

# **Creative Achievements, Audience Embeddedness and Rewards:**

## **A Core-Periphery Perspective**

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**Under Review, please do not cite or distribute without the authors' consent**

### **Acknowledgements**

The authors are listed alphabetically and contributed equally. We are especially grateful to Mihaly Csikszentmihalyi, Henrich Greve, Greta Hsu, Michael Jensen, Joe Porac, Dean Simonton, Jarrett Spiro and Brian Uzzi for insightful comments and discussion on previous versions of the manuscript. We also acknowledge helpful comments from seminar participants at INSEAD, Ross School of Business (Michigan University), Robert H. Smith (Maryland University), Stern School of Business (NYU) and 2008 Academy of Management Conference, Anaheim. We finally thank Jon Morgan for his assistance in editing and polishing the paper. The authors are responsible for errors and omissions.

# **Creative Achievements, Audience Embeddedness and Rewards:**

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### **ABSTRACT**

Sociological perspectives suggest that creativity is embedded in social systems from which individuals derive both inspiration and endorsement. Building on recent research emphasizing how legitimacy depends on consensus among audiences (gatekeepers) about candidates' features and activities, we examine the relationship between individuals' social structures and the recognition of their creative work by audiences. In particular, we argue that the outcome of this process of evaluation in any field, both in art and science, is a function of (1) candidates' socio-structural position within the field, and (2) the level of audience's field embeddedness. We situate the analysis in the context of the Hollywood motion picture industry, and test our hypotheses with data about its activity between 1992 and 2004. The theoretical implications of the results are discussed.

**Key Words:** Creativity; Core/Periphery; Audience; Recognition; Legitimation; Embeddedness; Film Industry.

## 1. INTRODUCTION

In recent years the notion that social relationships are important to creativity has spurred organizational and managerial inquiry. Building on the basic idea that individuals can enhance their chances of generating novel outcomes by having access to diverse ideas and stimuli scholars interested in the social side of creativity have increasingly investigated the relationships between the production of creative work and the configurations of individual creative actors' social networks. In this vein scholars have looked, for example, at the relationship between creativity and such network features as centrality (Perry-Smith, 2006), brokerage and cohesion (Burt, 2004; Obstfeld, 2005; Fleming et al. 2007), strength of ties (Perry-Smith and Shalley, 2003), degree of small worldness, i.e., how much the network mirrors a small world (Uzzi and Spiro, 2005), and core-periphery (Cattani and Ferriani, 2008). This body of work has demonstrated that the adoption of a social network perspective can fruitfully inform the literature on creativity and enhance our understanding of creativity at work (Perry-Smith and Shalley, 2003). Yet, by focusing mainly on structural explanations of generative creativity, this research has left largely untouched another crucial dimension of individual creativity: the need for field legitimation – i.e., the process through which the new and unaccepted is rendered valid and accepted through consensus (Zelditch, 2001).

A classic illustration is Van Gogh's work: while everyone now agrees his paintings reveal creative genius, his contemporaries failed to recognize it. Are we now more conscious than they were of what great creative work actually is? The truth is that his paintings became seen as highly creative only after other artists and critics began to pay attention to and interpret them through the lens of new aesthetic standards. Without this response, Van Gogh would have remained what he seemed to his contemporaries - a sociopathic recluse who drew 'hallucinatory' original paintings (Csikszentmihalyi, 1996). The sound of a tree falling in the forest is unheard if no one is there to

hear it – and so creative work ‘vanishes’ unless there is a receptive community to recognize and reward it.

Regardless of how gifted or how structurally well positioned individuals actually are, their creativity cannot be manifested in the absence of an audience that recognizes their novel contributions. And without the assessment of appropriate observers there is no reliable way to establish whether an individual’s creativity can truly be said to be making a valid and valued contribution to the field of endeavour. In fact, the generation and the recognition of novelty are key dimensions of the same construct. It follows that, in order to study creativity, one must acknowledge that the audience is as important for the manifestation of any creative work as the individual to whom this work is credited. As Collins noted (1998: 52), creativity “[...] comes from realistically invoking existing or prospective intellectual audiences, offering what the marketplace for ideas will find most in demand.”

Because prevailing socio-structural explanations of creativity have focused on its generative dimension, we have very limited understanding of the relationship between these social structures and audiences’ choice of whom to reward for his contribution. For instance, we know little about how audiences’ assessments refer to norms and standards of evaluation which may prevent ‘free spirits’ – who are typically peripheral to the field and therefore not strongly (or even at all) assimilated into those standards – from receiving recognition and rewards for their creative effort.<sup>1</sup> Such individuals are, in fact, likely to face problems of internal solidarity and entrenched resistance from those in existing fields. As Hargadon (2005: 23) notes: “[...] no matter how original the insight, the label of creativity still depends upon how many others are convinced to adopt and extend these original ideas.” Following this line of thought we see various questions as meriting further

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<sup>1</sup> This is for instance the case of *mavericks* in art worlds, as Becker (1982: 233) points out: “Whereas integrated individuals accept almost completely the conventions of their work, mavericks retain some loose connection with it, but no longer participate in its activities [...] They propose innovations the art world refuses to accept as within the limits of what it ordinarily produces.”

investigation: Which individuals are more likely to appeal to audience members who, in their role as gatekeepers, can grant or deny recognition to individuals' creative work? What is the role of individuals' social structures in shaping audiences' recognition of their creative work? How do audiences choose those worth endorsing from among multiple creative contributions?

We address these questions and extend previous research on the social structure of creativity by advancing an original conceptual framework that brings together socio-institutional perspectives on creativity (Csikszentmihalyi, 1994, 1996) and recent evidence on the social structure of consensus at the level of the audience-candidate interface (Cattani, Ferriani, Negro and Perretti, 2008). This framework explains audiences' recognition of candidates' creative work as a function of candidates' positioning within the social structure of their field, as well as of the type of audience, as indicated by the degree of its embeddedness in the field itself. We define an audience as *embedded* when its members (gatekeepers) are industry peers. We suggest that such audiences tend to reproduce dominant social beliefs and norms, and hence are more likely to grant recognition to actors who are core rather than peripheral members of the network. Conversely, audiences are defined as *non-embedded* when their members (gatekeepers) are external to the field and therefore less entrenched in it. As they are less sensitive to the ritualized pressures for conformity, and more attentive to features that reflect their own personal judgment than to taken-for granted conventions, non-embedded audiences display lower proclivity towards reproducing similarity in the social patterning of the creative field.

The empirical setting is the Hollywood motion picture industry, which we traced over the period 1992-2004. This industry provides an ideal setting for testing the implications from our theoretical framework. First, creativity is central to the film production process, since each movie is a unique product whose completion requires the sustained creative efforts of several individuals working closely together (Simonton, 2004b). Second, the industry grants systematic recognition to

its members for their creative achievements, through several influential organizations that bestow awards on those seen as having made significant contributions to the field (Simonton, 2004a; Gemser et al., 2008). Third, it has long embraced arrangements featuring flexible and short-term relationships that rely on enduring networks, in which mutual trust and reputations have become cemented over time (Faulkner and Anderson, 1987). As they work on movie projects, individuals forge multiple and interlocking networks of relationships that underpin and shape their future work opportunities and outcomes.

## **2. THEORY**

### **2.1. The Social Embeddedness of Creativity**

Stories about the generation of original ideas often emphasize the role of creative people (whether intellectuals, artists or scientists) who are seen as being ‘gifted’ with some great intellectual or other quality that enables them to devise novel or maybe ground-breaking solutions. However, the risk of looking at the *self* as the privileged locus of inquiry is to romanticize the fringe by making novelty and originality the only important elements of creativity, and underestimating the need for recognition, resources and disciplined professionalism that often come from the social core of intellectual and creative fields (White, 1993; Collins, 1998). In the arts, and also in the sciences, whether individual creativity can flower fully is as much the result of the field’s recognition or acceptance of its achievements as of the achievements themselves. As Simonton (1999: 5) noted, “[...] unrecognized genius becomes an oxymoron.”

This dual nature of creativity can be easily appreciated by considering well established definitions of creativity. Amabile, for instance, suggests that a person, product or response can be viewed as creative “to the extent that appropriate observers independently agree it is creative [...] Thus creativity can be regarded as the quality of the products or responses judged to be creative by

appropriate observers” (1996: 33). Another widely used definition is that developed by Stein (1953: 131), who describes creativity as “a process which results in a novel work that is accepted as tenable, useful or satisfying by a group at some point in time”. It is apparent from these definitions that creativity embodies two critical dimensions: (1) the generation of novelty; and (2) the recognition of this novelty.

In the last few years sociologists and organizational scholars interested in the social side of creativity have paid considerable attention – both theoretical (Perry-Smith and Shalley, 2003; Schilling, 2005) and empirical (Burt, 2004; Uzzi and Spiro, 2005; Perry-Smith, 2006) – to the generative dimension of creativity. Building on landmark ideas from Coleman (1988) and Granovetter (1973), the bulk of this research has focused on structural and relational explanations of creativity aimed at understanding the emergence of novel outcomes in relation to the particular configuration of an actor’s social network. Virtually no research, however, has examined the influence of these same socio-structural features on the recognition dimension of creativity (for a recent exception see Fleming et al., 2007). We see this as a significant shortcoming, because the structure of social networks bears important implications, not only for actors’ creative efforts, but also for their ability to build consensus in the eyes of their audiences (Cattani et al., 2008).

We take two related steps to address this shortcoming. First, we build on institutional as well as socio-psychological research on creativity to discuss the role of social expectations and consensus in shaping the recognition of creative work (Ford, 1996; Csikszentmihalyi, 1996). Following Zuckerman (1999); Phillips and Zuckerman (2001), and Zuckerman and colleagues (2003) we frame the legitimating process as an interface between a set of candidates (the creative contributors) who compete with one another in the field to be selected by an audience (the creativity gatekeepers). But whilst extant studies typically focus on the role of a single audience, we distinguish between different types of audiences, who carry different expectations, and may therefore induce different behaviours

from contributors. Second, drawing from Cattani and Ferriani's (2008) characterization of candidates as occupying different positions in the social system along a core-periphery continuum, we illustrate the implications that such positions hold for the reception of candidates' creative work by field audiences. In particular, we argue that the extent to which candidates elicit appeal for their creative work among audiences is a function of (1) their core-periphery position within the social structure of the field, and of (2) the degree to which that audience is embedded within the field. Thus, recognizing the role of audiences in social interactions, and accounting for the influence that normative expectations have on the process of evaluating creative work, can enhance our understanding of the conditions under which creativity is both nurtured and rewarded.

## **2.2. Social Structure, Conformity and Recognition**

The social-psychologist Csikszentmihalyi has been one of the most influential advocates of the need to examine creativity as the interaction between individual actors and their audiences. Building on his notion of creativity as a subjective assessment of the product of individual action, Csikszentmihalyi (1994, 1996, 1999) developed a theory of creativity where the manifestation of a creative act can be fully understood only by looking at the interrelationship between three subsystems: the *individual* – i.e., the person who serves as the source of variation to the field; the *field* – i.e., the audience members who are entitled to make decisions as to what should or should not be included in the domain; and the *domain* – i.e., the standards and norms of a recognized area of action. While the individual is critical in triggering change, the audience members who populate the field and personify the domain serve to select which creative acts subsequently elaborate the domain (see also Ford, 1996: 1114). The thrust of the theory is that creativity emerges and is recognized as long as it conforms to audience members' expectations about what should be regarded as creative.

This view of creativity echoes current formulations of legitimacy by sociologists, who fundamentally consider legitimation (the process by which legitimacy is achieved) to be a collective process - implying the presence of both social objects to be evaluated and social audiences to evaluate them - and which further depends on audience consensus regarding what features these objects should exhibit to be accepted in these social contexts (Zuckerman, 1999; Zuckerman et al., 2003; Johnson, Dowd and Ridgeway, 2006). Similarly, institutional scholars and organizational ecologists argue that legitimacy depends on consensus among audiences (agents with an interest in a domain and some control over the material and symbolic resources that can affect the success or failure of candidates in that domain) about the organizational properties (and the constraints over those properties) within a widespread, taken-for-granted system of norms or social codes (Hsu and Hannan, 2005; Hannan, Pólos and Carroll, 2007; Cattani et al., 2008). New ideas undergo the same basic collective process of social validation. As Csikszentmihalyi (1999: 321) noted: “[...] without some process of social validation it would be impossible to distinguish ideas that are simply bizarre from those that are genuinely crazy.”

The process of social validation presupposes the existence of social judgments, and therefore of normative criteria to which attributions of creativity must refer. These conventions – cognitive as well as technical – can influence creativity in several ways, such as giving direction to creative behavior (e.g., valuing cubism over realism in paintings), stressing continuity over variety, or influencing the means by which creativity is expressed. Thus, audience members not only raise expectations by setting norms and standards to which individual members must conform, but also act as gatekeepers to evaluate candidates’ degree of conformity to these expectations (Adarves-Yorno, Postmes & Haslam 2007). Candidates can obtain recognition and rewards for their creative work so long as they conform to established patterns of thought; in other words, institutional

interpretations can influence the selection processes that promote certain creative acts and their associated actors, while suppressing others (Ford, 1996).

The relationship between institutional norms and standards and how creativity becomes manifest is central to our explanation of how we should expect audience members' attributions of creativity to map onto the social structure of the field, which, in fact, plays a central role in shaping candidates' adherence to (or departure from) the field's norms and standards (Merton, 1959). This is one of the oldest arguments in social psychology (see classic work by Festinger, Schachter and Back, 1948), and rests on the realization that greater embeddedness makes ideas about proper behavior more likely to be discussed repeatedly and thus become institutionalized. In this paper we refer in particular to the degree of socio-structural embeddedness, because actors who are deeply embedded in their social system are more likely to conform to those conventions that characterize their area of expertise, and thus reproduce ideas or styles currently deemed acceptable. As Jones et al. (1997: 929) point out: "The more structurally embedded (e.g., the more connected and frequently interacting) the industry participants, the more deeply they share their values, assumptions and role understandings." Strong structural embeddedness also makes deviance from resulting norms and standards harder to hide and, therefore, more likely to be punished (Granovetter, 1985). In contrast, actors who are less deeply embedded, and not subject to such strong assimilative pressures, are freer to pursue divergent ideas (White, 1993). In line with this perspective, Moody and White's (2003) analysis of political behavior showed that, as a cluster's cohesion increases, actors behave more similarly, despite still having the theoretical freedom to be different. Indeed, greater levels of connectivity tend to homogenize the pool of knowledge and promote common information exchanges, decreasing individuals' vision and appetite to go beyond conventional ideas (Lazer and Friedman, 2007).

Following Cattani and Ferriani (2008), we analyze the relationship between candidates' structural embeddedness and the likelihood of them succeeding in eliciting audiences' recognition for their creative work in terms of their position on the core-periphery pattern of the field's social structure. Network theorists describe a core-periphery social structure as being characterized by a cohesive subgroup of core actors and a set of peripheral actors who are more loosely connected to the core (Borgatti and Everett, 1999). Peripheral players reside at the boundaries of the network and are thus not as visible or socially engaged as those at the core. Conversely, core actors are usually key members of the community, many acting as network coordinators, and have developed dense connections between themselves and, being entrenched in the social system, tend to share ideas and habits more closely.

The core-periphery imagery has been repeatedly evoked by scholars interested in the drivers of institutional change and the origins of innovation more generally. For instance, institutional researchers have shown that new practices are more likely to be pioneered by peripheral rather than core organizations (Leblebici et al., 1991). Located at the fringe of the network, peripheral actors can elude the homogenizing influences typical of an established institutional framework and therefore more easily attend to original sources of inspiration that may prompt unconventional solutions. Insulation from conformity pressures, however, also implies that peripheral players are limited in their ability to gain attention and recognition from within these networks. Core players' entrenchment within the field's networks, by contrast, forecloses deviant ideas and stimulates adherence to its institutionalized conventions. These conventions are typically grounded in social relations, from which adherents receive justification as well as motives for observation (Becker 1982). As Uzzi and Spiro (2005: 461) noted, "[...] creative material is embedded in conventions and [...] conventions are learned and gather strength within networks of personal contact." Yet, unlike peripheral players, core players enjoy the kind of leverage that is useful to elicit recognition from

field gatekeepers. It is in fact easier to mobilize constituencies and gather attention in a cohesive social structure like the core of a network than it is from its fringes, where actors' comparative lack of social network cohesion compounds their disadvantages in accessing support and resources (Knoke et al., 1996).

### 2.3. Audience Embeddedness and Rewards

Because core players are more likely to produce work that conforms to prevailing norms, and because they have superior access to constituencies, it is plausible to expect audience members to exhibit a systematic tendency to grant core players more recognition. In other words, the previous arguments might suggest the existence of a socially structured ordering of creativity, so that disproportionate recognition accrues to those at the core of the social field. This prediction appears especially warranted when audience members have strong, uniform incentives to enforce standard codes of evaluation and preserve the institutional logics of their field. Yet candidates can also be exposed to different types of audiences, each using different standards of validation. In her seminal work on reward systems in cultural institutions such as art, science and religion, Diane Crane (1976) was among the first to examine the implications of the existence of different audiences, adopting heterogeneous assessment criteria. In particular, she found that a major source of variation in the functioning of reward systems was the practice of candidates controlling the system by wearing two 'hats' - assuming dual roles as *both* candidates and gatekeepers. Following her reward systems model, one can in fact envision the existence of two polar cases that we can define as *embedded* and *non-embedded* audiences.<sup>2</sup>

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<sup>2</sup> The first case, i.e., innovators or creative individuals are also gatekeepers, coincides with Crane's (1976: 721) *independent reward system* in which "cultural innovations are produced for an audience of fellow innovators. Innovator themselves set cognitive and technical norms and allocate symbolic and material rewards." The second case, i.e., gatekeepers are not innovators, encompasses a wider range of possibilities that Crane (1976: 721-722) labels as *semi-independent*, *sub-cultural* and *hetero-cultural reward systems*, respectively.

An audience can be viewed as *embedded* when the candidates seeking validation and the gatekeepers who can bestow it are the same actors, peers from the same field, taking on different roles at different times. In their gatekeeper role, candidates thus contribute to setting the norms and standards by which future work – including their own - will be evaluated. This is the case in most scientific fields where gatekeepers are ‘recruited’ from prominent fellow scientists. As Wijnberg (1995: 226) noted, “Science can be understood as a competitive process in which scientists attempt to successfully market scientific products. Published papers are the best equivalents of products [...] Consumers are also producers, fellow-scientists: the editors and referees of journals, other writers who quote you and use your models and theories.”

Audiences can be termed *non-embedded* when candidates and gatekeepers are distinct from each other, with the former not directly involved in setting the norms and standards applied to their work by the latter. In this case, the dominant type of selection is expert-selection: while such experts are not themselves producers of creative work, their position as ‘critics’ has given them the authority to ‘bless’ such work. This is typically the case in the art field (Bourdieu, 1993): for instance, in the avant-garde art context, Wijnberg (1995: 229-230) has noted: “There is, of course, a market for avant-garde art but this market is dominated by the expert gate-keepers. The most successful artists in the “open” market are associated with leading galleries and/or championed by leading critics and curators [...] The judgment of the experts thus defines the paradigm and the success of individual producers is again determined by their position in product space and population density.”

The distinction between embedded and non-embedded audiences holds important implications for the relationship between candidates’ position in the social structure and the likelihood of their creative work being rewarded with recognition. In particular, we expect core candidates to appeal to embedded audiences because their work is more likely to conform to the field’s established norms and standards, and because they have greater ability to mobilize attention

and constituencies. Conformity is especially important as embedded audiences have a vested interest in protecting institutionalized conventions and using their influence to maintain the status quo. Sociologists of science have provided extensive evidence about peer resistance (Barber, 1961; Merton, 1968). As an illustration, consider the case of the early 19<sup>th</sup> century Norwegian mathematician Niels Henrik Abel, who demonstrated the impossibility of solving the general equation of the fifth degree, a classical mathematical problem (Stubhaug, 2000). Despite his breakthrough solution, Abel was unknown at the time and there was no-one of sufficient professional standing in Norway who could sponsor his work. He sent his paper to various illustrious foreign mathematicians, the great Gauss among them, without eliciting any attention: “Gauss merely filed the leaflet away unread, and it was found uncut after his death, among his papers” (Barber, 1961: 600). Even medical specialists have a long history of resisting scientific inventions from what they define as ‘the outside’: Pasteur, for instance, faced violent resistance from contemporary medical specialists when he advanced his germ theory. He regretted that he was not a medical specialist, who he felt regarding him as a ‘mere’ chemist poaching on their scientific preserves, and thus not worthy of their attention (Olmsted and Fulton, 2008).

In the case of non-embedded audiences, on the contrary, candidates are not directly involved in setting the norms and standards by which gatekeepers assess their work. Therefore, we expect such audiences to be more receptive towards unconventional work, which typically (though not exclusively) originates from the fringes of the field where ritualized pressures to conform tend to be lower (Collins, 1987). In fact, non-embedded audiences have stronger incentives to promote truly original and novel contributions, because their reputation as experts is greatly enhanced by ‘discovering’ new, as yet unknown, talents who will eventually rise to fame. Moreover, since candidates are distinct from gatekeepers, we also expect non-embedded members to be less sensitive to core candidates’ attempts at mobilizing attention in their favor: empirical and anecdotal evidence

supports this claim. For example, Robert Frank's groundbreaking book of photographs, *The Americans*, was much disliked by his peers when it first appeared in 1958 for departing from the then conventional view. Frank (then 36) was still an outsider to the American photography establishment and his work received only tepid attention by his peers. Indeed, "[...] the angriest responses to *The Americans* came from photographers and photography specialists ... who recognized how profound a challenge Frank's work was to the standards of photographic style – photographic *rhetoric* – that were in large part shared even by photographers of very different philosophical postures" (Becker, 1982: 112). Popular Photography derided his images as "meaningless blur, grain, muddy exposures, drunken horizons and general sloppiness" (1982: 112). This entrenched resistance, however, was offset by the praise and endorsement Frank received from critics and writers (i.e., non-embedded audiences), who turned out to be more sensitive to the innovations he was introducing into the field. Findings from the context of French cuisine similarly indicate how code-violating changes introduced by creative chefs critiquing classical cuisine 'orthodoxy' were encouraged by non-embedded third party audiences (e.g., *Guide Michelin* stars), rather than earning their disfavor (Durand, Rao and Monin, 2007).<sup>3</sup>

Taken together, the previous arguments suggest that rewards for creativity are socially structured, and that the significance of this structure may vary with the type of audience assessing candidates' creative work. In particular, while we expect core candidates to be more likely to elicit appeal from embedded audiences we also contend that the same effect may disappear when the audiences are non-embedded. Hence we posit:

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<sup>3</sup> "A code-preserving change is any variation that conforms to the rules of conduct representative of the social form within which the organization is nested. By contrast, a code-violating change is any variation that violates the rules of conduct representative of the social form" (Durand et al., 2007: 457).

*Hypothesis 1: The likelihood that an embedded audience will reward candidates for their creative work increases with candidates' proximity to the social field core.*

*Hypothesis 2: The likelihood that a non-embedded audience will reward candidates for their creative work does not increase with candidates' proximity to the social field core.*

### **3. RESEARCH SETTING**

Our analysis is situated within the context of the Hollywood film industry which, over the course of several decades, has undergone a transition from a firm-based studio system to the market-based “package unit” system (Staiger, 1985). Before this transition the main studios – “the Majors” (i.e., 20<sup>th</sup> Century Fox, Metro Goldwyn Mayer, Paramount, RKO and Warner Brothers) – were integrated across all the stages of the value chain. A 1948 antitrust action led to them divesting their theater (i.e., presentation) holdings, while in the same era, competition forced them to end exclusive contracting with ‘talents’ (i.e., artists, directors, designers, etc.), greatly reducing the extent of in-house production (Balio, 1985). By the end of the 1970s, rather than via its traditional hierarchies and in-house human resource departments, the film industry was organized around individual projects and personal networks, where “Firms and subcontractors combine for a specific project, disband when the project is finished, and then combine for new projects [...] Self-employed subcontractors move from project to project, while the role of the company is to finance and distribute the finished product” (Jones, 1996: 58).

This is a very promising setting to study the relationship between social structures, audiences and rewards for creativity. First, as we noted before, creativity is central to the film production process, since each movie is a unique product this requires the collaborative creative efforts of cast and crew members. These diverse contributions are both so individualized in terms of their

specialization, and so essential to a movie's success, that special honors (e.g., the Academy Awards) have been established to recognize those contributors whose work is judged to be noteworthy in each specialism (Simonton, 2004b) Such honors are bestowed both by those directly involved in the film industry and by movie critics. Thus, this is an industry that allows us to study simultaneously the gatekeepers who evaluate (the audience members) and the candidates who compete with one another for their approval. In this industry context, the results of these evaluations are made (very) public every year through the conferring of prestigious awards that celebrate outstanding cinematic achievements, which establish a level of social validation in the field unachievable by other means. (Not surprisingly, several studies on creativity have been situated in this industry context, e.g., Simonton, 2004a and 2004b; Cattani and Ferriani, 2008).

The dynamics of this social evaluation process is epitomized by the fortunes of Quentin Tarantino's *Reservoir Dogs* at the 1992 Sundance Film Festival. Although Tarantino was then an unknown director, his film was the hottest ticket at the festival: Levy (1999: 15) records that: "*Reservoir Dogs* [...] became the festival's most talked-about movie, and Miramax decided to distribute it. Over the course of that year, Tarantino turned up at festival after festival, receiving lavish praise from intellectual critics for making the hottest indie of the year." In just a few years, Tarantino evolved from an unemployed actor-writer working in a video store to one of America's most acclaimed filmmakers. But, despite this critical support, the movie played for only a few weeks when it finally opened in the US, confirming initial fears that it was too unusual and violent.<sup>4</sup> Again, Levy's (1999: 17) captures very effectively how critics, in their gatekeeper role, might recognize and hence endorse peripheral actors' work: "Most of the press focused not on the movie or its issues but on Tarantino as a self-taught auteur. In the end, Tarantino didn't promote *Reservoir Dogs*; it promoted

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<sup>4</sup> "Miramax's sparse marketing resulted in a modest box-office gross of \$1 million. The movie was rereleased after the success of Tarantino's second feature, *Pulp Fiction*, but even then it failed to generate the box-office excitement" (Levy, 1999: 17).

him. Tarantino quickly rose from obscurity, and the fact that the film didn't do well didn't matter. It created enough of a stir to give Tarantino the clout to make his next film, *Pulp Fiction*, with a larger budget (\$8 million) and a high-caliber cast." It might be tempting to regard Tarantino's case as unique – in fact, it is highly instructive of the kind of route by which peripheral actors' work often comes to be visible within social fields.

#### 4. DATA

Our data consist of the population of crew and cast members (hereafter 'professionals') who worked on at least one of the 2,297 movies distributed in the United States by the 8 major studios – i.e., the seven historical majors plus the more recently founded (1994) Dreamworks – and their various subsidiaries over the twelve-year-period 1992-2004.<sup>5</sup> We focused on these studios for several reasons. First, they dominate the industry, either directly through their financial power, or indirectly, through their control of distribution channels. Over the last decade, movies released by these companies have consistently accounted for an average 90% of total US box-office income.

Second, while focusing on the major studios might suggest a neglect of artistically oriented movies in favor of commercial ones, there are numerous divisions within these companies that specialize in different types of films, and which often represent multiple labels carried over from previous acquisitions (see Table 1 for a list of major studios and corresponding divisions).

**<< Insert Table 1 Here >>**

Some of these specialize in the distribution of small-budget niche films (often using adjectives such as "repertory," "independent" or "classic" in their names to signal their distinctiveness from their parent companies) and have been widely acknowledged in the press as

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<sup>5</sup> Our interest is in feature films made and distributed by Hollywood. Thus, we did not include documentaries, foreign-made films, short films, and compilation screen classics.

focusing on developing more artistically oriented movies and cultivating less visible talents (Wang, 2006). Thus, although we do not have data on the entire population, we believe the risk of misrepresenting the periphery of the system is mitigated. Third (and consistent with the previous point) we note that, from the New York Times lists of the best 1000 movies ever made, 88% (i.e., 66) of the 75 US-based movies listed in the years covered by our study were distributed by Hollywood majors and therefore made it to our dataset, again suggesting that, for all its growing focus on generating blockbusters, the industry has retained the ability to produce unconventional movies of high artistic quality.<sup>6</sup> The setting therefore is well suited for studying the social structural foundations of creativity.

We collected information on the composition of the production team of each movie in the sample, as well as the level of recognition their creativity on each movie had gained by recording the awards and nominations each professionals' work had received from several award-granting organizations (see below). While movie-making is essentially a collaborative venture - the list of "credits" at the close of any movie shows the wealth of individuals who contribute their creative input, unique talents and technical expertise to each project - only a very restricted group of people is normally credited (in terms of awards) with the critical creative work. Our analysis focused on the following set of professionals: director, writer, leading actor/actress, editor, cinematographer, production designer and composer.

Using the Internet Movie Database (IMDB - an online source owned by Amazon.com and largely supported through advertising), we identified 12,679 of these 'critical creators' as distributed across these 8 roles in the movies in our dataset.<sup>7</sup> Most of the data provided by IMDB are submitted

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<sup>6</sup> We identified 125 movies in the NY Times list from our study period (1992-2004), 75 of them were produced and distributed in the US - i.e., our focal population. The remaining 50 were produced elsewhere (e.g., Europe), and thus form a completely different population not relevant for our study.

<sup>7</sup> The yearly average number of crewmembers per movie ranges between 11 and 15. This number is different from the simple count of roles considered, because professionals sometimes perform multiple roles in the same project or the

on a voluntary basis and validated by in-house staff. In recent years, a growing number of studies have used this data source (Barabási, 2002; Sorensen and Waguespack, 2006; Ferriani et al., 2005; Hsu, 2006; Cattani and Ferriani, 2008), but we also crosschecked the information reliability with the Alan Goble Film Index (Goble, 2003) to ensure data quality.

#### **4.1. The Audiences: Critics and Industry Peers**

Our theory elaborates on the impact of two important audiences - professional critics and industry peers - on individual creative work. Previous research (e.g., Wijnberg, 1995; Zuckerman and Kim, 2003; Hsu, 2006; Gemser et al., 2008) has shown that these two audiences broadly correspond to distinct selection systems that apply different norms and standards to evaluate individuals' creative work. In our setting, critics' and peers' assessment of creativity are revealed when the societies that they are members of reward professionals' creative work with nominations or awards (which for economy, we refer to hereafter as 'accolades').

Our analysis focuses on awards and nominations assigned in our professional categories by the 16 professional societies listed in Table 2 (see the Appendix for a detailed description of these awarding bodies). We focused on these organizations for various reasons. All have been in existence for several years, are widely regarded as reliable and competent organizations, and have consistently granted annual awards and nominations in all (or at least most) of the major categories of filmmaking expertise (for a similar approach, see also Simonton, 2004b). Moreover, as Gemser et al. (2008: 31) noticed, "[...] the announcements of the winners of all these awards receive national coverage in the printed press and/or on national television, and the jury process is transparent for

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same role is collectively performed by multiple individuals. We used information about all professionals to construct the industry's social structure and create the network measures, but we excluded 'producers' from the analysis. Although they can occasionally influence creative decisions and hence contribute to the overall quality of a movie, producers are primarily concerned with the business side of filmmaking.

the outside world.” Together, the selected awards reflect the judgments of hundreds of interested experts from the worlds of film practice and criticism (our two focal audiences) in identifying and rewarding exceptional film-making achievement. The range of awards used in the analysis allow us to minimize the risk of including only awards – such as Oscars – whose assignment is often driven more by commercial (or political) than artistic considerations (Holbrook, 1999).

<< **Insert Table 2 Here** >>

Based on organizations’ membership information we then classified audiences into critics or peers (see Table 2). Although award-granting organizations may not always apply the same criteria in the same audience category, previous research (Wijnberg, 1995; Gemser et al., 2008) suggests that organizations of industry peers are more likely to agree among themselves than they are with organizations of critics and vice versa. The primary data sources were Tom O’Neil’s (2003) *Movie Awards* and the organization’s official web sites.

#### **4.2. The Social Network Structure of the Field**

To analyze the social structure of the industry, we reconstructed the bipartite affiliation network between professionals and movies. A bipartite network is a triple  $G = (\mathbb{T}, \mathbb{L}, E)$  where  $\mathbb{T}$  and  $\mathbb{L}$  are two disjoint sets of nodes – i.e., the top and bottom nodes, respectively – and  $E \subseteq \mathbb{T} \times \mathbb{L}$  is the set of links of the network. The difference with classical (unipartite) networks lies in the fact that links exist only between top nodes and bottom nodes. Examples that have been studied in the past include networks of individuals joined together by common participation in social events (Davis, Gardner and Gardner, 1941), CEOs of companies joined by common membership of social clubs (Galaskiewicz and Marsden, 1978), collaborations among Broadway artists (Uzzi and Spiro, 2005), and co-authorships (Newman, 2001). For instance, in the case of co-authoring  $\mathbb{T}$  would be the set of

papers and  $\mathcal{A}$  the set of authors, each author being linked to the papers s/he (co-)authored. Since group membership can often be established from membership lists or other sources, studies of these networks do not have to rely on interviews or questionnaires, thereby allowing one to construct much larger and more accurate networks than in traditional social network studies (Newman, Watts and Strogatz, 2002).

Given a bipartite network  $G = (\mathcal{T}, \mathcal{A}, E)$ , one can easily obtain its unipartite version defined as  $G^1 = (\mathcal{A}, E^1)$  where  $\{u, v\}$  is in  $E^1$  if  $u$  and  $v$  are both connected to the same (top) node in  $G$ . As illustrated in Figure 1, starting from the bipartite individual-by-movie network one can then recover the unipartite version. In this unipartite version of the network, each top node (movie) induces a complete sub-network among the bottom nodes (individuals) to which it is connected. Links form between individuals on different teams when an individual works on multiple movies. <sup>i</sup>

*<< Insert Figure 1 >>*

In defining a tie, we had to make an assumption about the duration of the relationship between professionals. With no control for relationship decay, professionals' network connectedness would be highly inflated due to the likely inclusion of ties to inactive artists. Following a common practice in network studies, we made the adjacency matrixes time-limited by using a three-year moving window to control for the duration of each tie. In essence, each year we added nodes and ties resulting from new movies, and deleted nodes and their ties that had been inactive for 3 years (see also Uzzi and Spiro, 2005). We started with the professionals who worked in 1995 and used the earlier three-year data to construct the accumulative relational profiles (i.e., the period 1992-1994 can be viewed as the time needed to establish the network structure that professionals brought to the period 1995 onwards). We used the resulting ten time-varying matrices to compute all individual level network measures. (Using alternative windows of two, four and five years produced no significant differences in our results.)

## 5. VARIABLES

### 5.1. Dependent Variable

We used a discrete-choice approach to model the industry’s audience-candidate evaluation process, in which each audience member selects the candidate whose work they believe should be recognized with an award, or a nomination for an award. In this context, the ‘audience members’ are the 16 professional societies listed in Table 2, and we collected data on the accolades awarded by them in each year. As the societies listed are members of one or other of the two audience types examined in our study, we created two dependent variables to distinguish between their members’ choices: *Embedded Audience’s Choice*, which takes the value 1 when a professional receives one (or more) accolade(s) from a peer-audience member (i.e., society) in a given year and 0 otherwise, and *Non-Embedded Audience’s Choice* (similarly valued) to register the accolade choices of critic-audience members.

### 5.2. Independent Variable

A core/periphery network “entails a dense, cohesive core and a sparse, unconnected periphery” (Borgatti and Everett, 1999: 375). Following this approach we estimated the degree of *coreness* of each node (i.e., professional) – its degree of closeness to a core of densely connected nodes observable in the network – by fitting a continuous core/periphery structure model to our network data. The algorithm used to estimate a continuous coreness measure attributes high values to core members and low values to peripheral members. Thus, the product of two core values will be a high value, of one core and one peripheral value will be a medium value, and of two peripheral values will be a low value (Borgatti and Everett, 1999). We opted for a continuous model because one limitation of discrete models with two-class partition is the over-simplicity inherent in defining just two classes of nodes as core and periphery. (Similar considerations also hold for three or more class

partitions.) It is worth noting that while all actors in a core are highly central as calculated by virtually any measure, the converse is not true because “not every set of central actors forms a core ... This is because each actor may have high centrality by being strongly connected to different cohesive regions of the graph and need not have any ties to each other” (Borgatti and Everett, 1999: 393). We created the *Coreness* variable adopting a 3-year moving window, namely for the three years (i.e.,  $t-3$ ,  $t-2$  and  $t-1$ ) prior to the focal year  $t$  (although the results do not vary using a different time window). The measure was created using UCINET VI (Borgatti, Everett and Freeman, 2002).

### 5.3. Control Variables

To rule out possible alternative explanations for the hypothesized relationships we included several control variables in the final model specification.

***Individual Role.*** As noted above, our analysis is focused on a restricted group of professional roles, and, because each one embodies different artistic and technical dimensions and draws on diverse cognitive and practical abilities, the assumption that the same relational mechanisms are equally important across different roles might be inappropriate. Controlling for role is also important because different organizations bestow awards in different role categories, and the number of these has changed over time in some cases. While the *Academy of Motion Picture Arts and Sciences*, the *Hollywood Foreign Press Association* and *Film Independent* tend to assign awards to all (or most) categories (thus covering all roles in the analysis), the *Los Angeles Film Critics Association* assigns no awards for movie editing, the various guilds only award their members, and the *National Board of Review* may or may not assign an award to certain categories (e.g., production design) in certain years. As a result, individuals performing roles with more award categories have greater chances of receiving accolades for their creative work. We accounted for this possibility and professionals' particular roles by including a fixed effect for the role each professional performed in a given movie.

This was achieved in SAS using the STRATA statement which considers each role as a separate stratum – i.e., grouping all observations for each role in the process of constructing the likelihood function. In cases where the same professional covered multiple roles in the same movie or across different movies, the attribution was based on the role they undertook most often during the study period.

***Individual Creative Freedom.*** Prior research has shown how intrinsic motivation is more conducive to creativity than extrinsic motivation (Amabile, 1996). When the primary motivations are interest in and enjoyment of an activity, outputs tend to be more creative than when the motivation is achieving goals set by others. Thus it might be that individuals performing multiple roles are more creative, enjoying more freedom in the pursuit of their goals and being in a better position to express their skills and talents, and thus increasing their visibility in the field. We therefore created the variable *Creative Freedom* to capture the extent to which professionals enjoy enough latitude to express their creativity, by measuring the average number of different roles each performed in their movies in a given year. While in most cases there was only one specialist per role, a professional sometimes performed multiple roles in a single movie (e.g., Clint Eastwood was director, actor and producer for *Unforgiven* in 1992) or the same role was collectively performed by multiple individuals (e.g., Joel and Ethan Cohen co-directed *Fargo* in 1996).

***Individual Quality.*** Audience's judgments are influenced by candidates' past achievements (Podolny, 1993), and a high number of accolades in an individual's career would probably indicate an exceptional talent and skills. Past research in the film industry also suggests that the most successful professionals often enjoy preferential access to better resources and information (Faulkner and Anderson, 1987). Since recognition through accolades is highly valued by industry members, recipients enjoy greater media attention than their lower-status counterparts (Hsu, 2005). Accordingly, we controlled for an individual's history of awards by creating the variable *Individual*

*Quality*, i.e., the number of awards won and nominations gained by each professional in the three years (i.e.,  $t-3$ ,  $t-2$ , and  $t-1$ ) prior to the focal year  $t$  (again, the results did not change with a different time window).

***Individual Structural Holes.*** Structural holes - the extent to which an individual occupies the sole intermediate position between others in the network such that others can interact only through them - may influence individual's ability to produce creative work by increasing access to diverse information and knowledge, and facilitating the identification of otherwise hidden options (Burt, 2004). Besides these advantages, structural holes also increase an individual's level of control over the social field and, by implication, their ability to shape its subsequent evolution. This in turn might enhance a professional's chance of becoming more visible in the field and hence of being recognized by audience members. To account for this effect, for each professional in the network we estimated the variable *structural holes* using Burt's (1992) classic network constraint index, which is the inverse of structural holes. Again, we created the variable by adopting a 3-year moving window (although the results did not vary with different time windows).

***Individual Status.*** Audience's judgments could be affected by whether or not a professional is classified as a *star*. Following previous research (e.g., Elberse, 2007), we defined a professional as a star by looking at their *commercial* reputation based on how well or poorly their movies had fared commercially. Specifically, we computed the cumulative number of 'top 10 box office' movies in each year in which each professional worked until the year prior to the focal one using data on top-grossing movies from the IMDB online database.

***Movie Critical Reception.*** The likelihood of receiving an accolade could be affected by the critical response to each movie. Movies highly praised by critics gain visibility and are likely to receive disproportionate attention from the awarding audiences. A positive review from this source may also indicate that the focal professional worked within a particularly inspired ensemble, which

may have boosted his performance. We therefore used an aggregate measure of critical acclaim to create the variable *Movie Critical Reception* to record the critical reception accorded to each movie. Data came from a well established online public source – the humorously titled “www.rottentomatoes.com” - which assigns each movie distributed in the U.S. a critical reception score by summing reviews from a wide number of accredited media outlets and online film societies.<sup>8</sup> Each critic’s review score is converted onto a 0-10 point scale, and where a numeric score is not provided, internal web-site staff use the review’s word choice, tone and authoritativeness to convert the general impression into a numeric score. Individual scores are then averaged to produce an overall critical response rating. As the same list of critics is used to evaluate each movie, scoring tends to be consistent and the risk of bias mitigated. It is worth noting that this variable could also partly control for the effect of professionals’ status, due to their involvement in a critically acclaimed movie affecting the likelihood of them receiving an accolade.

***Movie Box Office.*** The likelihood of professionals becoming more visible within their field increases with their movies’ commercial performance, which we measured in terms of box office receipts, following many other studies (e.g., Faulkner and Anderson, 1987; Sawhney and Eliashberg, 1996; Sorenson and Waguespack, 2006). While new technologies – television, VCR, cable and DVD – have expanded the number of viable revenue sources available to the industry, box office returns remain “the most important benchmark when considering a film, as these ancillary revenues tend to correlate highly to the movie’s performance during its theatrical exhibition period” (Sorenson and Waguespack, 2006: 14). We adjusted box office receipts by an annual price deflator based on the

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<sup>8</sup> Critics must be active members of one of the following: 1) Boston Society of Film Critics; 2) Broadcast Film Critics Association; 3) Chicago Film Critics Association; 4) Cinemarati; 5) Dallas-Fort Worth Film Critics Association; 6) Film Critics Circle of Australia; 7) Florida Film Critics Circle; 8) Kansas City Film Critics Society; 9) Las Vegas Film Critics Society; 10) London Film Critics Circle; 11) Los Angeles Film Critics Association; 12) National Society of Film Critics; 13) New York Film Critics Circle; 14) New York Film Critics Online; 15) Online Film Critics Society; 16) Phoenix Film Critics Society; 17) San Diego Film Critics Society; 18) Santa Fe Film Critics Circle; 19) San Francisco Film Critics Circle; 20) Southeastern Film Critics Association; 21) Toronto Film Critics Association; 22) Vancouver Film Critics Circle 23) Washington D.C. Area Film Critics Association.

consumer price index (CPI), using 2004 as the base year. Because the distribution of movie box office is highly skewed, we applied a logarithmic transformation in the analysis.

***Movie Sequel.*** The extent to which movies reflect a genuine search for artistic novelty or focus instead on more formulaic content (which one could say was the case with sequels), might affect the likelihood of a professional receiving an accolade. This variable was thus computed as a dummy, taking the value 1 when a movie was a sequel and 0 otherwise.

***Movie Rating.*** Another important factor in measuring the level of creativity inherent in a particular movie is the rating assigned by the Motion Picture Association of America (MPAA). Ratings signal the degree of sexually graphic sequences, violence and strong language in a movie. Prior research suggests that features produced for mature audiences (R and NC-17) perform less well at the box office (Ravid, 1999). Movies rated G, PG and PG-13 have greater audience potential, and indeed movie theater's landlords may sometimes contractually prohibit them from showing NC-17 films. As a result studios quite often exert some pressure on producers and directors to ensure films receive a rating aligned with their market aspirations. This practice can obviously constrain creativity (as, for example, in the treatment of controversial material or the choice of scenes to edit out of a final print). We accounted for this possible source of interference by creating a categorical variable taking on the value 1 for movies rated G, 2 for PG rating, 3 for PG-13, 4 for R, and 5 for NC-17. We assigned the value 0 for the few (only 13) movies where no rating was available.

***Movie Genre.*** The likelihood of an accolade being bestowed could also depend on movie genre, on the premise that a movie's artistic content might vary across genres: one could argue that a professional working on an action movie is less likely to gain such audience recognition, as action movies typically reflect more formulaic conventions. We used genre information from IMDB to create a categorical variable to control for each movie's genre.

**Critics' Recognition.** Critics' awards are decided earlier in each year than peers' awards, and this time lag might impact on a professional's likelihood of receiving an accolade from the latter audience because earlier awards may cumulatively shape later perceptions of what deserves recognition, rendering independence of judgment between the two audiences less likely. Gemser et al. (2008) suggest exhaustion and reinforcement effects as two mechanisms by which such effects might operate. The exhaustion effect implies that an award given later in the season is less effective because previous awards preempt its "signaling effect." The reinforcement effect, on the contrary, implies that "previous awards add to the strength of the signaling effect of the later awards ..." (p. 33). To account for this potential endogeneity problem, we created the variable *Critics' Award/Nomination* that counts how many of the 8 critics' societies bestowed an accolade on a professional for his/her work in a given year, with values ranging from 0 for no accolade, to 8 if all critics' societies rewarded the same professional. We then included this control variable in the model predicting the embedded (peer) audience choice.

**Awarding Organizations.** As noted above, the 16 professional awarding societies were grouped into two distinct audiences, i.e., *peers* (embedded) and *critics* (non-embedded), on the premise that each audience's members tend to apply similar norms and standards when they evaluate and reward individuals' creative work. We accounted for the impact of stable unobserved differences between members within the same audience type by stratifying by professional societies, which is tantamount to estimating a fixed effects model for awarding organizations.

**Year.** Since we had no *a priori* expectations about the existence of time trend(s) over the study period, we controlled for the effect of all unobserved factors (e.g., macro-economic trends, changes in taste or fashion, and other factors that might affect the movie industry) that might affect audience members' evaluation by also stratifying by year.

## 6. MODEL

For any given role (e.g., director, actor/actress, editor, cinematographer, etc.), we modeled the impact of each professional's characteristics on the probability of an audience member (whether embedded or non-embedded) selecting (i.e., bestowing an accolade on) that professional rather than any other. This can be framed as a series of discrete choice problems with one professional selected in each category (role) each year from a discrete set of candidates. We then applied McFadden's (1973) discrete choice model approach where the explanatory variables are characteristics of both audience members and candidates. Let  $y_{ij}$  be equal to 1 if audience member  $i$  (with  $i = 1, \dots, n$ ) chooses option  $j$  (with  $j = 1, \dots, J_i$ ), 0 otherwise; and  $x_{ij}$  be a vector of explanatory variables describing option  $j$  for audience member  $i$ . The number of possible choices is  $J_i$  to indicate that different audience members may have different sets of options to choose from. The conditional logit model introduced by McFadden assumes the following general form:

$$\Pr(y_{ij} = 1) = \frac{e^{\beta x_{ij}}}{e^{\beta x_{i1}} + e^{\beta x_{i2}} + \dots + e^{\beta x_{ij_i}}}$$

[a]

This equation implies that the odds that audience member  $i$  will choose professional  $j$  over professional  $k$  is given by the difference in the vector of explanatory variables describing each option as

$$\exp\{\beta(x_{ij} - x_{ik})\}$$

[b]

If the values of any explanatory variable are the same, then this variable has no effect on the choice between professional  $j$  and professional  $k$ . Suppose that each audience member  $i$  has a stable

preference for each option  $j$ , denoted  $\mu_{ij}$ , and that the actual utility  $U_{ij}$  for a particular option varies randomly around  $\mu_{ij}$  so that

$$U_{ij} = \mu_{ij} + \epsilon_{ij}$$

[c]

where  $\epsilon_{ij}$  is a random variable having a standard extreme value distribution and the  $\epsilon_{ij}$ 's are independent across the different options. If audience members choose the option with the highest utility  $U_{ij}$  and if the logarithm of  $\mu_{ij}$  is a linear function of the explanatory variables, then the probability that audience member  $i$  chooses option  $j$  is given by equation [a]. If these conditions are satisfied, the conditional logit model is reasonable because the assumption of the 'independence of irrelevant alternatives' (IIA), a key assumption of the discrete choice model, is not violated (Allison, 1999). This means that the odds of choosing option  $j$  rather than option  $k$  are not affected by the other available options. The IIA assumption can only be tested when audience members are presented with different choices. In our context, however, it is reasonable to assume IIA because "nominees are unlikely to be considered close substitutes for one another" (Pardoe and Simonton, 2007: 381). A possible exception to IIA might be the relatively rare occasion when an individual receives multiple nominations in the same category in the same year. In the case of Oscars, for example, this has happened only very rarely – e.g., for Best Director (Clarence Brown in 1930, Michael Curtiz in 1938, and Steven Soderbergh in 2000) – because "[...] the Oscar rules prevent this from happening in the lead acting categories" (Pardoe and Simonton, 2007: 381-392). Similar considerations hold for other awards as well. The Hausman and McFadden's (1984) test further indicates that our sample exhibits IIA.

In the analysis we split the whole sample into two subsamples, one of peers' and the other of critics' award-granting associations (Table 2). We then stratified by audience society (to account for any stable differences within award-granting associations), professional's role and year. We estimated the model by maximum likelihood using PROC TPREG in SAS (version 9.1).

## 7. RESULTS

Tables 3 and 4 present the descriptive statistics and the correlation values, which are relatively low. We also checked for the existence of multicollinearity by computing the variance inflation factors (VIFs) using PROC REG in SAS, and found it was not a problem. The results for the discrete choice models for both the embedded and the non-embedded audiences are shown in Tables 5 and 6, respectively. As mentioned before, we estimated these models by stratifying by audience member (i.e., the various professional societies within each audience type), role and year.

**<< Insert Tables 2 and 3 Here >>**

Table 5 presents the coefficient estimates for the discrete choice models predicting the likelihood that an embedded (i.e., peers’) audience will choose to give an accolade. Model 1 is the baseline model with all controls. Although the coefficient estimates are not reported, the overall impact of the dummies for *movie genre* and *movie rating* are significant. The coefficient estimate of the variable *Movie Sequel* is significant, and the sign of the coefficient is in the expected direction, showing that professionals working in movies whose content tends to be more formulaic are less likely to receive an accolade. *Movie Critical Reception* is also significant and its sign also in the expected direction, suggesting that professionals are more likely to be chosen for an accolade for their performance(s) when they work on a movie that has gained positive critics’ reviews. Similarly, the coefficient estimate of the variable *Movie Box Office* is significant, and with a coefficient sign in the expected direction, suggesting that professionals are more likely to receive an accolade for their work on a movie that has fared well at the box office. At the individual level, the quality of each professional’s human capital (*Individual Quality*) and the number of roles each professional performed in the same movie (*Individual Creative Freedom*) turned out to be significant and in the postulated direction. Similarly, professionals who achieved the status of star (*Individual Star*) for having worked in the past in commercially successful movies (i.e., those among the years ‘top 10 box office’ movies)

was again significant, suggesting they are also likely to be more visible and therefore more likely to receive an accolade. On the contrary, network closure, that is, a network poor in structural holes (*Individual Structural Holes*), turned out to be non-significant. Accolades gained from critics' societies (*Critics' Award/Nomination*) positively affect a professional's likelihood of being similarly rewarded by peers' societies, suggesting the existence of a signaling effect of critics' decisions on subsequent peers' decisions. The global test of the null hypothesis that all the coefficients are equal to 0 is highly statistically significant (the likelihood ratio test is 4676.66 with 29 df and  $\text{Pr}>\text{ChiSq} = 0.0001$ ).

<< **Insert Table 5 Here** >>

Model 2 shows the results after we entered the variable of theoretical interest – *Individual Coreness*. The coefficient is statistically significant and in the hypothesized direction, indicating the existence of a strong positive relationship between a professional's degree of network coreness and the likelihood that an embedded audience member will reward their creative work. It is worth noting that this effect holds for coreness values above the median. For values below the median the effect is no longer significant. The overall fit of the model improves on that of the baseline, as indicated by the change in the value of the Log Likelihood. The LR test ( $\chi^2/L2-L1 = 24.38$  with  $p$ -value  $< 0.001$  for 1 df) shows a significant improvement when the variable is included into the model. The results, therefore, support hypothesis 1.

Table 6 presents the same set of results for the non-embedded (critics') audience case. Again, the overall impact of the dummies for genre and movie rating is significant. Model 1 is the baseline model with all controls. The coefficient estimates of the variables *Sequel*, *Critical Reception* and *Box Office* are significant and the sign of the coefficient is in the expected direction. At the individual level, the number of roles each professional performed in the same movie (*Creative Freedom*) and the quality of their human capital (*Quality*) are significant and in the postulated direction. Similarly, being a professional with a high level of commercial reputation (*Star*) enhances the chance of receiving an

accolade. The results further suggest that network closure, that is, a network poor in structural holes (*Individual Structural Holes*), reduces the likelihood of receiving an accolade from critics. The global test of the null hypothesis that all the coefficients are equal to 0 is highly statistically significant (the likelihood ratio test is 11968.44 with 28 df and  $\text{Pr}>\text{ChiSq} = 0.0001$ ).

**<< Insert Table 6 Here >>**

Model 2 shows the results after we included the variable *Individual Coreness*, which turned out to be non-significant, suggesting that the likelihood of gaining an accolade from a non-embedded audience does not increase with the level of professionals' coreness. Adding this variable therefore does not improve the goodness of fit of the model relative to the baseline model. The results support hypothesis 2.

**Possible spuriousness.** To test the robustness of the analyses, we estimated additional models.

A) A potential problem in the analysis is that the likelihood of being rewarded by either critics or peers might affect a professional's position along the core-periphery continuum of the social field. At a general level, we believe that the way we constructed the coreness measures makes it unlikely that our results are driven simply by reverse causality. For an individual of a given vintage year, the measure of network coreness is constructed from affiliation data for the 3 preceding years. Creative performance is then taken as the award bestowed in the focal year. Thus, we relate an individual's recognition to his past network position. We also rerun the analysis adding further lags to the coreness variable (including the constraint variable), but the results were not affected. Finally, we estimated a model predicting a professional's coreness level by using the number of accolades they received in the previous year as a predictor, but found no significant effect.

An individual's status stems from both their past achievements and the status of their partners, and they can receive greater audience recognition by collaborating with higher-status

colleagues. This implies that “higher status affiliations help to increase returns to a given quality of output” (Benjamin and Podolny, 1999: 565). We accounted for these possibilities by measuring the quality of the team as the average number of accolades team members other than the focal individual had received in the three years (i.e.,  $t-1$ ,  $t-2$ , and  $t-3$ ) prior to the focal year  $t$ . (The results did not change when we increased this window from the previous three to the previous five years.) Since the variable is very highly correlated (0.977) with the variable measuring the quality of a professional’s human capital, we could not enter both variables into the model together. We thus reran the analysis only with the team quality variable, but the results were unaffected.

Individuals who occupy a central position within the social field are more likely to have access to diverse information and knowledge they can use in producing creative work. By broadening the scope of their collaborations, individuals can also enhance their visibility in the field and by implication the likelihood of being recognized by the relevant audiences. To account for each professional’s network size we included a measure of (the log of) the number of network ties they had established over the three years prior to the focal year, which increases whenever the focal individual adds new ties to their network. Including this variable in the final model had no significant impact on the results, and nor did alternative centrality measures (e.g., eigenvector, betweenness, closeness).

Some scholars (e.g., Sorensen and Waguespack 2006) have measured professionals’ human capital by looking at the overall number of movies they made to capture differences in their level of experience. We checked the robustness of our results by estimating the model and substituting the number of movies each professional worked on in the previous 2 years for the number of accolades received in the same period. Since the variable is highly skewed (as only a few professionals made several movies a year) we entered the variable into the model after taking its logarithm. Again, the

results did not change appreciably. (It is worth noting that we could not enter this variable when the variable *Individual Quality* was included because they are highly correlated.)

The distribution and marketing strategy of the movies in which professionals were involved may affect their visibility and therefore the chance of their work being recognized by award-granting organizations. In particular, the number of screens on which movies initially opened in a given year could be taken as a proxy to reflect the scale of distributors' promotion efforts. Accordingly, we reran the analysis including the average number of opening screens, but again the main findings were not affected. This measure was not included in the final model as opening screen data were available for only 1836 movies of the 2297 movies in our final sample. (All these additional results are available from the authors upon request.)

B) In the analysis we stratified by audience member to account for the impact of each awarding organization's stable characteristics on its decisions. However, decisions by members of the same audience type may not be entirely independent. We thus rerun the analysis for each professional society separately. For embedded (peers') audience members, the likelihood that a professional will receive an accolade from a specific awarding organization of peers increases with his/her level of coreness. For instance, in the case of accolades bestowed by the *Academy of Motion Picture Arts and Sciences* (i.e., Oscars) the variable *Coreness* is statistically significant and in the postulated direction (the coefficient is 5.56 and  $\text{Pr} > \text{ChiSq}$  is  $< 0.0001$ ). We found similar results for professional guilds, which in this new set of analysis we treated as a unique awarding organization (the coefficient of the variable *Coreness* is 3.60 and  $\text{Pr} > \text{ChiSq}$  is 0.0288). Results for the *Independent Spirit Awards* are consistent with those for the other peers' professional societies, but the coefficient of the variable *Coreness* is significant only at the 10% level. For non-embedded (critics') audience members, on the contrary, the likelihood of receiving an accolade bestowed by any specific awarding organization

does not increase with a professional's coreness level. Taken together these additional analyses provide strong support for the results presented here.

C) We further checked the robustness of the results by running an additional set of analysis using a slightly different model specification. Since there are eight professional societies of peers and critics, respectively, each professional can in principle receive an accolade from any – or even all – the societies (up to a maximum of 8) for each movie role they worked on in a particular year, from each audience. Following this logic we created two dependent variables (for peers and critics) as ratios measuring the degree of recognition by each audience – which we called *Degree of Recognition by (Non)-Embedded Audiences*. If a professional received an accolade from all audience's societies (8 out of 8 – maximum recognition) the ratio equals 1; if only one society bestowed an accolade the ratio is 0.125 (1 out of 8); if the same professional received no accolade the ratio is 0 (0 out of 8 – minimum recognition). We used these two ratios as dependent variables to estimate fixed-effects and random-effects models for each audience type. The dependent variable for critics (non-embedded audience) was also included as a control in the model estimating the degree of recognition from peers, as the critics' societies usually assign accolades earlier in each year than peers' societies. Table 7a reports the results for the fixed-effects models for the embedded (peers) and non-embedded (critics) audiences. While the degree of peers' recognition increases with the level of a professional's coreness within the social field, greater proximity to the core is not associated with a higher degree of critics' recognition. Overall, these results are consistent with those for the discrete choice modeling approach, and confirm our general claim that rewards for creativity are socially structured and that the salience of this structure varies with the type of audience assessing candidates' creative work. We obtained our estimates using PROC GLM for linear models in SAS.

**<< Insert Table 7a Here >>**

We then estimated the final models using Generalized Estimating Equations (GEE) to control for individual heterogeneity and the existence of any systematic differences across individuals due to unobserved effects. This method allows dependent variable observations to be correlated over time from repeated yearly measurements by estimating the correlation structure of the error terms (Liang and Zeger, 1986). We ran the model using an autoregressive structure that assumes the correlations between repeated measurements of the dependent variable would decline from period to period. We reported the results for the embedded (peers) and non-embedded (critics) audiences in Table 7b. Again, the results are similar to those for the discrete choice modeling approach: the degree of peers' recognition increases with the level of professional's coreness within the social field, but proximity to the core is not associated with the degree of critics' recognition. We also ran the model by imposing an exchangeable correlation structure, which assumes the correlations between repeated measurements of the dependent variable would be equal across time. We finally tried a less restrictive specification in which the correlation matrix for values of the dependent variable across the observation years has a banded structure – i.e., there is one correlation for values that are one year apart, another for values are two years apart, and so on. All specifications yielded similar results. We report significance levels based on Huber–White robust standard errors to control for any residual heteroscedasticity across panels. We obtained our estimates using PROC GENMOD in SAS.

**<< Insert Table 7b Here >>**

## **8. DISCUSSION AND CONCLUSIONS**

Despite the well established 'Romantic' tradition that portrays individual creativity as a rather mysterious generative process occurring in the mind of a lonely genius, a growing body of sociological research has demonstrated that creativity is very often embedded within broader social

structures that shape access to novel ideas and social support. Creative achievements in fields as diverse as science, art and business all exhibit a very similar pattern, in that ‘creators’ are embedded in a network of actors who share ideas and act as both critics and supporters of each other’s work (Collins, 1998; Simonton, 1999; Uzzi and Spiro, 2005). These accounts do not deny the role of individual talents and/or dispositions; but they suggest that these qualities are mobilized and channelled into a context of intersecting relationships through which conventions are learned and ideas recombined. The present study has expanded upon this line of work by establishing a framework for understanding creativity as a joint result of socio-structural conditions at the individual level and social systems making judgments about individuals’ efforts.

While in the last few years researchers have begun to address the structural influence on generative creativity (Burt, 2004; Perry-Smith, 2006), only very few studies have looked at the impact of socio-structural conditions on the validation of creative work by gatekeepers who judge the acceptability of this work. We sought to fill this gap by building on socio institutional perspectives on creativity (Csikszentmihalyi, 1996; Ford, 1996) and by combining structural explanations of creativity with recent organizational insights on the social structure of consensus (Cattani et al., 2008). We started by framing the relationship between novelty and its recognition as an ongoing tension between the core and periphery of the social field. We also noted that whether these creative efforts are socially validated, and therefore rewarded, depends on the norms and standards of judgment used by audiences, which in turn reflect audiences’ incentives to preserve the institutional logics of the field. We reasoned that individuals positioned closer to the core of their field are more likely to appeal to embedded audiences (those where the creative members and those who award validation are one and the same, which we have termed ‘peer’ audiences) because closeness to the core induces conformity to the prevailing norms and standards of the field. Conversely, non-embedded audiences (those composed of expert judges, who are not themselves creative candidates

seeking validation, which we have termed ‘critic’ audiences) are more receptive towards the legitimacy claims made by peripheral players as they do not have the same personal interests at stake as members of embedded audiences have. Critics and peers have in fact different incentives, in that a critic’s reputation within the field depends significantly on their ability to discover new talents.

These findings yield several important implications. First, they suggest that rewards for creativity are socially structured - that is, where individuals stand in the social structure of a field may affect the recognition of their work and thus shape their reputation for creativity. This is an important finding that complements the vast research that has treated individual abilities as the primary limitations on efforts to produce creative work (Sternberg, 1985; Gardner, 1993). As a result of this prevailing approach there has been little attention devoted to how creativity is shaped by wider constraints operating via social validation and enforced by external evaluators. This paper shows that creativity does not occur in a social void, but it is instead embedded in patterns of relationships and evaluated by audiences who participate in the social stratification, granting or denying recognition to competing individuals.

Second, by focusing on the audiences and the socio-structural conditions affecting the process of social validation, the study extends research on the determinants of stratification which has focused mainly on actors (e.g., individuals, organizations) vying for recognition rather than the gatekeepers responsible for conferring it (Zuckerman, 1999). Research on the social structure of markets, for instance, has predominantly focused on attributes such as the position in the status ordering of market actors and its effect on the opportunities available to them (Podolny, 1994; Benjamin and Podolny, 1999). Organizational ecologists, on the other hand have only recently stated to explicitly incorporate audience level features and variables in their models of organizational survival (Hsu & Hannan, 2005; Hannan, Pólos, and Carroll, 2007). Our research expands upon this line of inquiry by establishing a theoretical and empirical framework for better appreciating the

implication that systematic differences among audiences may bear on the distribution of rewards to candidates, independent of candidates' specific attributes. By implication, our findings also contribute to existing understanding of competitive dynamics in markets as they highlight the dual influence of audience embeddedness and candidates' position in the social structure on candidates' ability to establish themselves as legitimate players in the market.

Third, the distinction between embedded and non-embedded audiences holds important implications for a deeper understanding of the audience-candidate evaluation process beyond the filmmaking industry. In any field, whether in art or science, the assessment of a given piece of creative work reflects the subjective evaluation of the field's gatekeepers. In the social and natural sciences the peer review system illustrates the dynamics of the evaluation process within embedded audiences, whereby editors and reviewers are also members of the field. The finding that there is a significant relationship between an individual's position in the social structure and their likelihood of appealing one type of audience vs. the other provides considerable empirical substance to Merton's (1968) central claim that in order to investigate the processes shaping the development of science it is important to consider the social mechanisms that curb or facilitate the incorporation of would-be contributions into the domain. It is also consistent with Kuhn's (1970) argument that exponents of a dominant paradigm will often counter fundamental novelties, which typically originate from the periphery of the field, because they are subversive of and pose a challenge to the status quo or the existing paradigm. Clearly, these processes of social selection that regulate the distribution of rewards may create significant difficulties for any efforts to counteract the institutional consequences of the socio-structural ordering of creativity (so as to introduce new ideas and practices that do not conform to the dominant conventions). They also raise the broader question of how change is triggered in an established institutional field where new solutions, once introduced, may alter the standards for established participants whose positions were sustained by the older practice (Leblebici

et al., 1991). This is a fundamental question, as the erosion of established conventions is a basic condition for renewal in scientific as well as artistic fields. Our evidence suggests that one possible answer to the danger to progress posed by such self-perpetuating social validation systems lies with the power of non-embedded audiences to facilitate the recognition and legitimation of fringe players' efforts, creating important enabling conditions for this crucial change process. Such a process may take some time, during which the domain is likely to lose its coherence, making it increasingly difficult for anyone to judge what is 'good' and 'bad' among competing practices. Eventually a new order emerges, with distinctive sets of norms and prescriptions, and the whole cyclical process begins once again. Martindale (1990) has empirically documented this progression in many forms of creativity in the arts, as Kuhn (1970) has done in the physical sciences.

Finally, from a methodological standpoint, this study represents an original attempt to introduce network analytic techniques to the study of individual creativity. The viability of using sociometric tools to unravel the relationship between creativity and social networks was recognized a long time ago (Moreno, 1940; Northway and McCallum Rooks, 1955; Crane, 1972). But systematic attempts to untangle this relationship based on formal network measurement and operationalization have only recently been made (Burt, 2004; Uzzi and Spiro, 2005; Perry-Smith, 2006). Our paper takes various steps to address this shortcoming. To unveil the social fabric of the Hollywood movie industry, we examined the bipartite affiliation network resulting from collaboration among professionals across projects (i.e., movies). The use and analysis of unipartite projections of affiliation networks have a few distinctive advantages over more traditional ways of gauging social networks (Newman et al., 2002). In particular, they allow reconstructing networks of much larger size than in experimental research, because compiling substantial datasets based on pure sociometric questionnaires is very time-consuming and costly. To the extent that project membership's archival sources are updated regularly, social structures derived from affiliation networks easily can be

tracked longitudinally. This makes the framework and research design developed here relatively easy to replicate in other cultural as well as scientific settings. For example, in the last few years affiliation structures such as open source projects, artistic collaborations, co-authorship and inventors' networks have become increasingly available to scholars interested in studying creativity and innovation activity at the individual or firm level. Thus, there seem to be no shortage of opportunities to test and refine our framework.

The study suffers from obvious limitations that nevertheless represent opportunities for future research. First, we studied an art field rather than a scientific one where knowledge can be more easily codified and evaluation of changes is likely to be premised more on technical criteria than on the fit with normative criteria (Becker, 1982). As a consequence, the results should be generalized with caution to other settings where external evaluations might be related more closely to technical prowess and mastery. Any attempts to generalize should also account for the distinctive project-based nature of the film industry. Project-organizations operate under highly uncertain and volatile circumstances, and it is under these conditions that networks conveying identity and recognition are especially important. However, it is worth noting that project organizations typify collaborative endeavors that are becoming increasingly common across various social systems (Whitley, 2006).

The audience-candidate process of evaluation in any given field implies that gatekeepers (or audience members) will agree on the norms and the standards that specify what types of outcomes will be judged as creative. Throughout the paper we assumed audience members to share virtually the same set of norms and standards. However, lack of consensus among gatekeepers compounds the complexity of this process of evaluation. Recent work by Cattani et al. (2008), for example, suggests that among the conditions affecting the likelihood of reaching consensus is the level of field fragmentation as indicated by the degree of connectivity among audience members. In each field,

gatekeepers may form a relatively homogeneous audience sharing the same norms and standards or, alternatively, may form into multiple audiences, each with a distinct set of norms and standards. Reaching consensus on the same norms and standards is especially difficult in fragmented fields - as they face low conformity pressures, individual actors (candidates) are more likely to experiment with new styles and hence generate outcomes that tend to depart from established ways of doing things. In non-fragmented fields, in contrast, there is very little disagreement as to which outcomes should receive social endorsement because higher connectivity levels among audience members are likely to reinforce consensus around a single shared set of norms and standards. The implications of audience fragmentation for the process of evaluation of candidates' creative work represent an area worth further exploration.

To conclude, it is important to stress how, from our data, we can only observe an audience's choice – the awarding of an accolade – but not the process leading to the final choice. The complex process by which an audience screens and selects from potential candidates falls outside the scope of this study. A different research design and analytical approach (e.g., an ethnographic study or a survey) would be better suited to address this question explicitly.

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**Table 1 – Hollywood Studios and their Distribution Divisions\***

<b>Studio</b>	<b>Distribution division</b>
Sony	American International Pictures
	Columbia
	Screen gems
	Sony Classics
	Sony Repertory
	TriStar
Universal	Focus Features
	Good Machine
	Gramercy
	October
	October Classics
	Polygram
	Rogue Pictures
	USA Films
20th Century Fox	Fox Intl Classics
	Fox Searchlight
MGM (purchased by Sony in 2005)	Orion Classics
	Orion Pictures
	United Artists
	Samuel Goldwyn
Warner Bros.	Castle Rock
	Fine Line
	New Line
	Warner Independent
Paramount	Paramount Classics (now Paramount Vantage)
	Republic
Disney	Buena Vista
	Caravan Pictures
	Dimension
	Hollywood Pictures
	Miramax
	Touchstone Pictures
Dreamworks (purchased by Viacom in 2006)	

\* The studios purchased distribution divisions at different times. Many of these divisions changed ownership during the study period (for instance: Focus Features is the art house films division of Universal Studios and originated from the 2002 divisional merger of USA Films, Universal Focus and Good Machine; October was purchased by Universal in 1997; Screen Gems became a specialty film-producing arm of the Sony group in 1999; Samuel Goldwyn was purchased by MGM in 1997; Castle Rock and New Line were purchased by Warner in 1996, etc.). In attributing film releases to major studios we accounted for the timing of all such transactions.

**Table 2**  
**Audiences' Membership**

<b>Embedded Audience (Peers)</b>	<b>Non-embedded Audience (Critics)</b>
<ul style="list-style-type: none"> <li>• Academy of Motion Picture Arts &amp; Sciences               <ul style="list-style-type: none"> <li>• Directors Guild of America</li> <li>• Writers Guild of America</li> <li>• Screen Actors Guild</li> <li>• Art Directors Guild</li> </ul> </li> <li>• American Society of Cinematographers               <ul style="list-style-type: none"> <li>• American Cinema Editors</li> <li>• Film Independent</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Hollywood Foreign Press Association               <ul style="list-style-type: none"> <li>• National Board of Review</li> <li>• New York Film Critics Circle</li> <li>• National Society of Film Critics</li> </ul> </li> <li>• Broadcast Film Critics Association</li> <li>• Los Angeles Film Critics Association</li> <li>• Chicago Film Critics Association</li> <li>• Boston Society of Film Critics</li> </ul>

**Table 3**  
**Descriptive Statistics**

<b>Variables</b>	<b>Mean</b>	<b>Std Dev</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Embedded Audience's Choice</b>	0.01	--	0	1
<b>Non-Embedded Audience's Choice</b>	0.01	--	0	1
<b>Awarding Organization</b>	10.59	4.18	1	16
<b>Movie Genre</b>	5.10	4.02	1	18
<b>Movie Sequel</b>	0.10	--	0	1
<b>Movie Rating</b>	3.24	0.86	0	5
<b>Movie Critical Reception</b>	5.46	1.47	0.7	9.5
<b>Movie Box Office (log)</b>	16.52	1.97	7.69	20.32
<b>Individual Role</b>	5.56	2.36	1	8
<b>Individual Creative Freedom</b>	1.19	0.54	1	7
<b>Individual Quality</b>	1.53	2.99	0	17.33
<b>Individual Star</b>	0.34	0.91	0	13
<b>Individual Structural Holes</b>	0.12	0.09	0.01	0.926
<b>Individual Coreness</b>	0.01	0.02	0	0.701

**Table 4 – Pearson Correlation Coefficients**

<b>Variables</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>
<b>1. Role (dummies)</b>	1										
<b>2. Movie Genre (dummies)</b>	0.007 0.237	1									
<b>3. Movie Rating (dummies)</b>	0.024 <.0001	0.101 <.0001	1								
<b>4. Movie Sequel</b>	0.009 0.138	0.014 0.025	0.134 <.0001	1							
<b>5. Critical Reception</b>	0.005 0.421	0.059 <.0001	0.084 <.0001	0.094 <.0001	1						
<b>6. Movie Box Office (log)</b>	-0.018 0.004	0.024 0	-0.209 <.0001	-0.147 <.0001	0.141 <.0001	1					
<b>7. Individual Creative Freedom</b>	-0.325 <.0001	-0.023 0	0.054 <.0001	-0.015 0.013	0.057 <.0001	-0.032 <.0001	1				
<b>8. Individual Quality</b>	-0.008 0.167	0.045 <.0001	0.082 <.0001	0.031 <.0001	0.309 <.0001	0.212 <.0001	0.014 0.026	1			
<b>9. Individual Star</b>	0.089 <.0001	0.002 0.695	-0.048 <.0001	-0.037 <.0001	0.062 <.0001	0.198 <.0001	0.019 <.0001	0.212 <.0001	1		
<b>10. Individual Structural Holes</b>	-0.09 <.0001	-0.017 0.004	-0.003 0.599	-0.02 0.001	0.018 0.004	-0.292 <.0001	0.081 <.0001	-0.217 <.0001	-0.304 <.0001	1	
<b>11. Individual Coreness</b>	-0.037 <.0001	0.03 <.0001	0.043 <.0001	-0.037 <.0001	0.046 <.0001	0.015 0.017	0.047 <.0001	0.1 <.0001	0.103 <.0001	-0.145 <.0001	1

**Table 5****Results of Discrete Choice Model Predicting Embedded Audiences' (i.e., Peers') Choice**

Variables	Model 1		Model 2	
	Coeff.	Std. Err.	Coeff.	Std. Err.
Movie Genre (dummies)	yes	--	yes	--
Movie Rating (dummies)	yes	--	yes	--
Movie Sequel (dummy)	-0.391**	0.143	-0.417**	0.143
Movie Critical Reception	0.669***	0.020	0.663***	0.020
Movie Box Office (log)	0.162***	0.021	0.163***	0.021
Individual Creative Freedom	0.256***	0.053	0.235***	0.053
Individual Quality	0.055***	0.011	0.052***	0.011
Critics' Award/Nomination	1.130***	0.043	1.135***	0.043
Individual Star	0.085**	0.030	0.084**	0.030
Individual Structural Holes	-0.269	0.414	-0.165	0.414
Individual Coreness			3.182***	0.813
<i>Fixed Effects:</i>				
Awarding Organization	included		included	
Year	included		included	
Individual Role	included		included	
-2 Log Likelihood	6573.49		6561.30	
ChiSq vs null	4676.66***		4688.85***	
ChiSq vs Model 1			24.38***	
Number of Observations	64411		64411	

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$  – Two-tailed tests for all variables

**Table 6**

Results of Discrete Choice Model Predicting Non-Embedded Audiences' (i.e., *Critics*) Choice

Variables	Model 1		Model 2	
	Coeff.	Std. Err.	Coeff.	Std. Err.
Movie Genre (dummies)	yes	--	yes	--
Movie Rating (dummies)	yes	--	yes	--
Movie Sequel (dummy)	-0.053***	0.070	-0.346***	0.054
Movie Critical Reception	0.745***	0.008	0.745***	0.008
Movie Box Office (log)	0.233***	0.008	0.232***	0.008
Individual Creative Freedom	0.235***	0.020	0.236***	0.020
Individual Quality	0.108***	0.004	0.108***	0.004
Individual Star	0.050***	0.011	0.051***	0.011
Individual Structural Holes	-1.222***	0.167	-1.232***	0.168
Individual Coreness			-0.290	0.462
<i>Fixed Effects:</i>				
Awarding Organization	included		included	
Year	included		included	
Individual Role	included		included	
-2 Log Likelihood	33664.01		33663.70	
ChiSq vs null	19683.88***		19684.28***	
ChiSq vs Model 1			0.80	
Number of Observations	134610		134610	

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01 – Two-tailed tests for all variables

**Table 7a**  
**GLM Fixed-Effects Model Predicting Degree of Recognition by Embedded (*Peers*)**  
**and Non-Embedded (*Critics*) Audiences**

Variables	Embedded (Peers)			Non-Embedded (Critics)		
	Coeff.	Std Err	P > t	Coeff.	Std Err	P > t
Year (dummies)	Yes	--	--	Yes	--	--
Movie Genre (dummies)	Yes	--	--	Yes	--	--
Movie Rating (dummies)	Yes	--	--	Yes	--	--
Movie Sequel (dummy)	-0.0017	0.0008	0.0382	-0.0017	0.0013	0.1685
Movie Critical Reception	0.0030	0.0002	<.0001	0.0060	0.0003	<.0001
Movie Box Office (log)	0.0013	0.0002	<.0001	0.0020	0.0002	<.0001
Individual Creative Freedom	0.0009	0.0007	0.1879	0.0011	0.0011	0.3306
Individual Quality	-0.0006	0.0001	<.0001	0.0000	0.0002	0.9713
Critics' Award/Nomination	0.4070	0.0048	<.0001			
Individual Role (dummies)	Yes	--	--	Yes	--	--
Individual Star	-0.0017	0.0003	<.0001	-0.0008	0.0005	0.1097
Individual Structural Holes	0.0081	0.0053	0.1263	-0.0106	0.0080	0.1869
Individual Coreness	0.0705	0.0099	<.0001	0.0165	0.0150	0.2715
R-Square	0.562745			0.369921		
Number of Observations	31214			31214		

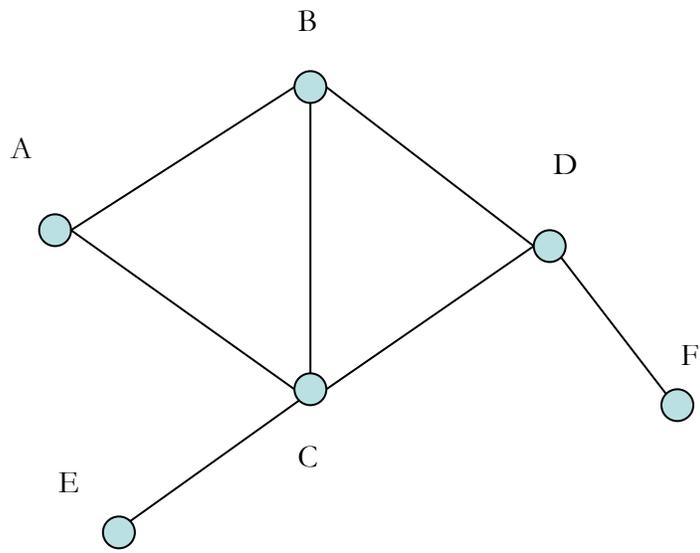
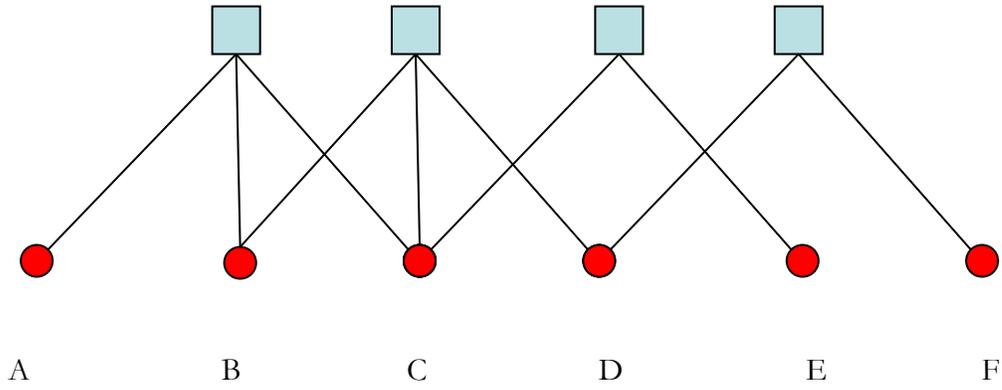
**Table 7b**

**GEE Estimates for the Model Predicting Degree of Recognition by Embedded  
(*Peers*) and Non-Embedded (*Critics*) Audiences**

Variables	Embedded (Peers)			Non-Embedded (Critics)		
	Coeff.	Std Err	P > t	Coeff.	Std Err	P > t
Intercept	-0071	0.0053	0.1754	-0.0152	0.0079	0.0546
Year (dummies)	Yes	--	--	Yes	--	--
Movie Genre (dummies)	Yes	--	--	Yes	--	--
Movie Rating (dummies)	Yes	--	--	Yes	--	--
Movie Sequel (dummy)	-0.0012	0.0006	0.0550	-0.002	0.001	0.084
Movie Critical Reception	0.0029	0.0001	<.0001	0.005	0.000	<.0001
Movie Box Office (log)	0.0010	0.0001	<.0001	0.002	0.000	<.0001
Individual Creative Freedom	0.0018	0.0004	<.0001	0.002	0.001	<.0001
Individual Quality	0.0002	0.0001	0.0156	0.001	0.000	<.0001
Critics' Award/Nomination	0.4095	0.0039	<.0001			
Individual Role (dummies)	Yes	--	--	Yes	--	--
Individual Star	-0.0002	0.0002	0.3592	0.0001	0.0003	0.8439
Individual Structural Holes	-0.0004	0.0024	0.8661	-0.0078	0.0037	0.0338
Individual Coreness	0.0123	0.0049	0.0122	-0.0018	0.0079	0.8159
Deviance	26.1182			59.26		
Pearson Chi-Square	26.1182			59.26		
Log Likelihood	62871.50			50621.59		
Number of Observations	31214			31214		

**Figure 1**

**A bipartite network and its unipartite version**



## APPENDIX: Overview of Awarding Bodies in the Sample

### Peer (Embedded Audience) Awarding Bodies

- *The Academy of Motion Picture Arts and Sciences* is an honorary organization of over 6,000 motion picture professionals dedicated to the advancement of the arts and sciences of motion pictures. All members have received special recognition for their individual contributions to filmmaking. The ‘Oscars’ (properly the Academy Awards of Merit) are the best-known industry awards, and were first presented in 1929, with the glitzy award ceremony being televised since 1953. Nominations are made by members from the various categories (actors, directors, editors, etc) but the winners voted for by the whole membership.
- *The Directors Guild of America* is a craft union founded in 1960 representing approximately 12,000 directors. The Guild has maintained the tradition of its fore-runner (the *Screen Directors Guild*) which began annual awarding in 1948, and the award is seen as a close predictor of the academy category award.
- *The Writers Guild of America* is a labor union founded in 1921 comprising more than 11,000 motion picture and television writers in the United States. The Guild’s simultaneous east- and west-coast annual award ceremonies date back to 1948.
- *The Screen Actors Guild*, founded in 1933 with a membership (as of 2007) of 120,000, has assigned life time achievement awards since 1962. 4,200 randomly selected members make nominations for its annual awards recognizing outstanding performances, and the winners (voted for by the full membership) are recognized at a televised ceremony that has become one of Hollywood’s major awards events since 1995.
- *The Art Directors Guild*, first established in 1924, has approximately 1,500 members engaged in the crafts of production design and art direction in the movie and television industries
- *The American Society of Cinematographers*, currently numbering approximately 340 members, is a cultural and professional organization founded in 1919 whose membership extends only to directors of photography with distinguished credits in the industry.
- *American Cinema Editors* is an honorary society founded in 1950 that includes film editors selected for their professional achievements and dedication to the craft of motion picture editing.
- *Film Independent*, (originally *Independent Feature Project/West*) founded in 1984, has roughly 5,000 members involved in independent film-making and describes itself as ‘a collective of filmmakers, film leaders, and film lovers’. Winners of its *Independent Spirit Awards* are chosen by 8,000 members from nominees picked by an 11-member screening committee.

## Critic (Non-embedded Audience) Awarding Bodies

- *The Hollywood Foreign Press Association* is a non-profit organization established in 1943, consisting of approximately 90 international journalists representing almost 50 nations. The Association's famous 'Golden Globe' awards (which raised US\$1.2 Million for charity in 2007) date back to 1944.
- *The National Board of Review*, 100 years old this year, is a non-profit organization composed of both film professionals and film critics. The Board made its first awards in 1929.
- *The New York Film Critics Circle* is a group of 34 print journalists who write for New York City-based publications such as Newsweek, Time, The New Yorker, the New York Times, Entertainment Weekly, and Rolling Stone. Often viewed as 'harbingers' of the Oscar nominations, the Circle's awards are perhaps more accurately viewed as a primary alternative to the Oscars, honoring aesthetic merit in a forum immune to commercial and political pressures.
- *The National Society of Film Critics*, one of the most well respected professional film critics groups in North America, was founded in 1966 by a group of critics denied membership of the New York Film Critics Circle. The organization is known for its highbrow taste, and its annual awards are one of the most prestigious film critics' awards in the U.S. In past years, many of their Best Picture winners were foreign films, and their choices rarely match the Academy Awards (they have only agreed with the 'Best Picture' Oscar for four times in the past 40 years).
- *The Broadcast Film Critics Association* (founded in 1995) is the largest film critics' organization in the U.S. and Canada, representing 199 television, radio and online critics. Its annual *Critics' Choice Awards* honor the finest achievements in filmmaking.
- *The Los Angeles Film Critics Association* is a professional organization founded in 1975 that honors each year's outstanding cinematic achievements. Its members review for newspapers, magazines, TV, and online media.
- *The Chicago Film Critics Association* is a not-for-profit organization founded in 1990 by film critic Sue Kiner after the successful launch of the Chicago Film Critics Awards in 1989. It honors outstanding film works, performances and individuals annually.
- *The Boston Society of Film Critics* was formed in 1981 with the stated goal of '*awarding commendations to the best of the year's films and filmmakers and local film theaters and film societies that offer outstanding film programming*'.