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Multiple Category Memberships in Markets: An Integrative Theory and Two Empirical Tests

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This article examines the effects of market specialization on economic and social outcomes. Integrating two perspectives, we explore why products that span multiple categories suffer social and economic disadvantages. According to the audience-side perspective, audience members refer to established categories to make sense of products. Products that incorporate features from multiple categories are perceived to be poor fits with category expectations and less appealing than category specialists. The producer-side view holds that spanning categories reduces one's ability to effectively target each category's audience, which decreases appeal to audience members. Rather than treating these as rival explanations, we propose that both processes matter and offer a systematic, integrated account of how penalties arise as a consequence of audience-side and producer-side processes. We analyze data from two dissimilar contexts, eBay auctions and U.S. feature-film projects, to test the central implications of our theory. Together, these tests provide support for our integrated approach and suggest that both processes contribute to the penalties associated with category spanning.

In markets, as in all social domains, actors rely on systems of categories to interpret experiences. Category systems appear as social facts: they set rules about market boundaries and tell what appropriately lie within those boundaries. These shared understandings stabilize a market by channeling perceptions and actions in predictable ways. At the same time, they shape and constrain market dynamics by determining how market actors understand and nego-

ciate their social worlds. Given this premise, it should come as no surprise that sociologists are interested in what happens when actors challenge these neat partitions among categories by taking actions that attach them to multiple categories.

Recent research on this topic builds on the insight that generalists—those who establish associations with multiple categories—suffer social and economic disadvantages. It has been shown empirically that spanning categories has negative consequences: category spanners receive less attention and legitimacy and have lower chances of success and survival (Dobrev, Kim, and Hannan 2001; Zuckerman 1999). However, distinct research traditions provide divergent rationales for such penalties. Two basic perspectives have emerged.

The first view, dominant in new institutionalism and the sociology of markets, holds that external actors use implicit, or even explicit,

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threats of social and economic sanctions to pressure producers to conform to categorical codes (DiMaggio and Powell 1983; Meyer and Rowan 1977; Podolny 1993; Scott 2001; White 1981). Audiences rely on category boundaries to identify and make sense of producers. Producers that participate in multiple categories tend to be either ignored (Zuckerman 1999) or explicitly devalued (Hsu 2006; Pólos, Hannan, and Carroll 2002; Rao, Monin, and Durand 2005). When categories are oppositional (Carroll and Swaminathan 2000; Zuckerman and Kim 2003) or involve moral imperatives (Douglas 1966; Durkheim [1912] 1965), category spanning violates cultural codes and, therefore, meets with sharp punishment. Even for less sharply opposed categories, however, this perspective stresses that the threat of external punishment presents a significant barrier to participation in multiple categories (and the associated roles).

These arguments generally build on the assumption that actors' attributes and skills can be decoupled from their positions in a social structure. Outsiders cannot observe quality and skill in many contexts, so they often rely on signals such as past experience (Zuckerman et al. 2003), status (Gould 2002; Podolny 1993), and social ties (Faulkner 1983; Stuart, Hoang, and Hybels 1999) to make inferences. Because such observables do not necessarily map closely to underlying attributes, reliance on observables often gives distorted perceptions of actors' attributes. Such decoupling is a main reason offered for the negative consequences of multiple-category membership: when those who control resources infer ability from experience and assume that different categories demand different combinations of abilities, participation in multiple categories is seen as indicating a lack of expertise in each category, even if this is not actually the case.

A second perspective relates category spanning to the development of the capabilities that generate appeal to an audience ("quality"). Here, it is argued, category bridgers often fail to develop the capabilities to excel in any category. Participating in multiple categories disperses focus and effort. Because tastes differ among audiences attached to different categories, the qualities needed to appeal to one category differ from those needed for other categories. As a result, category spanning reduces one's appeal

within each targeted category (Hannan, Carroll, and Pólos 2003).¹

Although these perspectives are not anti-theoretical, research generally adopts one or the other. This tendency may be viewed as part of the larger challenge of distinguishing between audience-side and producer-side accounts of outcomes. As Zuckerman and colleagues (2003:1022–23) observe,

The difficulty of adjudicating between typecasting and processes based on underlying skill differences represents in microcosm the larger challenge faced by structural sociology: to demonstrate that structural position can have causal force although occupancy of a particular position is, at least in part, endogenously determined by endowments and preferences.

Although these issues have been noted, no balanced, systematic treatment of a two-sided process of multiple category memberships has yet emerged. We tackle this challenge by proposing in this article a theory of multiple-category memberships in markets that highlights both sides of the market interface. We conceptualize a producer's niche in terms of both audience perceptions and producer actions. Our argument departs from standard practice in analyzing categories and niches. We explicitly introduce the possibility that memberships in categories can be partial and that producer niches in a space of categories can also be partial (i.e., can include categories in varying degrees). This means that we treat categories and niches as fuzzy sets. This analytical strategy yields a new perspective on the problems of category spanning.

We offer empirical tests of key implications of our theoretical conception of category spanning, drawing from two dissimilar contexts: U.S. feature-film projects and eBay auctions. In the context of films, we can observe appeal to audiences. We examine how the diversity of genres that critics and audience members associate with a film affects its appeal and success

¹ In volatile contexts, generalism might actually prove beneficial, as it entails spreading risk across diverse, uncertain categories (Hannan and Freeman 1977, 1989). However, the basic dynamic remains: producers, across all types of contexts, suffer some reduction in performance when they choose to span categories or are perceived as doing so.

at the box office. In the case of eBay, we compare sellers who auction goods in multiple categories with those who focus on one category. In this context, audience members can observe producers' engagement without any intermediation, which allows us to test hypotheses about producer-side processes directly. Moreover, we can identify categories within eBay where audience-side processes operate with more force. This allows us to investigate the coexistence of effects from both sides of the market interface. Together, these tests provide support for the central implications of an integrated conception of audience-side and producer-side dynamics.

AUDIENCE EVALUATIONS OF MEMBERSHIP IN FUZZY CATEGORIES

We analyze the implications of membership in multiple categories by integrating two theories advanced by Hannan, Pólos, and Carroll (2007): a theory of (fuzzy) categories and a theory of (fuzzy) niches. Consistent with the classical sociological notion that social identity is granted by external agents, Hannan and colleagues' theory of categories holds that audience members grant a producer's membership in a category. These audiences are collections of agents who possess an interest in the producers or their products and who control important material and symbolic resources the producers need to thrive. Relevant audiences generally include diverse types of agents, such as potential consumers, investors, and employees, as well as certification agencies, government institutions, critics, and analysts.

Audiences assess category membership using schemas they associate with category labels. An agent's schema for a category label tells what it means to be a full-fledged member of that category. Such a schema details what features matter for category membership and what values of those features are consistent (or inconsistent) with membership. Murphy (2004:47) summarizes the core idea:

A schema is a structured representation that divides up the properties of an item into dimensions (usually called *slots*) and values on those dimensions (*fillers* of the slots). . . . The slots have restrictions on them that say what kinds of fillers they can have. . . . Furthermore, the slot may place constraints on the specific value allowed for that type. . . . The fillers of the slots are understood to be com-

petitors. . . . Finally, the slots themselves may be connected by relations that restrict their values.

One of our empirical studies treats film genre as schemas. In this regard, Dancyger and Rush (2002:74) summarize the conventions of the Western genre as a combination of feature values: a moral male hero skilled with guns and horses, a greedy and unscrupulous antagonist, a struggle between primitive forces (e.g., the land or the Indians) and civilization (e.g., the army or the town), and rituals such as gunfights and cattle drives. Audience members generally regard a film that matches this pattern exactly as having full membership in the genre. For example, *Stagecoach* (1939), *My Darling Clementine* (1946), and *High Noon* (1952) are commonly-cited prototypical examples of the Western genre. By contrast, some other well-known films blend this genre with elements of other genres. Examples include musical Westerns, such as *Annie get Your Gun* (1950), *Calamity Jane* (1953), and *Oklahoma!* (1955); comedic Westerns, such as *Cat Ballou* (1965), *Blazing Saddles* (1974), and *City Slickers* (1991); and science fiction/Western hybrids, such as *Wild Wild West* (1999) and *Serenity* (2005). These hybrids display features atypical of the Western genre. (Of course, most films do not fit this genre at all and are not considered to be instances of the genre to any degree.) In this sense, a schema for a label such as "Western film" is a cognitive model that explains which objects are full-fledged members of the category, which objects clearly do not belong to the category, and which objects lie at various positions between these extremes.²

With partial membership allowed, categories become fuzzy sets (Zadeh 1965): fuzziness reflects the fact that some producers, their prod-

² Audience members vary in the degree to which they share the predominant meaning associated with a category label. A member of the audience for films would be typical, for instance, if she regards *Stagecoach* and *High Noon* as full-fledged members of the Western genre and the hybrid films as only partial fits. In contrast, an atypical audience member might regard, say, *Cat Ballou* and *Blazing Saddles* as full members of the genre. Research on multiple-category membership largely deals with categories with a high degree of consensus about meaning. We, too, focus on cases of high consensus.

ucts, or both seem to fit categories more neatly and cleanly than do others. This view of categories as fuzzy sets makes explicit a core image in cognitive psychology, cognitive science, and cultural sociology (Hampton 1998; Rosch 1975; Rosch and Mervis 1975). For example, Becker (1982) observes that art worlds typically lack sharp boundaries that demarcate participants from non-participants. Even though art world participants devote considerable effort trying to determine and maintain boundaries, the presence of peripheral participants, continual innovation, and extensive relationships with suppliers, personnel, and ideas outside the center of an art world all blur boundaries. Zerubavel (1997:65–66) summarizes an extensive body of research in cognitive science as indicating that “despite our obvious tendency to compartmentalize, reality is essentially fluid. Instead of sharply delineated, insular chunks unambiguously separated by natural divides, it is made up of vague, blurred-edge essences that ‘spill over’ into one another.”

Our theoretical concerns center on categories formed to identify “entities” on the producer-side of the market. The examples above pertaining to film-genre schemas apply to attributes of a product. In other cases, critics and enthusiasts schematize attributes of producers (or features of products and producers). For example, such features of microbrewers as organizational size and methods of production determine evaluations of fit with the category (Carroll and Swaminathan 2000). To make the theory applicable to diverse cases, we refer to producers/products. Whether a claim applies to features of products only, of producers only, or to both depends on the context of application. We use the term “producer” broadly to refer to agents who present an audience with offerings in the hopes of securing their approval and resources. This usage encompasses individuals (such as many of the sellers on eBay), enduring organizations, and single-project organizations (as for films).

A producer/product’s grade of membership in a category (or degree of typicality as a member of a category), from the perspective of an audience member, tells the degree to which it fits the schema the audience member associates with the category. Degrees of membership in categories have significant consequences for producers. Category membership can be linked to

the intrinsic appeal of a producer/product to an audience member—that is, the degree to which it fits her taste (Hannan et al. 2007). An audience member’s schema for a category sets expectations for what features a category member should (and should not) have. Agents generally prefer offerings that meet their expectations for a category. Griswold (1987) illustrates this process in her work on the creation of cultural meaning as audiences interact with objects. Cultural objects first need to convince audiences that they are worthy of attention: “when a cultural object engages at least some of the presuppositions of the person encountering it, meaning is fabricated” (Griswold 1987:1080). Reviewers evaluate more favorably those novels that foster agreement about core subjects and themes—that is, novels that “can be fit into generally understood categories” (Griswold 1987:1107). Zuckerman (1999) documents a similar dynamic in capital markets: firms whose profiles of industry participation do not conform to the schemas held by financial analysts for sorting firms into reference groups are less likely to be covered by relevant analysts, which causes a devaluation of stock prices.³

FUZZY NICHES AND MULTIPLE CATEGORY MEMBERSHIPS

We integrate the above conceptualization of category memberships with fuzzy niche theory. The concept of niche was originally introduced in sociology as a way to conceptualize and formalize the implications of adopting a specialist versus generalist position in resource space (Hannan and Freeman 1977). A niche is defined by a fitness function. Such a function tells how a producer’s fitness (success) varies over a relevant social space; it identifies the parts of the space in which the producer can (1) thrive, (2) persist but not thrive, and (3) cannot

³ Both Griswold (1987) and Zuckerman (1999) propose this as the primary determinant of the extent to which agents will find a producer/product appealing. A secondary determinant is the degree to which the offering differentiates itself in an attractive way from its rivals in the category. Our theory focuses on the first stage of competition for audience attention, not the second stage of differentiation.

persist. According to niche theory's principle of allocation, the area under a fitness function is fixed. This means that broadening a niche comes at the expense of fitness at positions within the niche: the jack-of-all-trades phenomenon.

In the most influential early empirical work, McPherson (1983) analyzed the niches of voluntary associations in Blau space (a sociodemographic space defined in terms of dimensions such as education and income). He specified niches empirically as hypercubes with dimensions given by specified ranges around the means for their members on the relevant sociodemographic characteristics. Much empirical research follows this lead (Popielarz and Neal 2007). Although these studies yield important insights, they implicitly treat fitness (or success) functions as independent of niche width. This sidesteps the jack-of-all-trades phenomenon and leads to unrealistic treatments of the competitive pressures exerted by specialists versus generalists on other producers in the resource space (Negro, Hannan, and Rao 2008).

Hannan and colleagues (2007) sought to rectify this problem by (re)constructing niches as fuzzy sets. They conceptualize the resource space as a structured sociodemographic space where audience members' tastes vary as a function of position in the space. A producer's niche is defined by a grade-of-membership function that tells the degree to which each position in the space belongs in the niche. This fuzzy representation allows explicit treatment of variations in the degree to which social positions belong to a niche, ensuring that specialists have niches with high grades of membership in one or a few positions, while generalists' niches have lower (but positive) grades of membership in several positions. This construction also allows a clear representation of the jack-of-all-trades phenomenon and its impact on competition.

The theory of fuzzy niches has been developed for success in a single category in an audience distributed over Blau space. In contrast, we define niches in a space of (fuzzy) categories. Targeting a diverse array of categories can be regarded as a kind of categorical generalism. A generalist distributes its degrees of membership across categories fairly evenly. In contrast, a specialist has a highly unequal distribution of memberships across categories. This treatment captures a core insight of niche theory: gener-

alists target a greater diversity of resource positions (in this case, categories).

Following the distinction made at the outset, we conceptualize a producer/product's niche in two ways: in terms of audience perceptions and producer actions. On the audience side, a producer/product's category-membership niche (to an audience member) is the profile of grades of membership in categories that the agent assigns to a producer. Because membership can be partial, a category-membership niche is a fuzzy set. A producer is a category-membership generalist to an observer who regards it as a (partial) member of multiple categories. As noted above, degree of membership in a category is linked to the intrinsic appeal of a producer/product to targeted audience members; this, in turn, contributes to its expected actual appeal among audience members. Note that intrinsic appeal arises from judgments made by audience members about what fits and does not fit a category. Intrinsic appeal is thus not directly under producers' control.⁴

In terms of producer actions, generalism means allocating engagement over several, perhaps many, categories. Engagement within a category means taking actions to make offerings available and known to members of that category's audience. This includes learning about the specific tastes for a category and the characteristics of the category audience, designing features of the offering to fit these tastes, tailoring the mode of presentation, and establishing a clear and desirable organizational identity (Hannan et al. 2003). The level or intensity of a producer's engagement with a category audience affects the producer's ability to convert intrinsic appeal to actual appeal among those audience members.

The grade-of-membership function for engagement in a category is defined as the fraction of a producer's total engagement devoted to that category. A category-engagement niche is a fuzzy set that reflects the profile over categories of the proportion of its engagement that a producer devotes to each category.

We integrate producer- and audience-side processes in our model by proposing that *both*

⁴ Producers have some indirect control because they can choose at least some feature values on which the audience members make assessments of fit.

intrinsic appeal and engagement are needed for actual appeal. For example, a novice producer might devote significant effort to developing a product for a specific category, but the product is not likely to generate any appeal unless it is recognized as having some positive degree of membership in the category. Likewise, offerings that fit tastes (i.e., that have intrinsic appeal) fail to generate appeal if they are unknown, unavailable, or presented in a manner that clashes with the aesthetics of a social position. In many cases, key engagement activities include developing and displaying credible signals of authenticity (Baron 2004; Carroll and Swaminathan 2000; Hsu and Hannan 2005). For example, Carroll and Swaminathan (2000) recount repeated fruitless attempts by major U.S. brewers, such as Anheuser Busch and Miller, to engage in a way that would make a convincing case that these mass brewers are also makers of microbrews.

We lack detailed knowledge about how intrinsic appeal and engagement combine to produce actual appeal. Moreover, in many contexts, researchers might be able to measure one property but not both. Useful inferences can still be made in such cases. Hannan and colleagues (2007) propose a simple qualitative representation that depends on the use of generic rules, that is, rules-with-exceptions (Pólos and Hannan 2002, 2004).⁵ Suppose we know that one producer's offering has greater intrinsic appeal in a category than another's; and all that we know about engagement is that each producer engages the audience as a putative member of the category. A sensible inference in such a case is that the offering with the greater intrinsic appeal will also have the greater actual appeal. The converse holds true as well; if one producer

devotes greater engagement to a category audience than does another, and all we know about intrinsic appeal is that each producer has some, we would infer that the producer with greater engagement will have greater actual appeal.

Fuzzy niche theory posits allocation principles for both expected intrinsic appeal and expected engagement. For engagement, the core assumption is that each member of a population of producers has the same finite level of resources for engagement. Engaging multiple categories thus limits one's ability to devote attention, time, and other resources to learning about the preferences of the audience for each category, tailoring the offering to those tastes, and developing authenticity. This suggests that a producer's maximal category engagement generally decreases with the evenness of its profile of engagement across categories (i.e., with the width of its category-engagement niche). More specifically, if a category-engagement profile broadens, then (relative) engagement must decline in at least one category due to the principle of allocation.

A parallel type of allocation principle arguably applies to profiles of category memberships. An audience member's perception of a producer's degree of membership in each set of categories likely follows something like a constant-sum constraint. This is because membership in multiple (non-nested) categories is generally confusing for audiences. Producers that try for membership in multiple categories naturally exhibit atypical values of features in some or all of the categories. The more a producer/product fits an agent's schema for one category, the less likely will its feature values be viewed as fitting another category.⁶ This suggests that a producer/product's maximal grade of membership in a category generally decreases with the evenness of its profile of memberships across categories (i.e., the width of its category-membership niche).

We represent these principles with the default assumption that both total category engagement and total degree of membership in categories are the same for all producers in a

⁵ We used the tools of formal logic to construct our theory, although we do not report the formalization here. Specifically, we used a nonmonotonic logic developed by Pólos and Hannan (2004). In logic, nonmonotonicity means that adding premises to an argument might kill implications of the unaugmented argument. This logic is designed for testing the validity of inferences from arguments that build on rules-with-exceptions. The formulas that present the full technical details can be found in the Online Supplement on the *ASR* Web site (<http://www2.asanet.org/journals/asr/2009/toc067.html>).

⁶ We assume here that audience members apply different schemas to different categories; otherwise audience members have no reason for distinguishing the categories.

population at a given time. The notion of generic rules plays an important role here. In the absence of more specific information, the default expectation is that pairs of producers/products do not differ in terms of expected total membership and that pairs of producers do not differ in expected total engagement. More specific information, such as the market allowing scale advantages and the producers differing significantly in scale, can override the principle of allocation in engagement.

Generally, we want to know how specialists and generalists fare in competitive arenas: markets where they face a range of competitors. We thus consider markets in which, for every category, there is at least one specialist producer/product that has the maximal grade of membership in the category and also fully engages the category. We refer to such a case as a *diverse market*.⁷

It follows from our arguments that generalists' offerings are normally inferior in expected appeal to at least one other offering in a diverse market, no matter which categories they pursue. That is, the appeal of a generalist's offering is dominated in every category in such a case. If all we know is that one producer is more specialized than another in a diverse market (meaning that we do not know that the two producers differ in any other respect), then it follows from the theory that the specialist has higher expected appeal than the generalist. This conclusion follows for specialization in both category membership and category engagement.

Hypothesis 1a: Generalists in category membership have lower expected actual appeal than membership specialists in a diverse market.

Hypothesis 1b: Generalists in category engagement have lower expected actual appeal than engagement specialists in a diverse market.

For many applications, including one of our empirical examples (eBay auctions), appeal is not directly observable, but relative success in the market is. It is therefore useful to extend the argument to apply to relative success, often

called fitness. It seems unproblematic to propose a direct link between appeal and fitness.⁸ Agents more readily award social and material resources to producers whose offerings they find more appealing. Therefore, the greater the relative appeal of a producer's offerings within a category, the greater the producer's relative viability in the category. A producer's fitness within a category is thus expected to increase monotonically with the total appeal of its offerings in that category.

Hypothesis 2a: Generalists in category membership have lower expected fitness than membership specialists in a diverse market.

Hypothesis 2b: Generalists in category engagement have lower fitness than engagement specialists in a diverse market.

In summary, our integrated conception implies that generalists will suffer in terms of lower appeal and lower fitness than specialists, within the specialists' focal categories, due to principles of allocation in both category-membership and engagement profiles. This prediction parallels the trade-offs identified in standard niche theory, which proposes that specialists out-compete generalists in arenas they both target (Freeman and Hannan 1983; Hannan and Freeman 1989).

TWO EMPIRICAL TESTS

Our empirical tests examine two contexts: the U.S. film industry and the online auction market eBay. Comparing these settings provides some indication of the generality of the argu-

⁸ In the interest of keeping our analysis tractable, we do not consider prices explicitly. Appeal at a given level of intrinsic appeal surely depends on prices. Our theory can be generalized to apply to a space of price-quality (intrinsic appeal) tradeoffs. Audience members prefer offerings that are at the frontier of price-quality in a two-dimensional space. Our theory of categorical constraint and niche width applies both to factors that affect prices and to those that affect intrinsic appeal. Diffusing attention over multiple categories normally lowers efficiency of production in each. As a result, generalists' offerings will normally fall further from the price-quality frontier than those of specialists. In this sense, our arguments can be understood as holding for price-adjusted appeal.

⁷ Markets with categories that lack specialists are not considered diverse by this definition.

ment. Producers in each context can specialize or generalize across categories, and we witness variation in the extent to which they do so. This allows us to measure niche width on the two relevant dimensions: category membership and category engagement. Moreover, both contexts fit our conception of a diverse market: we observe fully engaged specialists in all categories.

The settings differ in how categorization gets made. For films, the categories of interest are genres. Altman (1999:128) observes that film studios prefer to “imply generic affiliation rather than actually to name any specific genres. . . . The goal is of course to attract those who recognize and appreciate the signs of a particular genre, while avoiding repulsion of those who dislike the genre.” Public assignments of a film to one or more genres are typically made by critics, distributors, and directories rather than by the production studios. As a result, the genre categorizations reflect assessments made by audience members. For this reason, the film case is conducive to testing the audience-side mechanism. The film-industry setting provides clear evidence about the relationship between audience assignment to multiple categories and appeal and success.

In the eBay setting, sellers must formally declare the categories that they engage by listing items in specific categories. Association with a category is the producer’s choice, an aspect of engagement. The eBay case therefore appears better tailored for testing the argument based on producer-side considerations: the relationship between breadth of engagement and success. However, as we detail below, eBay also provides an opportunity to examine the audience side of the market interface.

SETTING 1: U.S. FEATURE-FILM PROJECTS

Most films come from single-project organizations composed of producers, studios, investors, creative talents, and technical personnel who come together under contract for a limited time and purpose (Faulkner and Anderson 1987). Expectations and evaluations of film-going experiences are generally formed at the product (i.e., project) level, in the sense that the characteristics of a film tend to be more salient than the characteristics of the producing and distributing organizations (Hsu 2006; Zuckerman

and Kim 2003). We therefore analyze individual feature-film projects.

The principles of allocation in total engagement and total category membership can reasonably be expected to hold in this setting. It is unlikely that film projects experience significant economies of scale.⁹ Nonetheless, we control for a variety of attributes that might affect total engagement, such as the total size of the budget, the number of opening exhibition sites, and whether the distributor is a major or independent studio.

It is also unlikely that the sum of category memberships varies systematically with niche width (contrary to our assumptions) net of controls for attributes that likely affect the amount of energy that audiences will devote to identifying film projects, such as the box-office draw of the stars and director and whether the film is a sequel. The controls mentioned above also address differences in promotional resources that can be devoted to a film.

As in other cultural arenas, engaged audience members assign works to genres (DiMaggio 1987). Genres provide clear frameworks for selecting film projects, organizing their development, guiding studio resource-allocation decisions, and coordinating project personnel (Altman 1999; Schatz 1981). Genres also provide frameworks for recognizing and understanding individual films (Neale 2000) and thus influence how viewers experience and evaluate them (Austin 1988).

Because external agents make the genre classifications, we can measure membership generalism from the perspective of key agents in the audience. We gathered information about genre assignments from three archival sources: the Internet Movie Database (IMDB), Showbizdata.com (SBD), and RottenTomatoes.com (RT).¹⁰ These sources

⁹ In integrating resource partitioning theory with niche theory, Hannan and colleagues (2007: Ch. 9) postulate that the principle in allocation in engagement is overridden in markets that allow scale advantage by a (more specific) postulate that holds that expected total engagement increases with scale.

¹⁰ In constructing the genre measures, we included only the genres recognized by all three sources. For example, while RT regards romantic comedy as a genre, IMDB and SBD do not. In such hybrid cases, we classify films under both higher-level genres. For example, we coded films categorized as

classify films into 17 genres: action, adventure, animation, comedy, crime, documentary, drama, family, fantasy, horror, musical, mystery, romance, science fiction, thriller, war, and Western.¹¹

We measure a film's grade of membership (GoM) in a genre through the proportion of the three archival sources that classify it under that genre. Because the films in our sample, on average, are assigned to slightly more than three genres, we examine degrees of generalism rather than a binary comparison of specialists versus non-specialists. To calculate the width of a film's genre niche, we use Simpson's (1949) index of diversity (a standard measure of the diversity of a distribution over a set of discrete categories):

$$\text{wd } \mu(x) = 1 - \sum_{l \in \mathbf{I}(m)} \tilde{\mu}_{i(l)}^2(x),$$

where $\mathbf{I}(m)$ denotes the set of genres in the market and $\tilde{\mu}_{i(l)}(x) = \sum_y \mu_{i(l)}(x, y) / N_y$, with $\mu_{i(l)}(x, y)$ denoting the assessment by source y of whether film x is a member of genre l and summation running over the sources who provide the genre assignments (N_y equals three, in this case). (By dividing genre GoMs by the sum over genres of a film's GoMs, we convert the GoMs in genres into relative frequencies.) This treatment of niche width reflects the collective assessment made by the three archival sources.

We analyze all feature films that were originally released during 2002 and 2003, ran at least one day in a U.S. theater, and are listed in all three archival sources; 398 films meet these criteria.¹² Data on financial success, production, and distribution come from the IMDB.

romantic comedy by RT as romance and comedy. If romantic comedy is indeed a broadly accepted genre (and if there are other similar cases), then our results will understate the effect of spanning categories.

¹¹ When a label was associated with a clear subgenre of a single commonly recognized genre, we classified it as part of the larger genre. For example, SBD uses the comedy subgenre label "black comedy," in addition to the general label of comedy. So we treat any film labeled by SBD as a black comedy as having the (SBD) label comedy.

¹² We also found similar results with analyses that included films listed in only two of the archival sources in our sample, expanding our set of films to 458. We did not include films listed in only one source because it is not possible to calculate grades of membership for such cases.

We assess appeal to members of the audience using critics' and consumers' assessments of quality. Zuckerman and Kim (2003:47) note that features of the film industry, notably "the prominent display of critical endorsements in advertisements, the efforts by film distributors to shape critical opinion, . . . and the rise of certain critics to celebrity status" support the notion that critics receive considerable attention from producers and constitute a key audience.

We gathered information on ratings from multiple archival sources. Different sources differ to some degree in the set of films they review, and professional reviewers presumably differ from ordinary enthusiasts. For this reason, we conducted analyses on multiple data sources and, when possible, distinguished professional critics from others.

RottenTomatoes.com (RT), a Web site that archives reviews of films from a diverse array of professional and amateur critics, divides its critics into "cream of the crop" (those who review for top newspapers by distribution, as well as popular magazine, Web, TV, and radio critics) and all others. Because many cream-of-the-crop critics do not provide numerical ratings, we measure the appeal of a film to top critics as its proportion of positive reviews ("fresh" tomatoes).¹³ To assess appeal among the other RT critics, we take the average of the numerical ratings that they submitted. RT critics did not review all the films in our sample; analyses of appeal use the subsets of films with critical ratings.

Internet Movie Database (IMDB) reports ratings submitted by its users, whom it calls "movie fans." Such enthusiasts also constitute an important audience for film projects. (Registration at the site is free of charge, and registered users can enter ratings for any of the films listed.) Our measure of appeal to IMDB is the average of the ratings supplied by its users.

¹³ Some critics indicate whether their overall evaluations are positive (a fresh tomato) or negative (a rotten tomato). When critics do not do so, RT editors make this assessment. The editors state that they "take into account word choice, rating (if any), tone, and who's the critic in their determination of whether a review is positive or not" (<http://www.rottentomatoes.com>, retrieved December 12, 2006).

Table 1. Descriptive Statistics for Films

Variable	N	Mean	SD	Min.	Max.
RT top critics: proportion positive	378	.488	.285	0	1
RT all critics: average rating	380	5.58	1.41	1.40	8.70
IMDB users: average rating	398	6.08	1.24	1.70	9.30
Ln (film gross)	398	16.0	2.56	7.30	19.8
Niche width	398	.555	.227	0	.837
Ln (budget)	289	16.9	1.32	11.8	19.0
Ln (number of opening sites)	398	5.62	2.92	0	8.23
Top star power	398	48.3	30.4	0	100
Top director power	398	21.4	26.9	0	100
Sequel	398	.093	.291	0	1
Major distributor	398	.769	.422	0	1
Genre crowding	398	17.5	7.49	1.38	50

Note: RT = RottenTomatoes.com; IMDB = Internet Movie Database.

We assess the fitness of films by their economic returns in U.S. theaters: the box-office gross (gathered from IMDB). Our analyses control for a variety of characteristics of a film project. A commonly cited determinant of success is star power—that is, the ability of a film’s stars to draw a large audience. Our measures of star power come from the *Hollywood Reporter’s* 1999 and 2002 Star Power surveys, in which film-industry insiders rank actors in terms of their ability to ensure financing, major studio distribution, and wide theatrical release, as well as to open a film, on the strength of their name alone. A film’s star power is set to the maximum Star Power ranking of its cast. We assigned films without actors listed in these rankings a score of zero. We created a parallel measure of director power using data from *Hollywood Reporter’s* Director Power survey.

We gathered four other control variables from IMDB: (1) the breadth of a film’s theatrical exhibition during its opening weekend (measured as the number of opening exhibition sites), (2) total size of its budget, (3) whether it is a sequel, and (4) whether it was backed by a major or independent distributor.¹⁴ Information on budget is missing for some films. Rather than drop them from the analyses, we include a binary variable (any budget information) that equals one when this information is present and zero otherwise; we code the budget to zero for

observations with missing information. Because the number of opening sites and budget measures are skewed, we include them in logged form in our analyses.

We also control for crowding in genres. As the market becomes saturated with movies of a certain genre, the appeal of films of that genre declines. Hsu (2006) finds that greater genre-niche overlap decreases a film’s appeal. Controlling for differences in the competitive pressures exerted by niche overlap is important for isolating the effects of niche width on appeal. The niche overlap of one film on another is operationalized as the fraction of the genres for the focal film that are also assigned to the alter. Genre crowding for a film is the sum of its genre overlaps with all other films exhibited during the period of its exhibition.

We include covariates that give a film’s GoM in each of the 17 genres to control for the effects of differences in the popularity or niche volume of individual genres on appeal (a fuzzy-membership analog to using dummy variables for genre memberships). Finally, we include a variable indicating whether the film was released in 2003 (versus 2002) to control for any differences in appeal or box-office returns from one year to the next. Table 1 presents descriptive statistics for the film analyses.

We analyze the effect of the width of the category-membership niche on total appeal and fitness. Appeal is reflected in the following: (1) the proportion of positive evaluations from “top” RT critics, (2) the average RT critical rating, and (3) the average IMDB user rating. We analyze the proportion of positive evaluations from RT top critics using the fractional logit regression

¹⁴ We classified as major the top 10 distributors in terms of total yearly market share during the period preceding this study (1997 to 2001).

model proposed by Papke and Wooldridge (1996). We use tobit regression to analyze average RT critic and IMDB user ratings. The possible range of values for ratings is both left- and right-censored, varying from 0 to 10 for critics and from 1 to 10 for IMDB users. The fitness of films is reflected in (the natural logarithm of) U.S. box-office gross. Because this is a left-censored variable, we also use tobit regression in analyzing this outcome.

Niche width has a significant negative effect on the three measures of appeal (see Table 2). In each case, the effect of niche width becomes larger when we include effects of the GoMs in genres (results in columns 1b, 2b, 3b, and 4b). This suggests that some generalists might fare better than some specialists in unpopular genres because they span popular ones. When the profiles of genre memberships are taken into account, however, the cost of generalism in terms of appeal becomes clearer. This matches theoretical expectations (Hypothesis 1a). We see a similar pattern for our measure of fitness, U.S. box-office gross, which supports Hypothesis 2a.

For the control variables, we find that greater genre crowding during a film's run significantly decreases appeal and box-office returns. Backing by a major distributor increases both appeal among critics and box-office returns. A greater number of opening exhibition sites decreases ratings among critics and IMDB users, while it significantly increases returns. This divergence in effects suggests that critics and IMDB fans might be turned off by the mainstream appeal of the most highly promoted films, while the majority of film-goers are not. Moreover, the heightened promotional activity and accessibility of large releases likely increase box-office returns, while they have little effect on the actual appeal of a film. Director power tends to increase appeal to RT critics, and star power increases box-office returns.

SETTING 2: EBAY AUCTIONS

We analyze a sample of eBay auctions that ended on August 31, 2001 in the following 23 categories: antique furniture, antiquities, folk art, U.S. coins, digital cameras, camera lenses, dolls, antique dolls, health, model trains, Elvis memorabilia, drawings, prints, antique prints, art photographs, other art, Pokemon, printers, print-

er supplies, watches, antique watches, tickets, and weird stuff. Our data are a random sample of 1,444 auctions in these categories, stratified by the number of items sellers auctioned and the number of categories in which they auctioned during the previous 17 months. These data, provided by eBay, Inc., include item titles, sellers' feedback scores, number of bids received, whether the auctions ended with a sale, and masked identifiers for buyers and sellers. To measure the strength of collective identity shared by market participants in a category, we use a second data set consisting of 730 randomly selected auctions and IDs of the sellers and bidders in these auctions.

As noted, eBay sellers must pick a category among a predefined set.¹⁵ Because eBay's interface at the time encouraged buyers to browse for items in categories, the chosen category defines a target audience. We use a binary measure of the width of the category-engagement niche that distinguishes sellers who list items in two or more categories from those who focus engagement in one category. In contrast to the film case, the proportion of specialists is relatively high: 70 percent of the sellers specialized in a single category (among the 23 in our sample) during the relevant auction period. In this case, a comparison of specialists to non-specialists seems appropriate.

As for film projects, potential (uncontrolled) economies of scale seem modest for eBay sellers. While some sellers listed many more items than others, we control for the number of items that sellers auctioned on the focal day. Moreover, the total number of items that sellers auctioned and the number of categories in which they participated are not correlated. In our analyses, we also control for the aggregate feedback scores that previous transaction partners gave to sellers, because a favorable reputation generally increases a seller's appeal. Feedback scores reflect the goodwill accumulated by sellers since they joined eBay; therefore, it is a measure of reputation unaffected by their current behavior.

¹⁵ Sellers have the option, for a fee, to list their auctions in more than one category. Of the auctions in our sample, 5 percent were listed in multiple categories.

Table 2. Effects of Genre Niche Width and Covariates on Film Outcomes: Ratings and Gross Sales

	RT top critics fractional logit		RT all critics tobit regression		IMDB users tobit regression		Ln (film gross) tobit regression	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
Niche width	-.949** (.259)	-1.46** (.433)	-.712* (.324)	-1.05* (.503)	-.598* (.279)	-.951* (.438)	-.825* (.358)	-2.10** (.568)
Ln (opening sites)	-.226** (.031)	-.168** (.032)	-.293** (.033)	-.224** (.033)	-.251** (.028)	-.199** (.029)	.399** (.036)	.417** (.038)
Budget information	-.320 (1.13)	-1.34 (1.23)	-.779 (1.24)	-2.03 (1.25)	-1.71 (1.04)	-2.57* (1.06)	.029 (1.34)	-1.63 (1.38)
Ln (budget)	.034 (.069)	.094 (.077)	.073 (.077)	.144 (.078)	.133* (.065)	.177** (.066)	.071 (.083)	.165 (.085)
Top star power	.002 (.002)	-.001 (.003)	.005 (.003)	.003 (.003)	.006* (.002)	.004 (.002)	.011** (.003)	.009** (.003)
Top director power	.005* (.002)	.005* (.002)	.008** (.003)	.007** (.003)	.007** (.002)	.004 (.003)	-.0002 (.003)	.001 (.003)
Sequel	-.024 (.189)	.165 (.199)	.014 (.224)	.216 (.229)	-.075 (.197)	.184 (.202)	.302 (.253)	.304 (.262)
Major distributor	.432* (.182)	.363* (.171)	.535** (.195)	.486** (.183)	.316 (.168)	.300 (.159)	1.38** (.216)	1.28** (.206)
Genre crowding	-.051** (.009)	-.069** (.012)	-.051** (.010)	-.066** (.013)	-.029** (.009)	-.048** (.011)	-.062** (.011)	-.107** (.015)
Year 2003	-.274* (.118)	-.340** (.116)	-.159 (.133)	-.194 (.128)	-.109 (.115)	-.142 (.113)	.153 (.148)	-.036 (.146)
Genre GoMs included	No	Yes	No	Yes	No	Yes	No	Yes
Constant	2.07** (.258)	1.55** (.392)	7.44** (.319)	6.71** (.428)	7.33** (.268)	7.04** (.365)	12.8** (.345)	13.1** (.473)
N (films)	378	378	380	380	398	398	398	398
Log likelihood			-611.0	-581.1	-592.4	-567.1	-692.7	-669.8
Log pseudo- likelihood	-184.4	-175.8						
Degrees of freedom	10	27	10	27	10	27	10	27

Note: Numbers in parentheses are standard errors.

* $p < .05$; ** $p < .01$ (two-tailed tests).

The nature of eBay’s online interface also minimizes concern that sellers’ total engagements will vary systematically with the width of the membership niche. At the time we collected these data, eBay pushed sellers to list items in appropriate categories and claimed (on its Web site) that items not fitting a category would be removed from the site. eBay’s guide to sellers also advised them to search for items similar to theirs and take note of their category assignments. This set-up made it unlikely that sellers listed goods in irrelevant categories, which would have made the offering less intrinsically appealing than the other goods in the category.

Engagement in the eBay context involves several factors: deciding where to list an item

with given characteristics and quality, how to describe the item in the title and main body of the auction page, choosing a starting price, whether to set a fixed price and a reserve price, how high a reserve price to set, and whether to advertise the item through various channels that eBay provides at a fee. We predict that generalists do a poor job with these tasks relative to specialists.

We distinguish between current and past generalism across categories. Current generalism likely limits the amount of attention that a seller can devote to items in any category at the focal time. Past generalism speaks to variations in the category-specific expertise obtained in prior auctions, as well as the identity that buyers might impute to a seller based on previous

transactions (that buyers can observe by looking at the feedback information).

Do sellers with wider category-engagement niches do an inferior job of engaging their target audiences as compared with their more specialized counterparts? Because we cannot directly observe the intensity of engagement, we assume that greater intensity generally leads to greater quality of engagement. When listing an item, sellers write a short descriptive title that appears alongside other item titles in the category. Prospective bidders browse these titles or search for keywords in them to find items. eBay's Web site reminds sellers that their item titles should be informative and use descriptive keywords. We analyze the use of quality indicators and acronyms in item titles to measure a seller's quality of engagement in a category. We assume that the item title "1882-CC GSA Morgan Dollar MS64 (PIC)" better engages the audience in the coin market than would the title "1886-P Morgan Silver Dollar NICE." Likewise, potential bidders in the digital camera market would appreciate the title "12 AAA 550MAH NIMH RECHARGABLE BATTERIES NEW!" more than the title "Batteries and Charger for Digital Cameras NR!"

The use of quality indicators and category-specific acronyms in item titles provides useful information for buyers but requires sellers to possess some familiarity with conventions within the category. We code item titles that describe an item as "Good" or "Fine," as well as those that use more sophisticated descriptors of quality such as "certified MS63," as having quality indicators. If we find any acronyms that are not quality indicators, such as "print cartridge NIB [New In Box]," "Jesmar CPK [Cabbage Patch Kids] violet eyes," or "VAM [Van Allen-Mallis] 8 Morgan Dollar," we code the item title as having acronyms that describe the item.

We assess the success of an offering in two ways: whether an item attracted any bids and whether it was sold. Both measures lead to the same pattern of results. To save space, we report only the results for sales.¹⁶

¹⁶ Results of regressions predicting the likelihood of getting a bid are available from the authors upon request.

We control for sellers' reputations (measured by feedback scores), previous experience in the focal category (total number of items sold in the previous 17 months), and size of client base (number of repeat buyers in the previous 17 months). In supplementary analyses, we also control for experience in all sampled categories.¹⁷ These variables are highly skewed among sellers; we therefore specify them in logged form in the regressions. These controls allow us to rule out the possibility that specialists outperform generalists because they have better reputations, have learned more about the focal category, have more experience with eBay, or are better known. Finally, to control for any category-specific effects, we include a set of dummy variables indicating the category in which the focal item was classified.

The 1,444 items in our sample were listed by 935 sellers: 49 had no prior selling experience, 270 had engaged only one category, 130 had engaged two categories, and the rest had engaged more categories, with the most extreme generalist having listed items in 22 of the 23 categories over the previous 17 months. On the focal day, 783 sellers engaged only one category, 111 engaged 2 categories, 27 engaged 3 categories, 6 engaged 4 categories, 5 engaged 5 categories, and 1 engaged 8 categories.¹⁸ Some of the generalists spanned categories that share some characteristics, for instance, one listed items in dolls, folk art, and model trains, all categories that appeal to hobbyists. Others spanned categories that seem quite unrelated, such as digital cameras and folk art; printers and model trains; and antique dolls, antique prints, and weird stuff. The descriptive statistics in Table 3 show that half of all auctions ended with a sale, about 12 percent had quality indicators in item titles, and 7 percent of the titles had acronyms describing the items.

To control for demand, niche crowding, supply, and category-specific unobservables, all

¹⁷ Results of supplementary analyses can be obtained from the authors.

¹⁸ Our limited sample of 23 categories leads us to underestimate generalism because we code sellers as specialists who auction in only one category in our sample but also auction in categories outside of our sample. This makes our tests more conservative.

Table 3. Descriptive Statistics for eBay Auctions (N = 1,444)

Variable	Mean	SD	Min.	Max.
Item title includes an acronym	.075		0	1
Item title includes a quality indicator	.123		0	1
Auction ends with a sale	.503		0	1
Current generalism	.255		0	1
Past generalism	.724		0	1
Ln (number of seller's auctions ending on the focal day)	2.19	1.64	0	6.15
Ln (seller's feedback score)	6.84	1.86	0	10.3
Ln (number of items sold in focal category, previous 17 months)	4.76	2.91	0	10.2
Ln (number of repeat buyers in focal category, previous 17 months)	2.82	2.54	0	8.30
Strength of collective identity in the focal category	.082	.063	0	.204
Strength of collective identity in the focal category * seller's current generalism	.020	.047	0	.204
Strength of collective identity in the focal category * seller's past generalism	.060	.067	0	.204

specifications include dummy variables for the category in which an item was listed. This control causes the loss of some observations in the regressions for the use of acronyms and quality indicators in titles.¹⁹ We end up with 1,267 auctions in the analyses of item titles and 1,146 auctions for quality indicators.

We begin with the effect of generalism in engagement on the quality of category engagement, which speaks to one of the principles of allocation. We report ML estimates of logistic regressions of the probability that (1) the item title includes an acronym, (2) the title includes a quality indicator, and (3) the auction results in a sale.²⁰ The results in Table 4 indicate that sellers who engaged two or more categories were less likely to use acronyms to describe their items (column 1) and to use quality indicators (column 2). These results agree with the view that a principle of allocation applies to engagement over categories.

The width of the past engagement niche (over the previous 17 months) does not have a significant effect on either indicator of the quality of engagement. The difference in the effects of current and past niche width in these regressions might point to the different constraints that a wide niche imposes on sellers' allocation of resources across categories, on the one hand, and the distribution of their category specific assets, on the other. We explore these ideas further below. The feedback score does not have a statistically significant effect on the quality of engagement; but the total number of auctions listed by the seller does.

Next we consider the main claim that a broad niche lowers appeal and, therefore, success. We report estimates of specifications that allow a direct effect of the width of the engagement niche (measured by category listings) and indirect effects through the two concrete measures of the quality of engagement in a category (use of acronyms and quality indicators). Three possibilities of interest are that (1) neither niche width nor the quality of engagement affects success, (2) niche width has only an indirect effect on success (niche width has no effect but the quality of engagement does), and (3) niche width has both a direct and indirect effect on success. Column 3a in Table 4 reports estimates of a reduced form, which contains an effect of niche width but not of the degrees of engagement. It shows that sellers who engaged two or more categories on the focal day, as well as sellers who engaged multiple categories over the previous 17 months, were significantly less likely to sell their items.

¹⁹ Because we analyze specifications with category-specific effects, we dropped the auctions in several categories from the corresponding analyses. For example, auctions in the following categories did not use either acronyms or quality indicators: antique dolls, antique furniture, other art, drawing, health, and printers. Auctions in the following categories used only quality indicators: tickets, camera lenses, art photo, antique watches, and antique prints. Finally, none of the auctions in antiquities used acronyms.

²⁰ To adjust standard errors for clustered observations by identical sellers, we use robust Huber-White standard errors.

Table 4. Effects of Engagement-Niche Generalism and Covariates on the Probability that a Seller Uses Acronyms in Item Titles and that an Auction Ends With a Sale (ML Logit Estimates)

	Item Title Includes:		Item Sold	
	Acronym	Quality	(3a)	(3b)
Current generalism	-.883*	-1.17*	-.575**	-.539**
	(.383)	(.485)	(.173)	(.174)
Past generalism	.417	.141	-.534**	-.538**
	(.309)	(.281)	(.204)	(.209)
Ln (seller's auctions ending on the focal day)	-.017	.174	-.404**	-.416**
	(.101)	(.103)	(.059)	(.060)
Ln (seller's feedback score)	.017	-.113	.237**	.242**
	(.088)	(.095)	(.053)	(.053)
Item title includes acronym				-.114
				(.254)
Item title includes quality indicator				.627**
				(.228)
Dummies for categories included	Yes	Yes	Yes	Yes
Number of observations	1,267	1,146	1,444	1,444
Log pseudo-likelihood	-341	-348	-898	-894
Degrees of freedom	18	15	26	28

Note: Numbers in parentheses are robust standard errors.

* $p < .05$; ** $p < .01$ (two-tailed tests).

Now consider the result of adding the effects of the quality of engagement in the focal category (column 3b in Table 4). The use of quality indicators in titles significantly increased the likelihood of a sale; however, the use of acronyms did not. Net of these effects, the widths of current and past engagement niches continue to exert significant negative effects on the probability of completing a sale. The pattern of results suggests that niche width has both direct and indirect effects on success. These results support Hypothesis 2b.

Coefficient estimates for the control variables have the expected signs. The total number of auctions by a seller on the same day had a negative effect, and sellers with high feedback scores were more likely to sell their items. Even though generalists tend to have higher reputation scores (log of feedback score is correlated .44 with past generalism and .35 with current generalism), including the control for feedback scores does not affect the other coefficient estimates.

We performed supplemental analyses to investigate why the width of the engagement niche over the previous 17 months had a negative effect on fitness even though it did not affect the quality of engagement. We propose that increases in the width of the current niche

limits the attention that sellers can devote to engaging multiple audiences. This, in turn, decreases the likelihood that they craft appropriate item titles (and item descriptions, which we do not measure) to describe their auctions in the focal category. A wider historical niche, on the other hand, indicates that a seller lacks a category-specific identity. We can tease these alternatives apart by studying the differential impact of niche width in categories where audiences put greater value on category-specific identities. Note that this approach turns from considering only engagement to an analysis of the degree to which audience members attribute category membership to the sellers. In other words, it introduces the audience-side considerations addressed in our analysis of films.

Koçak (2008) finds that bidders in categories for goods with greater symbolic value are more likely to have eBay usernames that signal identification with a category (such as *elvis*fan*, *trainman1*, and *print27*), indicating a strong collective identity among market participants. She argues that bidders in these categories are more selective about who they buy from.

We extend this argument and propose that in categories where a collective identity has formed among market participants, bidders place more stringent demands on sellers. Therefore, non-

specialist sellers who auction in these categories will suffer reduced fitness. We test this argument by adding an interaction between niche width and the proportion of bidders in the category who use category-referencing identifiers, which we label the strength of the collective identity in the category. The results appear in Table 5. (We do not estimate a main effect for collective identity because it is exactly collinear with the set of category dummies.) In the first column in Table 5, we see that sellers who auctioned in multiple categories in the past were less likely than past specialists to use acronyms to describe their items on the focal day in categories of high symbolic value (where a prevalence of category-specific bidder IDs indicate the existence of a collective identity). In the second column, the effect of current niche width on the likelihood of using quality indicators is no longer statistically significant.

The effect of past generalism on success operates mainly in categories with strong collective identities, as evidenced by the strength and significance of the interaction effect of category strength and past generalism in column 3a. However, we do not see this pattern for current generalism. These results indicate that current generalists suffer from a wide engagement niche, regardless of audience demands for a focused identity. Sellers with a history of generalism get penalized strongly, however, in categories where the bidders themselves display category-focused identities.

The specifications in columns 3b and 3c in Table 5 test whether sellers' category-specific experience and clients can explain the effects of past generalism. The model in column 3b includes an effect of sellers' experience (the number of items sold in the focal category over the previous 17 months) and an interaction with past generalism. The model in column 3c

Table 5. Effects of Engagement-Niche Generalism and the Strength of Collective Identity and their Interaction on the Probability that a Seller Uses Acronyms in Item Titles and that an Auction Ends With a Sale (ML Logit Estimates)

	Item Title Includes:		Item Sold		
	Acronym	Quality	(3a)	(3b)	(3c)
	(1)	(2)			
Current generalism	-1.12 (.607)	-1.06 (.840)	-.769** (.298)	-.664* (.298)	-.648* (.302)
Past generalism	1.72** (.625)	.434 (.545)	.002 (.314)	.437 (.401)	.303 (.364)
Ln (seller's auctions ending on the focal day)	-.024 (.102)	.174 (.103)	-.407** (.058)	-.456** (.073)	-.465** (.074)
Ln (seller's feedback score)	.020 (.093)	-.113 (.095)	.231** (.053)	.160** (.060)	.165** (.058)
Strength of collective identity in the focal category × current generalism	2.32 (4.48)	-1.23 (6.51)	2.34 (2.58)	2.13 (2.56)	2.08 (2.57)
Strength of collective identity in the focal category × past generalism	-11.4** (4.58)	-2.81 (4.20)	-6.20* (2.81)	-6.03* (2.77)	-5.94* (2.77)
Ln (items sold in focal category, previous 17 months)				.124** (.059)	
Ln (items sold in focal category, previous 17 months) × past generalism				-.079 (.052)	
Ln (repeat buyers in focal category, previous 17 months)					.142* (.071)
Ln (repeat buyers in focal category, previous 17 months) × past generalism					-.082 (.063)
Dummies for categories included	Yes	Yes	Yes	Yes	Yes
Number of observations	1,267	1,146	1,444	1,444	1,444
Log pseudo-likelihood	-337	-347	-895	-892	-892
Degrees of freedom	20	17	28	30	30

Note: Numbers in parentheses are robust standard errors.
 * $p < .05$; ** $p < .01$ (two-tailed tests).

includes an effect of sellers' client base (number of repeat sellers over the previous 17 months) and an interaction with past generalism. Although experience in the category and the size of a seller's client base both increase the likelihood of a focal-day sale, as would be expected, the negative effect of current generalism and the stronger negative effect of generalism in categories with strong collective identities persist in both models. We therefore conclude that differences between specialists and generalists in experience or client bases cannot explain the penalties for generalists in categories with strong collective identities. We think that this pattern of results provides indirect support for Hypothesis 2a.

DISCUSSION

This article draws attention to two alternative paths by which penalties for category straddling emerge. Prior research tends to focus on one type of process or the other. For example, in their study of the labor market for film actors, Zuckerman and colleagues (2003) argue that audience (buyer)-side effects of typecasting better explain actors' labor market outcomes than do producer-side effects (underlying skill differences and social networks) because labor market intermediaries use work histories as proxies for unobservable skills in this context. Novice actors benefit from being typecast into a genre because audience members interpret narrow experience as signaling skill in a category. Experienced actors, however, do not experience this benefit because they are less likely to be regarded as unskilled. As Zuckerman and colleagues (2003) also point out, there are clear reasons why audience-side effects should dominate producer-side effects in this market: decisions about casting are made before the output is observed, there is limited information about skills, and multiple layers of brokers probably accentuate reliance on typecasting.

This article theoretically integrates elements of both paths by considering audience perceptions of fit to categories and producers' efforts at engagement in categories. Our analyses offer support for this approach and suggest that both processes contribute to the overall patterns that have been documented in earlier empirical studies.

Our analysis of films demonstrates that an increase in the width of a category-membership niche lowers the appeal and the success of offerings. As the breadth of the genres assigned to a film project increases, the film's appeal to an audience decreases, as do box-office revenues.

In the eBay setting, consistent with the intuition behind the principle of allocation, engagement generalist sellers did not engage their targeted categories to the same extent as specialists, as evidenced by lowered use of category-specific acronyms and quality descriptors for products. Furthermore, engaging multiple categories lowered the odds that an auction would succeed. Importantly, we also find evidence of penalties associated with poor fit to schemas in this context: sellers who generalized in the past had substantially lower odds of success in categories where audiences place greater value on category-specific identities. We contend that when audience members value category-specific identities, generalists get penalized not because generalization indicates poor skill (as for the novice actors in Zuckerman and colleagues' [2003] analysis) but because of who they are: less than full members of the category.

The issue of the scope of this argument deserves more attention. One referee of this article asked whether producers can become too specialized. Imagine a fruit seller who sells only one kind of apple. Would this producer learn more about this extremely narrow market, and become sufficiently identified with it, to gain an advantage over those who sell apples, oranges, and bananas? The line of work we pursue is in its infancy, so we cannot offer a dependable answer to this question, but the theory does suggest an answer. Recall that its main analytical leverage comes from the principles of allocation. If these principles do not hold in a particular instance, then the theory does not yield any predictions. Perhaps the principles of allocation do not hold in the example of hyper-specialization. That is, there might be a negligible loss of focus in going from selling only apples to selling a combination of fruits. More importantly, the audience is unlikely to be confused by this somewhat broader profile of memberships. Whether or not this type of dynamic holds likely depends upon how the relevant categories are organized cognitively. Rosch and her collaborators (Rosch 1975; Rosch and

Mervis 1975; Rosch et al. 1976) argued that there are basic-level categories within hierarchies—those that organize the complexity of the alternatives in an efficient way (and as a result are generally learned earlier and used more frequently). So “chair” is a basic category, while “furniture” elides too much information and “sofa” provides too much detail. If such a pattern holds for categories in markets, then specialization at lower levels than the basic categories might not provide advantages (but they might not convey disadvantages either).

We see a number of promising paths for extending the theory. Perhaps the most important is to consider heterogeneity within an audience. We mentioned in passing that we abstracted away from the differences in tastes that typically characterize different social positions in an audience (e.g., the classic opposition of high-brow and low-brow taste), which is the central focus of standard niche theory. Moreover, the audiences for the various categories in a market might not overlap so strongly that it makes sense to characterize the typical member of the set of audiences. Addressing such cases requires attention to the ecology of the audience and the patterns of communication interaction among audiences. Developing an ecology of the overall audience would set the stage for formal treatment of the coevolution of populations of producers and audiences.

Another area for further investigation concerns relationships among the schemas that audience members hold for categories. Significant overlap of the feature values emblematic of different categories likely shapes how audiences perceive and make sense of the producers who straddle boundaries. One possibility is that the upper bound on the sum of grade of memberships rises in categories for producers, thereby increasing total intrinsic appeal. A related avenue concerns incompatibility in the schemas for particular categories. As noted above, several researchers have found that incompatibility or opposition between categorical identities restricts one’s ability to successfully cross categorical boundaries. Those who attempt to incorporate features from incompatible categories will generally be perceived as a poor fit with any one of them.

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REFERENCES

Altman, Rick. 1999. *Film/Genre*. London, UK: British Film Institute.

Austin, Bruce A. 1988. *Immediate Seating: A Look at Movie Audiences*. Belmont, CA: Wadsworth.

Baron, James N. 2004. “Employing Identities in Organizational Ecology.” *Industrial and Corporate Change* 13:3–32.

Becker, Howard S. 1982. *Art Worlds*. Berkeley, CA: University of California Press.

Carroll, Glenn R. and Anand Swaminathan. 2000. “Why the Microbrewery Movement? Organizational Dynamics of Resource Partitioning in the U.S. Brewing Industry.” *American Journal of Sociology* 106:715–62.

Dancyger, Ken and Jeff Rush. 2002. *Alternative Scriptwriting: Successfully Breaking the Rules*. 3rd ed. Boston, MA: Focal Press.

DiMaggio, Paul J. 1987. “Classification in Art.” *American Sociological Review* 52:440–55.

DiMaggio, Paul J. and Walter W. Powell. 1983. “The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields.” *American Sociological Review* 48:147–60.

Dobrev, Stanislav D., Tai-Young Kim, and Michael T. Hannan. 2001. “Dynamics of Niche Width and

- Resource Partitioning." *American Journal of Sociology* 106:1299–1337.
- Douglas, Mary. 1966. *Purity and Danger: An Analysis of the Concepts of Pollution and Taboo*. London, UK: Routledge & Kegan Paul.
- Durkheim, Emile. [1912] 1965. *The Elementary Forms of the Religious Life*. Trans. by J. W. Swain. New York: Free Press.
- Faulkner, Robert R. 1983. *Music on Demand: Composers and Careers in the Hollywood Film Industry*. New Brunswick, NJ: Transaction Books.
- Faulkner, Robert R. and Andy B. Anderson. 1987. "Short-Term Projects and Emergent Careers: Evidence from Hollywood." *American Journal of Sociology* 92:879–909.
- Freeman, John and Michael T. Hannan. 1983. "Niche Width and the Dynamics of Organizational Populations." *American Journal of Sociology* 88:1116–45.
- Gould, Roger V. 2002. "The Origins of Status Hierarchies: A Formal Theory and Empirical Test." *American Journal of Sociology* 107:1143–78.
- Griswold, Wendy. 1987. "The Fabrication of Meaning: Literary Interpretation in the United States, Great Britain, and the West Indies." *American Journal of Sociology* 92:1077–1117.
- Hampton, James A. 1998. "Similarity-Based Categorization and Fuzziness of Natural Categories." *Cognition* 65:137–65.
- Hannan, Michael T., Glenn R. Carroll, and László Pólos. 2003. "The Organizational Niche." *Sociological Theory* 21:309–40.
- Hannan, Michael T. and John Freeman. 1977. "The Population Ecology of Organizations." *American Journal of Sociology* 82:929–64.
- . 1989. *Organizational Ecology*. Cambridge, MA: Harvard University Press.
- Hannan, Michael T., László Pólos, and Glenn R. Carroll. 2007. *Logics of Organization Theory: Audiences, Codes, and Ecologies*. Princeton, NJ: Princeton University Press.
- Hsu, Greta. 2006. "Jacks of All Trades and Masters of None: Audiences' Reactions to Spanning Genres in Feature Film Production." *Administrative Science Quarterly* 51:420–50.
- Hsu, Greta and Michael T. Hannan. 2005. "Identities, Genres, and Organizational Forms." *Organizational Science* 16:474–90.
- Koçak, Özgecan. 2008. "Structure of Identity and Prestige Markets." Working Paper, Sabanci University.
- McPherson, J. Miller. 1983. "An Ecology of Affiliation." *American Sociological Review* 48:519–35.
- Meyer, John W. and Brian Rowan. 1977. "Institutionalized Organizations: Formal Structure as Myth and Ceremony." *American Journal of Sociology* 83:340–63.
- Murphy, Gregory L. 2004. *The Big Book of Concepts*. Cambridge, MA: MIT Press.
- Neale, Steve. 2000. *Genre and Hollywood*. London, UK: Routledge.
- Negro, Giacomo, Michael T. Hannan, and Hayagreeva Rao. 2008. "Categorical Contrast and Audience Appeal: Niche Width and Critical Success in Winemaking." Working paper, Stanford Graduate School of Business.
- Papke, Leslie E. and Jeffrey M. Wooldridge. 1996. "Econometric Methods for Fractional Response Variables with an Application to 401(k) Plan Participation Rates." *Journal of Applied Econometrics* 11:619–32.
- Podolny, Joel M. 1993. "A Status-Based Model of Market Competition." *American Journal of Sociology* 98:829–72.
- Pólos, László and Michael T. Hannan. 2002. "Reasoning with Partial Knowledge." *Sociological Methodology* 32:133–81.
- . 2004. "A Logic for Theories in Flux: A Model-Theoretic Approach." *Logique et Analyse* 47:85–121.
- Pólos, László, Michael T. Hannan, and Glenn R. Carroll. 2002. "Foundations of a Theory of Social Forms." *Industrial and Corporate Change* 11:85–115.
- Popielarz, Pamela A. and Zachary P. Neal. 2007. "The Niche as a Theoretical Tool." *Annual Review of Sociology* 33:65–84.
- Rao, Hayagreeva, Philippe Monin, and Rudolphe Durand. 2005. "Border Crossing: Bricolage and the Erosion of Categorical Boundaries in French Gastronomy." *American Sociological Review* 70:968–91.
- Rosch, Eleanor. 1975. "Cognitive Representations of Semantic Categories." *Journal of Experimental Psychology* 104:192–223.
- Rosch, Eleanor and C. B. Mervis. 1975. "Family Resemblances: Studies in the Internal Structure of Categories." *Cognitive Psychology* 5:573–605.
- Rosch, Eleanor, C. B. Mervis, W. D. Gray, D. M. Johnson, and P. Boyes-Braem. 1976. "Basic Objects in Natural Categories." *Cognitive Psychology* 7:382–439.
- Schatz, Thomas. 1981. *Hollywood Genres: Formulas, Filmmaking, and the Studio System*. Boston, MA: McGraw-Hill.
- Scott, W. Richard. 2001. *Institutions and Organizations*. Thousand Oaks, CA: Sage.
- Simpson, E. H. 1949. "Measurement of Diversity." *Nature* 163:688.
- Stuart, Toby E., Ha Hoang, and Ralph C. Hybels. 1999. "Interorganizational Endorsements and the Performance of Entrepreneurial Ventures." *Administrative Science Quarterly* 44:315–49.
- White, Harrison C. 1981. "Where Do Markets Come From?" *American Journal of Sociology* 87:517–47.

- Zadeh, Lofti. 1965. "Fuzzy Sets." *Information and Control* 8:338–35.
- Zerubavel, Eviatar. 1997. *Social Mindscapes: An Invitation to Cognitive Sociology*. Cambridge, MA: Harvard University Press.
- Zuckerman, Ezra W. 1999. "The Categorical Imperative: Securities Analysts and the Legitimacy Discount." *American Journal of Sociology* 104:1398–1438.
- Zuckerman, Ezra W. and Tai-Young Kim. 2003. "The Critical Trade-Off: Identity Assignment and Box-Office Success in the Feature Film Industry." *Industrial and Corporate Change* 12:27–66.
- Zuckerman, Ezra W., Tai Kim, Kalinda Ukanwa, and James von Rittman. 2003. "Robust Identities or Non-entities? Typecasting in the Feature Film Labor Market." *American Journal of Sociology* 108:1018–74.