of advice compared to other group members, or simply

not be knowledgeable with regard to the specific question. In such situations, (C) cannot comply with the reciprocity obligation towards (A), who needs to turn to somebody else for advice. According to social capital reasoning, turning to a third party (B) who is indebted to (C) will be the least costly scenario for (A) in terms of the second assumption (i.e. avoiding indebtedness): (C) cannot deliver, but still owes a favor to (A). In order to live up to the obligation, (C) can draw on his or her own social capital, i.e. suggest that (A) turns to someone (B) who is indebted towards (C). By doing so, the advice from (B) does not create new obligations towards (A), but cancels out (C)'s old obligation towards (A), and (B)'s obligation towards (C) (compare also Fig. 2). The result of these transactions is a pattern of generalized exchange, where gifts are not returned directly by the recipient, but indirectly by those related to alter. Previous research found this form of exchange to be more prevalent in formal structures with little hierarchy (cf. Ekeh, 1974; Molm and Cook, 1995; Molm et al., 2007; Lazega and Pattison, 1999, p. 68), and to be less prevalent in hierarchical settings (Lazega et al., 2006). The structural equivalent of generalized reciprocity discussed above is cyclical patterns of advice relations, in which work group members give advice to the advisors of their advisors. This leads us to our second social capital hypothesis:

Social Capital Hypothesis 2 (Cyclicity): If an actor (B) asks advice from a number of actors (C, ...), who themselves ask advice from a focal actor (A), actor (A) will be more likely to in turn ask advice from actor (B).

2.2.3. Generalized indebtedness

The previous two hypotheses were restricted to transactions in a dyad or triad, neglecting the overall impact of advice seeking activities of actors for those that might not necessarily be directly or indirectly connected with the advice seeker. We now introduce a more generalized version, which starts with the question to what degree one's advice seeking behavior affects one's likelihood of being approached for advice oneself (compare Fig. 3). There are at least two reasons why disproportionately active advice seekers (B) are likely to be not only sought out for advice by their previous advisors (cf. Hypothesis 1), but also by the rest of the group (A). First, the more someone seeks advice from different colleagues, the higher his or her indebtedness, as stated in the second assumption. Such individuals will become known to have benefited from other group members' advice and therefore are obliged to help others (Molm et al., 2006; Alexander et al., 1987; Sienen and Schram, 2006). Being highly indebted will make it unlikely that others will provide any additional resources (Flynn, 2003, p. 541) and therefore they are under pressure to repay their debts if they want to benefit from the group in the future. They are likely sources for advice, since asking advice from others who are highly indebted to the community will be more legitimate than asking advice from others who are not indebted to the group. Second, asking for advice will lead to an accumulation of knowledge, as stated in the first assumption. Therefore, individuals who frequently ask advice from many different others are themselves good sources of advice. Indeed, having good advisors may increase one's own social capital value for others due to the knowledge one accumulates, and one's potential brokerage function towards others (Burt, 1992). The resulting brokerage position can provide a power base, which in turn increases this person's attractiveness as a target for advice seeking (Bodemann, 1987; Dolfsma et al., 2009, p. 323). The combination of having accumulated knowledge and having outstanding debt to the group will provide strong incentives for others (A) to turn to the former (B) for advice. This reasoning results in our third social capital hypothesis:

Social Capital Hypothesis 3 (Generalized Indebtedness): The higher the number of third parties (C, D, ...) who actor (B) asks

advice from, the more likely it is that actor (A) will in turn ask advice from (B).

2.2.4. Generalized entitlements

Finally, we introduce the assumption that the choice of advisors does not only depend on the indebtedness of potential advisors, but also on the level to which the potential advice seeker has accumulated credit from others in the group. Consider individuals who are very active as advisors (A in Fig. 4): they have many colleagues who are indebted to them (D). Following the first social capital assumption – according to which individuals strive for the acquisition of resources – they will prefer to approach those colleagues where the social capital return is highest. In line with Social Capital Hypothesis 3, receiving advice (B) from many others signals having many contacts (i.e. having accumulated knowledge) and being highly indebted, which makes them promising potential sources of social capital for others.

However, there are at least two reasons why disproportionately active advice givers (A) will be more likely to approach these active advice seekers (B) for advice. First, as their frequent advice giving activity implies, active advisors (A) have a lot of credit and have more legitimacy to approach resourceful alters (who are high in demand). Second, following the social capital reasoning, the obligation to give advice to those with a poor record of advice-giving is low: having not invested in others by giving advice, they failed to collect the necessary “credit slips” (Coleman, 1988, p. S102) and entitlements to request favors from others. Therefore, paying back people with a lot of outstanding debts will be viewed as more valuable to the community, than providing resources to others without outstanding debts. Hence, highly indebted individuals will prefer to give advice to those who have a lot of entitlements (lot of credit in the community), rather than choose someone who did not accumulate any “credit slips”.

Hence, the two exchange partners in this situation will be subjected to two different fundamental reciprocity motivations (Korsgaard et al., 2010): the obligation to reciprocate benefits already received (“paying you back”), and expected reciprocity that one’s actions will stimulate future benefits from another (“paying me forward”), where the payment is to the group, rather than to a specific other. Expected reciprocity will be particularly high among employees who have given a lot of advice, since previous investments in the group or contributions to a collective good, e.g. in the form of (extra-role) organizational citizenship behavior, tends to increase one’s expectations that others will do the same (see e.g. Blatt, 2008). The obligation to reciprocate will be particularly high among employees who have received a lot of advice (see e.g. Bartlett and DeSteno, 2006, who showed that gratitude – e.g. for receiving help from others – increases the likelihood of costly pro-social behavior).

In sum, the more advice an individual has given to other group members in the past, the more likely it is that – when in need of advice – he or she will be able to approach disproportionately active advice seekers, i.e. individuals who have asked advice to many others in the group. For relatively inactive advisors, the opposite would hold: since they have no proven record of valuable contributions, they have less legitimacy to ask advice from others, and will therefore loose in the competition with others for attention (advice) from resourceful alters. Therefore, those who have little credit can only approach colleagues who have little resources (compare Fig. 4):

Social Capital Hypothesis 4 (Generalized Entitlement): The higher the number of alters (D, . . .) who ask advice from actor (A), and the higher the number of alters (C, . . .) from whom actor (B) asks advice, the more likely it is that actor (A) will in turn ask advice from actor (B).

Taken together, the *social status perspective* and the *social capital perspective* generate four hypotheses on the structure of advice networks with opposing outcomes. Where the status perspective predicts an overrepresentation of non-reciprocal dyads and non-cyclical triadic structures, the social capital perspective predicts an overrepresentation of reciprocal dyads and cyclical triads. Also, where from a social status perspective a low likelihood for active advice seekers to be approached for advice can be expected, especially by active advice givers, from the social capital a high likelihood is expected. In order to be able to identify the mechanisms, we use a longitudinal research design, since this is a necessary condition to trace the causal direction.

3. Data and method

Network data and individual information was collected during four waves (between 1995 and 1997) in a panel study in a Dutch housing corporation. Intervals between each measurement were 6 months. The organization was subdivided into eight departments, which are comparable in terms of the tasks to be carried out. Each department covered a specific district in the region and the city. The major task of the members of a department was to find appropriate housing for applicants. The organization consisted of six departments and 78 employees, 74 of whom agreed to participate in the research. Because of turnover (and temporary employment), in total 57 employees were included in the analysis. 26 (46%) of the respondents are women (cf. Table 1), and the mean age was almost 40 years. For 4 respondents their age was unknown. 15 (17%) respondents had a formal authority over other colleagues in the firm (with 5 levels of authority in total).

Advice seeking was measured by asking how frequent the respondent turned for advice to each of his colleagues, using the following question: “How often during the past 3 months did you go to [person X] if you needed advice for a work related problem or with a decision that you had to take alone or with others? It does not matter whether you asked face-to-face for advice, by telephone or via a note”. Answer categories were (1) never, (2) less than once a month, (3) 1–3 times a month, (4) 1–3 times a week, (5) daily. The relation was considered present if an actor received advice at least once a month. The proportion of ties missing ranged between 0.083 and 0.235. Missing network data was mainly due to unit-nonresponse. The amount of changes between the 4 measurement moments was relatively high, with a Jaccard Index of 0.515, 0.501 and 0.521 between subsequent time points.

We used employee age, gender, department and hierarchical level (consisting of five levels) as control variables at the individual level. This results in three effects for each variable: ego effects assess to what degree the attribute of the focal actor affects his or her advice seeking behavior; alter effects assess to what degree the attribute of colleagues in the organization (i.e. the potential advisor) affects the focal actor’s advice seeking behavior towards these colleagues; similarity effects assess to what degree being similar or different on specific attribute variables affects the focal actor’s advice seeking behavior towards potential advisors. Dyadic level control variables include: asking advice from one’s direct superior, giving advice to one’s direct superior, and advice giving or receiving

Table 1
Descriptive statistics of actors in network.

	N	Minimum	Maximum	Mean	Standard deviation
Hierarchical level of respondent	57	1	5	1.49	0.98
Gender (female = 1)	57			0.46	–
Age	53	21	60	39.53	9.19

Table 2
Descriptive statistics of network characteristics.

	Time 1	Time 2	Time 3	Time 4
Density	0.273 (N=2442)	0.281 (N=2731)	0.330 (N=2838)	0.356 (N=2926)
Standardized indegree				
Standard Deviation	0.118	0.108	0.123	0.118
Standardized outdegree				
Standard Deviation	0.167	0.181	0.209	0.210
Tendency towards reciprocity (conditional on density)	0.117	0.0997	0.100	0.116
Indegree–outdegree correlation	0.0552	0.121	0.241	0.352
Cyclicalilty	0.397	0.393	0.430	0.458
Ego–indegree–to–alter–outdegree assortativity				
Observed	0.026	0.070	0.029	–0.003
Expected	0.007	–0.003	–0.002	–0.002

between members of the same department. In order to disentangle the different mechanisms proposed here, we applied the stochastic actor based network model (cf. Snijders et al., 2010; Steglich et al., 2010) as it is proposed in Snijders (2001, 2005) and implemented in the SIENA program (Boer et al., 2006; Snijders et al., 2007). SIENA 3.181 is part of the software package StOCNET 1.8 (Boer et al., 2006; Snijders et al., 2007)³. The algorithm models changes in networks observed at different points in time as a series of consecutive steps. In each step, a possible change in a network tie of the selected actor is considered, based on whether this would increase the network surrounding for him or her in the direction of the specific structure the researcher is interested in (Snijders, 2001, 2005). In order to test our four pairs of (competing) hypotheses, we specified five such structural forms (see Figs. 1–4). In order to test the first pair of hypotheses, a reciprocity parameter indicates whether or not ties have a tendency to become symmetric. For the second pair of hypotheses, we used the tendency to form 3–cycles. A 3–cycle exists if an advisor gets advice from the advisee of his or her advisee. The presence of 3–cycles is in line with a social capital perspective, but contradicts a social status perspective. The absence of cyclicalilty reflects hierarchical ordering and is congruent with a social status perspective. In addition, a transitive triplet is present if a focal actor gives advice to the advisee of his or her advisee. Transitive triplets reflect a specific type of hierarchical ordering and are congruent with a social status perspective, but they do not necessarily disconfirm a social capital mechanism. The parameter for testing the third pair of hypotheses consists of the squared outdegree of alter (i.e. the tendency for ego to approach an alter for advice based on the squared of the number of third parties this alter receives advice from). Finally, the fourth pair of hypotheses is captured with the squared indegree to outdegree assortativity (i.e. the tendency for ego to ask advice from alter, given the squared of the number of advisees of ego and the squared of the number of advisors of alter).

4. Results

4.1. Aggregated descriptive statistics

In order to get a better understanding of the aggregated changes in the advice network over time, Table 2 summarizes some major characteristics of the network at different points in time.

First, to explore the evolution in the overall tendency to ask advice, the *density* of the advice network was calculated at each time point. Density is obtained as the number of ties present divided by the total number of ordered pairs for which a response was obtained (i.e. when the value was either 0 or 1, but not missing). As can be noted from these descriptive statistics in Table 2, the overall

level of advice sought is relatively high and increased slightly over time.

Second, to obtain information about the level of centralization in the network, the standard deviation for the standardized indegree and outdegree is calculated, where the *standardized outdegree* for actor *i* is the total number of outgoing ties for actor *i* (i.e. actor *i* asking colleagues for advice) divided by the total number of potential outgoing ties for *i* for which a response is obtained (i.e. where the tie was present or absent, but not missing). The *standardized indegree* for an actor is calculated in a similar way for incoming ties (i.e. the amount of colleagues asking the focal actor for advice). While the difference in the level of advice seeking between employees increases over time (standard deviation for the standardized outdegree in Table 2), the level to which some employees are more central than others in being asked for advice remains relatively constant (standard deviation for the standardized indegree).

Third, the level of *reciprocity* is considered. The *index for reciprocity* is calculated as the observed number of mutual dyads minus the expected number of mutual dyads given the density, and divided by the total number of mutual dyads for which an answer in both directions was given, again subtracting the expected number of mutual dyads (for details, see: Skvoretz and Agneessens, 2007; Agneessens and Skvoretz, in press). This index ranges between –1 and 1, with 1 indicating the maximum possible level of reciprocity, and –1 the maximum possible tendency against any reciprocal dyads. A value close to zero indicates that the number of mutual dyads is about what can be expected by chance. At each time point, the level of reciprocity was slightly higher than chance (around 0.1), indicating that employees tend only slightly more than chance to turn for advice to those that they have given advice to before.⁴

Cyclicalilty was calculated as the number of cyclical triangles divided by the number of triangles for which at least two of the three ties of a cycle were present. As can be observed in Table 2, the level of cyclicalilty remains fairly constant over time. However, the results at the 4 time points do show an increasingly positive *indegree–outdegree correlation*. The *indegree–outdegree correlation* captures the correlation between the indegree of an actor *i* and the outdegree of the same actor *i*. Hence, at a descriptive level we observe an increase in similarity between the number of colleagues who approach the focal actor for advice, and the number of colleagues whom a focal actor asks for advice (cf. Hypothesis 3). Those

⁴ We present these descriptive statistics in order to get a better understand of the macro-structure of the network. They do not provide us with an definite answer to our hypotheses, since our hypotheses refer to the preference of individual actors to make specific changes over time. For one, these aggregated measures do not tell us if these reciprocal dyads found over time are the same or different ones. Second, even with a constant positive level of reciprocity at the aggregated network level, we might expect a positive preference towards reciprocity at the micro-level, since the absence of any preference to reciprocate incoming ties during the decision to make changes in one's network would eventually lead to a random network (when all other effects are absent).

³ The software is freely available at <http://www.stats.ox.ac.uk/siena/>.

Table 3
Results of SIENA model (asking advice).

	Model 1			Model 2			Model 3		
	Estimate	Standard error	Sign.	Estimate	Standard error	Sign.	Estimate	Standard error	Sign.
Rate parameters									
1. Rate parameter period 1	18.572	1.331	**	19.307	1.470	**	20.042	1.601	**
2. Rate parameter period 2	23.709	1.652	**	25.474	2.006	**	27.265	2.288	**
3. Rate parameter period 3	23.044	1.404	**	23.010	1.435	**	25.161	1.705	**
Structural effects									
4. Outdegree (density)	-0.988	0.141	**	-0.173	0.236		-0.246	0.275	
5. Transitive triplets	0.107	0.004	**	0.098	0.004	**	0.102	0.006	**
6. Popularity indegree (sqrt)	-0.078	0.037	*	0.058	0.038		0.043	0.039	
7. Reciprocity	0.961	0.069	**	1.142	0.073	**	1.069	0.079	**
8. 3-Cycles	-0.111	0.008	**	-0.009	0.017		0.013	0.017	
9. Popularity outdegree (sqrt)				-0.494	0.074	**	-0.212	0.206	
10. Assortativity indegree (sqrt) to outdegree (sqrt)							-0.071	0.033	*
Dyadic covariate effects									
11. Relation to formal hierarchical superior	1.400	0.202	**	1.439	0.203	**	1.343	0.202	**
12. Relation from formal hierarchical superior	1.249	0.213	**	0.924	0.212	**	0.974	0.226	**
13. Relation between members of same department	0.621	0.066	**	0.434	0.071	**	0.418	0.066	**
Attribute effects									
Hierarchy									
14. Ego	-0.021	0.034		-0.002	0.035		0.016	0.034	
15. Alter	-0.006	0.036		0.050	0.036		0.043	0.037	
16. Similarity	0.114	0.153		0.200	0.151		0.213	0.147	
Gender (female = 1)									
17. Ego	-0.112	0.047	*	-0.074	0.046		-0.108	0.049	*
18. Alter	-0.045	0.046		-0.123	0.048	*	-0.107	0.050	*
19. Similarity	0.069	0.042		0.078	0.042		0.079	0.041	
Age									
20. Ego	0.005	0.003		0.014	0.003	**	0.008	0.004	
21. Alter	-0.009	0.003	**	-0.007	0.003	**	-0.008	0.003	**
22. Similarity	0.225	0.120		0.150	0.119		0.223	0.130	

* $P < 0.05$.** $P < 0.01$.

asking advice from many others also tend to be asked for advice by many others.

Finally, the tendency for individuals who frequently are asked for advice (high indegree) to seek advice from others who also seek a lot of advice (high outdegree) is obtained by taking the similarity between ego i 's indegree and alter j 's outdegree for those dyads where a tie is present, and comparing this to the similarity between ego i 's indegree and alter j 's outdegree for all dyads where a tie could be present. More precisely, the *observed ego-indegree-to-alter-outdegree-assortativity* is obtained by correlating the indegree of actor i with the outdegree of actor j for those pairs (i, j) where the tie from i to j is present, while the *expected ego-indegree-to-alter-outdegree-assortativity* is obtained by correlating the indegree of actor i with the outdegree of actor j for all potential places where there could be a dyad (i.e. all possible combinations of i and j , where i is not equal to j). Comparing the observed level with the expected level, at all time points except the last one there seems to be a slight preference for those who are asked a lot for advice to prefer to ask advice from others who ask a lot of advice.

It should be noted that these group level effects are purely descriptive and do not allow to draw conclusions about individual level decision making processes. To investigate the latter, we use a longitudinal model focusing on which specific ties change, and which ties remain stable.

4.2. Results from the longitudinal analysis

We ran three models with SIENA. The first model includes the reciprocity and the 3-cycle effect predicted in the first two hypotheses in both approaches. In the second model, we add the generalized exchange parameter specified in the third hypothesis. The third

model adds the structural parameter for the fourth hypothesis in both approaches, measuring generalized entitlements/relative status value. The results of all three models are summarized in Table 3 (see Snijders et al., 2010 for an overview of the available parameters).

4.2.1. Rate parameters

The network rate parameter in the model indicates to what extent actors tend to consider changing their relationship to others. Between the first two periods at which the advice network has been observed, actors on average consider changing advice ties to other actors almost 19 times (parameter 1), while between the second and third and fourth and fourth period it is around 23 times on average (parameters 2 and 3). The negative outdegree effect (parameter 4) in model 1 shows that overall there is a net tendency not to create a tie rather than to create an advice tie (provided all other effects would be absent – i.e. the actors being isolates in the network at that time). The negative popularity indegree effect (parameter 6) in model 1 indicates that over time employees tend to turn for advice to those colleagues who have previously been asked less for advice. However, this effect disappears in subsequent models.

4.2.2. Control variables

Belonging to the same department clearly increases the tendency to ask advice to each other (parameter 13). In addition, there seems to be more advice seeking between the hierarchical superior and the employee within the same department (parameters 11 and 12), while there is no such effect in general between employees of different formal hierarchical levels (parameters 14–16). There is no real consistent effect for gender on advice seeking. None of the other control variables has an impact on the tendency to form

advice ties, except that younger employees are more likely to give advice than older employees, even after controlling for hierarchical position (parameter 21).

4.2.3. *Dyadic reciprocity vs. non-reciprocity*

Turning to the first hypothesis in the social status and the social capital perspective (parameter 7), we find a stable tendency for advice givers to turn to their own recipients for advice, rather than to ask advice from others they have not given advice to in the last 3 months. This finding supports the first social capital hypothesis, and clearly contradicts the first social status hypothesis.

4.2.4. *Triadic cyclical exchange vs. non-cyclical exchange*

Model 1 shows a significant negative effect for cyclicity (parameter 8), and a significant positive effect of transitivity (parameter 5). The negative 3-cycle effect supports the second social status hypothesis: individuals are indeed less likely to receive advice from the advisees of their advisees, while the transitivity effect refines this by indicating that advisors give advice to the advisees of their advisees. The negative cyclicity effect disconfirms the social capital perspective, whereas the transitivity effect can be interpreted as a tendency to form short-cuts in advice seeking over time, which creates an even more outspoken hierarchical status for the top persons.

4.2.5. *Generalized indebtedness vs. generalized status value*

In model 2 we added the parameter measuring the generalized indebtedness/generalized status value effects (parameter 9). The results show a negative effect, supporting the generalized status value effect of the third social status hypothesis and disconfirming the generalized indebtedness mechanism of the social capital perspective: the more active individuals are as advice seekers, the less likely it is that they will be asked for advice themselves. Model 2 also shows that when adding the generalized status value effect, the (negative) triadic 3-cycle effect (parameter 8) becomes non-significant. This finding indicates that the social status motivation – not to consult colleagues who frequently seek advice themselves – is not limited to the advisees of one's advisees, but is in fact due to a more general tendency not to consult colleagues who get advice from many others.

4.2.6. *Generalized entitlement vs. relative status value*

Model 3 added an additional effect to capture the tendency for active vs. inactive advice givers to consult with active vs. inactive advice seekers (parameter 10). The results show a negative effect, supporting the relative status value mechanism specified in our fourth social status hypothesis, and again disconfirming the social capital perspective: active advice seekers are more likely to be avoided by active advice givers than by individuals who do not frequently provide advice. Model 3 also produces two other important insights, since the effects representing Hypothesis 2 (non-cyclicity) and Hypothesis 3 (generalized status value) become non-significant. This finding indicates that the tendency not to consult active advice seekers or the advisees of one's advisees is restricted to active advice givers, i.e. high status individuals.

5. Discussion and conclusion

Stimulating and facilitating knowledge sharing and joint problem solving is often considered to be one of the key challenges for modern organizations in general, and for knowledge intensive organizations in particular. The recent managerial literature suggests that the “social capital” of an organization plays an essential role in meeting this challenge. “Healthy” informal intra-organizational communication networks constitute one of the elementary building blocks of organizational social capital. In such

networks, professional advice circulates freely, and the sharing of expertise is not constrained by formal hierarchical position or informal status. This ideal-typical portrait of the organization as a tightly knit and non-hierarchical knowledge sharing community guided by reciprocity norms contrasts sharply with earlier findings in the literature, according to which emergent informal social structures have a strong tendency to develop into hierarchies due to human's natural tendency to strive for status.

Building on social exchange reasoning, we started this paper by providing a detailed reconstruction of the underlying theoretical assumptions of both ideal-type approaches. Based on the distinct assumptions behind these two competing views, we developed and empirically tested four pairs of hypotheses about the corresponding structural forms that would emerge in the advice network. Using four waves of longitudinal network data in a service organization, we found that both social capital and social status mechanisms are at work in shaping the structure of the advice network. There is a strong tendency for advice relations to be symmetric at the dyad level, which supports the idea that information sharing is guided by principles of direct reciprocity. We found these effects to be robust across all three models that we tested. A more complicated pattern emerged with regard to effects beyond the dyad. We tested for three different social status parameters and found significant effects for each of them. However, only one of these effects remained significant in our model 3, which includes all parameters addressed in this paper: very active advisors are unlikely to ask advice from very active advice seekers. The fact that this effect cancels out the effects of 3-cycles and the lower popularity of active advice seekers underlines the importance of disentangling different types of status effects. In the present case, it shows that social status considerations do not inhibit advice seeking from advice seekers: asking for advice does not discredit an employee as a potential source of advice for the advice giver. This finding is a noteworthy refinement of the social status perspective for at least two reasons. First, it shows that with the exception of dyads which consist of actors who are highly imbalanced in terms of seeking and giving advice, social status considerations do not seem to play a very prominent role in the creation of advice relationships. Put differently, even frequent advice seekers are frequently consulted, except by the most prominent advisors in the organization. Second, the results show that what matters is generalized rather than “local” status. The generalized status effects reflect the overall advice seeking or advice giving activity of an individual, independently of their advice relation to a specific potential advice seeker or advice giver. “Local” status effects refer to an individual's position in a triad, and are defined by their specific advice relation towards the two other actors in the triad (i.e. advising the mentor of one's own teacher, as in the 3-cycle effect). An individual's generalized status as an advice seeker or advice giver seems to be more relevant than these triadic effects, implying that employees adjust their behavior according to their colleagues' overall standing in the organization (as measured by the number of their advice relations), rather than their relative positions in specific relational combinations. Future research may benefit from inquiring further into the cognitive foundations of status perceptions and their representation in cognitive social structures (Kumbasar et al., 1994).

In sum, at least in this case, the advice network bears far less structural traces of status related processes than one would have expected based on the sociological literature on small group dynamics in intra-organizational networks (Krackhardt, 1994). This holds in particular for the strong prevalence of reciprocal advice relations and the fact that 3-cycles are not statistically under-represented, since these two structures form the elementary building blocks of ideal-typical hierarchies (Krackhardt, 1994, p. 97). Whereas some of the structural effects could be clearly related to either the social capital or the social status perspective, this does

not hold for transitive structures. These are potentially congruent with both approaches, although they violate the graph efficiency criterion of ideal-typical hierarchies (Krackhardt, 1994). Thus, to the degree that the structure of the advice network in our study reflects a status hierarchy, it is a relatively inefficient one in graph theoretical terms. However, since our findings were obtained in a single organization in the service sector (public housing), generalizations to other contexts like knowledge intensive organizations or professional complex systems are not warranted. Extending the analysis to a large range of different organizations would enable us to learn more about the conditions under which these effects hold.

Our findings are in line with more recent arguments (Gould, 2002; Lazega et al., 2011) suggesting that the dynamics of advice relations are likely to be characterized by the simultaneous operation of both social status and social capital related mechanisms: “Thus, advice networks tend to be both hierarchical and cohesive (at least within the subset of peers), with the hierarchical dimension usually stronger than the cohesive one” (Lazega et al., 2011, p. 115). Gould (2002, p. 1143) made a similar point: “These collective attributions are just the aggregate of individual gestures, leading to a self-reinforcing status ranking. Winner-take-all hierarchies are discouraged, however, when people prefer reciprocation of their status-conferring actions. The model therefore depicts a status ranking as an equilibrium resulting from individual responses to the trade-off between social influence and the distaste for making unreciprocated gestures.”

Although both approaches are specific variants of a broader social exchange theoretical framework, they differ with regard to the specific actor motives that are assumed to be salient. Further theoretical work on the behavioral micro-foundations underlying the advice relation would be required to specify under which conditions status motives or normative social capital motives become salient, and how they interact. For example, Flynn et al. (2006) found experimental evidence for the hypothesis that the social psychological trait of being a high self-monitor explains variations in the sensitivity for status implications of social exchanges: they were more likely to be sought out for help and to refrain from asking others for help. In addition, further research could consider how other relational contexts, such as trust and friendship relations might affect the emergence and change of advice relations (e.g. Lazega and Pattison, 1999).

Another fruitful avenue for future research relates to a more detailed investigation of the content and relational context of the advice tie. First, it might be worthwhile to further disentangle whether a request for advice actually results in advice received. In our study, we measured only advice *seeking* and assume that the advice seeker will indeed receive advice. This is in line with recent findings showing that individuals tend to respond positively to direct requests for help (e.g. Flynn and Lake, 2008). Second, given that incorrect or irrelevant advice is unlikely to translate into credit or status, future research might benefit from identifying the type of knowledge being transferred. Hence, whether being asked for advice will result in a status increase or in an increase of social capital depends at least partly on (1) whether the other actor is willing (and able) to provide information when asked, and (2) whether the information provided proves to be useful for the advice seeker. For example, from a status perspective, a colleague’s status will increase more if the advice he or she provides is considered to be useful. However, asking advice from others is likely to result in a loss of status even when the other person does not provide (useful) information. Third, as Cross et al. (2001b) have argued, advice seeking may serve more purposes than just the acquisition of information (e.g. legitimation or validation), and it may result in outcomes other than knowledge sharing (e.g. referrals to third parties or a reformulation of the problem). Finally, the initiation, stability and content of an advice tie is likely to be influenced by the

presence of other types of relationships, such as friendship, interpersonal trust, as well as negative relations. Interpersonal trust may facilitate the exchange of advice (Dirks and Ferrin, 2001), whereas friendship might temper “status games” (e.g. Lazega and Pattison, 1999; Agneessens and Skvoretz, *in press*). But advice ties may also breed interpersonal trust and friendship through time. Although the evolution of friendship (e.g. van de Bunt et al., 1999) and interpersonal trust (e.g. van de Bunt et al., 2005; Agneessens and Wittek, 2008) have each been studied independently of advice, statistical models for analyzing the co-evolution of such multiplex relations have only recently become available. The theoretical underpinnings of these processes would need further elaboration.

Despite their differences, both social exchange perspectives jointly emphasize that advice relations are inherently social in nature, whether they involve sharing or joint creation of complex knowledge and expertise, or the simple transmission or exchange of seemingly innocent information related to routine organizational processes. As such, they are inextricably tied to social motives like the quest for respect and recognition or the urge to comply with norms of reciprocity. Any effort to model their emergence or consequences that neglects these relational foundations of intra-organizational knowledge creation will therefore be unlikely to succeed. This certainly also holds for attempts to design organizational governance structures that are supposed to improve knowledge sharing and organizational learning (Rangachari, 2009; Tsai, 2002). Studies in this tradition consider the *structure* of informal knowledge sharing networks to be a strong potential predictor for organizational processes like boundary spanning and self-organization, and organizational outcomes like learning or performance, in particular in professional organizations. More specifically, it was hypothesized that what matters is the degree of closure vs. openness (“brokerage”, centralization) of the informal knowledge sharing networks (Bapuij and Crossan, 2004; Rangachari, 2009). The formal governance structure is assumed to play an important role both as an antecedent of informal knowledge-sharing networks, as well as a moderator of their impact on learning and performance. The formal hierarchy can both inhibit and stimulate the emergence of effective knowledge sharing network structures. Focusing on the endogenous mechanisms, which drive the formation of closed or open structures in the advice network, our study analyzed how both formal hierarchical position and informal status considerations may impact the formation of knowledge sharing structures. First, whereas supervisor-supervisee dyads exchange advice significantly more often than dyads with peers, formal hierarchical position does neither increase, nor decrease the chances of giving or receiving advice. Second, we found that in our case study organization status considerations – which may create potential barriers for the free exchange of knowledge – had less impact on the structure of the advice network than more fundamental reciprocity considerations.

On a theoretical level, our findings underline the usefulness of a refined social exchange framework, which carefully distinguishes between two different micro-foundations and motives of actors: the quest for status and prestige on the one hand, and the desire for balanced and reciprocal relationships on the other hand. Attempts to actively design effective structures for knowledge creation and organizational learning (Rangachari, 2009) may therefore benefit from taking into consideration that both motives are likely to affect the initiation, change and termination of informal advice relations in organizations.

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