Essays in Strategy

by

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A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy

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2010

Abstract

My research examines how different organizational phenomena function under psychological and cognitive constraints. My first study examines how audiences evaluate an established or taken-for-granted category in negative moods. Categories facilitate exchange by serving as mental models or schemas that substitute for an organization’s attributes to help audiences make sense of what they see. Established categories are further postulated to be legitimized and taken for granted by audiences. Both organizations and audiences are thought to place a high value on category membership, preferring the schema-based category to the individual attributes underlying the category. Considering the preferences of a broad audience segment about an established category, I examine the boundary conditions that can cause the schemas of a legitimized category to fail. I propose that negative mood or affect will blur the category boundary causing it to no longer be preferred to the individual attributes. I further hypothesize that negative affect will induce a reversal of preferences, and offer a unified theory as to why negative affect can cause audiences to prefer the attributes underlying the category over the category itself in their evaluations. Results from data on a representative sample of individuals support these hypotheses. In my second study, I examine how social capital accrues to individuals who were part of a group from which a member achieved prominence only after the dismantlement of the group. I employ a difference-in-differences estimation strategy to identify
endogenous social effects in the context of the Hollywood film industry and find significant positive results for egos who worked with ex-post Oscar winning alters within four to six years prior to the alters’ Oscar win. Social capital effects break down, however, for length of prior years in either the too recent or too distant past. I attribute these findings to individuals’ incorrect recall of past events.
Acknowledgments

I would like to thank all those who supported me in any respect during the completion of this dissertation process. Specifically: Olav Sorenson for tirelessly reading drafts of this dissertation, the Big Carrot Natural Food Market and the UJA Federation of Greater Toronto for allowing me to conduct parts of my research on their premises and my family for helping me out financially when I needed it.

Information from Mark Bielby of the CFIA was instrumental in the formulation of this dissertation. Research assistance for the first part of this dissertation was provided by Rachel Stewart, Melanie Gogol and Natasza Ararile. This dissertation was partially funded by a grant from the AIC Institute for Corporate Citizenship.
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1 Introduction

Recent work in categorization theory has explored how market boundaries affect decision-making and exchange (Zuckerman, 1999; Fleischer, 2009). Categorization is a process by which the mental models or schemas of categories act as blueprints to summarize product attributes. Categories simplify decision-making by serving as cognitive shortcuts to help audiences understand their surroundings and make sense of what they see. For example, Carroll and Swaminathan (2000), have described how ale and beer classified as microbrews inform audiences that they were produced via small-scale traditional “hand-crafted” methods. Films sorted into different genres based on similarities in their narrative elements aid critics in evaluating them and audiences in viewing them (Hsu and Hannan, 2005). By grouping like objects together and separating disparate objects from one another, categories provide a streamlined way of presenting information.

Categories also serve as legitimizing measures by informing audiences that objects which are members of a category conform to category schemas and meet the features or attributes of the category (Meyer and Rowan, 1977; DiMaggio and Powell, 1983). Objects that conform well to their category are seen as legitimate; those that do not are discounted by audiences and are not considered to be true category members (Zuckerman, 1999). This highlights the importance of the strength of audience beliefs about the schemas of a category. Audience beliefs about category schemas confer legitimacy upon categories and, by extension, upon category members.

Although much progress has been made in understanding audiences’ evaluations of categories (Hannan, Pólos and Carroll, 2007), research on the erosion of and/or evolution of category boundaries remains limited. At the outset, a central tenet of the theory is the concept of an established category. An established category is considered to be a category that is taken for granted by the audience segment. The schemas of an established category are used as defaults by audiences in their evaluations of category membership (Hsu and Hannan, 2005). Although an important starting point in understanding categorization, this assumption neglects the role of
contingencies on the potential evolution of a category’s boundary. For example, information updating could mean that category boundaries need not necessarily remain rigid but may evolve over time.

Categories are learned (Harnad, 2005) and result from cognitive processes intended to clarify and organize thinking. Because learning is an ongoing process, it can re-organize thinking and change categorical boundaries. For example, Harnad (2005) describes a process of “supervised learning” consisting of feedback-guided trial and error training. Trial and error, by its very nature, modifies existing paradigms to newer versions. Consider that at first blush, an object may have one set of attributes but, upon further deliberation, a different set of attributes emerges. The object must then be reclassified either by associating it with a different category, or by changing the category boundary. Fleischer (2009) explores this theme by examining how rating organizations’ conflict-of-interest relationships can cause them to reexamine their products in a more favorable light and recast them in newly created, more positive sounding categories. Rao, Monin and Durand (2005) consider a slightly different perspective by examining how category boundaries weaken in the presence of borrowing from a rival category. In both cases, the result is a blurring of the category boundaries that separate the products. These examples demonstrate that category boundaries need not remain fixed but may evolve over time.

In general, the evolution of categorical boundaries can occur when contingencies, such as information updating impact an already established category. Another such contingency is the different mood states in which categories can be encountered (Watson and Tellegen, 1985; Watson and Clark, 1984; Watson et al., 1988). Moods determine how individuals process information with different processing styles indigenous to different moods. For example, research in psychology has found that negative mood or affect such as anxiety, irritability, and hostility promote an accommodative processing style, while positive moods instead engender assimilative processing (Bless and Fiedler, 2006; Bless, 2001; Fiedler, 2001). The difference in the two processing styles is markedly diametric. Accommodative processing calls for detailed, systematic and concrete information while the assimilative style relies on abstract knowledge structures and heuristics (Bless and Fiedler, 2006; Bless, 2000, 2001; Fiedler, 2001; Forgas, 2007).
Since category schemas are heuristic based, negative affect can weaken categories by rendering their schemas less accessible. In this way, negative affect can erode categories and, by extension, category boundaries. At the same time, the accommodative processing style of negative affect favors category attributes whose concrete, detailed information now becomes salient. Although empirical research has examined the process by which categories are formed, few studies have considered boundary erosion, and an even lesser amount have investigated the different moods in which categories can be encountered. The effect of mood on audience evaluations of categories, and category evolution in general, is thus an important research topic in categorization theory.

This paper examines how negative mood or affect can influence audience evaluations of an established category. I argue that negative moods, rather than positive or neutral states, can cause audiences to reexamine the schemas they had formulated for a category and cause them to wane. This is because negative affect facilitates an accommodative processing style with an emphasis on concrete and detailed information rather than heuristic schemata which, by so doing, promotes the erosion of category boundaries. The objective of this study, therefore, is to extend the theory of categorization by investigating how negative moods can erode categorical boundaries. As a first step I investigate audience preferences for a single established category, and the underlying attributes which comprise it, in the presence of both negative and neutral affect (control). I examine whether negative moods can indeed alter audience evaluations of previously formulated category schemata such that underlying category attributes become preferred over the category itself.

I test my hypothesis by measuring the preferences of a representative sample of 575 individuals in the greater Toronto area (GTA) about the institutionalized organic category and three underlying attributes which comprise it. I find that negative affect does indeed account for inflexible and inefficient cognitive processing. In general, a category is a cognitive shortcut, legitimizing measure and superset of the attribute structure it represents. All other things equal, an object belonging to a category should thus be preferred to one not belonging to a category (which relies instead on its attribute structure alone). However, I find that for two identical products – one associated with the organic category, the other associated with an attribute (subset) of the category – individuals prefer the category in a neutral (control) state yet choose
the attribute underlying that category in a negative affective state. This reversal of preferences is shown to hold even though people clearly know the category contains the attribute.

2 Audience Evaluations of a Category and its Attributes

Among the numerous categorization theories in place, three main views predominate. In the classical Aristotelian sense, objects are classified according to the similarity of their properties or attributes. A given object will necessarily belong to only one category and embody its attributes, the set of which are shared by all members of that category. Categories, in this instance, are clearly defined and non-overlapping discrete entities (i.e. are mutually exclusive and collectively exhaustive). The process of conceptual clustering, by comparison, posits that categories are invoked first, after which objects are grouped by similarity into categories based on their descriptions. In this case, objects may belong to more than one category. Finally, the prototype or Roschian theory of categorization classifies objects based on their proximity to a prototype. Membership in a category is inconsistent, with certain objects being graded as more central than others. With the Roschian formulation, categories are experiential and may differ among populations.

Notwithstanding differences in how individuals may categorize, a basic principle of categorization (Rosch and Lloyd 1978) that applies to all three theories is that categories are heuristics – a “fast and frugal” (Gigerenzer and Todd, 1999) means of providing maximum information at minimal cognitive expense. Categories facilitate exchange by serving as cognitive shortcuts whose blueprints or schemas encompass the attributes for which they proxy. An important assumption of all three categorization theories is that although the underlying attributes of a category are important during category emergence, they become less so the more a category becomes established and frequently used by audiences. Established or institutionalized categories are further assumed to be taken for granted by audiences; their category labels are considered to be sufficient, and their underlying attributes superfluous (Hsu and Hannan, 2005). A consequence of this assumption is that institutionalized categories are treated as substitutes for the attributes of their member objects. Since categories substitute for attribute structures, the value of membership in an institutionalized category should at least be equivalent to the value of the attributes of their member objects.
However, I argue that categories are actually superior to the attribute structures they represent and are preferred by organizations. That is to say, organizations prefer being (or having their product be) a member of a category rather than relying on organizational or product attributes alone. This is because categories serve a far greater purpose than simply mapping attribute structures and providing cognitive economy. Organizations use categories to match individual expectations to organizational offerings. For example, a person looking to purchase a sports car will visit a dealership which specializes in that vehicle category and not one which specializes in station wagons or pickup trucks. It is by belonging to the right category that organizations garner audience attention and consideration. Consequently, organizations will desire to be a part of a category and focus much time and energy on where and how they get classified.

Categories also summarize the attributes of their member organizations, and since attributes are rarely identical for all members, categories incorporate attributes in their schemas that apply to some organizations but not necessarily to others. In this way, categories overstate the attributes of certain organizations – a desirable side effect providing the attributes are positive. Thus, another reason it is advantageous for firms to belong to categories is because not only are their attributes swiftly enacted by category schemas, but they are also credited with favorable attributes they may not necessarily possess. For example, among high-end automobiles, a Mercedes may have more of a cachet than, say, an Infinity but since both are classified as luxury vehicles Infinity dealerships can lay claim to a similar status as Mercedes.

Additionally, categories serve important legitimizing functions. Research has shown that organizations not belonging to a category or not belonging to the correct category risk being ignored by audiences (Carroll and Swaminathan, 2000; Zuckerman and Kim, 2000) or not recognized by analysts (Zuckerman, 1999). Categories are similarly important for product differentiation as demonstrated by the Phillips and Zuckerman (2001) study whereby a subset of corporate high-status law firms, though optimally situated in the corporate law category, sought to differentiate themselves from other high-end firms by adopting a family law practice. Family law, traditionally the domain of low-end “personal-plight” firms, is considered a down-market pursuit. But by targeting the dual categories of executives as well as the firms they represent, upscale corporate law practices both avoided the stigma of family law and enjoyed the benefit of a differentiating measure. This is why, due to the many varied benefits of category membership,
I argue that a category is preferred to the underlying attributes it represents and state the baseline hypothesis as:

**Hypothesis 1 (H1): Membership in a category is preferred to the underlying attributes it represents.**

The above hypothesis should hold provided audiences’ formulated schemas for a category remain the same. Should formulated category schemas change, then it is not clear that membership in a category is preferred to the underlying attribute structure the category represents. The reason for this is that changing or evolving category schemas elicit confusion and, indeed, may not even represent the original attribute structure. Evolving category schemas can compromise the taken-for-granted quality of a category by rendering it fuzzy. One way that a category’s schemas can become compromised is when the category boundary becomes eroded. Extant research on categorical boundary erosion (Fleischer, 2009; Rao, Monin and Durand, 2005), though limited, has found that a blurring of category boundaries renders categories more nebulous, making it more difficult to classify objects. Fleischer (2009) reports that some categorization schemes are ambiguous and blur category boundaries. Rao, Monin and Durand (2005) discuss how borrowing from a rival category can erode categorical boundaries. Thus, I contend that a necessary condition to the taken-for-grantedness assumption of institutionalized categories, as postulated by Hsu and Hannan (2005), is that the boundaries of institutionalized categories remain invariant.

In addition to the effect ambiguity and borrowing from rival categories have on boundary erosion, I suggest that affective states have a similar potential to erode categorical boundaries. Prior research on affect and categorization (Isen and Daubman, 1984; Isen, 2001) has found positive affect to expand category boundaries. By way of three different studies, Isen and Daubman (1984) showed that a mild positive affective state can cause individuals to include unusual or fringe exemplars as members of a category, thereby expanding the category’s boundary. These same exemplars were excluded from the category by the no-manipulation control group. Isen and Daubman (1984) also speculated that negative affect may produce a similar classification scheme as that produced by positive affect (via the process of affect-
repair\(^1\)) but failed to reach customarily accepted levels of significance to draw such a conclusion. In fact, there is little reason to believe that negative affect is responsible for a similar classification mechanism as positive affect. Rather, there is ample empirical evidence to the contrary.

### 2.1 The Role of Negative Affect

At this point, it is necessary to define the term negative affect as it is used in the literature and in this study. Throughout this paper, I use the terms “mood” and “affect” interchangeably. In fact, there are multiple constructs for affect of which the two most fundamental are emotions and moods. The distinction between emotions and moods hinges upon their respective diffusivities. Discrete emotions are directed towards an object (say a person or a specific event), whereas moods, by contrast, are unattached to any object of interest. Moods are thus more diffuse (and usually weaker and longer lasting) forms of affect than emotions which tend to be more intense and of a shorter duration (Cropanzano et al., 2003; Lazarus, 1991 as noted in Barsade, 2002). Generally speaking, moods are considered broader affective constructs and more generally present in populations than are emotions (Mayer et al., 1991 as noted in Barsade, 2002) which is why I operationalize negative affect as negative mood for the purpose of this study.

Mood affect is most commonly structured as an affect circumplex enclosing the two bipolar and perpendicular dimensions of positive and negative affect. The poles of each dimension correspond to the intensity (high and low) with which positive and negative affect are experienced\(^2\). Note that discrete emotions can similarly be mapped onto the affect circumplex but do not fill up the whole space. In fact, discrete emotions constitute less than half of the circumplex; the reason being that although emotions always correlate with mood, mood need not always involve emotion (Cropanzano et al., 2003). Thus, although I formalize my hypotheses in

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1. As per Isen and Daubman (1984), affect-repair is a process by which “…normal people who are feeling bad may engage in processes designed to make themselves feel better…”

2. There exists some debate regarding the form of the circumplex, specifically on whether mood affect is described in terms of positive and negative affectivity (dubbed the rotated solution) or in terms of mood valence and activation (the unrotated solution). For my purposes, either paradigm is valid although I use the term “negative affect” for simplicity. See Cropanzano et al. (2003) for further details.
terms of mood affect, an interpretation in terms of discrete emotions would yield similar results since both constructs are structured in the same way.

Negative affect influences cognition in numerous ways. As early as the 1950s, research performed on food deprived rats (Bruner, Matter, & Papanek, 1955) found that negative affect (due to food deprivation) narrowed the attentive range of the animals and limited their breadth of learning. Since then, many more studies have explored the relationship between affect and information processing. For example, Staw, Sandelands and Dutton (1981) explored threat-rigidity effects in individuals, groups, and organizations. They found that individuals in threatening environments tended to respond in a rigid manner manifested by a restriction in information processing and a constriction of control. In other words, individuals who felt threatened were less flexible, preferred simplified information and relied upon prior well-learned behaviors (Staw, Sandelands and Dutton, 1981). Izard (1991: 282) formulated threat in terms of discrete emotions, specifically fear, by suggesting that fear is “…the feeling that results from the apprehension of threat or danger”. Bless (2000), in discussing how even minor changes in affective states can profoundly influence thinking, observed that positive affective states are more strongly associated with heuristic thought processes than are negative affective states. In fact, a wealth of research corroborates the finding that individuals in happy moods rely on available heuristic information in judgment and decision-making. While those experiencing negative affect, on the other hand, prefer specific, detailed information and strength of argumentation (Isen et al, 1982; Bless et al, 1990; Bless, Mackie and Schwarz, 1992; Mackie and Worth, 1989; Worth and Mackie, 1987; Schwarz, Bless and Bohner, 1991 as noted in Bless, 2000).

It should not be surprising, then, that affect would have associated consequences for category activation. Social psychologists have long hypothesized category activation to be an unconditionally automatic mental process. By unconditional, I mean unintentional, involuntary, effortless (i.e. not requiring processing resources), and outside the realm of awareness (Bargh, 1989; Gilbert and Hixon, 1991). However, this view has been challenged (for example, Bargh 1989) by arguing that automaticity is actually conditional upon the occurrence of favorable circumstances. That is to say, category activation is only automatic or taken for granted providing certain circumstances that enable category activation exist. For example, in the
context of social stereotyping, Blair and Banaji (1996) demonstrated that social stereotypes (previously thought to be unconditionally automatic) could be eliminated if participants were motivated to counter these stereotypes, provided sufficient cognitive resources (time in this case) were available. Also in the context of social stereotyping, Gilbert and Hixon (2000) found that subjects who were cognitively busy (by mentally rehearsing an eight-digit number, in this case) did not activate the same social stereotypes as non-busy subjects. In their study, busy and not-busy subjects were exposed to an Asian or Caucasian assistant and then asked to form an impression. Although all subjects correctly identified the ethnicity of the Asian assistant, not-busy subjects activated Asian stereotypes about this assistant while busy subjects did not. Thus, although categories provide cognitive economy (for whatever purpose), they must first be activated before they can be applied. And cognitive busyness was shown to be one circumstance that inhibits their activation.

Extrapolating from this work I suggest that, similar to cognitive busyness, negative affect can also inhibit the activation of categories. Negative affect emphasizes concrete and detailed information over heuristically based reasoning; by so doing, negative affect is less apt to access the necessary schemas needed to activate the category. At the same time, negative affect focuses attention on systematic and detailed information; information that is precisely contained in the underlying attributes of the category. As Bless (2000:203) noted “…individuals in negative affective states may feel less confident in relying on general knowledge structures and may be more likely to focus on the data at hand.” Taken together, these arguments imply:

Hypothesis 2 (H2): Under negative affect, detailed attributes underlying a category are preferred to the category itself.

3 Method

3.1 Setting: The Organic Food Category

I test my hypotheses by measuring the preferences of a representative sample of individuals in the greater Toronto area (GTA) about the organic food category and its underlying attributes. The organic social movement originated in the early 1900’s as a reaction to the emergence of industrial agriculture which used agrochemicals such as synthetic nitrogen fertilizers and
pesticides to achieve economies of scale. It is thought that extreme right-wing conservatives, hoping to preserve traditional social orders, were the early advocates of an organic movement that they hoped would abate the threat of industrialization to traditional country life (Conford, 2001). Over time, select groups of farmers concerned with the anthropogenic effects on farming formed various organizations affiliated with organic agriculture. Early organic standards and accreditation services were established in 1972 by worldwide umbrella organization International Federation of Organic Agriculture Movements (IFOAM). Today, food-oriented social movements have grown to include safety issues relating to food production (e.g. industrial agriculture, genetically modified organisms, and pesticides) as well as the environmental and health benefits of sustainable food systems and organic foods (Hess, 2004). This paper focuses on the organic food movement which, although accounting for only 1-2% of total food sales worldwide, has rapidly surpassed the conventional food industry in growth. In North America alone, sales of organic food average about 20% a year compared to about 2% for the conventional food market (Warner, 2005).

The organic food category imparts clear advantages to the study of boundary erosion. First, due to its rapid growth, organic food has found mainstream success and is considered to be institutionalized (Hess, 2004; Weber et al., 2008), such that it is not uncommon to find many foods certifying an organic mode of production in both specialty stores and conventional supermarkets alike. In fact, organic food has become so vast in scope that it is necessary to narrow the focus of this paper to a smaller subdivision of the organic market. I chose organic poultry as the subclass to study since it is widely consumed (poultry is the number one animal species consumed by North Americans), and easily found in the same place in most supermarkets.

Second, the organic category is regulated which makes organic food easily distinguishable and quantifiable. For a product to be certified organic, it must adhere to strict rules and be subject to regular inspections by certifying bodies. In the case of organic poultry, to receive the organic

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3 IFOAM is a non-governmental organization or NGO whose members included Demeter International of Germany, Rodale Press (an American publisher of health and wellness material), and the Soil Association (an environmental charity group).
label, chickens must be able to roam freely on chemically untreated land\(^4\) and meet strict standards on feed. Organic feeds are similar to conventional feeds with the following exceptions\(^5\):

1. At least 80% of all feed ingredients must come from organic sources\(^6\).

2. All organic feed ingredients, such as vitamins, that are not of 100% natural origin must be approved by a certification body\(^7\).

Organic foods (which include organic feed ingredients) are produced according to different production standards which depend upon the organic certification employed. Because many different organic certifications exist within North America\(^8\), for this study, the organic category will be referred to as the “certified organic” category to dispel any confusion.

Finally, an additional advantage to using the organic category to study boundary erosion is that numerous attributes underlie the organic category such that coming up with a comparison subset of attributes for the category poses no difficulties. For organic poultry, the chief attribute that differentiates it from conventional chicken is the organic nature of the feed. But in addition to this, organic chicken feed must also be:

1. “grain fed”

2. contain “no animal by-products”

3. contain “no growth hormones”

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\(^4\) Land must have been untreated by chemicals for at least three years.

\(^5\) via The Chicken Farmers of Canada (CFC), a national farmer-run organization established in 1978 to produce chicken to meet the needs of the marketplace. More information is available at www.chicken.ca.

\(^6\) i.e. products from farms that meet organic farming standards set by the Canadian General Standards Board, a government agency, and meet the requirements of a reputable certification body.

\(^7\) Additionally, although not specifically mentioned, organic chicken feed does not usually contain any animal by-products.

\(^8\) The Canadian province of Ontario alone has five different certification bodies of which the Pro-Cert Organic Systems Ltd. (formerly OCPP/Pro-Cert Canada Inc.) is the most well known.
It is of interest to note that conventional chickens are also grain fed and their feed, similarly, does not normally contain animal by-products. Additionally, Canada has banned the use of hormones in chicken feed since the 1960s, so hormones are never present in chicken feed of any kind. However, the first two attributes above are included in the study due to the Canadian Food Inspection Agency (CFIA) suggesting that “grain fed” and “no animal by-products” are of concern to Canadians. The third is used because, although growth hormones have been banned for decades, many chicken producers still prominently display the “no growth hormones” claim. Therefore, to be as realistic as possible, this study uses the three claims above which are commonly found (either individually or grouped) on packages of conventional (i.e. non-organic) chicken. Note that these claims are not found on organic chicken as the organic chicken category already incorporates these attributes (and several others) in its label.

The purpose of this study is to investigate audience evaluations of the certified organic category compared to the three attributes “grain fed”, “no animal by-products” and “no growth hormones” that underlie it. This is accomplished by analyzing audience trade-offs in both a negative and neutral affective state. A trade-off is made when an individual makes a preference judgment (allowing for indifference) between alternatives. To study these trade-offs, I employ a card-sorting task.

3.2 Experimental Design

3.2.1 Card-sorting task

The purpose of the card-sorting task is twofold. First, it is to affirm that individuals do indeed prefer an established category over the attributes underlying that category in a neutral state of

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9 The Chicken Farmers of Canada (CFC) website states that “all chickens are essentially “grain fed”” with 88% of chicken feed consisting of grains and grain by-products, protein-producing seeds, and canola or soybean meal. About 10% of the feed are other protein sources such as meat and bone meal and/or vegetable fats; and 1.5% are mineral and vitamin supplements. Additionally, the feed may contain trace amounts (less than 1%) of enzymes and antibiotics.

10 Canada’s federal regulating body responsible for animal welfare and food method of production (MOP) claims was created in April 1997 as The Canadian Food Inspection Agency (CFIA). According to the CFIA, the MOP claims “grain fed” and “no animal by-products” are of concern to Canadians.
affect. And second, it is to show that in a negative affective state, the preference ordering changes, and the underlying category attributes are preferred to the category itself. This is because negative affect facilitates an accommodative processing style (Bless, 2001; Fiedler, 2001), defined by Fiedler (2001:181) as “…a bottom-up process by which the organism adapts to the affordances of the external stimulus world.” Accommodation, according to Fiedler (2001:181), “…means to stick to the facts, not to miss or lose potentially relevant stimuli…” In a bottom-up process, object attributes are specified in great detail and built up to form a complete system. Top-down processes, by contrast, are heuristic-based.

The card-sorting task is comprised of 96 cards in total. Each card lists either the chicken category (i.e. “certified organic”) or one of four possible chicken attributes delineated in figure 1. As shown in figure 1, the attributes “Grain fed” and “No animal by-products” are singleton attributes. The first dual attribute (“No animal by-products and No growth hormones”) is composed of two single attributes joined together. This dual attribute, by virtue of containing two attributes, is more detailed than the single attribute and thus models the accommodative processing style postulated by negative affect.

Here, the wording of the growth hormone usage is notable. As previously mentioned, Canadian (and American) law has banned the use of hormones in chicken since the 1960s so hormones cannot be present in chickens of any kind. In fact, Canadian labeling guidelines prohibit the use of the “No growth hormones” claim due to its misleading nature. The claim is considered misleading because, although chicken displaying this claim is assured to contain no growth hormones, the thought is that other chicken not affixed with this claim may contain them. For this reason, Canadian labeling guidelines propose that a more truthful claim instead read “Like other chicken, this chicken was raised without the use of hormones.” I incorporate both wordings in my construction of the dual attribute pair because, despite the “no growth hormones” claim being prohibited by Canadian law and guidelines it is, as of this writing, still currently in use.

11 The 2007 CFIA Labeling Guidelines for MOP Claims on Meat, Poultry, and Fish Products draft policy points out that the “no growth hormones” claim is in violation of Section 5(1) of the Canadian Food and Drugs Act (FDA), Section 7(2) of the Consumer Packaging and Labeling Act (CPLA), and Section 94(7) of the 1990 Meat Inspection Regulations. (The exact wording of these laws and guidelines are found in appendix 1.)
The second dual attribute (“No animal by-products and Like other chicken, this chicken was raised without the use of hormones”) does not model accommodation because the attribute “Like other chicken, this chicken was raised without the use of hormones” contains no new information. True, this more truthful dual attribute contains more information than does a single attribute, but the information is explicitly redundant (just by reading it) unlike the “No growth hormones” attribute where the redundancy is not immediately clear. In fact, the deceptive nature of this attribute is the very reason Canadian law prohibits its use. Additionally, another difference between the deceptive and truthful dual attributes is that the deceptive claim, due to its misleading wording, should induce negative affect (via the emotion of fear) while the truthful claim should not.

The idea behind the card-sorting task is that participants choose between either the category or one of the four different attributes (two single and two duel attributes). To contextualize the task and make it more realistic, I added the chicken brand and price to each card. In this way, the card-sorting task has participants choose between different brand-category/attribute-price combinations of chicken – similar to what they would do in a grocery store. The analysis of participant choices allows me to parse out individual valuations of each (brand, category/attribute, price) via the method of conjoint analysis.

3.2.2 Conjoint analysis

The card-sorting task is based on the conjoint analysis statistical technique. Conjoint analysis, though novel to the organizations literature, is an extremely good predictor of purchase behavior that has been used extensively in market research to determine individual valuations of different attributes making up a product (Green and Srinivasan, 1978; Green et al., 1981). Conjoint analysis is thus an ideal method to determine whether audiences prefer the category or the underlying category attributes in a negative affective state.

In a conjoint analysis, participants rank several alternatives with each alternative being composed of different components. Each component of each alternative is at one of several possible levels. For example, figure 2 displays two alternative cards, A and B, from the card-sorting task which contain three components each. The first component has two possible levels – “Maple Leaf” and “Rowe Farms”. For the sample cards of figure 2, “Maple Leaf” is on card A and “Rowe Farms”
is on card B. The second component has five possible levels, two of which are displayed in figure 2 – “Certified organic” for card A and “No animal by-products and No growth hormones” for card B. The third component has two possible levels – “$5.00” on card A, “$7.00” on card B. This conjoint design uses a 2 (brands) x 4 (category/attribute) x 2 (prices) full factorial design. A full factorial design means that all interactions are included and allows me to investigate the effect of each factor on choice. According to the conjoint analysis technique, each ranked alternative can be decomposed into the sum of contributions from its components. The contribution of each component is its marginal utility multiplied by its level. Thus, once participants have ranked the alternatives, the part-worth or marginal utilities of the components making up the alternatives can be calculated.

Traditionally, a conjoint analysis would be administered by having respondents rank the alternatives in order of preference (with ties allowed). However, because this study has 16 alternatives (i.e. 2 x 4 x 2), it is not feasible for respondents to individually rank each alternative and the task is instead facilitated by incorporating a paired comparison approach. In a paired comparison, each respondent makes a series of preference judgments (or is indifferent) between two of the 16 possible alternatives. The paired comparison approach for 16 treatment levels would require (16)(15)/2=120 paired comparisons which is overwhelming for any one respondent to undertake. A mathematically robust way of decreasing the number of paired comparisons is to employ a Partially Balanced Incomplete Block (PBIB) design which reduces the number of paired comparisons while still maintaining partial balance. Different methods are available for PBIB designs. For my case, the 16 treatment levels represent a perfect square which allows me to use the PBIB design as presented in Green (1974). Incorporating Green’s (1974) PBIB design allows for 48 paired comparisons instead of 120. In this way, each

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12 The remaining three levels that are not displayed in figure 1 are “Grain fed”, “No animal by-products” and “No animal by-products & Like all other chicken, this chicken contains no growth hormones.”

13 Note that although the category/attribute component has five different levels, only four are used in the conjoint design. This is because there are two different conjoint designs. The first conjoint design uses the deceptive dual attribute to induce negative affect; the second conjoint design uses the truthful dual attribute and serves as a control.

14 Because I am using a full factorial design, all possible combinations of the factor levels are taken into account. This means that even combinations that may seem unlikely (e.g., “Maple Leaf” and “Certified organic” and “$5.00”) are considered in the analysis. In other words, the reputational effects of components do not affect each other.
respondent makes one choice (or is indifferent) between two possible alternatives and they do this 48 times.

Respondents are presented the paired comparisons one after the other, a total of 48 times. Since each comparison pair is a choice between two alternatives, it is feasible that certain respondents will be more alert for the first few paired comparisons than the last few (fatigue effects). Or, the ordering bias could be that the respondents start taking the paired comparisons more seriously towards the end, rather than at the beginning, of the sequence. Additionally, carryover effects could be generated if certain treatment pairs influence other subsequent treatment pairs. To minimize such ordering biases and carryover effects, the paired comparisons are administered via a counterbalanced Latin Square design.

### 3.2.3 Latin square design

A Latin square design consists of the treatment pairs arranged in such a way that each comparison pair appears only once in each orthogonal column or row. A counterbalanced Latin square design is when, in addition to each comparison pair appearing only once, each comparison pair follows each of the others exactly once. This is called a diagram-balanced or row-balanced Latin square and is described in detail in Keppel and Wickens (2004). To fulfill this condition for 48 paired comparisons, a diagram-balanced Latin square must be 48 x 48 cells. Additionally, for proper implementation of the counterbalanced Latin square design, the number of participants must be a multiple of the number of rows (or columns) of the Latin square. For my purposes, this amounts to 144 (i.e. 48 x 3) participants per each condition, which gives me 576 (i.e. 144 x 4) participants in total.

### 3.2.4 Procedure

Five hundred and seventy six (576) Canadian residents over the age of 18, who had previously purchased poultry, were recruited for a mall-intercept interview at supermarket entrances. Participants were recruited from five different locations in the greater Toronto area (GTA). Four fifths (4/5) of individuals were interviewed at or close to conventional supermarkets and one fifth (1/5) were interviewed at the “Big Carrot Natural Food Market”, a Canadian worker-owner cooperative specializing in organically grown genetically modified organism (GMO)-free and environmentally safe products. Sampling was done in this manner to approximate results from a
national survey which determined that 18 percent of Canadians are regular purchasers of organic foods (Environics, 2001). At each location, a table and chairs were set up. Individuals were invited to participate in the study and told that “consumer views on chicken” were sought. Those who agreed to participate sat down at the table and were administered the interview by a research assistant, starting with the card-sorting task.

Negative affect was induced in two different ways. First, as mentioned previously, by having two different wordings of the dual attribute – deceptive and truthful. And next, by having participants read a short, factual text. Before beginning the card-sorting task, participants were asked to read, at their own pace, one of two short texts and count the number of nouns. The first text was the no-manipulation prime which provided factual information on a heart-healthy diet (the “Mediterranean diet”). The second text was the negative affect manipulation which factually described the fatal, neurodegenerative disease in cattle called bovine spongiform encephalopathy or, more colloquially, “mad-cow disease”. After participants finished reading the text, they were administered the card-sorting task. Thus, each participant was part of one and only one group – the no-manipulation/neutral wording (control group), the negative affect /neutral wording, the no-manipulation/misleading wording or the negative affect/misleading wording. Figure 3 delineates each of the four different groups.

Once the card-sorting task was completed, participants were verbally asked a series of open-ended questions by the examiner including the question “Do you know how regular chicken is different from Organic chicken? If so, how?” Immediately following the interview, participants were asked three questions relating to mood (the manipulation check) and several standard demographic questions. They were then thoroughly debriefed and paid $5.00 compensation.

15 The Mediterranean Diet combines elements of Mediterranean-style cooking and is widely touted as a heart-healthy eating plan.

16 Mad-cow disease and its various forms can only exist in ruminants or mammals that digest plant-based food. Chickens are not classified as ruminants and thus mad-cow disease is irrelevant to chickens which cannot contract any form of the disease.
3.3 Data and Measures

For the card-sorting task, participants decide between two alternative cards in each paired comparison. Each alternative card is a combination of a particular brand, category/attribute, and price of chicken, two examples of which are shown in figure 2. From these sample two alternatives, participants would select either alternative A or alternative B or, if participants were indifferent between alternatives A and B, they would choose neither.

A computer program was developed to code each participant choice. The program determined which of the two possible alternatives was selected (including indifference) by each participant. If a participant’s preference did not correspond to one of the allowable alternatives (according to the Latin square design), an inputting error was made and was coded accordingly. Each participant had 48 decisions to make in the card-sorting task. For each paired comparison, the selected alternative’s brand, category/attribute, and price are coded as “1”; the alternative not selected has its brand, category/attribute, and price coded as “0”. In the event of a tie where neither (or both) of the alternatives are selected, the brand, category/attribute, and price of each alternative is coded as “1”. Errors in coding (i.e. if the selected alternative contradicts the Latin square design logic) are recorded as “0” for the brand, category/attribute, and price of each alternative. For example, returning to figure 2, if alternative A is chosen over B then the brand “Maple Leaf”, the category “Certified organic” and the price of “$5.00” will be coded “1” but the brand “Rowe Farms”, the dual attribute “No animal by-products and No growth hormones” and the price “$7.00” will be coded “0”. A tie would result in all components (i.e. “Maple Leaf”, “Rowe Farms”, “Certified organic”, “No animal by-products and No growth hormones”, “$5.00” and “$7.00”) coded as “1”, while an error would code them all as “0”. The card-sorting task had a cross-sectional sample of 576 participants make 48 selections each for a total of 27,648 choice observations. Of this choice data, 36 contained errors and one participant was eliminated (due to not having any preferences whatsoever, including financial) resulting in 575 participants and the total percentage of errors at substantially less than 1% for the study. Table 1 reports descriptive statistics for the card-sorting task.
3.3.1 Dependent variable

The dependent variable is binary and is the component (brand, category/attribute, and price) of each alternative chosen by the participant. The conditional logit model is used to model the choice outcomes. The conditional, rather than the multinomial, logit is appropriate here because to determine whether the category or attributes are more compelling to audiences requires modeling the expected utilities in terms of characteristics of the components of the alternatives (i.e. brand, category/attribute, price) rather than attributes of the individuals. The conditional logit model predicts probability of treatment \( j \) being chosen over treatment \( k \) to be,

\[
Prob \left( Y_i = j \mid B_{i1} + B_{i2} + C + A_{i1} + A_{i2} + A_{i3} + P_{i1} + P_{i2} \right) \]

where,

\( B_{i1} \) is “Maple Leaf”

\( B_{i2} \) is “Rowe Farms”

\( C \) is “Certified organic”

\( A_{i1} \) is “Grain fed”

\( A_{i2} \) is “No animal by-products”

\( A_{i3} \) is “No animal by-products” & either (“No growth hormones” or “Like other chicken, this chicken was raised without the use of hormones”)

\( P_{i1} \) is “$5.00”

\( P_{i2} \) is “$7.00”

3.3.2 Independent variables

The variables of interest are the category/attribute components listed on each alternative (card) of the card-sorting task. The brand and price components (i.e. “Maple Leaf”, “Rowe Farms”, “$5.00”, “$7.00”) listed on the cards are included solely to provide a realistic setting for
participant choices and are not included in the hypotheses. Figure 1 illustrates the category and attribute components of interest. Under each attribute in figure 1 is indicated whether the attribute is single or dual. Dual attributes contain more detail than do single attributes and are thus expected to be preferred to the category by individuals in negative moods (H2). This is because people in negative moods process information in a more detailed and systematic manner and pay more attention to concrete external information as opposed to heuristics (Forgas, 2007; Bless and Fiedler, 2006; Bless, 2001; Fiedler, 2001; Sinclair, 1988 as noted in Forgas, 2007).

However, the accessibility of the truthful dual attribute (i.e. “No animal by-products and Like all other chicken, this chicken contains no growth hormones”) in a negative affective state is questionable at best. Due to its informational redundancy, the truthful dual attribute provides no more detail than single attributes and is included in the analysis only as a source of interest. Single attributes are not hypothesized to be preferred to the category in a negative affective state because, although their information is clear, it is not more detailed. In addition, the organic category has an element of goodwill associated with it, making the outcome of audiences’ preferences less clear in this case.

Figure 4 illustrates the expected inequalities predicted by my hypotheses. As shown in figure 4, hypothesis 1 predicts that the category (“Certified organic”) will be preferred to both of the single attributes (i.e. “Grain fed” and “No animal by-products”) and the truthful dual attribute (i.e. “No animal by-products & Like all other chicken, this chicken was raised without the use of growth hormones”). The category is not expected to be preferred to the deceptive dual attribute (i.e. “No growth hormones and No animal by-products”) due to the negative affect it is hypothesized to induce. The second hypothesis (H2) predicts that the deceptive dual attribute will be always be preferred to the category because not only does the wording of this attribute induce negative affect, but it is also more detailed and contains more concrete information than the category. However, the preference of the truthful dual attribute over the category under negative affect is less clear since, as mentioned previously, it is informationally redundant and contains no more detail than a single attribute.
4 Results

4.1 Manipulation Check

Negative affect was induced in the audience segment via two different routes. First, prior to administering the card-sorting task, participants were asked to read one of two factual texts and count the number of nouns. The neutral text described a heart-healthy eating plan, while the manipulation text (intended to induce negative affect) described a neurodegenerative disease in cattle. Negative affect was additionally induced via the wording of the dual attribute. The misleading dual attribute (“No animal by-products & No growth hormones”) should induce negative affect via the precipitating emotion of fear, while the truthful dual attribute (“No animal by-products & Like all other chicken, this chicken was raised without the use of growth hormones”) should induce no negative mood.

At the termination of the card-sorting task, participants were questioned about their level of worry on three food-related Likert items. A four-level Likert scale was used to construct the means for participants in negative moods (i.e. individuals subjected to either the manipulation text and/or the misleading dual attribute) and neutral moods (i.e. the no-manipulation group of neutral text and truthful dual attribute). As shown in table 2, an ordered logit found that the odds ratio for individuals in negative moods is significantly greater than one \((p < .05)\) with neutral moods as the baseline or referent. Thus, subjects under negative affect reported more worry than the no-manipulation control group. An explanation of why odds ratios are used instead of coefficient estimates is discussed in the section below.

4.2 Negative Affect

I test my hypothesis using the conditional logit model with the brand level “Rowe Farms”, the “Certified organic” category, and the price of $5.00 as the baseline or reference levels for brand, category/attribute and price respectively. The levels of the remaining variables are interpreted

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17 The three Likert items were: How worried are you about Salmonella bacteria or Salmonella poisoning? How worried are you that the chicken you buy is healthy and raised well? How worried are you that the food you buy is fresh?

18 The four-level Likert scale was constructed in the following manner: Very worried = 4; Somewhat worried = 3; A little worried = 2; Not at all worried = 1.
relative to these referent levels. Here again, I report odds ratios rather than coefficients for the conditional logit estimations due to the sensible interpretation of the odds ratio. The odds ratio for dichotomous factors (i.e. the chicken brand and price respectively), is the odds of the predictor levels being chosen over the referent levels. For example, as shown in model 1 of table 3, the odds ratio for “$7.00” is less than one (i.e. .407< 1), meaning that it is less likely (59% lower odds) of being chosen by participants than a price of “$5.00”. Or, to put it more plainly, people would much rather pay $5.00 than $7.00 for the same item. The odds ratio for the polytomous factor (i.e. the chicken category/attribute), is the odds of each predictor level being chosen over the referent level, holding all other levels constant. For model 1 of table 3 this would amount to the “certified organic” category being preferred to the “grain fed” attribute (the odds ratio for “grain fed” is .552 < 1), meaning that “grain fed” is less likely to be chosen by participants than “certified organic”. In table 4, I also provide dollar equivalents for the predictor levels to roughly quantify by how much they are desired (or undesired) relative to their referent levels. Here, I assume a linear interpolation of the utility value of money.

Hypothesis 1 examines whether it is the category or the attributes underlying the category that are preferred in neutral moods. As shown in model 1 of table 3, the odds ratios for all levels of the attribute factor are significantly less than one [p < .001] for participants in the no-manipulation (healthy diet text) condition. This means that the “Certified organic” category is preferred to both the single attributes (“Grain fed” and “No animal by-products” respectively) and the truthful dual attribute (“Like all other chicken, this chicken was raised without the use of hormones”) in a state of neutral affect. Table 4 column 1 further shows that for participants exposed to the neutral (healthy diet) text and the truthful dual-attribute wording, the “Certified organic” category is preferred to both single attributes by about $1.32 to $1.34, but is only preferred to the truthful dual attribute by 52 cents. Thus, the truthful dual attribute, even though it is de facto identical to the single attribute “No animal by-products”, it is nevertheless seen as superior to it. This could be because the redundant quality of the truthful dual attribute activates a reassurance mechanism that is absent in the single attributes.

To examine this in more detail, I investigated how the redundant dual-attribute (i.e. “No animal by-products and Like all other chicken, this chicken was raised without the use of hormones”) fared under negative affect. The redundant dual attribute is not accounted for in the formulation
of hypothesis 2 since it does not implicitly differentiate one product from another and, as such, does not contain the same level of detail as the misleading dual attribute. However, it can be construed to contain somewhat more information (though obviously redundant), than a single attribute since it may function as a reassurance mechanism for people. Model 2 of table 3 tests this dual attribute for participants given the manipulation (“Mad cow”) text. Although the odds ratio is less than one, it is close to one and insignificant which could indicate the beginnings of a preference reversal. Moreover, the second column of table 4 shows that the “Certified organic” category is preferred to the truthful dual attribute by an insignificant six cents.

Next, I examine whether negative affect can cause a reversal of preferences (H2). Support for this hypothesis would require that the detailed dual-attribute (i.e. “No animal by-products and No growth hormones”) be preferred over the category. To test this hypothesis, I analyze only those participants who had this dual-attribute included in the cards of their card-sorting task. Participants whose cards contain this dual-attribute are those in the no-manipulation group (healthy diet text) as well as those exposed to the negative manipulation (Mad cow text). Model 3 of table 3 shows the odds ratio for the detailed dual-attribute to be greater than one [1.071; p < .05; one-tailed test], supporting hypothesis 2. The third column of table 4 further shows that the detailed dual-attribute is preferred to the category by a price of about 17 cents [p < .05], thereby supporting hypothesis 2.

Finally, it could be argued that an alternate explanation for the detailed dual attribute being preferred to the category under negative affect has to do with participants’ strong preference for the “No growth hormones” attribute and not, in fact, a preference for more detailed information. To falsify this claim, I consulted answers to the open-ended question “Do you know how regular chicken is different from Organic chicken? If yes, how?” that was posed to participants at the termination of the card-sorting task. Out of those participants whose cards included the misleading dual attribute, I selected only those (in both non-manipulated and manipulated conditions) who clearly answered that the “certified organic” category of chicken uses chicken fed no growth hormones\(^{19}\). Results are shown in the fourth column of table 3 and indicate an odds ratio of 1.279 which is significantly greater than one [p < .001] for this group, with the

\(^{19}\) Many of these participants also named other favorable attributes contained in the organic category.
dollar equivalent at 51 cents as shown in table 4, column 4. Thus, even for those patently informed consumers cognizant that the “certified organic” category does indeed include the attribute, the detailed dual attribute of “No animal by-products and No growth hormones” is nevertheless preferred to it.

5 Discussion

Categories are cognitive shortcuts whose schemas serve as heuristic summaries for the attributes of their member organizations. However, validity of this paradigm requires that there exist a high degree of audience agreement on the schemas that constitute a category. Misalignment of audiences’ schemas can call the very nature of the category into question. The ensuing equivocacy can cause category boundaries to break down and the category to lose salience. Although research on ambiguity (Fleischer, 2009) and category-borrowing (Rao, Monin and Durand, 2005) has explored boundary erosion to some extent, much remains to be done to understand this phenomenon. Additionally, the above studies examined category erosion from the point of view of category enactors.

This study has attempted to shed further light on category salience by examining the qualities of category perceivers that can render a category less accessible. By linking the literature on categorization with that of cognition and social psychology, I have attempted to elucidate a process by which well-established categories can fail to register with audiences. Specifically, this paper advances the idea that negative affect on the part of category perceivers can erode category boundaries and cause the category to lose salience. The ramifications of this are both ample and counterintuitive.

For example, in the case of the organic category – its mandate is to provide sustainable produce that does not contribute to human or environmental harm. One would expect, therefore, that individuals would have strong preferences for the organic category when in a state of negative affect (especially negative affect triggered by fear). However, the opposite is found to hold. Individuals in negative moods were found to prefer the attributes over the category provided the attributes contained concrete, detailed information. What is especially interesting is that audiences preferred a dual attribute subset which excluded many of the attributes actually underlying the organic category. Thus, by choosing only two attributes out of a full attribute set
underlying the organic category, individuals were leaving beneficial attributes “on the table”. Indeed, even when individuals were cognizant that the category included the dual attribute, they still opted for the dual attribute.

However, as counterintuitive as this may seem, the results should not be all that surprising. Cognitive theory has long maintained the importance of mood affect to information processing (Bless and Fiedler, 2006; Bless, 2001; Fiedler, 2001). In particular, negative affect is postulated to increase preferences for concrete and detailed information, while positive affect instead emphasizes heuristic reasoning. Thus, although individuals may theoretically choose the organic category over the dual attribute in negative moods, the category must first be activated before it can be applied. Ironically, though, it is the very state of negative affect which interferes with category activation. This very anomaly was observed by Gilbert and Hixon (1991) in their study of cognitive busyness on the activation and application of stereotypes. They observe (Gilbert and Hixon, 1991:515):

“People are more likely to rely on activated stereotypes when conscious deliberation becomes difficult, but the very conditions that interfere with conscious deliberation may also interfere with the activation of the stereotypes (italics in the original). The metaphorical irony is that just when one needs one’s tool most, it may be hardest to find.”

I believe the implications of this finding have direct application for the broader research program on categorization. The canonical proposition of categorization is that institutionalized categories are taken for granted by audiences (Hsu and Hannan, 2005). However, this study has shown that, for individuals in a negative affective state, this need not be the case. Moreover, results from this study show that primed negative affect (i.e. via a manipulation) and negative affect induced by attribute wording both engender category erosion. This can have direct consequences not only for the organic category but for all categories in general as it is rare to find situations completely devoid of negative affect. For example, the media consistently reports mostly negative news that serves as a significant source of negative affect. Also, people may have personal issues and concerns that they are dealing with on any given day. And business exchanges are not made in an emotional vacuum no matter how much we would like to believe they are.
That being said, categories involved in human and/or environmental safety are particularly vulnerable to the ravages of negative affect. For these categories, a pervasive state of negative affect is not even necessary to erode category boundaries since they can be compromised by attribute wording alone. Thus, organizations unwilling or unable to submit to category membership may devise alternate means to compete with those who do. For example, small family farms unable to afford organic certification may adequately compete with larger certified conglomerates by clearly stating the beneficial attributes on their packaging. Or, firms may invest resources in advertising campaigns to erode the schemas of powerful legitimized categories to even the playing field. Consequently, classifications of medical devices, medical supplies/consumables, health supplements, vehicle crash avoidance, vehicle crashworthiness and many others are at particular risk of experiencing category erosion. This leaves organizations with a lot of leeway in their strategic decisions. Organizations chiefly known for their category membership may be leaving money on the table by not investing in additional methods of informing people.

Additionally, because the results of this study are shown to hold for the institutionalized organic category (Hess, 2004; Weber et al., 2008), the implications for less established, inchoate categories may be even more severe. Thus breakdowns in audience agreement for nascent and evolving categories, for instance, would be an interesting area for future study.

Finally, this study more generally describes how cognitive processes can cause categories, and by extension organizations, to become de-legitimized and alludes to the steps that can be taken by organizations to prevent this. For example, education and/or detailed information could play a role in the self-regulation of categories and in informing consumers. However, this is a topic for further study as this article only scratches the surface of potential research in the area.
References


Table 1. Descriptive statistics

<table>
<thead>
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<th>MEAN</th>
<th>S.D.</th>
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<th>MAX</th>
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<td>1</td>
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<td>.50</td>
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<td>1</td>
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<td>Certified organic</td>
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<td>.25</td>
<td>.43</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Grain fed</td>
<td>55200</td>
<td>.25</td>
<td>.43</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>No animal by-products</td>
<td>55200</td>
<td>.30</td>
<td>.46</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>No animal by-products &amp; No growth hormones OR</td>
<td>55200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No animal by-products &amp; Like other chicken, this</td>
<td>55200</td>
<td>.25</td>
<td>.43</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>chicken was raised without the use of hormones.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>$5.00</td>
<td>55200</td>
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<td>.50</td>
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<td>1</td>
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Table 2. Manipulation check of negative affect in audience+

<table>
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<tr>
<th>DEPENDENT VARIABLE</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. (Healthy diet)</td>
</tr>
<tr>
<td></td>
<td>No animal by-products</td>
</tr>
<tr>
<td></td>
<td>No growth hormones</td>
</tr>
<tr>
<td></td>
<td>2. (‘Mad cow’)</td>
</tr>
<tr>
<td></td>
<td>No animal by-products</td>
</tr>
<tr>
<td></td>
<td>No growth hormones</td>
</tr>
<tr>
<td></td>
<td>3. (‘Mad cow’)</td>
</tr>
<tr>
<td></td>
<td>No animal by-products</td>
</tr>
<tr>
<td></td>
<td>Like all other chicken, this chicken was raised without the use of growth hormones</td>
</tr>
<tr>
<td>Negative affect measured via three Likert items:</td>
<td>1.36*</td>
</tr>
<tr>
<td>1. How worried are you about Salmonella bacteria or Salmonella poisoning?</td>
<td>(.222)</td>
</tr>
<tr>
<td>2. How worried are you that the chicken you buy is healthy and raised well?</td>
<td></td>
</tr>
<tr>
<td>3. How worried are you that the food you buy is fresh?</td>
<td></td>
</tr>
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</table>

* p < .05; one-tailed test

+ Robust standard error in parentheses.
Table 3. Conditional logit estimates – odds ratios+

<table>
<thead>
<tr>
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<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
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</thead>
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<tr>
<td></td>
<td>Healthy diet</td>
<td>‘Mad cow’</td>
<td>Deceptive</td>
<td>Deceptive</td>
</tr>
<tr>
<td></td>
<td>Truthful</td>
<td>Truthful</td>
<td>(cognizant)</td>
<td>(cognizant)</td>
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<td>Maple Leaf</td>
<td>.718** (.026)</td>
<td>.680** (.025)</td>
<td>.689** (.018)</td>
<td>.509** (.025)</td>
</tr>
<tr>
<td>Grain fed</td>
<td>.552** (.034)</td>
<td>.479** (.029)</td>
<td>.466** (.020)</td>
<td>.303** (.025)</td>
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<td>.432** (.033)</td>
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<tr>
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<td></td>
<td></td>
<td>1.071* (.044)</td>
<td>1.279** (.098)</td>
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<tr>
<td>No animal by-products</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No growth hormones</td>
<td></td>
<td></td>
<td>1.071* (.044)</td>
<td>1.279** (.098)</td>
</tr>
<tr>
<td>Like all other chicken, this chicken was raised</td>
<td>.791** (.046)</td>
<td>.976 (.056)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>without growth hormones</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$7.00</td>
<td>.407** (.016)</td>
<td>.447** (.017)</td>
<td>.444** (.012)</td>
<td>.379** (.020)</td>
</tr>
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<td>N</td>
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<td>26260</td>
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<td>Pseudo R-squared</td>
<td>.097</td>
<td>.098</td>
<td>.102</td>
<td>.177</td>
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* $p < .05;  ** p < .001;  one-tailed test

+ Robust standard errors in parentheses.
Table 4. Conditional logit estimates – dollar equivalents+

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy diet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truthful</td>
<td>-.74** (.036)</td>
<td>-.96** (.037)</td>
<td>-.92** (.026)</td>
<td>-1.39** (.050)</td>
</tr>
<tr>
<td>‘Mad cow’</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truthful</td>
<td>-.132** (.061)</td>
<td>-.183** (.060)</td>
<td>-.188** (.043)</td>
<td>-.246** (.083)</td>
</tr>
<tr>
<td>Deceptive (cognizant)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No animal by-products</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grain fed</td>
<td>-.134** (.057)</td>
<td>-.161** (.056)</td>
<td>-.159** (.040)</td>
<td>-.173** (.076)</td>
</tr>
<tr>
<td>No animal by-products</td>
<td></td>
<td></td>
<td>.17* (.041)</td>
<td>.51** (.076)</td>
</tr>
<tr>
<td>No growth hormones</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No animal by-products</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Like all other chicken, this chicken was raised without growth hormones</td>
<td>-.52** (.058)</td>
<td>-.06 (.057)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>12954</td>
<td>13088</td>
<td>26260</td>
<td>8460</td>
</tr>
<tr>
<td>Pseudo R-squared</td>
<td>.097</td>
<td>.098</td>
<td>.102</td>
<td>.177</td>
</tr>
</tbody>
</table>

* p < .05; ** p < .001; one-tailed test
+ Robust standard errors in parentheses.
Figure 1. Components of interest

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>ATTRIBUTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified organic</td>
<td></td>
</tr>
<tr>
<td>Grain fed</td>
<td></td>
</tr>
<tr>
<td>(single attribute)</td>
<td></td>
</tr>
<tr>
<td>No animal by-products</td>
<td></td>
</tr>
<tr>
<td>(single attribute)</td>
<td></td>
</tr>
<tr>
<td>No animal by-products</td>
<td></td>
</tr>
<tr>
<td>No growth hormones</td>
<td></td>
</tr>
<tr>
<td>(dual attribute)</td>
<td></td>
</tr>
<tr>
<td>No animal by-products</td>
<td></td>
</tr>
<tr>
<td>Like all other chicken, this chicken was raised without the use of growth hormones</td>
<td>(dual attribute)</td>
</tr>
</tbody>
</table>
Figure 2. Two sample alternative cards

ALTERNATIVE A

Certified organic

$5.00

ALTERNATIVE B

No animal by-products
No growth hormones

$7.00
### GROUP 1

**Text:** heart-healthy diet

**Brands:**
- 1. ML
- 2. Rowe Farms

**Category/Attribute:**
- 1. Certified organic
- 2. Grain fed
- 3. No animal by-products
- 4. **No animal by-products + No growth hormones**

**Category/Attribute:**
- 1. $5.00
- 2. $7.00

### GROUP 2

**Text:** heart-healthy diet

**Brands:**
- 3. ML
- 4. Rowe Farms

**Category/Attribute:**
- 5. Certified organic
- 6. Grain fed
- 7. No animal by-products
- 8. **No animal by-products + Like other chicken, this chicken was raised without the use of hormones**

**Category/Attribute:**
- 3. $5.00
- 4. $7.00

### GROUP 3

**Text:** “mad cow”

**Brands:**
- 5. ML
- 6. Rowe Farms

**Category/Attribute:**
- 9. Certified organic
- 10. Grain fed
- 11. No animal by-products
- 12. **No animal by-products + No growth hormones**

**Category/Attribute:**
- 5. $5.00
- 6. $7.00

### GROUP 4

**Text:** “mad cow”

**Brands:**
- 7. ML
- 8. Rowe Farms

**Category/Attribute:**
- 13. Certified organic
- 14. Grain fed
- 15. No animal by-products
- 16. **No animal by-products + Like other chicken, this chicken was raised without the use of hormones**

**Category/Attribute:**
- 7. $5.00
- 8. $7.00
Figure 4. Hypothesis 1 & 2

**HYPOTHESIS 1**

- Certified organic > Grain fed
- Certified organic > No animal by-products
- Certified organic > No animal by-products
  - Like all other chicken, this chicken was raised without the use of growth hormones

**HYPOTHESIS 2**

- Certified organic < No animal by-products
  - No growth hormones
Appendix 1. Current Canadian law and guidelines

- Food and Drugs Act (FDA), Section 5(1) states:

  “No person shall label, package, treat, process, sell or advertise any food in a manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding its character, value, quantity, composition, merit or safety (emphasis in the original).”

- Consumer Packaging and Labeling Act (CPLA), Section 7(2) state:

  “For the purpose of this section, “false or misleading representation” includes: c) any description or illustration of the type, quality, performance, function, origin or method of manufacture or production of a pre-packaged product that may reasonably be regarded as likely to deceive a consumer with respect to the matter so described or illustrated (emphasis in the original).”

- Meat Inspection Regulations, 1990, Section 94(7) states:

  “No word, picture or design that conveys a false or misleading impression as to the contents, quality, quantity, weight, method or date of production or manufacture or place of origin of the contents of any meat product bearing the meat inspection legend shall be used on the label of or in connection with the meat product (emphasis in the original).”
Chapter 2
Retrospective Social Capital: Prominence by Association in the Past Social Networks of Hollywood

6 Introduction

Over the past thirty years, a large body of evidence has accumulated in support of social capital. Social capital, or the value contained in social networks, is considered capable of affecting the productivity of individuals and groups. For example, strong social networks have been positively correlated with better self-rated health for populations of individuals over 65 (Zunzunegui et al., 2004). On the other hand, social networks have also been implicated in the spread of obesity (Christakis & Fowler, 2007). Generally speaking, economic sociology has tended to study the benefits of social networks. Thus, advantages conferred by way of social relationships have found widespread support in the literature (Coleman, 1988; Nahapiet & Ghoshal, 1998; Podolny, 2001). Socially well-connected persons have been found to enjoy higher incomes, increased professional status, improved business opportunities, and many other benefits (see Gulati, 1998; and Burt, 2002). The process by which social networks operate has been conceptualized in two different ways. Social networks are thought of as “pipes” when information and/or resources flow through them, but are described as “prisms” when character attributes are inferred from them (Podolny, 2001). Thus, a hiring manager asking for a reference letter from an employer would be an example of social networks as pipes, while the same hiring manager inferring one’s competence from her friendship with, say, Warren Buffet would speak to social networks as prisms. Both processes have been shown to matter although research on pipes is more copious and better developed in the social networks literature than is research on prisms.

One example of social networks as prisms is Stuart’s (2000) paper which studied company growth in the semiconductor industry. He found that focal firms derived advantages, such as improved performance, by forming alliances with valuable firms, specifically large firms and those that possessed leading-edge technological resources. Stuart (2000:808) postulated the alliance-performance link as solely based on affiliation and suggested that “alliances are more than pathways for the exchange of resources and know-how: they also can be signals that convey social status and recognition.”
However, complicating the analysis of social networks as prisms is the problem of specifically identifying the processes at work. Termed the “reflection problem”, it is concerned with whether endogenous social effects actually exist or are instead spurious and explained at the individual level of analysis (Manski, 1993). For example, Burton, Sørensen, and Beckman (2002) examined how resources accrue to entrepreneurs based on the prominence of their past employers. However, in their study, past employers were prominent at the time of collaboration with entrepreneurs. Thus, the prominence of an entrepreneur’s past employer could be correlated with the human capital of the entrepreneur, with more capable entrepreneurs having had more prominent past employers. The direction of causality is difficult to identify because information on the prior human capital of entrepreneurs is unobserved.

This paper attempts to control for unobserved heterogeneity by examining what benefits, if any, accrue to individuals who were part of a group from which a member achieved prominence at a later date, after the dismantlement of the group. To properly identify endogenous effects, I employ a difference-in-differences estimation strategy. Thus, the aim of this article is twofold. First, it is to rigorously examine the social capital effect via a statistical technique that accounts for unobserved heterogeneity. And second, it is to investigate whether social capital effects exist for an ego whose alter achieved prominence only after the end of the association. The impetus for this study comes from Pontikes, Negro and Rao (2010) who investigated stigma by “mere association” during the ‘Red Scare’ in Hollywood. Their study defined mere association as one exposure to a subsequently stigmatized co-worker; they found that an ego’s mere association with a to-be-stigmatized co-worker was enough to damage the ego’s career prospects.

This study examines the opposite end of that argument. Namely, whether an ex-post mere association found to propagate stigma can exert positive influence as well. I term this effect “prominence by association” and similarly investigate its prevalence in the U.S. film industry. It should be noted that although ex-post mere association was found to exist for a negative event, the expectation of a similar mechanism for positive events (such as prominence) is not straightforward. This is because negative events are known to be stronger and linger longer than positive events (Baumeister et al., 2001; Miner et al., 2005 as noted in Bono and Ilies, 2006), an observation that can be restated as Frijda’s (1986) ‘law of hedonic asymmetry’. The law of hedonic asymmetry posits that negative emotions or events persist while positive ones fade with
time. To investigate whether ex-post mere association influences prominence as it does stigma, I examined social capital effects in groups of encompassing actors (egos) who worked with focal actors (alters) who went on to either win or lose an Academy Award or “Oscar” in the future. Because the groups were formed in the past, no prior knowledge of who would eventually end up winning the Oscar was available during group formation. By subtracting out performance gains of egos who worked with future Oscar nominees who did not win an Oscar from those of egos who worked with future Oscar nominees who did, biases are removed and the direction of causality can be inferred.

To test the prominence by association hypothesis, I analyzed groups of film actors from 1961 to the present. I began my analysis after 1960 to avoid the confounding influences of stigma during the 1945-1960’s era of Hollywood (Pontikes et al., 2010). Results from my analysis are mixed. I find that prominence by association does exist for egos who worked with future Academy Award winning alters but only when that association occurred between four to six years in the past. Associations in the recent past (one to three years) and associations in the distant future (seven years or more) do not show evidence of a social capital effect.

7 Prominence by Association

I have defined prominence by association to be social capital operating on individuals who were part of a networked group in the past from which a member achieved prominence ex-post, after the group ceased to exist. There is a slew of anecdotal evidence that appears to be in line with this effect. For example, prominence by association would point to why working in a past research group with a scientist who later went on to win the Nobel Prize would reflect positively upon the prior members of her research group. And why individuals who grew up next door to a celebrity publicize this fact only after the individual achieves notoriety. It elucidates the often encountered behavior of session musicians who frequently work with a variety of recording artists, but publicize work with a particular artist only after he becomes successful. Prominence by association would also explain the main reasoning used by universities to solicit donations from their alumni. Per their claims, universities contend that alumni donations serve to bolster school infrastructure such as libraries and degree programs which lead to an ameliorated learning environment that translates into a better reputation for the school. An improved university
reputation would undoubtedly increase the value of the school’s degree granting programs. The increase in value of the degree granting programs would trickle down to the already granted degrees of university alumni – degrees granted before the improvements ever took place.

Prominence by association, if it exists, follows the social networks as prisms paradigm whereby the status of a prominent alter reflects positively on the ego with whom she was associated previously. However, the anecdotal examples illustrated above may be confounded by unobserved heterogeneity. It could be, for example, that the research group of a future Nobel Prize winner, the prior neighbor of a celebrity, the past session musician of a star musician, and especially the former student of a university have somehow picked up on these “winning” habits and improved themselves accordingly. There is more than one organizational and sociological concept capable of explaining such a phenomenon. For example, imprinting (Stinchcombe, 1965), and learning-by-doing (Arrow, 1962) are two that readily come to mind. In this article I attempt to isolate pure status signaling, independent of any such ancillary human capital effects.

I argue that the mechanism by which pure status signaling takes place is necessarily rooted in cognitive biases. This is because, all other things equal, an ego who worked with an ex-post illustrious alter is no different from one who worked with an ex-post non-illustrious alter. Or, to use the parameters of this study, an ego who worked with an ex-post Oscar winner is no more elite of an actor than one who only worked with an ex-post nominee (who did not end up winning the Oscar). Thus, the benefit of the alter winning an Oscar should, hypothetically, accrue solely to her and in no way affect her former ego. If it is found to unfairly benefit the ego, then that would mean that cognitive biases on the part of status perceivers are at play. In other words, attributing positive characteristics to an undeserving ego means a cognitive bias or error has been committed. The cognitive biases that I hypothesize to be responsible for this phenomenon are consistency bias combined with temporal adjustments, both of which are described below.

### 7.1 Consistency Bias

Numerous studies in the literature on cognition have converged on the finding that perceptions are inaccurate and memory is biased (e.g. Bartlett, 1932; Fiske and Taylor 1991; Tversky and Kahneman, 1986; Staw and Ross, 1987 as noted in Mitchell and Thompson, 1994). Consistency
bias is one such memory bias well-established in the psychology literature by which people incorrectly remember past attitudes and behaviors as resembling present attitudes and behaviors. For example, consider at the outset, a currently successful individual. Because an individual is successful today, he must have had the potential to succeed in the past, albeit unrealized at the time. Consistency bias is when a successful individual, who had previously been unsuccessful but had the (at the time, unrealized) potential to become successful in the future, is incorrectly remembered as having actually been a past successful individual as the lines between past and present become blurred. Note that consistency bias is not simply limited to remembering currently successful individuals as having been more successful in the past, but is also implicated in remembering currently unsuccessful individuals as being less successful in the past. Cognitive science, pioneered by the work of Amos Tversky & Daniel Kahneman and their colleagues, has found support for many instances of consistency bias. For example, Karney & Coombs (2000) report on consistency bias in long-term close relationships. At 20 years into their study, wives’ recollections of the past resembled their current perceptions. Consistency bias also explains why people change their past political views to reflect their present beliefs. Lodge & Hamill (1986) discuss consistency bias in the context of political information processing. Markus (1986) found support for consistency bias in people’s beliefs on a variety of social issues such as legalization of marijuana, equality of women, and aid to minorities. Levine (1997) found that consistency bias holds for emotional reactions such as hope, anger, and sadness.

Thus, a past networked group that includes an ex-post prominent individual can, through the process of consistency bias, be recollected as a past networked group that actually contained a prominent individual. The conventional status/prismatic perspective would then apply whereby simply having been in a networked group with a successful alter in the past can act as a positive signal of an ego’s ability (Stuart, 2000). However, consistency bias need not exist in a vacuum and can be moderated by other cognitive biases such as temporal adjustments, the latter being frequently encountered during peoples’ recollections of past and current events.

7.2 Temporal Adjustments: Rosy Retrospection and Dampening

According to Mitchell and Thompson (1994), two temporal adjustment processes that can act to bias peoples’ recollections of past events are “rosy retrospection” and “dampening” collectively
referred to as the “rosy view”\textsuperscript{20}. Rosy retrospection is postulated to operate on past events which are recalled in a more positive light as being more favorable than at the time of their actual occurrence. Generally speaking, a rosy view is most likely to occur when the past event in question was positive to begin with, self-contained, outcome independent and when the individual recalling the event was personally involved in the event and had some control over it.

I believe these boundary conditions are consistent with films which produce Oscar nominated actors. Films in which actors are nominated for one (or more) Oscars are generally thought of in a positive light, are self contained (rarely do films with sequels such as, say, action films have nominated actors) and independent of outcome (for \textit{e.g.} box-office success). The last two conditions of the individual (the casting agent in this case) having been personally involved and having had some control over the event is debatable. However, I argue that due to the large degree of embeddedness of the U.S. film industry, these two conditions do apply. Most casting agents, if not personally involved in an important film, are very much aware of it and/or may influence its direction through their interactions with other casting agents.

In addition to the boundary conditions noted above some, though not all, cognitive and/or memory processes need to be present. A detailed list of these processes can be found in Mitchell and Thompson (1994), but for the purposes of this study I cite only two. \textit{Story construction} describes a process by which past events are more easily re-interpreted to conform to prevailing attitudes than are recent events. This would mean, for example, that consistency bias would more readily affect a film made five years ago than a film made one year prior. The \textit{availability} heuristic operates on past events by recalling positive aspects of these events stored in long-term memory. By contrast, current or fairly recent events are stored in active memory and their recollection may be more negative – influenced by recent obstacles and/or inconveniences. And finally, adding to these processes is the general notion of transience, namely that if an event is too far in the past, it may simply be forgotten entirely. Taken together, these constructs suggest that:

---
\textsuperscript{20} Note that “rosy prospection” which is the anticipation of future events as more favorable than they actually are also belongs to the “rosy view” paradigm but is not relevant to this study and is thus omitted.
Hypothesis 1 (H1): Prominence by association will occur for an ego in a film with an ex-post Oscar winning alter provided the film was not made in the too recent past, nor in the too distant past.

8 Method

8.1 Setting: The Hollywood Film Industry

The Hollywood film industry presents an ideal natural experiment capable of either refuting or supporting prominence by association. Every year, the Hollywood film industry hosts the Academy Awards, considered a critical measure of excellence by both the film community and the viewing public. Oscar nominations and wins for such awards as Best Lead Actor/Actress, Best Supporting Actor/Actress\(^{21}\) Best Film, and more are conferred by an assemblage of film community peers, the Academy of Motion Picture Arts and Sciences (AMPAS), to which membership is by invitation only. Because the Oscars are held in such high esteem and, in fact, ingrained with a cachet of exclusivity, winning an Oscar for Best Lead/Supporting Actor has been shown to greatly increase an actor’s future number of roles and bring with it a heightened level of fame. Moreover, literature on social networks suggests that those who work with a famous actor will also experience performance gains (Podolny, 2001; Stuart, 2000). The research question this paper addresses is whether working with a famous actor in the past, before he became famous, will improve performance as well.

8.2 Data

The dataset for this study is compiled from the Academy of Motion Picture Arts and Sciences Database (oscars.org) and the Internet Movie Database (imdb.com).

8.2.1 oscars.org database

Using information from the oscars.org database, a networked group is modeled as the six top billed\(^{22}\) actors on a film – the two lead actors, and the four supporting actors. The choice of six top-billed actors stems from the four main acting Oscars: Best Lead Actor, Best Lead Actress,

\(^{21}\) From here on the term “actor” refers to both actors and actresses.

\(^{22}\) Actors whose names appear in the first lines of the credits are said to have „top-billing”.
Best Supporting Actor and Best Supporting Actress. Although the two leads are easily discernible from their screen time, pinpointing the two supporting actors is generally more cumbersome because it is not uncommon for more than two actors to have supporting roles. This is because winning an Academy award improves the financial prospects of a film and directors often do not specify supporting roles a priori, preferring instead to wait until after the film is released to determine which actors garner the most critical praise for their work and consequently have the best chance of winning a Best Supporting Actor award. The choice of six top-billed actors therefore includes the two leads as well as four different potential supporting actors. Additionally, the credits of certain films list only the six top-billed actors in order of billing and the rest of the cast either by order of appearance or alphabetical order (refer to imdb.com).

The future to-be-nominated actor is termed the “focal actor” or alter. The other five future never to-be-nominated lead and supporting actors are termed the “encompassing actors” or egos. A winning focal actor is one who will win the Oscar for which she is nominated in the future; a losing focal actor will not. The unit of analysis is the encompassing actor (ego). The focal actor (alter) is not included in the analysis. Academy award nominations are analyzed from the year 1961 to the most recent Oscars of 2009. Films prior to these may have been subjected to stigma (Pontikes et al., 2010) and are excluded from the analysis since they may potentially distort results.

8.2.2 imdb.com database

To the oscars.org dataset is added information from imdb.com which contains data on all actors’ film appearances. Ego performance is measured as the number of film roles garnered within a five year time period before and after the Oscar year. The number of film roles is a meaningful measure of performance due to the highly competitive nature of an acting career. The Screen Actors Guild\(^{23}\) (SAG) states that “Success in this business is an unpredictable combination of talent, training, residence, ‘look’ , energy, attitude, and the completely uncontrollable factor – luck! Historically, a little more than \(\frac{1}{4}\) of the members do not receive any earnings under SAG contracts.” Thus, simply acquiring a substantial amount of acting roles is the most basic measure

\(^{23}\) The Screen Actors Guild is the most popular actor’s union in Hollywood.
of career success in Hollywood. It may be argued that certain actors are more selective and will sacrifice quantity in terms of quality when selecting roles, but the Hollywood film industry is a youth-centric culture with a scarcity of roles for older actors. Most actors respond to this trend by auditioning for and accepting as many roles as possible. Additionally, many quality films do exist by both mainstream and independent filmmakers. Although, in certain cases, actors may select high quality over high salary, they generally all prefer to keep working while they can. Indeed, many “serious” actors will capitalize on their Oscar win by subsequently accepting lowbrow (though well-paid) roles in frivolous films.

Generally, actors are only on set for scenes which include them causing filming duration to be relatively short for an actor per film. For this reason, it is possible for successful actors to take on several films a year. Because the group of actors on a film is short-lived, dispersing and reforming for each new film, each film role corresponds to a different ‘job’ in an actor’s career. Therefore, by observing a single actor’s career span multiple film roles over time, it is possible to determine whether or not an actor’s prospects improve and over what time period. The longitudinal data set for this study is comprised of 6,267 actors over varying years for each actor resulting in a panel data set with 67,288 observations. Variables and definitions are provided in table 5. Descriptive statistics are provided in table 6.

### 8.3 Empirical Strategy

The natural experiment occurs when an alter wins an Academy award and changes the career environment of her prior encompassing actors (egos) by potentially increasing their performance. The treatment is working with a winning alter. The treatment group is made up of those egos who have worked with a winning alter. The control group are egos who have worked with a losing alter. The treatment and control groups are comparable due to the treatment being an exogenous event. The source of exogenous variation lies in the fact that the treatment and control groups were formed in the past, before any knowledge of which alter would win or lose the Oscar; indeed, before the Oscar nomination was ever conferred. Thus, it is the randomness of the nomination process itself (i.e. who will win the Oscar, much less be nominated) that causes the social capital benefit of the alter to be unknown at the time of working with the ego.

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24 Note that a winning alter is an actor who will be nominated for an Oscar in the future and win.
In other words, the alter was not yet famous at the time the treatment and control groups were formed. Thus selection bias, by way of actors being cast in films with famous actors, is not an issue here. It can be argued that winning alters are ‘rising-stars’ in the industry and thus treatment is not really exogenous. However, because it is widely considered “an honor just to be nominated”, all focal actors, by virtue of being nominated for an Oscar in the future, can be considered ‘rising-stars’.

As in Pontikes et al. (2010), I consider prominence by association to be the result of an ego’s “mere” association with an ex-post Oscar nominated (either winning or losing) alter. To keep the treatment and control groups distinct, most alters in this dataset have only been nominated once. Alters who have had multiple nominations had only their earliest nomination recorded. Additionally, a losing alter is one who has never won an Oscar – either prior to or subsequent to his nomination.

The impact of working with a winning alter is estimated by looking at the difference between the changes experienced by the treatment and control groups before and after the treatment. If this difference is positive and significant, it provides support for the contention that people who do better are not necessarily better connected, but may do better simply because of the chance occurrence of a past connection suddenly becoming successful.

### 8.4 Estimation Method

#### 8.4.1 Baseline specification

Traditionally, all other things equal, an actor’s career prospects in Hollywood are most favorable during their younger adult years, which mean that looking at the difference in the number of roles in the treatment group before and after treatment may lead to an incorrect conclusion. Thus, a first step in the estimation is to measure the ex-post differences in the number of roles for both the treatment and control groups. This is how causality is most often established in the literature with the reasoning being that if the gain in the number of roles of the treatment group is greater than the gain of the control group a social capital effect is present. Thus the baseline specification is

\[ n\text{roles}_{it} = \alpha + \beta gender_i + \varphi gender_i + \gamma win_{it} + \varepsilon_{it} \]  

(1)
where,

\[ n_{\text{roles}}_{it} \] is an integer variable for the number of roles of ego \( i \) in year \( t \).

\[ \text{gender}_{i} \] is the gender of the ego: 1 for women; 0 for men.

\[ f_{\text{gender}}_{i} \] is the gender of the alter: 1 for women; 0 for men.

\[ \text{win}_{it} \] is an indicator variable equal to 1 for egos who worked with a winning alter in year \( t \), and 0 otherwise.

\[ \varepsilon_{it} \] is the idiosyncratic error.

The number of roles (\( n_{\text{roles}}_{it} \)) used in the estimation is a five-year window of ego roles. The five-year window begins the year after nomination of the alter (with whom the ego worked on a prior movie); in other words, after the alter wins or loses the Academy award. Additionally, the data uses egos who worked on films within one to ten years before the alter was nominated for the Oscar. Thus, an ego who worked with an alter three years prior to his nomination is included in the data set, but an ego who worked with an alter twelve years prior to nomination is not. The coefficient of interest is \( \gamma \). A significant positive result on \( \gamma \) would imply that, in accordance with this model, a social capital effect is present. Table 7 presents three models for this specification.

The first model is the estimation for egos who worked within one to three years before the alter was nominated for an Oscar. The second model is the estimation for egos who worked within four to six years before the alter was nominated for an Oscar. And the third model is the estimation for egos who worked within seven to ten years before the alter was nominated for an Oscar. Although a good first step, this baseline estimation procedure is not reliable since only the ex-post differences in the two groups are measured. It could be, for example, that the two groups were different to begin with, in which case a difference-in-differences estimation strategy is preferred.
8.4.2 Difference-in-differences regression

A better way to identify a potential social capital effect would be to first take the difference between the pre and post nomination number of roles for both the treatment \((win_{it} = 1)\) and control group \((win_{it} = 0)\), and then subtract the average gain (loss) in the control group from the average gain (loss) in the treatment group. In other words, take the difference in the differences between the two groups. Since the Hollywood film industry provides the natural experiment to do this, the next step is to employ this difference-in-differences strategy to assess the difference between the changes experienced by the two groups. In this case,

\[
n_{roles_{it}} = \alpha + \beta_{gender_i} + \varphi_{gender_i} + \gamma win_{it} + \lambda post_t + \theta win_{it} \cdot post_t + \epsilon_{it} \tag{2}
\]

where,

- \(n_{roles_{it}}\) is an integer variable for the number of roles of ego \(i\) in year \(t\).
- \(gender_i\) is the gender of the ego: 1 for women; 0 for men.
- \(f_{gender_i}\) is the gender of the alter: 1 for women; 0 for men.
- \(win_{it}\) is an indicator variable equal to 1 for egos who worked with a winning alter in year \(t\), and 0 otherwise.
- \(post_t\) is the five-year window before and after the Oscar nomination. For the five years before the nomination, \(post_t = 0\). For the subsequent five years, \(post_t = 1\).
- \(\epsilon_{it}\) is the idiosyncratic error

Similar to the baseline specification, equation (1) above, three different specifications are estimated for the differences-in-differences estimation [equation (2)]. Thus, model 1 is the estimation for egos who worked within one to three years of the alter being nominated for an Oscar. Model 2 is the estimation for egos who worked within four to six years of the alter being nominated for an Oscar. And model 3 is the estimation for egos who worked within seven to ten years of the alter being nominated for an Oscar. Here, the coefficient \(\theta\) is the difference-in-
differences estimate of the average effect of working with an ex-post winning alter on an ego’s number of roles. Results are presented in table 8.

9 Results

Table 7 reports the results of the baseline regression models of equation 1. The first column presents results for egos who worked within one to three years of the alter being nominated for an Oscar. As expected, the significant negative coefficient on gender implies that all other things equal, male actors garner more acting roles than women. However, the coefficient on fgender is slightly positive and significant, meaning that working with a female alter brings some social capital gains. The coefficient on win is neither positive nor significant implying no social capital effect for this time period of working with an ex-post Oscar winning alter; a result that is in line with my hypothesis.

The second column of table 7 is the estimation for egos who worked within four to six years before the alter was nominated for an Oscar. Here, gender again is negative and significant reaffirming that women are at an overall disadvantage in the Hollywood film industry. However, the coefficient on fgender has now lost significance. The coefficient on win is now positive but small and insignificant implying no social capital effect for this time period for this model. This result does not support my hypothesis although the coefficient is now in the right direction.

Model 3 of table 7 depicts results for egos who worked within seven to ten years of the alter being nominated for an Oscar. For this scenario, gender again doesn’t stray from its negative and significant orientation although fgender is now positive and significant. However, the coefficient on win changes sign to become negative and significant suggesting that no social capital effect is evident for this time period of working with an ex-post Oscar winning alter.

Although equation (1) is useful as a preliminary exercise, the results are not robust since other changes may have occurred between the two groups in addition to the treatment of an ex-post Oscar winning alter that may affect the (post treatment) number of roles. Additionally, the two groups could have been different to begin with. For this reason, a better identified model is the difference-in-differences regression of equation (2).
Table 8 depicts the results of the three models of equation (2). For all three models the coefficient on *gender* is negative and significant although for the first three years of model 1, the magnitude of the coefficient is half that of the others. This may be an encouraging sign, suggesting that, all other things equal, the career prospects of women in Hollywood are slowly improving. No other coefficients are positive for model 1; specifically the coefficient on *win ∙ post* is neither positive nor significant which supports the contention of the hypothesis.

The second model of table 8 shows significant results for all coefficients. In particular, the sign on *win ∙ post* is now positive and significant indicating a social capital effect for egos who worked within four to six years of the alter winning an Oscar. Additionally, the sign on *post* is negative which indicates the maturation process of Hollywood. Model 3 of table 8 shows a coefficient on *win ∙ post* that is negative and insignificant which is, again, in line with the prominence by association hypothesis.

An alternate hypothesis that could also explain prominence by association is the reactivation of weak ties (Granovetter, 1973; Burt, 1992). An actor’s social network is composed of both active and inactive social ties (Burt, 1992). Although active social ties are ripe and available for use with currently connected actors, inactive or “weak” social ties, characterized by erstwhile and infrequent relationships with those with whom one used to have prior contact, need to be reactivated before their value is appropriated. According to Granovetter’s (1973) weak-tie theory, once reactivated, weak ties can serve as important bridging mechanisms providing information and opportunities for otherwise disconnected and dispersed actors. In this case, egos can call on work-related favors from alters with whom they had worked previously. However, if this explanation were binding, a social capital effect should have been evident for all prior years of working with an ex-post Oscar winning alter and not just for years four, five and six. This is because Granovetter’s weak-tie theory does not provide a time limit for tie reactivation. There is no expiry date, and actors can take an unlimited amount of time to reactivate weak ties.

10 Discussion

Although support for social capital is wide-spread in the literature, few studies have examined the social capital derived from the retrospective ties of a past social network via a well-identified
model. Identification is important not only to determine whether or not a social capital effect exists, but also to disentangle the competing causal mechanisms by which it can occur.

Results for this analysis are mixed and show that social capital derived from a past social network containing an ex-post Oscar winning alter exists for some time periods, but not for others. I find that an ego who worked with an ex-post Oscar winning alter within four to six years prior to the alter’s Oscar win does experience improved career prospects after the alter’s win. But that the effect breaks down for length of prior years in either the too recent (one to three years) or too distant (seven to ten years) past. I suggest that this is due to the action of cognitive biases on the part of status perceivers (i.e. casting agents in this case). This paper describes several processes by which an ego can be incorrectly perceived to be prominent by association to a past alter who later goes on to win an Academy Award. Consistency bias, a process by which people incorrectly align past beliefs to current beliefs, and rosy view temporal adjustments where past events (more recent events) are recalled as more favorable (less favorable) than at the time of their actual occurrence are postulated to be at the root of this phenomenon.

In addition to suggesting a mechanism for prominence by association, this study also contributes to the literature on cognition which has mainly focused on laboratory studies. By using a difference-in-differences estimation strategy, I show the far-reaching implications of cognitive biases and their potential benefit to social relationships.

The context for this study was the Hollywood film industry where each ‘job’ was approximated by a film role of generally short duration. The next logical step for future research would be to examine if and how jobs of longer duration are affected by retrospective social capital.
References


Table 5. Variables and definitions

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<tr>
<th>VARIABLE</th>
<th>DEFINITION</th>
<th>SOURCE</th>
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<tr>
<td>focal_year</td>
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<td>group_year</td>
<td>The actual past year of working with a focal actor.</td>
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<td>Indicator variable indicating Oscar win/loss: 1 for winning focal actor, 0 otherwise.</td>
<td>oscars.org</td>
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<td>nroles</td>
<td>Number of film roles actor has garnered in a particular year.</td>
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<td>Actor gender: 1 for female; 0 for male.</td>
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<td>Focal actor gender: 1 for female; 0 for male.</td>
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<td>post</td>
<td>Indicator variable signifying the five year period during which an actor has worked. For the five years subsequent to the actor’s underlying focal actor winning the Oscar, post=1. For the five years prior to the Oscar: post=0.</td>
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<td>Indicator variable that is the multiplication of indicators win and post.</td>
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Table 6. Descriptive statistics

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Table 7. Baseline regression+

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* p < .05; ** p < .01; *** p < .001;  one-tailed test
+ Robust standard errors in parentheses.
Table 8. Difference-in-differences regression+

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* $p < .05$; ** $p < .01$; *** $p < .001$; one-tailed test

+ Robust standard errors in parentheses.