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# Hybrids in Hollywood: a study of the production and performance of genre-spanning films

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Greta Hsu<sup>\*,‡</sup>, Giacomo Negro<sup>\*\*</sup> and Fabrizio Perretti<sup>†</sup>

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Research suggests there are significant market penalties for organizations that do not conform to category boundaries in their product offerings. Yet, organizations continue to span categories despite these risks. In this study, we shed insight into why by examining factors that shape the attractiveness of producing hybrid (i.e. category-spanning) products. In particular, we argue that more ambiguous category schemas encourage hybridization. Moreover, there is potential for exceptional performance advantages for organizations that innovate through hybrids. We use data from the US feature film industry to test and find support for our hypotheses.

**JEL classification:** L25, L82.

## 1. Introduction

Research within economic sociology and organization theory suggests that organizations introducing new products to a market face considerable pressure to adopt the characteristic features of a well established and collectively understood market category (e.g. Zuckerman, 1999; Zuckerman *et al.*, 2003; Hsu *et al.*, 2009). Products that conform to the social codes inherent in established categorization systems are easier for market audiences to identify, enhancing legitimacy and prospects of success.

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<sup>\*</sup>Greta Hsu, Graduate School of Management, University of California, Davis, One Shields Avenue, Davis, CA 95616, USA. e-mail: grhsu@ucdavis.edu

<sup>\*\*</sup>Giacomo Negro, Goizueta Business School, Emory University, 1300 Clifton Road NE, Atlanta, GA 30322, USA. e-mail: giacomo\_negro@bus.emory.edu

<sup>†</sup>Fabrizio Perretti, Department of Management, Bocconi University, Via Rontgen 1, 20136 Milano, Italy. e-mail: fabrizio.perretti@unibocconi.it

<sup>‡</sup>Main author for correspondence.

Conversely, organizations that mix categories are more difficult to make sense of than category “purists” and, as a result, are often ignored or explicitly devalued by targeted audience members.

Such studies help to explain why organizations often adhere to categorical boundaries. However, they do not address why they sometimes choose not to, instead mixing features from disparate categories and thereby spanning established boundaries. Recent research has begun to explore this under-examined issue and suggests that certain contextual conditions can enhance the perceived attractiveness of category mixing. In a study of French gastronomy, for example, Rao *et al.*, (2005) find that increased category mixing in the signature dishes of prominent role models led to emulation by other chefs. And, as the proportion of chefs pursuing a hybrid strategy increased, the symbolic potency of category boundaries weakened, resulting in decreased penalties for hybridization.

In this study, we explore two related questions regarding the antecedents and implications of category spanning. The first concerns the structure of the category system: the fuzziness of boundaries and diversity of associated categories. We relate these dimensions to the clarity of a category’s cognitive schema and argue that lower clarity results in an ambiguous context that encourages higher rates of category spanning.

The second question concerns the outcomes organizations face when they present the market with hybrid products. While some research finds organizations that mix categories experience significant social and economic penalties for doing so (Zuckerman, 1999; Hsu *et al.*, 2009), other research suggests category spanning can provide a path to positive outcomes through innovation and competitive differentiation (e.g. Porac *et al.*, 1989; Deephouse, 1999; Haveman and Rao, 2006). We argue that this apparent contradiction can be resolved by distinguishing between the effects of hybridization in terms of mean versus variance effects. We propose that, while category spanning generally decreases the appeal of organizations’ products and thus their overall fitness, it can also pave the way for exceptional market success.

We test our hypotheses by studying evolution in genres within the US film industry, from 1912, the year the first US-produced feature film was released, to 1948. This window runs from the very early period of feature-length film, through the rise of the studio-era in the 1920s and 1930s, to the break-up of the “studio system” in the late 1940s (after which the US film industry transitioned to the flexible project-based system described by Faulkner and Anderson (1987), where the locus of decision-making became more dispersed). During the period we investigate, larger Hollywood production companies generally resembled factory systems designed around the mass production and distribution of films, although a large niche remained for smaller independent production companies (Schatz, 1981).

Studio executives typically planned the production and distribution of feature-length films on an annual seasonal basis. Film genres played a significant organizing role in various stages of executives’ routinized planning process (Neale,

2000). In 1918, for example, Jesse Lasky of Paramount Pictures stated that genre preferences were used in exhibitor reports all over the country as a method of researching audiences (Lasky, 1918). Genres were also used as tools in the distribution strategy, providing information that reduced distributors' dependence on filmmakers' input. Studios also tailored many aspects of the production process to genre-based filmmaking, including "stables" of writers and technical crews whose work was limited to certain types of films; the studio sets and sound stages designed for specific genres; even the 'star system,' which capitalized upon the familiar, easily categorized qualities of individual performers" (Schatz, 1981: 10). Adherence to established genre conventions thus allowed production companies both economies of scale in production and some degree of assurance in the planning, production, and marketing of films.

At the same time, production companies were aware of the need for continual innovation in their films. There was high demand for new creative elements and offerings, although what would ultimately be accepted by the audience was highly uncertain. Director George Stevens stressed that one fundamental method of differentiation occurred through recombination of genre elements. Through recombination, filmmakers would "break films down into their component elements, study those carefully, and then use them again in different arrangement, as parts of a new story, depending on them to exert the same appeal they did the first time" (Weaver, 1947). As a result, during this era, production companies regularly produced hybrids as a way to differentiate their films and offer audiences a variety of different aesthetic features (Neale, 2000).

Overall, production companies faced a fundamental tension between the securities of adhering to establish genre-based conventions versus the necessity of innovation. In the next section, we develop theory to help explain the propensity of producers to yield to one versus the other pressure through the production of "pure" versus hybrid products, and the consequences they faced for doing so.

## 2. Category systems as guides for market action

Category schemas convey information about appropriate patterns in organizational arrangements (Greenwood and Hinings, 1996) or features of products (Hannan *et al.*, 2007). In their study of the US brewing industry, for example, Carroll and Swaminathan (2000) outline key feature values that constitute the schema for "microbrewers," including small-scale production and the employment of traditional hand-crafted methods and ingredients. Such schemas influence decision making. For example, engaged consumers often reject beer made by mass producers, preferring the tradition and authenticity associated with microbrews. Category schemas thus enable diverse market participants to assign roles to and to form expectations for products, facilitating and guiding market interactions.

Schemas can vary considerably in the clarity of information conveyed (Zuckerman, 2004; Hsu and Hannan, 2005; Ruef and Patterson, 2009). When the schema for category membership is well developed, the features which signal that a product is (or is not) a member of the category are clear and readily apparent to market participants. Organizations thus have a clear guide to follow in their own production efforts. Adherence to this guide facilitates resource mobilization as well as communication and coordination among market agents. Research also suggests that audiences in such cases have well developed beliefs about what category products should look like and pressure organizations to conform to these expectations (Rao *et al.*, 2005; Hannan *et al.*, 2007; Ruef and Patterson, 2009). The overall result is a strong trend towards respect of categorical boundaries and isomorphism (DiMaggio and Powell, 1983).

In contrast, when the features that define membership in a given category are ambiguous, organizations can confront numerous potential options, none of which provides direction regarding the most appropriate or legitimate ways of organizing. Heterogeneity of models results in an institutional context in which organizations are likely to conceive of and explore alternatives in features and/or activities (Greenwood and Hinings, 1996). King *et al.*, (2011) find evidence of this dynamic in their study of the Arizona charter school industry. For charter schools seeking to differentiate themselves in order to attract attention and resources, a heterogeneous context provides more ideas for how they might do so, encouraging greater innovation. Organizations are thus likely to borrow elements from other categories to produce novel combinations (Stark, 1996).

Existing research suggests the proportion of category members that clearly conform to categorical boundaries to be an important factor affecting the clarity of categorical schemas. When a substantial number of products exhibit a mixture of features emblematic of different categories, differences between categories are diluted. As a result, understanding of what it means to be a member of each category weakens as well.

Hannan *et al.* (2007) elaborate on this idea in their formal theory of categories and forms. They propose that a category's taken for granted status increases with the extent to which its members can be clearly distinguished from non-members. Categories where a high proportion of members have full (as opposed to partial or hybrid) membership are high in *contrast*; they stand out sharply against the market background. In comparison, categories where partial memberships are more prevalent cannot be distinguished as clearly or easily from others in the market. Such categories form a set with high "fuzziness," with weaker boundaries and a less cohesive membership (Hannan *et al.*, 2007; Negro *et al.*, 2010).

Carroll *et al.*'s (2010) study of evolution in the formats adopted by tape drive producers sheds further insight on the impact of category fuzziness on category spanning. They find evidence that greater fuzziness of a format category means that organizations within that category find it easier to imitate modes of production

in other format categories, leading to higher boundary permeability. At the same time, customers of a given format have greater exposure to other formats and experience less reticence and uncertainty towards technology that spans category boundaries. They may even view the incorporation of features from secondary categories as something that complements or enhances their products.

This suggests that when category fuzziness is higher, organizations will find it easier to cross category boundaries by producing hybrid products. Translating this argument to our focal context, we argue that film production companies' decisions about whether to respect genre boundaries will be shaped by how fuzzy genres are. How such positioning is accomplished in this context? Research suggests that production companies position their films vis-à-vis genre boundaries through key production and promotion decisions (Schatz, 1981; Jensen, 2010). Relevant production decisions include what themes, storylines, and events to center a film around, where the film is located, and what kinds of characters are included. Production companies also establish a film's genre positions through promotional material such as posters, newspaper and magazine advertisements, and press releases (Hsu, 2006; Jensen, 2010). Through such material, companies present the movie-going audience with core, easily recognizable features of genres (such as gunfights and horses for Western, bloody knives for Horror, or aliens for Science Fiction) designed to establish the film's genre identity and thus who its target audience is.

In this context, a key distinction is often made between a film's primary versus secondary genres (Shamsie *et al.*, 2009). Primary genres are used to define basic features like the structure of dramatic action, the narrative style, the setting, and the nature of protagonists. In contrast, secondary genres reflect more minor features of a film, such as sub-plots and set or characters with small part in the main story (Perretti and Negro, 2007).

Of course, this structure is not exclusive to film. For example, in wine, producers frequently blend different percentages of grape varieties within the same bottle. If a wine is 90% Cabernet Sauvignon and 10% Merlot, the wine would be primarily a Cabernet and secondarily a Merlot. Or, patent applications are assigned to a single principal (i.e. primary) classification but can be assigned to subclasses in other classifications if technological components are imported from other categories (Carnabuci *et al.*, 2011). This distinction also applies at the firm level. For example, a tape drive producer may primarily produce drives within one format category (such as cassette drives), but also have some limited production in another (such as 1 inch reel to reel drives). In that case, the producer would be regarded as having primary membership in the cassette drive category, and secondary membership in the reel to reel drive category.

Following this distinction, we hypothesize the following:

*Hypothesis 1: The likelihood a new film will span genre boundaries increases with greater fuzziness of the film's primary genre.*

In some contexts, the category schema is simple. For example, Rao *et al.*'s (2005) study of French cuisine finds a straightforward two-category scheme: nouvelle and classical French cuisine. In such cases, examining fuzziness, or the sheer prevalence of partial category memberships, provides an appropriate reflection of how strong the boundaries between categories are (and thus how clear the schema for each of the categories is). In other contexts, however, the category schema is more complex. For example, in their study of the organizational classification scheme used by R.G. Dun and Company for credit rankings, Ruef and Patterson (2009) found that a 24 category scheme was used to sort businesses into recognizable types from the mid-1880s to 1950. In such cases, there are many more category combinations possible.

Research suggests that when a diverse set of secondary categories is incorporated into a focal category's products, the schema for organizing will be highly ambiguous (Pontikes, 2010). This is consistent with work by McKendrick *et al.* (2003) which finds that the disk array industry failed to gain legitimacy because a high proportion of disk array firms derived their primary identities from a diverse set of other industries. Conversely, when the set of secondary elements is more homogenous (e.g. if all hybrids within a film genre spanned the same secondary genre), the schema for organizing tends to be clearer and thus more constraining. These arguments lead us to expect that, in addition to fuzziness, the diversity of secondary genres will affect the likelihood a future film will be a hybrid:

*Hypothesis 2: The likelihood a new film will span genre boundaries increases with greater diversity of the secondary genres associated with the film's primary genre.*

We follow these hypotheses with two notes. First, a possible alternative for the dynamics we hypothesize is that hybridization is driven solely by emulation of existing models (rather than by a process related to schema clarity). That is, we see stronger tendencies to hybridize when there is greater availability and diversity of hybrid models simply because producers copy prior models. This would be consistent with Rao *et al.*'s (2005) observation that increased category spanning of classical and nouvelle French cuisine was driven by emulation of prominent chefs who began combining elements from nouvelle cuisine within their signature set of classical dishes. To address this alternative, we attempt to tease out the influence of emulation versus schema clarity through supplementary analyses, described in our empirical section.

Second, there are reasons to expect that the dynamics suggested by Hypotheses 2 and 3 will not hold. In particular, one could argue that greater hybridization should expand a category's schema, loosening constraints and allowing a broader range of features to be grouped under the label of the focal category. If that is the case, producers might feel less of a need to look to secondary genres to innovate, and higher levels of hybridization might actually lead to lower rates of hybridization in future periods. Instead, what we predict is that with higher levels of category

spanning, films will be encouraged to *continue* to search outside the current set of category elements to incorporate secondary genres.

### 3. Market outcomes of hybridization

We next consider the consequences for organizations making hybrid products. A number of strategy researchers have explored this general issue by examining the impact of occupying positions that are more similar versus more distinct from other firms along dimensions such as size, geography, and pricing (e.g. Porac *et al.*, 1989; Deephouse, 1999). Such research highlights key trade-offs: organizations who adopt strategies that are similar to competitors' will be more legitimate in the eyes of resource-holders, while those who adopt differentiated strategies will enjoy reduced competitive pressures. A general prescription emerging from this literature is to pursue moderate levels of differentiation to balance these different trade-offs.

Considering these dueling pressures leads us to propose an alternative way of conceptualizing the different outcomes these strategies lead to—in terms of mean versus variance effects. To study mean effects, we examine relative organizational fitness. Fitness refers to an organization's "ability to thrive in the face of competition from other organizations for the resources controlled by the relevant audience" (Hannan *et al.*, 2007: 191). Recent literature suggests that an organization's fitness generally increases with the appeal of its offerings to targeted audience members (Le Mens *et al.*, 2011).

Meanwhile, research within economic sociology has shown that spanning category boundaries tends to result in decreased appeal. There are two mechanisms contributing to this effect. First, organizations whose products do not conform to any category expectations are more difficult for audience members to identify and make sense of relative to single-category products (Zuckerman, 1999; Zuckerman *et al.*, 2003). Category spanning also generally detracts from a product's appeal because hybrid products exhibit atypical features from the point of view of any one category. The result is worse fit with category-based expectations and lower appeal among targeted audiences (Rao *et al.*, 2005; Hsu *et al.*, 2009).

Greater production of hybrid products can thus be expected to decrease the appeal of an organization's products and as a result its overall fitness. We gauge this distinction by focusing on one of the clearest measures of fitness: an organization's likelihood of exiting the market.

*Hypothesis 3: Exit rates of production companies increase with greater production of hybrid films.*

Of course, positioning decisions are not merely affected by expectations of survival. Organizations can adopt innovative strategies in the pursuit of exceptional returns, however rare in the markets they compete. This is a dynamic observed in settings as disparate as recorded music, publishing, software development, and



research universities, where rewards are large and highly concentrated among the market's top performers (Frank and Cook, 1995). The film industry is a classic example of this type of "winner-take-all" market structure. Film production companies can engage in genre spanning to present new products in a fresh and unexpected fashion, and hope that their aesthetically novel films will bring in exceptional attention, praise, and attendance from diverse audiences as a result.

The literature on innovation suggests there are significant upsides for organizations that make hybrid products. Innovation often occurs through the general strategy of recombination, where organizations combine preexisting knowledge, experiences, materials or technologies, in new ways to produce novel products (Schumpeter, 1939; Henderson and Clark, 1990; Hargadon and Sutton, 1997). As an example, Fleming (2002) documents the highly successful invention of the thermal ink-jet printer by engineers and physicists at Hewlett-Packard, who jointly examined more combinations of inks, resistors, slides, electrodes, explosives, lasers, and piezo-electrics than they would have if they used knowledge, materials, and resources from engineering or science alone. Hybridization is one instantiation of this general strategy; it offers a way for organizations to combine commonly understood and accepted themes in ways that deviate from standard products.

Recombination can provide a path to exceptional market success by increasing variance in outcomes (March, 1991). Replication of existing, standard products allows organizations greater certainty in anticipating audience reception and thus allows success on average. But, it also restricts organizations from achieving the significant impact often associated with innovation. In contrast, studies suggest that recombinations of category elements are particularly likely to encounter high variance in performance and impact (Fleming, 2001). In the ink-jet example above, Hewlett-Packard's exceptional success followed numerous failed attempts by Hewlett-Packard as well as other companies with ink-jet technology.

Overall, this suggests a trade-off between certainty and impact. Even as organizations that devote a significant amount of effort to producing hybrid products suffer generally higher exit rates, they can also experience greater likelihood of producing the market's exceptional successes.

*Hypothesis 4. A production company's likelihood of obtaining an exceptional success increases with greater production of hybrid films.*

## 4. Methods

### 4.1 Measures and estimation

Our primary data source is the American Film Institute Catalog of Motion Pictures (AFI) Produced in the United States: feature films, 1911–1948 (1989–1999,



Berkeley: University of California Press), a decade-by-decade publication that provides detailed information on all motion pictures released in the US since 1893, including the names of the production and distribution companies, release date, length, cast, plot, and subject matters.

In this context, there are no “official,” systematic catalogues of the film genres producers seek to position their films within. Instead, one must look to secondary sources such as the AFI to infer these decisions. The validity of this inference rests on the assumption that key production decisions are embedded in recognized genres (Schatz, 1981). For our primary data source, we followed previous research on the film industry (Mezias and Mezias, 2000; Jones, 2001; Negro and Sorenson, 2006; Perretti and Negro, 2007; Cattani *et al.*, 2008; Shamsie *et al.*, 2009) and employed the genre labels reported by AFI to analyze the strategies of film production companies. We then assessed the validity of this inference by checking the AFI’s genre classifications against those made by two other industry directories for a random sampling of films.

In the introduction to the 1921–1930 catalog volume, the AFI editors explain that data collected by AFI come from the films themselves when prints were available or, when it was impossible to see a film, from a variety of contemporary sources, including a wide variety of contemporaneous trade publications (such as *The Moving Picture World*, *The Motion Picture News*, *Wid’s Film Daily Yearbook*, *Exhibitors Trade Review*, *Film Daily*, and the *National Board of Review Magazine*), copyright records, and in a small percentage of cases, scripts that were part of corporate records. The editors maintain that they “made an effort to retain contemporaneous interpretations and language even if terminology was streamlined to make information more accessible to modern readers” (xvi), and that “the indication of genre is expressed in the vernacular of the 1920’s” (xv). They used modern sources, autobiographies, photographs, documentaries, and personal reminiscences only for notes or note credit information. Their approach thus limits the risk of retrospective bias in genre classification.

To check the validity of the AFI’s genre classifications, we collected genre listings from two other sources: the Internet Movie Database (IMDB), an online database of information related to film and other media, and *Variety*, the leading US trade magazine focused on the entertainment industries.

First, we collected IMDB genre listings for all films and examined the extent to which the AFI genre assignments matched those in the IMDB. We calculated genre-assignment overlap in two ways: (i) the average count of genres assigned by both AFI and IMDB divided by the count of genres assigned by AFI per film and (ii) the count of films where at least one genre assignment was in common divided by the count of films assigned a genre by AFI. The overlap scores, whose range varies between 0 and 1, are 0.90 and 0.93, respectively. IMDB alphabetizes the genre listings for films with multiple genres; therefore, we were not able to compare overlap in primary genre assignments.

For Variety, we conducted a stratified sample using 5 films per stratum for every third year of the study period. The average count of genres assigned by both AFI and Variety divided by count of genres assigned by AFI per film is 0.77, and the count of films where at least one genre assignment was in common divided by the count of films assigned a genre by AFI is 0.90. The count of films where the primary genre was in common divided by the count of films assigned a genre by AFI is 0.85. While not perfect, these matches suggest that AFI's genre assignments provide a reasonable proxy for the positioning choices of film producers.

In our main data set, we restricted the set of films and the population of organizations in two ways. Films produced and released for non-commercial purposes, such as those commissioned by government agencies, do not enter the data; we also excluded imported films as these come from non-US based production companies. Also, our analyses focus on the set of genres designated in an internal guide to genre classification by provided by the AFI as "Stand alone"—those which AFI regards as traditional, broad categorizations.<sup>1</sup> Our data set is comprised of 20 genres: adventure, allegory, anthology, biography, children's works, comedy, crime, documentary, drama, epic, fantasy, horror, melodrama, musical, mystery, performance, romance, science fiction, war, and western.

## 4.2 Analysis of genre spanning

### 4.2.1 Dependent variables

Our first set of models estimate the likelihood of making a new film as a *hybrid*, i.e. the film spans secondary genres. The AFI genre data were used to create a dichotomous variable equal to "1" if a film had secondary genres and "0" otherwise.

### 4.2.2 Independent variables: genre fuzziness

*Genre fuzziness* measures the extent to which films in each primary genre are partial versus full-fledged members (Hannan *et al.*, 2007). Using the AFI data, we constructed a weighted count of all films within each of the genre in our data set over each period of time,  $W_{pg}$ . We exclude films made by the production company responsible for each new focal film in our computation of the genre fuzziness measure. The contribution of films classified under additional genres were weighted in the following manner: each film classified under one additional genre contributed

<sup>1</sup>In addition to Stand alone genres, AFI further identified what it terms "Descriptive" genres to films, which according to the AFI guide indicate "descriptive limitations to the Stand alone genres." Examples of the latter are *legal*, *homefront*, *medical*, and *sea*. Descriptive genres can only be used in association with Stand alone genres. We did not include these additional genre categorizations in our sample. We also exclude hybrid genres regarded by AFI as Stand alone and defined by composite labels (whose schemas may be more ambiguous and thus lead us to overestimate the likelihood of spanning) from the analyses presented here. Inclusion of these hybrid genres in supplementary analyses does not alter the effects of the main independent variables.

$(0.5 \times 1)$  to the genre's yearly density count, while each film classified under two additional genres contributed  $(0.33 \times 1)$ . The fuzziness of the genre is one minus the ratio of the weighted count of the genre divided by the potential count of the genre,  $N_{pg}$  (the potential count of the genre is the count if all films under a given primary genre were full-fledged, or single genre films):  $1 - (W_{pg}/N_{pg})$ . The measure ranges from zero to one; genres with a high proportion of partial to full-fledged films will have a value closer to one, while genres with low fuzziness will be closer to zero along this measure.

In our models, genre fuzziness (as well as all independent and control variables except the contemporaneous variables of *Genre age* and *Major studio*) was lagged using a 3-year moving window [some film scholars suggest it took an average of 1–3 years to proceed from the development stage to theatrical release (Bordwell *et al.*, 1985)].

#### 4.2.3 Diversity of secondary genres

Our second independent variable measures the *diversity of secondary genres* films within a primary genre are affiliated with according to the AFI classifications. We again see considerable range here among the genres in our data. For example, compare two genres during the 1920s: Comedy and Melodrama. Around the same percentage of films ( $\sim 4\%$ ) within each incorporate elements from external genres. However, while the Comedy hybrids incorporate elements from three different genres (Mystery, Romance, and Western), the Melodrama hybrids tended to draw from the same secondary genre: Mystery. In this case, we would expect a more ambiguous schema for Comedy relative to the schema for Melodrama.

For each genre at a given year, our measure is calculated as:

$$\text{Diversity}_{sg} = \text{Fuzziness}_{pg} \times N_{sg},$$

where  $N_{sg}$  is the count of secondary genres, and  $\text{Fuzziness}_{pg}$  is the fuzziness of the primary genre (Pontikes, 2010). The measure reflects the extent to which hybrid members of the primary genre belong to a small versus larger number of distinct secondary genres.

#### 4.2.4 Control variables

*Genre-level Controls:* We included a *genre density* variable to control for the effect that crowding of products may have on the likelihood of genre spanning. This variable is calculated as the total count of films in a given primary genre in each year, weighted by the number of additional genres for each film. Second, we included a control for *genre age*, measured as the number of years since the release of the first film under each primary genre.

We also controlled for the number of films in each primary genre that ranked among the top box office successes during their release. We collected this from

Variety's *All-Time Film Rental Champs* rankings. These rankings list the most successful films in terms of rentals generated at American theatres, as reported by the distribution companies. Records of the box office performance of films for the early years of the industry are limited but the data sources allowed us to measure the top three films for the years 1914–1924, the top five films for the years 1925–1929 on, and at least the top 10 films from 1930 onwards.) We distinguished between the count of multiple-genre box office champs (Number of B.O. champs: multiple genre) and the count of single-genre films within each genre that were box office champs (Number of B.O. champs: single genre).

Finally, we included a measure reflecting the extent to which production within each genre in a given year was concentrated among a handful of production companies (Genre concentration, top 5). Greater concentration or domination of a genre by a small number of organizations may push others trying to establish a toehold in the category to differentiate through hybrid products. For each genre/year, this variable measures the proportion of films that were produced by the top five most prolific production companies within that genre.

*Production company-level controls:* We included controls reflecting characteristics of the production companies listed in AFI for each of the films. We control for differences in experience and resources through two variables: *Prod. company tenure*, the number of years since the company first appeared in the AFI data, and *Prod. company size*. Previous research conceptualized organizational size as either capacity or scale of operations. Our measure here focuses on scale and measures the volume of films made by the production company in the prior year. We also introduced a control for whether the production company was a Major studio or not to account for availability of long-term access to resources and contracts that may benefit the Majors' performance (Schatz, 1981).

Finally, we include yearly and genre dummy variables to control for unobserved calendar year and category effects.

### 4.3 Analysis of exit rates and box office champs

#### 4.3.1 Dependent variables

Our two measures of firm performance are the *exit rate* of each production company from the market and whether a production company made a film that obtained exceptional box office gross rentals (i.e. was a Box Office Champ) with (at least) one of its films. Because the data on theatrical rentals are available from 1914, this analysis is conducted on the period 1914–1948. To calculate the first variable, we first constructed the life histories of production companies through the release dates of the films they made using the AFI data. Production companies enter the population with the release of their first film and were tracked until they ceased to produce any additional films. We coded the year in which each company released its last film as its year of exit and right-censored companies still in operation in 1948.

For the second variable, we collected box office information through Variety's *All-Time Film Rental Champs* lists as described above. Box Office Champ is a dichotomous variable equal to one if the production company made (at least) one film that was a box office champ in a given year, and zero otherwise.

#### 4.3.2 Independent variables

To test the effects of production of hybrid products, we measured the proportion of films in a production company's portfolio that were multiple genre over the previous 3-year window (Proportion hybrids).

#### 4.3.3 Control variables

In the exit rate and box office analyses, we also included controls for each production company's size, status as a Major studio, and cumulative number of box office champions. For the last variable, we distinguished between single genre and hybrid champions. In the exit rate analysis, we added an indicator to account for left truncation (Carroll and Hannan, 2000). We included year dummies into our models to control for unobserved calendar year effects and lagged the hybrid proportions and box office variables.<sup>2</sup>

#### 4.3.4 Estimation

We used logit models to estimate the likelihood a new film is a hybrid versus single genre. For our analysis of firm performance, we modeled the exit of production companies using  $r(t)$ , the instantaneous risk of exiting. This hazard rate is defined as the limiting probability of exiting between  $t$  and  $t + \Delta t$ , given that the company was operating at  $t$ , calculated over  $\Delta t$ :  $\mu(t) = \lim_{\Delta t \rightarrow 0} \Pr(t < T_t + \Delta t \mid T > t) / \Delta t$ . After experimenting with several classes of parametric and semiparametric models, we found that the hazard rate exhibited a monotone function that is well fitted by a Weibull that assumes such monotonicity. Finally, for our analysis of box office champs, we used logit models of the likelihood that a production company makes a box office champion in a given year. We estimated our regressions with the software package STATA 9.2, clustering observations by production company to control for intra-firm correlation. The reported results are maximum likelihood estimates.

<sup>2</sup>In supplementary analyses, we included a control for the first 3 years a genre first appeared, in case hybridization is viewed as less problematic when categories are emergent (Ruef and Patterson, 2009). The results of our independent variables are similar in these different models. Adding this control does not improve model fit, so we do not include it in the specifications we report.

## 5. Results

Table 1 presents descriptive statistics for our analyses. In our sample, 87.6% of films were assigned a single primary genre, 12.2% were assigned a secondary genre, and 0.3% a third genre. And, according to the AFI, the genres in our sample vary significantly in the extent to which they incorporate external elements. For example, over 92% of War films in the 1940s were hybrids, while Western films stood at the opposite side of the spectrum, with more than 99% of them being “pure” genre films during the same period.

In Table 2, we estimate the odds that a film is produced as a hybrid. Model 2.1 contains control variables only. Among the control variables, we find evidence that a greater number of single genre box office champs decreases the odds of hybridization, while multiple genre champs increase it. This suggests a kind of mimetic

**Table 1** Descriptive statistics

Variable	Mean (SD)	Min	Max
Regressors of analysis of likelihood of producing a hybrid film			
Weighted genre density	408.335 (401.682)	1	1604
Genre age	17.443 (9.890)	2	37
Box office single genre hits	0.716 (1.176)	0	6
Box office multiple genre hits	0.097 (0.440)	0	4
Genre concentration, top 5	0.448 (0.132)	0.247	1
Prod. company tenure	8.671 (8.953)	0	34
Prod. company size	22.470 (21.768)	0	69.333
Major studio	0.424 (0.494)	0	1
Genre fuzziness	0.120 (0.125)	0	0.733
Diversity of secondary genres	0.551 (0.970)	0	6.595
Regressors of analysis of exit rates of film production companies			
Prod. company size	5.417 (13.234)	1	307
Major studio	0.057 (0.233)	0	1
Box office champs—single genre	0.041 (0.279)	0	5
Box office champs—hybrids	0.015 (0.157)	0	5
Proportion hybrids	0.121 (0.253)	0	1
Regressors of analysis of likelihood of obtaining a box office champion			
Prod. company tenure	9.226 (8.191)	2	36
Prod. company size	9.145 (18.237)	1	307
Major studio	0.134 (0.341)	0	1
Box office champs—single genre	0.103 (0.447)	0	5
Box office champs—hybrids	0.039 (0.253)	0	5
Proportion hybrids	0.139 (0.179)	0	1

**Table 2** Logit models of probability of producing a hybrid film<sup>a</sup> and multinomial logit models of probability of producing a mimetic hybrid, or innovative hybrid film versus single-genre film

Variables	Model 2.1 Logit	Model 2.2	Model 2.3	Model 2.4 Multinomial Logit	
				Mimetic Hybrid	Innovative Hybrid
Constant	-2.864** (1.10)	-3.042** (1.09)	-3.206** (1.10)	-2.374* (1.13)	-6.886** (1.82)
Weighted genre density	-0.0005 (0.00)	-0.0001 (0.00)	-0.0001 (0.00)	0.00005 (0.00)	-0.0006 (0.00)
Genre age	0.048 (0.03)	0.048 (0.03)	0.049 (0.03)	0.020 (0.03)	0.092* (0.04)
Box office single genre hits	-0.121** (0.05)	-0.106* (0.05)	-0.105** (0.05)	-0.107* (0.05)	-0.063 (0.10)
Box office multiple genre hits	0.225** (0.07)	0.131 (0.08)	0.122 (0.08)	0.149* (0.07)	0.005 (0.13)
Genre concentration, top 5	0.636 (0.58)	0.184 (0.59)	0.219 (0.59)	-0.455 (0.56)	2.557** (0.89)
Prod. company tenure	0.002 (0.01)	0.0001 (0.01)	0.002 (0.01)	0.003 (0.01)	-0.004 (0.01)
Prod. company size	-0.003 (0.00)	-0.003 (0.00)	-0.003 (0.00)	-0.002 (0.00)	-0.006 (0.00)
Major studio	0.129 (0.11)	0.126 (0.11)	0.105 (0.11)	0.077 (0.12)	0.194 (0.21)
Genre fuzziness		2.894** (0.62)	2.982** (0.62)	3.375** (0.69)	1.631 (1.10)
Diversity of secondary genres			0.063* (0.03)	0.059* (0.03)	0.088* (0.04)
Log pseudo-likelihood	-3751.334	-3728.084	-3725.604	-4272.514	
Wald $\chi^2$	5339**(52)	5045**(53)	5295**(54)	52,316**(108)	

<sup>a</sup>Fixed effects for calendar year and genre are include;  $N(\text{obs}) = 17,927$ ;  $N(\text{clusters}) = 1635$ .

\*\* $P < 0.01$ , \* $P < 0.05$ .

process, as production companies imitated to some degree the organizing models of prior films in the same genre. We do not find any other significant effects of control variables across these models.

Model 2.2 introduces the genre fuzziness variable to test Hypothesis 1. As predicted, its effect is positive and statistically significant. An increasing proportion of



films that are partial members of a genre increase the odds that a new film that belongs primarily to the genre will be a hybrid. The effect is strong in substantive terms. A one-standard deviation increase in fuzziness multiplies a new film's probability of hybridization by 42.6%. The inclusion of genre fuzziness improves model fit significantly over the specification with only controls.

Model 2.3 adds the variable measuring the diversity of secondary genres. In support of Hypothesis 2, we find a positive and significant effect. While the effect is significant, its size is less than that of fuzziness: a one-standard deviation increase in diversity of associated genres multiplies a film's probability of hybridization by 6.3%. The inclusion of this second independent variable improves model fit further over the specification in Model 2.2.

We noted earlier that a possible alternative explanation for the dynamics uncovered in this first analysis is that hybridization is driven by mere emulation of existing models (and not by the greater ambiguity that accompanies decreased schema clarity). Through the following supplementary analyses, we attempted to tease out the effects of emulation versus schema clarity on producers' tendencies to produce hybrid products.

We first separated film hybrids into two types: (i) *mimetic hybrids*, films that copy a multiple genre combination seen in the previous 3-year window, and (ii) *innovative hybrids*, films that attempt a novel multiple genre combination not seen in the previous 3-year window. In our sample, roughly 11.1% of films are mimetic hybrids while 1.3% is innovative hybrids. We then, using multinomial logit regression, estimate the effects of genre fuzziness and diversity of associated genres on the likelihood a film is produced as a mimetic hybrid, innovative hybrid, or single-genre film (the omitted category in the models reported). We include the same set of controls as used in our main analyses (Models 2.1–2.3).

In Models 2.4 and 2.5, we report the results of this analysis. These models show that genre fuzziness and diversity of associated genres both encourage mimetic hybrids, while diversity of associated genres (but not genre fuzziness) encourages innovative genre combinations. The first pattern suggests that the emulation of prior hybrids is driven by the familiarity of hybrid models as well as the availability of distinct models to copy. In contrast, the second pattern suggests that innovative hybrids are driven only by a lack of schema clarity. Apparently, having familiar hybrid models does not necessarily drive producers to try new hybrid combinations, but rather, to replicate those existing hybrid models. This second finding supports the notion that schema ambiguity encourages innovative hybridization and not simply emulation of existing models.

We next present the findings of the analysis of exit rates of production companies. Table 3 includes the regression estimates. The first model contains control variables only. Among the noteworthy effects the model reveals negative size dependence. Analyses of the film industry do not find substantial cost savings associated with the simultaneous production of multiple films, so increasing size likely provides an

**Table 3** Weibull model of exit rates of film production companies<sup>a</sup>

Variables	(1)	(2)
Constant	1.326** (0.15)	-1.298** (0.15)
Prod. company size	-0.181** (0.02)	-0.181** (0.02)
Major studio	-15.00** (0.54)	-15.01** (0.55)
Box office champs—single genres	-0.215 (0.33)	-0.207 (0.33)
Box office champs—hybrids	-1.487 (1.03)	-1.559 (1.03)
Proportion hybrids		0.213* (0.10)
Left truncation	-1.525** (0.13)	-1.530** (0.12)
ln(p)	0.205** (0.02)	0.208** (0.02)
Log pseudo-likelihood	-2312.3	-2309.9
Wald chi-square	1227** (38)	1217** (39)

<sup>a</sup> Fixed effects for calendar year are included.

Number of org-year spells = 3693.

\*\* $P < 0.01$ , \* $P < 0.05$ .

effective means of reducing market risks (Goettler and Leslie, 2004). Major studios show lower exit rates, in line with previous research arguing that these firms control resources in the form of long-term contracts with talent and market outlets (Miller and Shamsie, 1996).

Net of these findings, Model 3.2 adds the variable measuring the proportion of hybrid productions. The effect on the exit rate is positive and statistically significant ( $X^2 = 4.44$ ,  $\text{Pr} < 0.05$ , with one degree of freedom). In these estimates, an increase in proportion of hybrids from 0.12 to 0.36 (one standard deviation) increases the multiplier of the rate by about 6%, from 1.02 to 1.08 (a multiplier above one indicates that a variable increases the hazard of enactment). We thus find support for the third hypothesis that production companies whose films are hybrids are less appealing among audiences, impairing their survival in the market.

Table 4 presents the regression results for our analysis of box office champs. Model 4.1 contains control variables; production company size and tenure are not

**Table 4** Logit model of probability of obtaining a box office champion<sup>a</sup>

Variables	(1)	(2)
Constant	−4.706** (0.95)	−5.457** (1.04)
Prod. company size	−0.016 (0.01)	−0.014 (0.01)
Major studio	3.798** (0.98)	3.875** (1.02)
Organizational tenure	0.001 (0.03)	0.009 (0.03)
Box office champs—single genre	0.583** (0.15)	0.610** (0.16)
Box office champs—hybrids	−0.003 (0.28)	−0.019 (0.28)
Proportion hybrids		2.312* (1.03)
Log pseudo-likelihood	−113.8	−112.3
Wald chi-square	5972** (28)	7039** (29)

<sup>a</sup>Fixed effects for calendar year are included.

Number of org-year obs. = 1177

\*\* $P < 0.01$ , \* $P < 0.05$ .

found to significantly affect the odds of producing a box office champ. These results are notable when compared to the analysis of exit rates; they suggest that the factors that improve survival do not necessarily influence the chances of obtaining high variance outcomes. Similarly, prior hybrid exceptional successes do not seem to guarantee another champ. It appears that, while prior hybrid champs somewhat help a company's financial success and reduce its likelihood of exit, they do not have an impact on the future success of new products.

In contrast, prior single-genre exceptional successes positively affect the odds of producing a champ. Hybrid successes tend to be idiosyncratic, and thus prior products do not provide models for future ones. In contrast, prior single-genre exceptional successes can be more readily used as models for future product innovations (and successes). Major studios exhibit a higher likelihood of making box office champs, probably because these companies held strong market power and controlled access to a significant proportion of first-run theaters during the study period.

Model 4.2 includes the proportion of hybrid films and finds that, net of the control variables just described, this variable has a positive and significant effect.

Consistent with Hypothesis 4, this indicates that greater production of hybrids increases the likelihood a company will produce a box office champ ( $X^2 = 4.96$ ,  $Pr < 0.05$ , with one degree of freedom). According to the estimates in Model 4.2, a one-standard deviation increase in production of hybrids increases the likelihood of producing a box office champ by 50.4%.

In analyses not reported for brevity, we also explored whether it is mimetic or innovative hybridization that is more likely to lead to fitness reduction and to exceptional returns at the firm level. In an analysis of production companies' exit rates, we find that the proportion of mimetic hybrids has a positive and significant effect on exit rates while innovative hybrids do not significantly affect exit. However, the model specification in which we split the proportion of hybrids into mimetic and innovative does not significantly improve the fit compared to the specification with a combined term for hybrids (BIC value = 4964.22 versus 4970.12).<sup>3</sup> The general implication is that hybrid products generally decrease a company's fitness.

Similarly, we investigated whether it is mimetic versus innovative hybridization that is more likely to lead to exceptional box office returns. We find that innovative hybrids significantly increase the odds of producing a box office champ while mimetic hybrids do not (BIC value = 436.69 versus 440.66). This suggests that it is novel genre hybridization rather than emulation of existing hybrid products that enables companies to achieve the significant impact often associated with genre innovation.

## 6. Discussion

Our study provides evidence of several forces driving hybridization among film production companies. We find that genres with fuzzier boundaries provide less defined models for organizing film production and induce companies to make hybrid products. We also find evidence that diversity of alter genres contributes to this process by making the schema for production even more ambiguous. In supplementary analyses, we found evidence that these effects were driven not just by emulation of existing models, but by the greater ambiguity created by weakened genre boundaries. Overall, our findings point to the iterative paths through which companies' positioning decisions and categorical opportunities and constraints evolve in markets with multiple product categories.

Our second set of analyses of production company exit rates and box office champs explore the performance implications of genre hybridization. In line with previous research, we observe that processes of age dependence and size dependence

<sup>3</sup>We refer to the Bayesian information criterion (BIC) as a likelihood-based measure of overall model fit to compare competing, including non-nested, models. Smaller values of BIC indicate better fitting models.

affect firm survival (Carroll and Hannan, 2000). Moreover, we find that hybrid products systematically affect firms' relative fitness, as greater production of hybrid products impairs a firm's chance of survival.

In terms of "variance" outcomes, however, a number of the above patterns change. Most notably, our findings show that category spanning is more likely to produce an exceptional success. In supplementary analyses, we find that the proportion of innovative hybrids produced (and not the proportion of mimetic hybrids) has a significant and positive effect on the odds a company will produce a box office champ. This suggests that it is fresh and novel genre hybridization rather than emulation of existing models that enables companies to achieve the significant impact often associated with innovation. (In unreported analyses, we also estimated a film-level logit model of the odds of producing a box office champ as a function of hybrid type. The covariates in Table 2 indicate that the average expected probability of producing a champ increases by 1.5% if a film is an innovative hybrid.)

We also find that, to make a breakthrough product in an uncertain market domain, differences in production company size, scope, and age are not significant (although market power seems to be). In these circumstances, previous successes are less diagnostic of future performance and reliance on established market conventions or their marginal modifications is insufficient to guarantee new success. Often, the value of expertise associated with conforming to market categories fails when audiences require change (Levinthal and March, 1993).

These findings have the potential to contribute to a number of distinct literatures. First, they contribute to current research in the ecology of organizations and market categories. Organizational ecologists have shown a longstanding interest in how the distribution of competitors within a category shapes organizations' positioning choices along a variety of dimensions. Recent work examines the market consequences of category distinctiveness and visibility. For example, research conducted by Carroll *et al.* (2010) in the tape drive industry finds that firms producing formats with high contrast are more difficult to imitate and experience a lower rate of mortality. In our study, we find support for a more nuanced pattern. Stronger categorical boundaries and the similarity of key product features increase attention of resource holders and average market viability. However, the same factors limit organizations' efforts to differentiate through innovative hybridization, reducing the chances of reaping extraordinary success.

With its focus on cognitive, institutional, and competitive processes, our study also addresses a key issue in institutional theory: how change is possible when institutions are durable and actors within a field are subject to pre-existing logics (Clemens and Cook, 1999). We find that different forces work simultaneously to encourage versus inhibit organizations' choices to span categories and thereby drive change in existing categorical understandings. Our results highlight that the power of institutional constraints depends on the position of categories vis-à-vis one another as well as the internal consistency of category features. In doing so, we extend the tradition within

institutional theory that considers how existing schemas give rise to variation in the practices, features, and behavior organizations adopt (King *et al.*, 2011).

Our findings also inform research that addresses the role of cognitive structures in strategy. Previous work has shown how organizations' decisions to differentiate or conform to market categories affect their performance—a broad term representing outcomes such as survival, institutional fitness, and financial returns (Porac *et al.*, 1989, 1995; Deephouse, 1999). The prescription coming from this literature is that organizations should maintain a balance on the *competitive cusp*, the trade-off between being different and being the same. Studying these dual pressures between similarity and difference in commercial banks, Deephouse (1999) finds that competitive returns are greater at moderate levels of strategic differentiation. Our study proposes an alternative way of resolving the strategic balance, by looking at the classic trade-off between mean and variance effects. We focus on differentiation less as reduction of competition and more in terms of innovation. Organizations that seek a “safer” strategy perform better on average, while those that seek the higher-risk path of innovation have a higher likelihood of exceptional success.

Finally, we also contribute to strategy literature by drawing attention to the processes that influence decisions to stay within versus bridge category boundaries. This approach to conceptualizing the trade-off between being different and being the same has received less attention [one exception is Dobrev (2007), who finds that positioning moves are strongly conditioned by the actions of peers]. The forces we have drawn attention to relate to firm positioning and perceptions of market structure, and how these impact organizational strategies generally. Yet, there are likely to be important differences by organizational type. For example, organizations new to an industry may have greater flexibility and freedom to respond to changes in the structure of the market relative to more experienced organizations. And organizations that have previous experience with diverse genres may be more likely to produce hybrid products than organizations with a more specialized background. Research investigating how different types of organizations are differentially influenced by the forces highlighted in our study would enhance current understanding of the mechanisms driving category hybridization and its implications for market performance.

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