Magnification and Correction of the Acolyte Effect: Initial Benefits and Ex Post Settling up in NFL Coaching Careers

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ABSTRACT

What are the long-term consequences of initially beneficial high-reputation workplace ties? Under uncertainty, acolytes (i.e., subordinates with work connections to high-reputation industry leaders) are likely to benefit in terms of signaling fitness for promotion in the external job market. Analysis of promotion outcomes of coaches in the NFL over 31 years showed that the acolyte effect was reduced for individuals for whom uncertainty was the least (acolytes with considerable industry experience or high centrality in the co-worker industry network). There was no support for either a knowledge-transfer or an intrinsic quality explanation for why acolytes initially gained advantage. Rather, the evidence supported the idea that ties to high-reputation leaders were somewhat randomly distributed so that acolytes faced ex post settling up consequences after their promotions: fewer further promotions or lateral moves, more demotions. Thus, acolytes initially benefited from a loose-linkage between their unobservable quality and signals offered by their industry-leader ties, but they also suffered as the unreliability of social network signals became evident. The results suggest that a competitive job market may exhibit self-correction over time. We offer countervailing theory and evidence to the prevailing view that high-reputation third-party endorsements perpetuate a rich-get-richer social structure resistant to performance outcomes.

People who have the "right" connections tend to get ahead. Whether discussed in terms of weak ties (Granovetter, 1973), structural holes (Burt, 1992), or friendship in the right places (e.g., Seidel, Polzer, & Stewart, 2000), the message has been that promotions flow to those with advantageous connections. Of particular interest are candidates' ties to people with relatively high reputation and influence – these ties are beneficial in occupational attainment (Lin, Ensel, & Vaughn, 1981; Lin, Vaughn, & Ensel, 1981). The prevailing explanation is that such ties reduce uncertainty for those trying to evaluate the claims of competing candidates (Podolny, 1993). But this explanation leaves unaddressed three questions. First, of those people who have high-reputation ties, which people are most likely to benefit from these ties? Second, what is the mechanism by which high-reputation ties help reduce uncertainty? And third, if high-reputation ties help individuals gain promotions, will these individuals continue to outcompete other candidates for future promotions?

To answer these questions we investigate the career outcomes of 1,298 coaches in the 32-team National Football League (NFL) from 1980 through 2010. Our focus is on acolytes, defined as subordinates with work connections to industry leaders who possess high reputations derived from prior performance. High-reputation leaders are those who are esteemed above their peers on "actual quality or merit" (Washington & Zajac, 2005: 283) in terms of quantifiable performance indicators (Ertug & Castellucci, 2013). High-reputation leaders differ, therefore, from leaders who are esteemed because of occupation, position, celebrity, or status (see Jensen, Kim, & Kim, 2012; Lange, Lee, & Dai, 2011; Sorenson, 2014, for useful reviews). Related research has addressed outcomes at the inter-organizational rather than the interpersonal level (e.g., Podolny, 1994; Stuart, Hoang, & Hybels, 1999). Our research question concerns the outcomes, both

positive and negative, for those in acolyte positions, who, by definition, have work connections to high-reputation industry leaders.[1]

Take the example of acolytes associated with Jack Welch, who was widely considered the "world's best leader" (Lowe, 2001) on the basis of his performance as CEO and chairman of GE from 1981 through 2001. Before becoming CEO of their own independent companies, each of the following worked under Welch: Paolo Fresco (Fiat), James McNerney (3M), Gary Wendt (Conseco), Stephen Bennett (Intuit), and Bob Nardelli (Home Depot). Indeed, headhunters were reported to "call almost everyone at GE who... made middle manager" (Jones, 2008:1). Given uncertain recruitment processes, acolytes who could boast the Jack Welch imprimatur were perceived as exemplifying management quality.

The Jack Welch anecdote dramatizes the possibility that high-reputation connections facilitate the hiring process by signaling underlying quality (Spence, 1973). Under uncertainty, candidates rely on reputation to signal both quality and the willingness to deliver that quality, whereas evaluators rely on reputation to differentiate between candidates (Jensen et al., 2012). Indeed, the main function of reputation, according to a recent review, is to facilitate decision-making and concurrent social exchange (Jensen et al., 2012). Signaling theory postulates that "good" candidates find it easier to obtain signals of quality (such as high-reputation ties) than do "bad" candidates. The visibility accorded to acolytes from high-reputation ties is likely, we argue, to mainly benefit those acolytes who might otherwise have been overlooked – those with little industry experience and with little social capital (Stuart, 2000).

[1] An acolyte is someone who has experience working on the same management team as a high-reputation leader. This approach is distinct from other measures of social network connections, such as weak ties (i.e., distant and sporadic connections – Granovetter, 1974), interorganizational latent ties (i.e., ties between organizations that are currently inactive – Mariotti & Delbridge, 2012), interpersonal dormant ties (i.e., former social ties that have lapsed – Levin, Walter, & Murnighan, 2011), and career imprinting (i.e., the stamp of a distinctive organizational culture on individuals' careers – Higgins, 2005).

As for the mechanism by which acolyte status reduces uncertainty, we examine whether high-reputation ties are believed to facilitate the transfer of important resources such as complex work-relevant knowledge (Hansen, 1999; Briscoe & Tsai, 2011). And we examine whether the positive signaling effect of acolyte status continues beyond initial job placement or whether, over time, acolyte status becomes a handicap in promotion tournaments rather than a benefit. If high-reputation ties represent a somewhat random patterning of connections (March & March, 1977), then acolytes may face eventual restorative justice (Fama, 1980), including disruptions to career progress. Acolytes, in this interpretation, may be discovered to have been the somewhat random beneficiaries of unreliable signals of quality, and suffer deleterious 'settling-up' consequences. After all, most of the Jack Welch acolytes failed in their CEO positions (Gross, 2003).

It is this focus on the long-term consequences of initially beneficial high-reputation ties that distinguishes our paper from prior work. We bring together different strands of existing theory concerning the uncertainty-reducing effects of social network ties, but we extend theory to cover both initial benefits and subsequent settling-up consequences of advantageous ties in an empirical setting in which network effects might be expected to be minimized. The highly competitive nature of the NFL (Schottey, 2013) represents a stringent context for our study, given the widespread expectation within social network research that intensely competitive markets tend to reduce social network effects (Burt, 1992). We build on prior theory (e.g., Podolny, 1993) concerning the uncertainty-reducing effects of third-party ties to cover the case of unreliable signals. We address the different mechanisms by which social networks potentially reduce uncertainty concerning candidates in labor markets, thereby extending prevailing theory (e.g., Podolny, 2001). And we introduce the idea of the acolyte as a useful theoretical construct

for understanding how, in job markets where social networks are complex, cognitive economy is served for both candidates and evaluators.

THEORY AND HYPOTHESES

In the complex and competitive environment of personnel recruitment, reputational ties are useful for those on both sides of the market, both the candidates for promotion (i.e., the actors), who strive to portray themselves in the best possible light, and the evaluators (i.e., the audience), who seek to appraise the relative worth of the candidates (Zuckerman, 1999). Individuals with work connections to high-reputation leaders are likely to have these ties reaffirmed during the selection process by formal introductions ("John worked with X"), by resumes, and by individuals' own efforts to promote positive halo effects from past associations ("I remember the time X said..."). According to basking-in-reflected-glory research, people publicize their links to success because they anticipate observers will evaluate them as successful also (Cialdini, 1989; Kim & Tsai, 2012). Acolytes are likely to benefit from positive halo effects (Cooper, 1981) so that those associated with high-reputation leaders are judged differently than those who do not have such ties. And, as network research (Zuckerman, 1999) has suggested, candidates benefit to the extent that they associate themselves with easily recognized archetypes that facilitate favorable comparisons.

As for the audience evaluating these candidate claims, those making judgments concerning whom to appoint and promote are also likely to rely on high-reputation leaders as cognitive reference points (Rosch, 1975). These leaders are considered exemplars of cherished societal values (Kovács & Sharkey, 2014: 5). Decision-makers are likely to feel less uncertain concerning applicants with high-reputation ties than those without such ties (Halgin, 2008). In general, contributions of high-reputation individuals are evaluated more positively than

contributions from low-reputation individuals independent of actual quality (G.J. Kilduff & Galinsky, 2013). And, as social network research at the level of the firm has articulated, to avoid problems posed by market uncertainty, evaluators take into account the social network connections of the actor (Podolny, 1994).

Personnel selection is a signaling game that involves employing organizations interpreting the signals that applicants use to distinguish themselves from other applicants (Spence, 1973). One such signal is the use of a third-party endorsement to signal quality to an organization the individual wants to join, an organization that does not have insider knowledge concerning the individual's work quality (Bangerter, Roulin, & König, 2012; Halgin, 2006). Our baseline hypothesis is that, among those subordinates who are affiliated with leaders of organizations, affiliation with *high-reputation* leaders is a positive predictor of career advancement.

> *Baseline Hypothesis: Among those actors with work connections to industry leaders, acolytes (i.e., those connected to high-reputation industry leaders) are more likely to gain promotions than non-acolytes (i.e., those connected to industry leaders who lack high reputations).*

Magnification of the Acolyte Effect under Evaluative Uncertainty

Different strands of research suggest that for candidates who are difficult to evaluate, the audience is likely to take into account social indicators. From a sociological perspective, under uncertainty, social network ties are taken as indicators of a focal actor's underlying quality: you are known by the company you keep (Podolny, 1994). The greater the uncertainty in the marketplace, the more people base decisions on particularistic criteria (derived from social familiarity and social influence) (Pfeffer, Salancik, & Leblebici, 1976). Similarly, from a

psychological perspective, it is under uncertainty that candidates themselves engage in social comparison processes (Festinger, 1954). With respect to the influence of social connections on judgments, individuals throughout their careers are likely to bask in the reflected glory (Cialdini, Borden, Thorne, & Walker, 1976) of having worked with industry greats.

Taking both the sociological and psychological perspectives into consideration, the inference is that an individual acolyte benefits most from a high-reputation tie when there is the least information concerning the work performance of the individual. A tie to a high-reputation industry leader is likely to benefit acolytes to the extent that other diagnostic information is lacking. From the perspective of the audience, on the lookout for undervalued assets (Lewis, 2003), a candidate's tie to a high-reputation industry leader can be seen as a signal of underlying quality that is particularly noteworthy if other information on quality is absent. A candidate for promotion, about whom little is known concerning work performance, is likely to benefit from borrowed reputation accorded by a tie to a high-reputation leader. By contrast, a candidate for whom compendious relevant work information is available, is likely to possess a relatively accessible performance reputation. Such a candidate represents little uncertainty and therefore is unlikely to gain any extra boost from a tie to a high-reputation industry leader. Thus, there is more uncertainty in how people evaluate another’s merits for promotion when there is little rather than much relevant performance information.

What are the sources that can ameliorate uncertainty concerning candidates for promotion and thereby decrease reliance on high-reputation ties? We suggest three such sources. First, an individual who has worked with many peers across the industry has available many people who can speak concerning work performance compared to someone who has worked with few peers. Acolytes who are central in the industry network are likely to be well-known in terms of their

characters and their abilities, meaning that the signaling effect of a tie to a high-reputation leader is likely to be diminished. Different types of social capital may be considered substitutable (McCarthy & Levin, 2014). But for marginally located acolytes, uncertainty reduction is likely to be more dependent on the tie to a high-reputation industry leader. Acolytes who are peripheral in the industry network may be relatively unknown in terms of their performance capabilities.

Second, if an applicant for a position already has a great deal of relevant industry experience, then there is likely to be considerable information available concerning the individual's skills and abilities, and the acolyte effect is likely to be reduced. Third, an individual who has worked across the industry with several different organizations is likely to be easier to evaluate in terms of possible promotion from one organization to another than someone who has only ever worked for one organization.

We anticipate, therefore, a distinctive kind of halo effect when it comes to promotions: Ties to high-reputation industry leaders will be seen as signals of distinctive underlying competence (Spence, 1973), particularly for candidates for whom there is relatively little information about underlying competence from other indicators. Audience members are likely to pay attention to an acolyte’s high-reputation tie to the extent that there is little other basis on which to estimate work performance. Thus, as evaluative certainty about a candidate rises, the benefits of being associated with a high-reputation industry leader are likely to diminish. We define evaluative certainty as the extent to which attributions concerning a social actor's characteristics and capabilities are shared by others within a social field (Doh, Howton, Howton, & Siegel, 2010; Wade, Porac, Pollock, & Graffin, 2006). We predict a significant negative interaction between evaluative certainty and acolyte status on the likelihood of promotion.

Hypothesis 1: The likelihood of promotion for acolytes is increased to the extent that evaluative certainty is low; i.e., for those acolytes who have low centrality in the industry co-working network, who have little industry experience, or who have worked for few organizations.

Are High Reputation Ties Believed to Signal Knowledge Transfer?

The prior two hypotheses establish the case for certain types of people benefiting from ties to high-reputation industry leaders. Thus, the underlying story we have told is one of uncertainty reduction, but now we investigate whether this uncertainty reduction is due to acolytes benefiting from perceived job-specific knowledge transfer, acolytes' superior intrinsic qualities, or something else. We pose three hypotheses to explore these alternative explanations.

First, if acolyte status sends a signal concerning applicant quality, then this may be because of the belief that acolytes gain knowledge from industry leaders with whom they work. Prior theory echoes the intuitive expectation of vicarious learning in organizational settings (Gioia & Manz, 1985). Uncertainty would be reduced if the audience believes in such knowledge transfer because acolytes would be perceived as the bearers of inside knowledge from acknowledged masters of the trade.

Under what circumstances are individuals likely to benefit from the belief that knowledge is transferred from reputed industry leaders? Would recruiters prefer to hire an applicant whose expertise was deepened through working with a mentor in the same area of expertise or an applicant whose expertise was broadened through working with a mentor in a different area of expertise? Prior research and theory suggest that actors are generally punished for deviating from accepted roles in markets where audiences face significant valuation challenges (Zuckerman, 1999). Applicants who present coherent rather than confused identities are likely to be preferred.

In academia, for example, a candidate for a post in sociology is likely to be preferred to the extent that the candidate's chairperson is a sociologist rather than a psychologist. Individuals who are seen as having developed role-specific human capital are likely to enhance their promotion prospects (Fee, Hadlock, & Pierce, 2006). In the present instance, there may, therefore, be a favorable appraisal of those candidates who are seen as likely recipients of knowledge transfer from high-reputation leaders in their own areas of expertise. Such candidates are likely to present knowledge identities that are more coherent than candidates who are seen as likely recipients of knowledge transfer from high-reputation leaders in areas of expertise distant from those of the candidates. This is likely to be so even though interactions that cross boundaries can create innovative knowledge (Zuckerman, 1999).

We therefore formulate the hypothesis to expect a greater effect on promotions for those acolytes fortunate enough to be within the leader's area of expertise relative to those acolytes in other areas of expertise. If there is a knowledge-transfer effect, there should be a greater effect for those who have a knowledge match. Those tasked with evaluating candidates are likely to perceive greater coherence and to assume greater expertise when there is an affinity of specialization between the leader and the acolyte.

Hypothesis 2: Acolytes' likelihood of promotion is greater for those acolytes whose expert knowledge matches that of their high-reputation industry leaders, relative to those acolytes without such a knowledge match.

Is Acolyte Status an Accurate Signal of Underlying Quality?

Second, we consider the possibility that acolytes gain advantages in promotion tournaments because they are perceived by the audience to have higher intrinsic quality than non-acolytes. In the business world, there is inherent uncertainty relating to the task of

distinguishing good quality from bad (Akerlof, 1970). In such circumstances, a tie to a high-reputation industry leader may well serve to reduce this inherent uncertainty concerning quality because of the belief that high-quality subordinates are matched with high-quality industry leaders. Similarity between subordinates and supervisors leads to favorable work relationships and outcomes (Kristof-Brown, Zimmerman, & Johnson, 2005). If quality attracts quality, then the presence of a tie to a high-reputation industry leader reduces uncertainty by signaling to the market the subordinate's high intrinsic worth.

From this perspective, therefore, being selected for employment under a high-reputation industry leader is akin to entering a highly selective school in terms of signaling individuals' underlying quality (Spence, 1974). The expectation, therefore, would be that acolytes (as individuals of inherently high quality) would continue to achieve superior outcomes in their careers relative to non-acolytes, after the first promotion. That is, looking beyond the initial promotion outcome, we can test the likelihood that acolytes continue to be seen as higher quality candidates than non-acolytes by checking post-promotion outcomes.

Hypothesis 3a: Acolytes, relative to non-acolytes, achieve better post-promotion outcomes.

Finally, an alternative explanation suggests that acolytes are the lucky recipients of relatively randomly conferred associations that function in the minds of observers as signals of quality. Acolytes are likely to subsequently suffer career decrements because of inflated audience expectations, complacency, and ill-will from peers.

According to research on almost random careers, if the pool of people capable of meeting the demands of specific types of jobs is larger than the number of jobs, then all the jobs will be filled by people able to meet relevant demands. Even though each job is filled on the basis of an

apparently rational decision process, applicants for jobs from the point of view of the system as a whole will be nearly identical. Discriminations among applicants will, therefore, tend to be relatively unreliable (March & March, 1977). For example, interview scores are often used to discriminate among highly-qualified students for selective academic programs even though such scores have been shown to predominantly reflect random error rather than intrinsic underlying quality differences (Kreiter, Yin, Solow, & Brennan, 2004). Such decision processes, despite producing relatively random outcomes, tend to persist because observations of existing organizational practices offer compelling but misleading evidence concerning what leads to success (Denrell, 2003). From this perspective, therefore, acolytes are likely to benefit initially from their ties to high-reputation industry leaders, but these ties are likely to function as unreliable signals of underlying acolyte quality. Promotion decisions would be socially influenced rather than completely based on merit (Fairburn & Malcolmson, 2001). People would get ahead based on connections rather than on intrinsic merit or specialized knowledge.

People who benefit from social connections may incur the envy of their peers (Burt, 2010) leading to possible social undermining (Duffy, Ganster, & Pagon, 2002: 333). And the expectation levels for acolytes may be particularly high in their new jobs, given their associations with high-reputation leaders. In the presence of high-reputation co-actors, individuals tend to develop elevated performance expectations which are likely to return to baseline levels when the individuals are no longer co-located with these social comparison standard-setters (Flynn & Amanatullah, 2012). Performance drop-off is particularly likely for individuals hired into new organizations with great expectations (Groysberg, Lee, & Nanda, 2008). And actors who have experienced the rewards contingent on high performance are at risk of complacency and diminished performance (Bothner, Kim, & Smith, 2012). Therefore, positive

effects for acolytes are unlikely to persist given inflated audience expectations, complacency and possible peer ill will. There is likely to be some ex post settling up (Fama, 1980) for people perceived to have been promoted unfairly or beyond their merits. Thus, following the first round of promotions, acolytes relative to non-acolytes are less likely to achieve superior outcomes.

Hypothesis 3b: Non-acolytes, relative to acolytes, achieve better post-promotion outcomes.

METHODS

Research Context: The National Football League

To examine the careers of acolytes relative to non-acolytes requires data over time on career trajectories as people move through the ranks in an industry setting characterized by definable high-reputation leaders. One such industry setting consists of coaching careers in the NFL, which has been described as "an ideal natural laboratory" for studying organizational behavior (Smith, 2009: 203). NFL coaches work within a set of 32 teams, or franchises, collectively valued at $46 billion (Ozanian, 2014). To foster competition, the NFL mandates a series of measures including a salary cap, league-wide revenue sharing, the provision of easier schedules for lower-performing teams, and a reverse-order draft of top players from college ranks. These features have led to a highly-competitive league in which any one team can potentially beat any other team during the season, and in which it is increasingly difficult to predict which teams will make the playoffs (Fast & Jensen, 2006). The competitive pressure on coaches is intense as indicated by the anger and despair they experience on losing games (Smith, 2009), as well as the desperate measures they sometimes take to gain advantages over each other. For instance, the head coach of the New England Patriots was fined $500,000 for masterminding a competitive spying program on rivals that violated NFL rules (Ryan, 2008), whereas the

defensive coordinator of the New Orleans Saints arranged a pay-for-injury scheme to motivate his players to "kill" and attack opposing players (Myers, 2012: 8-25).

The role of head coach in the NFL is akin to that of the CEO of a small organization, with responsibility for strategic decision making across three major operating divisions – the offense, defense, and special teams (Brown, 1982). Teams' coaching staffs are comprised of a large number of coaches, most of whom tend to be responsible for relatively circumscribed tasks (Kirwan & Seigerman, 2010; Myers, 2012). As the roster for the 2010 Indianapolis Colts in Table 1 shows, coaching tasks mirror the specialized division of labor among players (most of whom seldom score points and some of whom rarely touch the ball over the course of a game). With head coaches occupied with high-level strategic activities (e.g., game planning, media commitments, coaches' meetings), much of the operational, hands-on ("Xs and Os") coaching is delegated to position coaches or coordinators. Most coaches rise through the ranks with detailed technical knowledge of a small number of particular positions (e.g., linebackers, defensive backs) and a particular side of the ball (e.g., defense).

---Table 1 about here---

Sample

From a total of 1,565 unique coaches (all male) named on NFL start-of-season rosters between 1980 and 2010, we selected the 1,298 who coached in the NFL for the first time during this 31-year period. We used the annual *NFL Record and Fact Book* to construct full NFL career histories for these coaches, a total of 10,269 coach-years. We cross-referenced and supplemented our sample using online NFL databases, including the NFL's own website (www.nfl.com/stats), Pro Football Reference (www.pro-football-reference.com), Advanced NFL Stats (www.advancednflstats.com), and The Football Database (www.footballdb.com). We also

gathered data on individuals' playing and coaching experience in college and/or other professional football leagues (e.g., the Canadian Football League) prior to entering the NFL.[2]

Independent Variables

Acolyte status. An acolyte is an individual who has experience working on the same management team as a high-reputation leader. To determine which NFL leaders could be considered as high-reputation in given year, we coded all NFL head coaches on an annual basis according to whether they had reached at least one of five reputational milestones: 1) winning one or more Super Bowls; 2) appearing in two or more Super Bowls; 3) winning five or more playoff games; 4) appearing in ten or more playoff games; 5) winning 100 or more regular season games (see Table 2). For example, Bill Belichick was classified as a high-reputation leader from 2001 (when his team first won the Super Bowl). Of the 152 unique NFL head coaches that operated during our sample frame, 35 reached at least one milestone. Cronbach's alpha for the five component measures was .93, and all five loaded at 0.7 or above onto a single unrotated principal component factor (Eigenvalue = 3.71), suggesting that the individual reputation milestones reflect the same underlying latent construct. In addition, the mean (tetrachoric) inter-correlation among the five component measures was .92 (see Appendix A).

Once an individual had worked with a high-reputation leader for a year, we classified that individual as being an acolyte. Because our focus is on acolyte-linked promotions other than those provided by the respective high-reputation leaders themselves, we coded *acolyte* as "1" for a particular coach-year if an individual had worked with a high-reputation leader *and* was no longer working on the same staff; otherwise, *acolyte* was coded as "0." And, if an acolyte later

[2] A small number of coaches move back and forward between the college and NFL coaching ranks. For these individuals, we updated their non-NFL experience each time they re-entered the NFL.

returned to work with the same high-reputation leader, we coded the variable as zero for the years in which the two individuals remained on the same staff.

---Table 2 about here---

Evaluative certainty. This is the extent to which information is available concerning an individual's relevant work performance. We measured this in three ways. First, to the extent that an individual has worked with many rather than few colleagues in the industry, information concerning that individual's work performance is likely to be widely available (Fast & Jensen, 2006). We measured *network centrality* in the co-worker network as each coach's degree centrality within the network of NFL coaches in a particular year. The network nodes comprised all coaches named on NFL start-of-season rosters for that year. A tie existed between two nodes if the two coaches had worked together for at least one year.

Second, the more years the individual has worked in the industry, the more information there is concerning performance. We measured *coaching experience* as the number of years of NFL coaching experience prior to the start of the focal year. Third, the greater the number of different organizations within the industry an individual has worked for, the more sources of information there are likely to be concerning performance. We measured *team total* as the number of different teams that an individual had coached for prior to the focal year.

Knowledge match. For statistical tests of hypothesis 2, we created three mutually exclusive categories: acolytes whose knowledge matched that of their high-reputation leaders; acolytes whose knowledge didn't match that of their leaders; and non-acolytes.

To measure knowledge match, we first coded the high-reputation leaders as having knowledge in one or more of the following categories: 1) offense (if they had worked as an offensive coordinator, or in a specific offensive position category (offensive line, quarterbacks,

running backs, receivers/tight ends)); 2) defense (if they had worked as a defensive coordinator, or in a specific defensive position category (defensive line, linebackers, defensive backs)); or 3) special teams (if they had worked in the areas of kicking, punting, kickoffs, or kick/punt returns). Four of the high-reputation leaders (11%) had experience in more than one category. We repeated the procedure for each of the acolytes, and then determined whether a particular acolyte's experience matched the experience of their associated high-reputation leader.

The three binary (1/0) variables were coded as follows. *Acolyte: knowledge match* was coded as 1 for a given coach-year if acolyte was coded as 1 and the high-reputation leader's experience matched the acolyte's experience up to that point in time (N = 1467). *Acolyte: no knowledge match* was coded as 1 for a given coach-year if acolyte was coded as 1 and the high-reputation leader's experience did not match the acolyte's experience up to that point in time (N = 1624). *Non-acolyte*, was coded as 1 if the coach was not an acolyte at that point in time (N = 7178). Because the three binary variables are mutually exclusive, the third category (non-acolytes) was treated as the reference category and omitted from the analyses. This allowed us to compare the differential impact of the first two categories on promotion likelihood.[3]

Dependent Variables

Promotion. We coded all coaching positions according to a 5-level hierarchical scale reflective of coaching tiers well-established in the NFL: head coach (level 1), assistant head coach (level 2), coordinator (level 3), position coach (level 4), and assistant position coach/other (level 5). We created an overall binary coach-year *promotion* variable, which was coded as "1"

[3] We note that it is not possible to test hypothesis 2 by interacting acolyte and a binary knowledge match variable, because the knowledge match variable would be, by definition, a subset of the acolyte variable. Therefore, the interaction would be exactly equivalent to the knowledge match variable itself (i.e., acolyte x knowledge match would be equal to 1 when knowledge match was equal to 1 and equal to 0 when knowledge match was equal to 0).

in a particular year if an individual worked at a level higher than that of the previous year, and "0" otherwise.

Post-promotion outcome. Hypotheses 3a and 3b are competing hypotheses concerning the relative likelihood of acolytes and non-acolytes achieving superior outcomes after being promoted. To test these hypotheses, we began by determining the eventual result of every promotion in our data (N = 630). We treated a promoted individual as remaining in the same role for as long as he remained with the same team and at the same coaching level. Once at least one of these criteria changed, we treated the role as having concluded and then coded the individual's next NFL coaching role. We excluded those coaches who were still in their promoted roles (N = 114) or had not taken up a new NFL role (N = 83) by the last year in our sample. Of the remaining 433 promotions, 96 resulted in the individual receiving a further promotion with the same or another team, 133 resulted in the individual undertaking a lateral move to another team, and 204 resulted in the individual being demoted (taking a lower-level position) at the same or another team. Although a lateral move is not an unequivocal signal of success, it is at the very least an indication that the coach has performed sufficiently well over the course of his tenure to convince another team to hire him in a similar role (and presumably at a similar level of compensation). We therefore coded a *positive outcome* as being a further promotion or lateral move, and a *negative outcome* as being a demotion.

Control Variables

Age and playing experience. We controlled for *coach age*, the age in years of each coach during the focal year; and *non-NFL experience*, the number of years that an individual had coached in college and non-NFL professional leagues. In our sample, 306 coaches (24%) had played in the NFL, potentially enhancing their promotion prospects; we therefore controlled for

playing experience, the total number of NFL games that an individual had participated in as a player (results were unchanged when we substituted the number of years instead).

Opportunity structure. Career outcomes may depend on the number, type, and rarity of opportunities available (Higgins & Thomas, 2001). We therefore controlled for *roster size* (the number of coaches named on the focal coach's roster for the focal year), and, given that groups of NFL coaches often work together at multiple different teams (Tucker, 2010), *previous HC co-working* (coded as one in a particular coach-year if an individual had previously worked with his current head coach at a different team, and zero otherwise).

Employment context. Given that organizational characteristics influence career outcomes (Reskin, 1979; Seibert, Kramer, & Liden, 2001), we controlled for *team age*, the number of years that a team had competed in the NFL up to the focal year; *team performance*, the number of wins for the team during the focal year divided by total number of games; *team past performance*, the proportion of wins (total wins divided by total games) that the focal team had achieved in its entire NFL history prior to the focal year; *team Super Bowls*, the number of times that a team had won the Super Bowl prior to the focal year; and *Super Bowl recency*, the number of years since the focal team had won an NFL Super Bowl.[4] We also coded for team conference affiliation (the NFL is divided into the National Football Conference and the American Football Conference), with a binary variable equal to one if a team competed in the *NFC* in the focal year, and zero otherwise. Finally, to account for the possibility of unobserved heterogeneity from year-to-year, we included annual binary dummy variables for each sample year in all of our models.

Career performance. Observers are likely to base the evaluation of a coach's performance on the success of the coach's unit (offense or defense) rather than on the overall

[4] For teams that had never won a Super Bowl, we substituted the number of years since the first Super Bowl (1967) or the first year of franchise operations, whichever was more recent.

performance of the team. We therefore used a coach-year measure of career performance based on mean schedule-adjusted unit-level outcomes, taken from Pro Football Reference's annual ratings of offensive performance ("OSRS") and defensive performance ("DSRS"). For coach-years where the coach was not solely associated with only offense or defense, we used overall schedule-adjusted performance (Pro Football Reference's "SRS" measure; SRS = OSRS + DSRS).

Analyses and Model Specifications

For models where promotion was the dependent variable, we used random-effects logistic regression with interpretations based on marginal effects (Ai & Norton, 2003; Wiersema & Bowen, 2009) because our hypotheses addressed binary dependent variables, and the results of the Hausman test suggested an appropriate use of random-effects models. For interaction hypotheses, we created interaction terms by mean-centering and multiplying network centrality, coaching experience, and team total with acolyte. To test Hypothesis 2, we included acolyte: knowledge match (AKM) and acolyte: no knowledge match (ANKM) as predictors in the same model and then used a Wald chi test to determine whether the difference in the regression coefficients for these two predictors was significant. Finally, to test Hypotheses 3a and 3b, we used a chi-square test and Fisher's exact test to determine whether the pattern of positive and negative post-promotion outcomes differed across acolytes and non-acolytes.

To address the possibility of non-random selection of coaches, we used a Heckman two-stage selection model (Hamilton & Nickerson, 2003) to account for the initial achievement of acolyte status. Using a probit model, we regressed the binary acolyte variable on a number of variables likely to make an individual attractive to a high-reputation coach and also likely to facilitate coaching success in the NFL: *coach age*, *career experience*, *network centrality*, *career*

performance, *QB college* (a binary indicator that an individual had played in college as a quarterback), and *Pro Hall of Fame* (a binary indicator that an individual had been inducted into the NFL Hall of Fame as a player). See Appendix B. The latter two variables acted as our instruments (Newey, 2009). A repeated assertion from both NFL insiders and observers is that quarterback experience prepares people for coaching (e.g., Kirwan & Seigerman, 2010; Eccles & Tenenbaum, 2007). Similarly, players achieving Hall of Fame status are typically seen to have a deep understanding of the game, at least for their own positions. Thus, both groups can be said to possess considerable social capital. But, there is little evidence that quarterback experience or Hall of Fame status provide ongoing coaching benefits (or the likelihood of being promoted) once other human capital, experiential, and performance factors are accounted for. Based on the results of our first-stage model, we calculated the inverse Mills ratio (*IMR*) and included this in all second-stage models. Neither QB college nor Pro Hall of Fame had any significant impact when they were included in alternative second-stage models. Our results were consistent when we instead used single-stage models.

RESULTS

Table 3 reports descriptive statistics and zero-order correlations. As anticipated, the three measures of evaluative certainty (network centrality, coaching experience, total number of teams played for) showed high inter-correlations. Because of this, we assessed each measure separately. Table 4 displays results for tests of the baseline hypothesis, hypothesis 1, and hypothesis 2. Tests using network centrality are reported in models 1-3, tests using coaching experience are reported in models 4-6, and tests using team total are reported in models 7-9.

---Tables 3 and 4 about here---

Irrespective of which measure of evaluative certainty was used (in models 2, 5, and 8), results showed similar support for the baseline hypothesis. Thus, in support of the hypothesis, Model 2 in Table 4 shows that acolytes were more likely to be promoted than non-acolytes (β = 0.44, marginal effect = 0.022, $p < .01$). We also found that the overall model fit improved significantly when the acolyte variable was added to the model (likelihood ratio test = 16.06, $p < .01$). And this effect was of practical importance: the probability of receiving a coaching promotion in any given coach-year was 52% higher for acolytes compared with non-acolytes (7.13% vs. 4.70%). We found consistent support for an acolyte effect on promotions.

Magnification of Acolyte Effect

Given this support for the baseline hypothesis, the question remains as to the conditions under which this acolyte effect is moderated. Recall that hypothesis 1 suggested that acolytes' likelihood of promotion is reduced for those individuals about whom there is considerable information concerning their work performance (i.e., the acolyte/evaluative certainty interaction is negatively significant). Model 3 in Table 4 shows that hypothesis 1 was supported when measuring evaluative certainty with centrality in the coworker network (β = -0.022, marginal effect = -0.002, $p < .01$). Similarly, the overall model fit improved when adding the acolyte-centrality interaction (likelihood ratio test = 28.14, $p < .01$). Hypothesis 1 also received support when using coaching experience (Model 6; β = -0.07, marginal effect = -0.003, $p < .01$) and when using the total number of teams the individual worked for (Model 9; β = -0.30, marginal effect = -0.015, $p < .01$). Thus, we found consistent support for H1. Individuals for whom there was greater uncertainty concerning their work performance (because of limited availability of information from coworkers, from the extent of experience in the industry, or from different organizations) – these little-known individuals received more of a boost from acolyte status in

terms of promotion likelihood than did individuals whose expertise could be evaluated with greater certainty.

Mechanisms by which high-reputation ties benefit people

The results show promotion benefits for those with ties to high-reputation industry leaders, in support of our overarching idea that uncertainty in the labor market is reduced for acolytes relative to non-acolytes. What is the mechanism by which uncertainty reduction happens? We suggested three ideas.

First, recall that hypothesis 2 suggested that the positive effect of acolyte status on promotion likelihood is greater for acolytes whose expertise matches that of their high-reputation leaders. Despite its plausibility, we found no support for this hypothesis. As shown in Model 10 of Table 4, acolyte: knowledge match ($\beta = 0.51$, $p < .01$) and acolyte: no knowledge match ($\beta = 0.39$, $p < .01$) were both significant predictors of job promotions, but the difference between these two coefficients was non-significant ($\chi^2 = 0.78$, *ns*).

If acolytes were not benefiting from transmission of specialized knowledge, perhaps they were getting ahead because of intrinsic merit, signaled by their ties to high-reputation industry leaders? Hypotheses 3a and 3b offered competing predictions on this issue. According to hypothesis 3a, acolyte status signals underlying human capital, so promoted acolytes go on to achieve positive post-promotion outcomes (further promotions or lateral moves) rather than negative outcomes (demotions). According to hypothesis 3b, acolyte status is conferred somewhat randomly, generating high expectations and possible collegial ill-will for the recipients of good fortune, so it is *non*-acolytes who achieve positive post-promotion outcomes. The results show support for H3b.

Table 5a shows that across 154 acolyte promotions, 71 (46%) resulted in a positive outcome (either a promotion or a lateral move), whereas 83 (54%) resulted in a negative outcome (a demotion). In contrast, of 279 non-acolyte promotions, 158 (57%) resulted in a positive outcome whereas 121 (43%) resulted in a negative outcome. These differences were statistically significant according to both the Chi-square test ($\chi^2 = 4.413$, df = 1; $p < .05$) and Fisher's exact test ($p < .05$). Also, at the coach-year level, the correlation between acolyte status and positive outcome was negative and significant ($r = -.07$, $p < .01$). This pattern of results, therefore, lends no support to the idea that acolytes are blessed with superior human capital, but does lends support to the idea that acolyte status represents a fallible indicator of underlying merit.

---Table 5 about here---

To check whether this pattern of results was due to acolytes being promoted into more challenging situations, we separated initial promotions into two groups: historically successful teams and historically unsuccessful teams (based on a median split according to historical franchise winning percentage). Tables 5b and 5c show that acolytes tended to be promoted into historically successful teams. The ratio of acolytes to non-acolytes was higher for historically successful teams (94 to 143 (66%)) than for historically unsuccessful teams (60 to 136 (44%)). Thus, acolytes, relative to non-acolytes, not only had better chances of promotion, acolyte promotions also were more likely to be to historically successful teams.

However, acolytes failed to gain the expected benefits from their promotions to historically successful teams, which represent less challenging situations. In general, coaches were more likely to experience positive outcomes when promoted to historically successful teams (140/237 = 59%) than when promoted to historically unsuccessful teams (89/196 = 45%). But promoted acolytes, relative to promoted non-acolytes, experienced significantly worse

outcomes when they were promoted to historically successful teams (Table 5b; $\chi^2 = 5.303$, df = 1; $p < .05$). There was no impact of acolyte status on post-promotion outcome when the initial promotion was to a historically unsuccessful team (Table 5c; $\chi^2 = 1.020$, df = 1; ns).

Overall, therefore, given the limitations of dealing with archival data, we attempted to tease out which possible mechanisms helped explain the acolyte effect. In support of H3b, we found that acolytes (relative to non-acolytes) experienced worse post-promotion outcomes despite the advantages accruing to them in terms of promotions in general and promotions to more successful teams.

Supplementary Analyses

We conducted several supplementary analyses. We first omitted individual-level control variables and re-ran our models using fixed effects estimation instead of random effects (see Models 1-4 in Table 6). Results were consistent. Next, we ran single stage models (omitting the Heckman correction). These results were also consistent (see Models 5-8).

---Table 6 about here---

We then created a more restrictive measure of coaching promotions. Coaching levels 1, 2, and 3 (see Methods section) are typically viewed as "senior" NFL coaching positions, whereas levels 4 and 5 are viewed as "junior" NFL coaching positions. Across our entire sample, 1,807 (18%) coach-year positions were senior positions. *First senior promotion* was operationalized as a binary 1/0 variable equal to one in the year in which an individual first attained a level 1, 2, or 3 coaching position, and zero otherwise. We re-ran our analyses using first senior promotion as the dependent variable. For these analyses, we used complementary log-log models, a form of discrete-time event history estimation based on proportional hazards models (Allison, 1982; Box-Steffensmeier & Jones, 2004: 69-89; Henderson, 1999). This estimation technique accounts

for the fact that each individual can achieve this promotion only once in a career. Thus, observations for a coach in the years after a first senior promotion has been achieved are dropped from the analysis. Models 9-12 show that our results were unchanged when using this more restrictive promotion measure.

Then, to see whether there was still a benefit to working under a high-reputation leader if that working relationship was short, we recoded acolyte as "1" when an individual had worked with a high-reputation leader for only one or two years. (Acolyte was coded as "0" if the individual had never worked with a high-reputation leader or had worked with one for three or more years.) Results were again consistent, suggesting that the benefits of acolyte status begin to occur quite quickly. See Models 13-16.

Next, we replaced the binary acolyte measure with an ordinal measure (Models 17-20). For each coach-year where acolyte was coded as zero, we made no changes. For coach-years where acolyte was coded as one, we replaced this with the number of years that the individual had worked with a high-reputation head coach. If an individual had worked with multiple head coaches, we used the one that the individual had spent the most time working with. When using this alternative acolyte measure, we did not find support for our baseline hypothesis (Model 17: $\beta = 0.03$, ns), but results for hypothesis 1 were consistent for all three moderators (Models 18-20).

We then investigated the impact of using alternative measures of coaches' career performance. First, we measured career performance based on the most recent three years rather than the whole career (Models 21-24). Second, we measured this variable without adjusting for opposing teams' strength of schedule (Models 25-28). Results were unchanged. Our results were also consistent when we replaced degree centrality with eigenvector centrality (Models 29-30).

Perhaps results for H1 (with coaching experience as the relevant measure) were influenced by ceiling effects because senior individuals faced promotion limits. To examine this, we re-tested H1 using only promotions to level 4 (position coach), and only promotions to level 3 (coordinator). See Table 6, models 31 and 32. The results for H1 held. Alternatively, perhaps individuals remained in positions for long periods because of incompetence. To examine this we retested H1 with only those coach-years where coaching experience was six years or fewer (the mean in our sample was 6.4 years). As shown in Model 33, our results were again consistent.

For H3a/3b, which were focused on the outcomes of promotions for acolytes vs. non-acolytes, we re-coded the negative outcome category to include those promotions where the individual had left their promoted role but had not taken up a new position in the NFL by the last year in our sample (N = 83). Non-acolytes continued to show superior outcomes to acolytes (χ^2 = 3.89, $p < .05$). Results were also consistent when we omitted lateral moves (N = 133) from the positive outcome category ($\chi^2 = 3.06$, $p < .1$).

We examined how often an acolyte was hired by a head coach who had previously worked with the high-reputation leader who endowed the new hire with acolyte status.[5] For instance, Mike Heimerdinger (acolyte under Dan Reeves at the Denver Broncos) was hired in 2000 as the offensive coordinator at the Tennessee Titans by head coach Jeff Fisher, who had previously worked with Reeves at the San Francisco 49ers.

To determine the extent of this phenomenon, we examined the full career histories of all the head coaches in our sample who promoted acolytes. We then cross-referenced these with the career histories of all the high-reputation leaders to determine whether the two individuals (the hiring coach and the high-reputation leader) had previously worked together. In our sample, this occurred 56 times (out of 237 acolyte promotions). Of these, 21 promotions resulted in a positive

[5] We thank an anonymous reviewer for suggesting this possibility.

outcome, while 15 resulted in a negative outcome (nine coaches were still in the same positions by the last year in our sample, and 11 coaches had not taken up a new position in the NFL). When we removed these observations from our tests of H3a/3b, the results provided slightly *stronger* support for H3b ($\chi^2 = 6.76$, $p < .01$), suggesting that acolytes hired by head coaches who had themselves previously worked under the high-reputation leader experienced superior outcomes than acolytes where this was not the case. One likely explanation for this is that an acolyte hired in such a situation would have been vetted more fully (via direct communication between the hiring coach and high-reputation leader), and that the decision was based more on the high-reputation leader's opinion of the acolyte than simply the more general halo effect of acolyte status. This result also provides further support for our claim that acolyte status alone is neither a reflection of substantial knowledge transfer (H2) nor an innate signal of quality (H3a).

Finally, we analyzed the extent to which the positive impact of acolyte status persists. We recoded the data to record the length of time (in years) since each coach had had last worked on the same staff as a high-reputation leader. In an intensely competitive market such as the NFL, we expected that the benefits of social network effects such as acolyte status would attenuate relatively quickly (cf. Burt, 1992). But we were surprised at how rapidly this attenuation occurred. Model 34 shows the highly significant impact of acolyte status on promotion likelihood for all promotions when the acolyte was only a single year removed from the roster of the high-reputation leader ($\beta = 1.41$, $p < .01$). In contrast, model 35 ($\beta = -0.32$, $p < .05$) shows the same test when the acolyte was two or more years removed from the staff of the high-reputation leader. As can be seen, acolyte status provides no incremental benefit in such situations (in fact, the coefficient was negatively significant). This striking result underlines our broader finding

that the benefits of a tie to a high-reputation leader in the NFL are relatively transitory, whereas the negative implications can last considerably longer.

Summary of Results

Acolytes relative to non-acolytes were more likely to be promoted (including to senior coaching positions). The acolyte effect was particularly evident for those acolytes whose situations exhibited high evaluative uncertainty (i.e., less central, little experience, few work organizations). These little-known acolytes were more dependent than their better-known colleagues on ties to high-reputation industry leaders for the borrowed social capital necessary to get ahead. The results further suggested that neither knowledge transfer from high-reputation industry leaders nor inherent acolyte qualities explained why acolytes gained promotion advantages. Rather, an ex post settling up process was indicated: acolytes benefited from a somewhat random allocation process that initially favored them in the labor market (for the first year subsequent to leaving the employment of a high-reputation leader) but later resulted in unfavorable career outcomes relative to non-acolytes.

DISCUSSION

Who is most likely to benefit from high-reputation ties? The answer, from this research, is that people benefit to the extent that there are few other sources from which to gauge the quality of their work. We demonstrate, at the individual level, a result that complements prior work, at the firm level, that showed how young or small firms reduced uncertainty and facilitated positive outcomes through network ties (Stuart, 2000). The second question we posed concerned the mechanisms by which high-reputation ties related to individual career outcomes. Do those ties signal knowledge transfer or intrinsic worth? Or is the acolyte the lucky recipient of a faulty but positive signal? The evidence showed support for the role of luck in favoring some but not

others with high-reputation ties that facilitated promotions. And, in addressing the third related research question, we found evidence for a post hoc settling up effect in that, although acolytes initially benefitted from their high-reputation ties, they experienced poorer outcomes in the longer run.

Our results contribute to the debate concerning the effects of proximal and distant ties on social capital outcomes. Does it pay to have connections to people who are well-connected? Prior research has suggested the general answer in competitive environments is – no (Burt, 2007). Our question is related: Does it pay in terms of promotions to have connections to people who are industry leaders? The answer in this case is – generally yes. But the effects of such high-reputation ties on promotions dropped dramatically after the first year. Taking into account ties to high-reputation industry leaders provides a fuller picture of how the web of connections within which careers develop spans across time and across different organizations.

Contribution to Theory

We extend existing theory concerning the uncertainty-reducing effects of third-party social network ties to cover both initial benefits for candidates for promotion and subsequent settling-up consequences. Existing theory and research build from Podolny's (1993; 1994) emphases on the ways in which third parties make sense of incomplete information by relying on network ties as signals, particularly when quality is more difficult to observe. We apply these ideas specifically to promotion processes in a highly competitive labor market in which performance prowess is at a premium. But we take seriously Podolny's (1993) ideas concerning the loose linkage between underlying quality and third-party signaling to ask: What are the consequences of such slippage? If actors gain advantages through unreliable signaling processes, then, in a highly competitive market, there is likely to be ex post settling up over time. We

hypothesized and found that acolytes (who tended to initially benefit from high-reputation ties) were subsequently disadvantaged following promotions. Thus, we offer countervailing theory and evidence to the prevailing view (based on research at the interorganizational level: Podolny, 1993; Washington & Zajac, 2005) that high-reputation third-party endorsements perpetuate a rich-get-richer social structure resistant to performance outcomes.

Thus, we extend existing theory by showing that in highly competitive markets, such as the NFL coaching market, initial benefits may well flow to those who are appraised as signaling high quality, but signaling mistakes are also likely to be noticed and corrected over time. Prior work has similarly emphasized the extent to which apparently advantageous positions can be associated in the long run with deleterious outcomes. Thus actors who achieve dominant positions (through outperforming rivals) tend subsequently to suffer performance declines (Bothner et al., 2012). The status that comes with high performance can breed complacency (Burt, 2010) and can engender distracting behaviors that can diminish performance. Further, an increase in performance of the actor relative to rivals can, paradoxically, lead to reduced quality evaluations by audience members (Kovács & Sharkey, 2014). Particularly vulnerable may be actors who are overly dependent on a single source for audience support and respect, especially if that single source occupies a position of fragility in terms of social position (Bothner et al., 2010). We might, therefore, add a caveat to the widely accepted view that markets reward those who offer signals of underlying quality (Spence, 1973). Our research adds to the prior work on the perils of status signaling in suggesting that markets can punish those who, even inadvertently, benefit from misleading reputational signals.

Second, we contribute to understanding the mechanisms by which uncertainty reduction is effected through social networks. Prevailing theory (e.g., Podolny, 2001) suggests that high-

reputation ties confer advantages either as pipes through which resources (i.e., knowledge) flow or as prisms through which inherent quality can be discerned. We offer a third perspective – high-reputation ties can function as unreliable indicators likely to mislead rather than inform concerning target quality. For this third perspective, we build from organization theory concerning the extent to which career advantages tend to be random rather than based on inherent and invisible quality differences (March & March, 1977). The transfer of specialized knowledge across levels and across different functions is likely to be limited in efficient organizational structures (Grant, 1996; Nonaka, 1994; Simon, 1991; Tsai, 2002) thereby starving social network pipes of valuable content. Clearly, our results are not conclusive, but they do suggest a level of skepticism toward prevailing theory, and a renewed attention to the likelihood of high-reputation ties as distorting rather than clarifying lenses (M. Kilduff & Krackhardt, 1994).

Third, we introduce the idea of the acolyte as a useful theoretical construct for understanding social network effects. Given the difficulty on both sides of the actor/audience divide in comprehending and keeping track of social network contacts, cognitive economy is likely to be in evidence in markets where individuals are being appraised. There is considerable evidence in social network research for how perceivers rely on cognitive shortcuts in evaluating social networks (e.g., De Soto, 1960; Freeman, 1992; Janicik & Larrick, 2005). We contribute to this literature the idea that a tie to a high-reputation industry leader is likely to be particularly valuable in simplifying evaluation processes. Acolytes are enabled to emphasize their distinctiveness through such ties whereas evaluators are able to make rapid sense of the otherwise confusing social landscape of endorsements.

Future Research

Our focus on acolytes contributes a new theoretical direction to social network research. High-reputation social connections can be considered not just as signals of underlying quality (Podolny, 2001) but as lenses that potentially distort individuals' qualities both beneficially (in terms of enhancing the value of prior performance); and detrimentally (in terms of ex post settling up). Future research can investigate the extent to which acolytes benefit or suffer in other settings, including academia. Prior work shows that the amount of career assistance and psychosocial assistance provided by an individual's primary mentor is unrelated to promotions (Higgins & Thomas, 2001). Among academics, a productive dissertation committee chairperson has either a negative (Judge, Kammeyer-Mueller, & Bretz, 2004) or a non-significant (Reskin, 1979) effect on an individual's success once other factors (such as the individual's own record of publications) are considered. Indeed, tie persistence is unrelated to publication success in academia (Dahlander & McFarland, 2013).

In many industries the individual's specific contributions to organizational success are difficult to tabulate, and, therefore, the scope for ex post settling up may be more limited than in the NFL. Future work can examine how strong is the emphasis on the part of decision-makers in favor of those with ties to high-reputation industry leaders.

Future work can also examine alternatives to the ex post settling-up story. Acolytes (relative to non-acolytes) who gain promotions may tend to rest on their laurels rather than continuing to invest in human capital given that aspiration levels may drop once acolytes lose proximity to high-reputation stars (Flynn & Amanatullah, 2012). It may be that acolytes' star connections detract their attention from the necessity of maintaining their competitive advantage. Social capital can be a distorting mirror within which the candidate sees an overly flattering image of career chances. And from the audience side, there may be envy of those whose careers

appear to have been aided by celebrities. Acolytes' careers may be derailed by others' envy-related punishments rather than because of acolytes' absence of quality.

Thus our research has implications for the social capital approach that has emphasized the effects of social network ties on job mobility and achievement (e.g., Lin, Cook, & Burt, 2001). Social capital outcomes such as promotions have been widely discussed as resulting from rational processes (e.g., Burt, 1992). By highlighting the possibility of network ties as randomly conferring benefits on actors, we connect social network research with a lively literature in organization theory that questions the likelihood of such rational processes (March & March, 1977).

Practical Implications

The results of our study raise the possibility that high-reputation ties may have a "dark side" for both organizations and individuals. The results concerning NFL promotions indicate an industry system in which social connections rather than just skills and abilities enable people to move into positions such as head coach. The pattern of results does raise questions concerning the chances of those outside the magic circle of coach endorsements to get ahead, and whether this attribution-based method of promotion is harmful to the industry in terms of promoting people beyond their capabilities relative to their peers; or of fostering envy among those not fortunate enough to possess connections to star managers. Our research also adds to the limited literature concerning the dark side of social capital at the individual level. Within the social network field, there has been scant criticism of the overall emphasis on the importance of social ties for getting ahead (cf. Locke, 1999). But a recent review pointed out possible downsides of basking in reflected glory including being perceived as second fiddle or being perceived as someone riding the coattails of a powerful other (Brass, 2012).

It is, of course, the field of sports management that has implemented radical changes in how athletes are assessed, selected, and compensated (Hakes & Sauer, 2006; Lewis, 2003). The widespread application of data-driven evaluation techniques and large-sample statistical analyses – known within professional baseball as “sabermetrics” – has reduced the historical role of subjective, arguably flawed, player appraisal methodologies based on scouting and idiosyncratic assessments. Our results suggest that personnel promotion in highly competitive contexts can exhibit particularistic biases, but that the market can self-correct over time.

Limitations

Can results from the NFL generalize to other contexts? A current review of the relevance of sports studies for organizational research argues that "sport is an excellent context in which to study.... a wide array of topics in the organization sciences" (Day, Gordon, & Fink, 2012: 425-426). But the characteristics of the NFL – an interlinked system of independent organizations operating under a regime designed to maximize competition (Rottenberg, 1956) – may limit the implications that can be drawn. Further, as prior research on the NFL has suggested, "the season's performance can be significantly affected by the operation of stochastic elements" such as player injury, in ways that are not characteristic of other industries (Brown, 1982: 15). Future research could investigate whether acolyte status facilitates or impedes career progress in industries quite different from the NFL, such as, for example the entertainment industry (Brown, 1982) in which network endorsements play a major role. A salient boundary condition is likely to be whether or not the inter-organizational context is one in which the reputations of successful managers are known and respected by others outside the focal unit or organization.

Second, although we have traced the career trajectories of all the coaches over time, we have not been able to link coaches to specific performance outcomes in the way that

characterizes most sports studies that focus on players rather than managers (e.g., Harder, 1992). Given the debate concerning whether managers do or do not have effects on performance outcomes of organizations (e.g., Hambrick & Finkelstein, 1987; Lieberson & O'Connor, 1972), it may be particularly tricky to unravel the performance consequences of promoting managers on the basis of network ties rather than prior performance or experience.

Third, the research is limited in its ability to discover the actual cognitive and emotional processes underlying the patterns we have analyzed. There is a developing literature concerning social network cognition (Flynn, Reagans, Amanatullah, & Ames, 2006) and a literature concerning network emotion (Casciaro, 2014) in which these issues are explored. Future research could explore halo effects of network endorsements within controlled experimental conditions to delimit the boundary conditions and implications of the processes discussed here.

Conclusion

In summary, our research has shown that affiliation with a successful leader can facilitate or damage career progress even in an industry in which quantitative indicators of performance are routinely used to assess outcomes. The highly competitive nature of the NFL makes the current results more surprising than they otherwise might be, given the widespread expectation within social network research that intensely competitive markets tend to reduce social network effects (Burt, 1992). If the current research has an overriding message, it is that otherwise marginalized individuals may reap short-term fortuitous promotion benefits from high-reputational ties; but, in a highly competitive market, there are likely to be longer-term ex post settling up effects for these individuals, including demotions.

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TABLE 1
2010 Indianapolis Colts Coaching Roster

Name	Position
Jim Caldwell	Head Coach
Clyde Christensen	Offensive Coordinator
Larry Coyer	Defensive Coordinator
Jim Bob Cooter	Offensive Assistant
Richard Howell	Assistant Strength and Conditioning Coach
Gene Huey	Running Backs
Pete Metzelaars	Offensive Line
Tom Moore	Senior Offensive Assistant
Mike Murphy	Linebackers
Rod Perry	Special Assistant to the Defense
Ron Prince	Assistant, Offensive Line
Frank Reich	Quarterbacks
Ray Rychleski	Special Teams
Bill Teerlinck	Defensive Assistant
John Teerlinck	Defensive Line
Ricky Thomas	Tight Ends
Jon Torine	Strength and Conditioning
Ron Turner	Wide Receivers
Alan Williams	Defensive Backs

TABLE 2
High-Reputation NFL Head Coaches

Name	First year as Head Coach	Head coaching reputation milestones					Total milestones reached	First milestone reached
		One Super Bowl win	Two Super Bowl appearances	Five playoff wins	Ten playoff appearances	100 wins		
Bill Belichick	1991	2001	2003	2003	2004	2006	5	2001
Bill Cowher	1992	2005	2005	1997	1997	2002	5	1997
Joe Gibbs	1981	1982	1983	1983	1986	1990	5	1982
Mike Holmgren	1992	1996	1997	1996	1996	2002	5	1996
Tom Landry	1960	1971	1971	1971	1971	1973	5	1971
Chuck Noll	1969	1974	1975	1975	1976	1979	5	1974
Bill Parcells	1983	1986	1990	1986	1990	1996	5	1986
George Seifert	1989	1989	1994	1992	1994	1999	5	1989
Mike Shanahan	1988	1997	1998	1998	2003	2004	5	1997
Don Shula	1963	1972	1971	1972	1972	1972	5	1971
Dick Vermeil	1976	1999	1999	1999	1999	2003	5	1999
Tom Coughlin	1995	2007		2007	2006	2007	4	2006
Mike Ditka	1982	1985		1988	1990	1991	4	1985
Tony Dungy	1996	2006		2004	2003	2005	4	2003
Tom Flores	1979	1980	1983	1982	1984		4	1980
Bud Grant	1967		1973	1973	1973	1977	4	1973
Jimmy Johnson	1989	1992	1993	1993	1998		4	1992
Marv Levy	1978		1991	1991	1992	1993	4	1991
Dan Reeves	1981		1987	1989	1989	1991	4	1987
Bill Walsh	1979	1981	1984	1984	1986		4	1981
Jeff Fisher	1994			2003	2007	2006	3	2003
Chuck Knox	1973			1983	1981	1983	3	1981
Andy Reid	1999			2003	2004	2009	3	2003
Marty Schottenheimer	1984			1993	1992	1994	3	1993
Mike Tomlin	2007	2008	2010	2010			3	2008
Brian Billick	1999	2000		2001			2	2000
Dennis Green	1992				1999	2004	2	1999
Jon Gruden	1998	2002		2002			2	2002
Mike McCarthy	2006	2010		2010			2	2010
Barry Switzer	1994	1995		1996			2	1995
Don Coryell	1973					1984	1	1984
John Fox	2002			2005			1	2005
Jim Mora	1986					1999	1	1999
Sean Payton	2006	2009					1	2009
John Robinson	1983				1989		1	1989

TABLE 3
Descriptive Statistics and Correlations

Variable	Mean	s.d.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.
1. Promotion	0.06	0.24	-----																		
2. Acolyte	0.30	0.46	.04	-----																	
3. Acolyte: knowledge match	0.14	0.35	.03	.62	-----																
4. Acolyte: no knowledge match	0.16	0.36	.03	.66	-.18	-----															
Evaluative certainty																					
5. Network centrality	39.71	26.84	.00	.55	.42	.29	-----														
6. Coaching experience	6.43	5.88	-.04	.53	.42	.27	.85	-----													
7. Team total	2.16	1.49	.01	.48	.40	.23	.87	.75	-----												
8. Career performance	0.15	2.71	.05	.13	.08	.09	-.04	.07	-.07	-----											
9. Coach age	44.52	8.76	.05	.30	.26	.13	.53	.62	.49	.02	-----										
10. Non-NFL experience	8.42	7.26	-.01	-.03	-.04	-.01	-.01	-.01	.01	.00	.48	-----									
11. Playing experience	23.84	54.18	.00	-.02	.04	-.06	-.04	-.04	-.06	.01	-.01	-.46	-----								
12. Roster size	15.73	3.15	.01	.19	.12	.11	.42	.20	.20	.06	.09	.01	.00	-----							
13. Previous HC co-working	0.07	0.25	.00	-.01	.02	-.03	.11	.18	.20	.06	.10	.01	-.04	.03	-----						
14. Team age	44.23	21.40	.02	.05	.05	.01	.10	.05	.04	-.02	.06	.02	.01	.16	-.01	-----					
15. Team performance	0.50	0.19	-.03	.04	.03	.02	-.01	.04	.00	.19	.01	.00	.01	-.02	.01	.02	-----				
16. Team past performance	0.49	0.08	.00	.07	.03	.06	.02	.00	-.02	.12	.05	.05	.04	.12	-.03	.31	.11	-----			
17. Team Super Bowls	1.08	1.47	.01	.09	.04	.07	.07	.03	.02	.13	.02	.00	.04	.09	-.05	.32	.13	.46	-----		
18. Super Bowl recency	24.36	13.37	.01	.01	.03	-.01	.12	.08	.07	-.14	.05	.01	.00	.19	.06	-.10	-.13	-.21	-.64	-----	
19. NFC	0.51	0.50	.01	.00	.00	.00	.01	-.03	-.01	-.03	.00	.03	-.06	.06	-.04	.42	-.03	-.07	.08	-.09	-----
20. Inverse Mills ratio	1.35	0.63	-.02	-.56	-.41	-.31	-.84	-.88	-.77	-.33	-.46	.07	.02	-.37	-.20	-.07	-.09	-.05	-.09	-.07	.02

N = 10,269; All correlations greater than or equal to .03 are significant at the .01 level

TABLE 4
Effects of Acolyte Status on Promotions

	Model 1	Model 2 (BH)	Model 3 (H1)	Model 4	Model 5 (BH)	Model 6 (H1)	Model 7	Model 8 (BH)	Model 9 (H1)	Model 10 (H2)
Constant	1.47*	1.20+	0.82	1.93**	1.65*	1.60*	0.66	0.38	0.15	1.23+
	(0.72)	(0.72)	(0.73)	(0.64)	(0.64)	(0.65)	(0.68)	(0.68)	(0.69)	(0.72)
Coach age	-0.07**	-0.07**	-0.06**	-0.02+	-0.02+	-0.02*	-0.07**	-0.07**	-0.07**	-0.07**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Non-NFL experience	0.05**	0.05**	0.05**	0.02*	0.02*	0.02*	0.05**	0.05**	0.05**	0.05**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Playing experience	0.004**	0.004**	0.003**	0.00	0.00	0.00	0.003**	0.003**	0.003**	0.003**
	(0.001)	(0.001)	(0.001)	(0.01)	(0.01)	(0.01)	(0.001)	(0.001)	(0.001)	(0.001)
Roster size	-0.04	-0.04	-0.05+	-0.08**	-0.08**	-0.08**	-0.04	-0.04	-0.03	-0.04
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Prev. HC co-work	0.02	0.12	0.12	0.20	0.29+	0.24	-0.03	0.07	0.01	0.12
	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)
Team age	0.00	0.00	0.005+	0.00	0.00	0.00	0.00	0.004+	0.005+	0.00
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.002)	(0.002)	(0.01)
Team performance	-0.94**	-0.93**	-0.90**	-0.82**	-0.81**	-0.81**	-0.93**	-0.92**	-0.90**	-0.93**
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
Team past performance	-0.65	-0.78	-0.96	-0.68	-0.80	-0.90	-0.59	-0.71	-0.81	-0.77
	(0.64)	(0.64)	(0.64)	(0.64)	(0.64)	(0.64)	(0.64)	(0.64)	(0.64)	(0.64)
Team Super Bowls	0.03	0.03	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Super Bowl recency	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
NFC	0.01	0.01	-0.03	-0.01	-0.02	-0.03	0.00	0.00	-0.02	0.00
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Career performance	0.03	0.03	0.08**	-0.04*	-0.03+	-0.03	0.08**	0.09**	0.11**	0.03
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Inverse Mills ratio	-0.81**	-0.61**	-0.02	-2.09**	-1.87**	-1.70**	-0.23	-0.02	0.21	-0.62*
	(0.29)	(0.30)	(0.32)	(0.20)	(0.21)	(0.22)	(0.17)	(0.18)	(0.19)	(0.30)
Evaluative certainty										
Network centrality	-0.01	-0.01	0.01							-0.01
	(0.01)	(0.01)	(0.01)							(0.01)
Coaching experience				-0.22**	-0.22**	-0.19**				
				(0.02)	(0.02)	(0.03)				
Team total							0.16**	0.15**	0.29**	
							(0.05)	(0.05)	(0.06)	
Acolyte		0.44**	0.58**		0.43**	0.46**		0.43**	0.54**	
		(0.11)	(0.11)		(0.11)	(0.10)		(0.11)	(0.11)	
Acolyte * centrality			-0.022**							
			(0.004)							
Acolyte * experience						-0.07**				
						(0.02)				
Acolyte * team total									-0.30**	
									(0.06)	
Acolyte: knowl. match (AKM)										0.51**
										(0.14)
Acolyte: no knowl. match (ANKM)										0.39**
										(0.13)
Log likelihood	-2283.11	-2275.08	-2261.00	-2243.41	-2235.65	-2230.50	-2279.06	-2271.48	-2261.13	-2274.69
Wald chi-square	158.2**	175.3**	206.4**	230.2**	246.4**	258.0**	167.3**	183.2**	204.1**	175.7**
LR test: Δ model fit		16.06**	28.14**		15.52**	10.29**		15.16**	20.71**	
Wald chi test: (AKM vs. ANKM)										0.78

Note: Coefficients for annual dummy variables not reported
N = 10,269; +p < .10, *p < .05, **p < .01

TABLE 5
Post-Promotion Outcomes

Table 5a: All promotions

	Acolytes	Non-acolytes	Total
Positive outcome	71	158	229
Negative outcome	83	121	204
Total	154	279	433

Chi-square = 4.413 (df =1; $p < .05$)

Table 5b: Promotions to historically successful teams

	Acolytes	Non-acolytes	Total
Positive outcome	47	93	140
Negative outcome	47	50	97
Total	94	143	237

Chi-square = 5.303 (df = 1; $p < .05$)

Table 5c: Promotions to historically-unsuccessful teams

	Acolytes	Non-acolytes	Total
Positive outcome	24	65	89
Negative outcome	36	71	107
Total	60	136	196

Chi-square = 1.020 (df =1; ns)

Table 6
Supplementary Analyses

	Fixed-effects models				Single stage models				DV: First senior promotion			
	Model 1 (BH)	Model 2 (H1)	Model 3 (H1)	Model 4 (H1)	Model 5 (BH)	Model 6 (H1)	Model 7 (H1)	Model 8 (H1)	Model 9 (BH)	Model 10 (H1)	Model 11 (H1)	Model 12 (H1)
Acolyte	0.67**	0.83**	0.75**	0.78**	0.48**	0.58**	0.72**	0.50**	1.70**	1.94**	1.30**	1.40**
	(0.16)	(0.17)	(0.16)	(0.17)	(0.11)	(0.10)	(0.10)	(0.10)	(0.32)	(0.33)	(0.24)	(0.25)
Acolyte * network centrality		-0.03**				-0.022**				-0.04**		
		(0.01)				(0.004)				(0.01)		
Acolyte * coaching experience			-0.09**				-0.10**				-0.13**	
			(0.03)				(0.02)				(0.04)	
Acolyte * team total				-0.34**				-0.28**				-0.47**
				(0.10)				(0.06)				(0.15)

	Only acolytes with minimal experience working under high-reputation coach (1-2 years)				Ordinal acolyte measure				Acolyte career performance only most recent three years			
	Model 13 (BH)	Model 14 (H1)	Model 15 (H1)	Model 16 (H1)	Model 17 (BH)	Model 18 (H1)	Model 19 (H1)	Model 20 (H1)	Model 21 (BH)	Model 22 (H1)	Model 23 (H1)	Model 24 (H1)
Acolyte	0.34*	0.49**	0.18	0.41**	0.03	0.10**	0.17**	0.08**	0.45**	0.59**	0.49**	0.55**
	(0.14)	(0.14)	(0.13)	(0.14)	(0.02)	(0.02)	(0.03)	(0.02)	(0.11)	(0.11)	(0.10)	(0.11)
Acolyte * network centrality		-0.017**				-0.004**				-0.022**		
		(0.005)				(0.001)				(0.004)		
Acolyte * coaching experience			-0.09**				-0.012**				-0.07**	
			(0.03)				(0.004)				(0.02)	
Acolyte * team total				-0.19**				-0.05**				-0.29**
				(0.08)				(0.01)				(0.06)

	Acolyte career performance unadjusted for schedule strength				Eigenvector centrality		Accounting for ceiling effects			Acolyte time away from high-reputation coach	
							Promotions to level 4	Promotions to level 3	Low career experience	One year	Two or more years
	Model 25 (BH)	Model 26 (H1)	Model 27 (H1)	Model 28 (H1)	Model 29 (BH)	Model 30 (H1)	Model 31 (H1)	Model 32 (H1)	Model 33 (H1)	Model 34 (BH)	Model 35 (BH)
Acolyte	0.44**	0.58**	0.47**	0.55**	0.46**	0.53**	-0.28	0.49*	-0.21	1.41**	-0.32*
	(0.11)	(0.11)	(0.10)	(0.11)	(0.11)	(0.11)	(0.30)	(0.22)	(0.24)	(0.13)	(0.14)
Acolyte * network centrality		-0.022**				-23.29**					
		(0.004)				(5.13)					
Acolyte * coaching experience			-0.07**				-0.26**	-0.11*	-0.22**		
			(0.02)				(0.09)	(0.05)	(0.08)		
Acolyte * team total				-0.30**							
				(0.06)							

N = 10,269; +p < .10, *p < .05, **p < .01

APPENDIX

Appendix A: Tetrachoric Correlations among Acolyte Component Measures

Variable	Mean	s.d.	1.	2.	3.	4.	5.	6.
1. Acolyte (Super Bowl wins)	0.21	0.41	-----					
2. Acolyte (Super Bowl appearances)	0.19	0.39	.95	-----				
3. Acolyte (Playoff wins)	0.27	0.44	.99	.98	-----			
4. Acolyte (Playoff appearances)	0.25	0.43	.92	.95	.98	-----		
5. Acolyte (100 wins)	0.19	0.39	.78	.83	.93	.95	-----	

N = 10,269; All correlations are significant at the .01 level

Appendix B: First-stage Probit Model

	DV: Acolyte
Constant	-1.582**
	(0.093)
Coach age	-0.011**
	(0.002)
Coaching experience	0.058**
	(0.005)
Network centrality	0.024**
	(0.001)
Career performance	0.101**
	(0.006)
QB college	0.207**
	(0.042)
Pro Hall of Fame	0.213+
	(0.112)
Log likelihood	-4377.14
Chi-square	3808.33**

N = 10,269; +p < .10, *p < .05, **p < .01