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Divergence in Cultural Practices: Tastes as Signals of Identity

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Abstract

Divergence is pervasive in social life: people select different tastes to distinguish themselves from others, and they abandon tastes when others adopt them. But while we know a great deal about conformity, it predicts convergence, thus it has difficulty explaining why people diverge. We propose an identity-signaling approach to divergence; people diverge to signal their identity to others so that they can enjoy more fulfilling social interactions. Tastes gain signal value through association with groups or types of individuals, but become diluted when members of more than one type hold them. Consequently, different types of people will diverge in the tastes they select, and they will abandon tastes that are adopted by members of other social types. (117 words)

> The young always have the same problem--how to rebel and conform at the same time. They solve this problem by defying their parents and copying one another.
>
> - *Quentin Crisp*

Kids want to show they are different from their parents and jocks want to separate themselves from geeks. Shanghai residents avoid purchasing Volkswagen Santanas because they "are a favorite first car among the nouveaux riches outside the big cities" (Wonacott, 2004, p. B1) and Manhattanites wore mesh trucker hats until the bridge-and-tunnel crowd adopted them (Barker, 2004). Intellectuals want to show they are more thoughtful than the masses and the original members of any cultural scene (i.e. music, style, philosophical schools, etc.) want to differentiate themselves from the poseurs that come along later. The social process that underlies all these examples is one of divergence. People select tastes (e.g., possessions, attitudes, behaviors, etc.) that distinguish them from other types of people, and they abandon tastes when the wrong types of people adopt them. Divergence is pervasive in social life.

These facts are so obvious they hardly need stating save one important observation: our theories in social science are generally unable to account for them. One of the most widely discussed principles in social psychology is conformity (Allen, 1965; Allport, 1924; Asch, 1951; Deutsch & Gerard, 1955; Festinger, 1950; Graham, 1962; Milgram, Bickman, & Berkowitz, 1969; Moore, 1921; Sherif, 1936; Stafford, 1966; Venkatesan, 1966; Willis, 1965); indeed conformity has been raised to the status of a social law (see Social Impact Theory, Latane, 1981). Similar tendencies have been recognized under different names by researchers in sociology (e.g., mimetic isomorphism, DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Scott, 1995) and economics (bandwagon effects, Liebenstein, 1950; Granovetter & Soong, 1986, herding behavior and information cascades, Banerjee, 1992; Bikhchandani, Hirshleifer, & Welch, 1992).

While conformity processes are obviously important, they cannot account for a world in which people select tastes that distinguish themselves from others and abandon tastes that are adopted by others. Indeed, models of the diffusion of innovations and cultural practices, which are based implicitly on conformity dynamics (Bass, 1969; Rogers, 1983), are well equipped to explain increases in adoption, but as Macy and Strang (2001) note, they are "poorly equipped to account for almost anything else" (p. 148). We know that people diverge but why?

The uniqueness literature in psychology (Fromkin, 1970; Snyder & Fromkin, 1980) has made the important observation that people experience drives to differentiate as well as to belong, but this literature is much smaller than the literature on conformity, and it leaves some important questions unanswered. It argues that individuals feel badly in situations where they are overly similar to others, and they repair the negative feelings by emphasizing aspects that make them different from others. By focusing on the feelings and reactions of *individuals*, however, the uniqueness literature is not equipped to explain the social character of divergence-- the uniqueness literature would allow individuals to diverge in unique, perhaps bizarre, directions, but we suggest that most divergence is driven by a process that unfolds at the social level.

We propose an identity signaling approach to divergence; people diverge to signal their identity to others so that they can enjoy more fulfilling social interactions. Tastes and practices -- wearing hiking boots or Manolo Blahniks, dropping an apposite reference to Kurt Lewin or Wittengenstein, or mentioning an obscure foreign film, independent band, or poet-- signal people's internal and complex characteristics to others. When different types of people diverge in the tastes they select, individuals will find it easier to identify a given other's type, making it easier to find people who are similar (to ensure future interactions with them), and to identify

people who are not similar (making those interactions more beneficial as well). Wearing hiking boots allows hikers to congregate, but it also allows non-hikers to know whom to consult on the occasion they decide to go on a hike. Signals, by their nature, must be social--people can only send signals that are understood by others. But because they are social, signals can sometimes be appropriated improperly by onlookers who really aren't similar. The unhip might want to be considered hip, the middle class to be treated as wealthy, and the bridge-and-tunnel crowd to be confused for Manhattanites. When these poseurs adopt another group's taste, that taste loses its ability to signal identity effectively. This may lead to another type of divergence: the original taste holders may abandon the taste in favor of a new, undiluted signal of identity.

Before presenting our theory, we first review previous research that relates to divergence, and then present three key questions that are unresolved by previous literature: (1) Why is divergence not idiosyncratic? Collections of people often diverge in the same direction at the same time, an observation that is difficult to explain within the traditional uniqueness literature. (2) Where do people diverge? People care about divergence much more in some domains than others, about sharing the same music tastes than the same bike lights. We should understand why domains vary in their use as signals of identity. (3) Who drives divergence? People often abandon tastes when other types of people adopt their practices. Abandonment is a particularly costly form of divergence because it requires people to give up a taste they once favored, and we should understand why it occurs. The body of the paper addresses each of these questions in turn, providing a simple mathematical model that clarifies our predictions, and then reviewing evidence consistent with the model from previous work in psychology, sociology, economics, and consumer behavior as well as our own research.

Previous Literature

Divergence driven by a desire for uniqueness

Although we know much more about conformity than divergence, a small number of researchers have also considered principles that may lead people to diverge. However, as we discuss below, their theories still leave important questions unresolved.

Social scientists have argued that individuals want to be different. Early on, economic theorizing discussed the drive for difference, suggesting people choose things that set them apart from the masses (Veblen, 1899 [1912]). Liebenstein (1950) argues people "search for exclusiveness…through the purchase of distinctive clothing, foods, automobiles, houses, or anything else that individuals may believe will in some way set them off from the mass of mankind" (p.184), and discusses "snob effects" or cases where individual demand is decreased because others are consuming (also see Liebenstein, 1976; Granovetter & Soong, 1986).

Psychologists have also made a concerted effort to study the drive for uniqueness (Fromkin, 1970; Snyder & Fromkin, 1980). They suggest people are "motivated to seek some sense of difference relative to others" and "when a person feels a very high degree of similarity relative to another, a negative emotional reaction should occur" (Snyder & Fromkin, 1984, p. 34) driving the person to take steps to decrease perceived similarity. When people feel too similar to others, they focus on differences between themselves and others who seem similar (Ganster, McCuddy, & Fromkin, 1977), misremember actual levels of similarity (Byrne and Griffitt, 1969; Smith, 1975; Snyder & Batson, 1974), generate more unique uses for ordinary objects (Fromkin, 1968), and place higher value on scarce future options (Fromkin, 1970). Literature on the pursuit of distinction, then, would predict individuals might diverge in their tastes to maintain a unique sense of self.

The uniqueness literature obviously has to grapple with explaining why a large number of studies have found conformity. Its solution has been to suggest that, while extreme similarity is a negative state, moderate similarity produces a positive state and people tend to conform to others when they feel only moderately similar. It suggests, however, that if conformity researchers had confronted subjects with a more extreme degree of similarity, pressures to be unique would have intensified, and the studies would have found divergence.

Though another stream of literature--optimal distinctiveness (Brewer, 1991, 1993; Brewer & Pickett, 1999, 2002; Brewer & Roccas, 2001)--does not study divergence directly, it suggests people can resolve countervailing drives for assimilation and differentiation by emphasizing different social identities. Here, "social identities are selected and activated to the extent that these identities help achieve a balance between needs for inclusion and for differentiation" (Brewer & Pickett, 1999, p. 73). When people feel overly similar, their renewed need for individuation drives them to emphasize their distinctive group memberships (e.g., *band member* rather than *Plainsville High student*); when people feel excessively different, they emphasize their broad, generic social category memberships (e.g., *Plainsville High student* rather than *chess club member*). People can also satisfy their differentiation motive through differentiating larger groups into subgroups with which to identify, or "making intergroup comparisons (i.e. focusing on distinctions between an ingroup and contrasting outgroups)," (Brewer & Pickett, 1999, p. 74). Membership in groups allows people to feel similar and different at the same time: similar because they are part of a group and different because the group is separate from the masses.

Optimal distinctiveness is extremely useful in pointing out a way people can resolve competing drives for assimilation and distinction, but the main mechanism that has been studied

by this research is *internal*. People activate or mentally emphasize different group memberships depending on whether they feel overly similar or overly distinctive. The uniqueness literature stresses similar internal tactics by saying people can achieve uniqueness by mentally emphasizing ways in which they are different from others (e.g., Ganster, McCuddy, & Fromkin, 1977) or distorting similarity information (e.g., Byrne and Griffitt, 1969; Smith, 1975; Snyder & Batson, 1974). Internal processes, however, seem too flexible to account for the costly behaviors we observe when people diverge behaviorally from others in the social environment. Why get a body piercing when you can mentally emphasize your membership in club culture? Why blow big bucks on a Prada handbag when you can mentally tally the value of your stock portfolio?

Another limitation of previous research on divergence is that it has focused on states that seem highly *transient*. The uniqueness literature argues divergence will occur when "a person *feels* a very high degree of similarity relative to another," (Snyder & Fromkin, p. 34). Optimal distinctiveness suggests that individuals will choose to emphasize more divergent identities when they *feel* depersonalized. Transient states cannot explain why tastes die or only come back in style after long periods. Sure, people might abandon tastes if they are in a state in which they feel overly similar or depersonalized, but why would these individuals not re-adopt those tastes once the transient state passed? A leisure suit fan might stop wearing a leisure suit after visiting a club filled with leisure-suited men, but put it on again after a particularly isolated day at work. An English professor might stop talking about Derrida at a party where everyone else is doing so, but take it up again at the next one. We commonly think of fads as transient, but their transience takes place on time scales -- weeks, months, or years-- that are mismatched to the momentary processes that have been studied in the lab.

Questions Raised by Prior Approaches

Prior approaches provide some important insight into divergence, but they leave a few important questions unresolved.

Question 1: Why isn't divergence idiosyncratic?

Perhaps the most important limitation of previous theories is that they have primarily focused on *individual* level analysis. The uniqueness literature argues divergence will occur when "*a person* feels a very high degree of similarity relative to another," (Snyder & Fromkin, 1980, p. 34). Optimal distinctiveness also focuses on the individual, suggesting "*individuals* will…define themselves in terms of social identities that are optimally distinctive," (Brewer & Pickett, 2002, p. 258). Because these theories have focused on individuals, they have difficulty explaining why Group A diverges from Group B, or why everyone in a group diverges in a similar direction, often at the same time.

We note here that there is another, quite different, class of theories that would predict idiosyncratic divergence. Many of the taste domains we will discuss in this paper may be affected by internal drives for novelty and variety (Acker & McReynolds, 1967; Cattell, 1975; Farley & Farley, 1967; McAlister, 1982; Kahn, 1995). Novelty or variety-seeking would suggest people diverge when they get bored with tastes, but this individual focus means they also have difficulty explaining non-idiosyncratic divergence.

Question 2: Where do people diverge?

The notion of moderate similarity also doesn't specify *where* people should diverge. Momentary thought suggests there are certain domains where people are much less willing to accept similarity. People get more upset when they wear the same dress to a party than when they bring the same toothbrush to a camping trip. Why?

The uniqueness literature has little to say about how different choice domains induce more or less divergence. Most of this literature has focused on personality and individual differences in the need for uniqueness (Snyder & Fromkin, 1977; Tepper, 1994; Lyne & Harris, 1997; Tian, Bearden, & Hunter, 2001). Consequently, we know that certain individuals may prefer unique products, but very little about how the situation itself, or the domain in which the choice is made, influences the degree of divergence preferred. By focusing on individuals rather than situations, these approaches ignore the fact that across individuals, people tend to diverge more in some domains rather than others (e.g., music choices or hairstyles rather than computers or stereos). Understanding why people tend to diverge in certain domains provides deeper insight into what drives divergence in the first place.

Question 3: Who drives divergence?

The uniqueness literature argues people should be most likely to diverge when they feel extremely similar. This leads to some curious predictions. Because an individual is likely to be highly similar to their friends, the prediction is that punks should be more likely to diverge from other punks than from mainstream culture. On a macro level, people in LA shouldn't worry much that their cultural practices are being adopted by people in Des Moines (who differ on many dimensions and thus are only moderately similar); rather, they should worry most about other LA residents. We suggest these predictions are false and that understanding divergence will require us to think in a more complex way about the social process by which one type of people tries to distinguish itself from other types.

Summary: Three Questions

Taken together, previous work has provided some insight into why people may diverge, but cannot explain many cases of divergence and leaves some important questions unanswered.

Previous literature on uniqueness and distinctiveness has added a great deal to a literature which has predominantly focused on processes of conformity and convergence. But we think there is additional insight to be gained by emphasizing the social process by which identity is communicated.

Tastes as Signals of Identity

> Our consumption habits are now a form of social currency. The man who uses Callaway golf clubs, drives a Jaguar, and wears Ralph Lauren apparel…is a man separate and apart from the man who uses a Penn fishing reel, drives a Dodge Durango, and wears Levi's (Vincent, 2002, p. 11)

To address the three questions raised in the previous section we propose an identity signaling approach to taste divergence. Though signaling identity through "one's attitudes and preferences is presumably a ubiquitous social communication process, only limited research in psychology has investigated its characteristics." (Shavitt & Nelson, 1999, p. 38).

Signals are compact indicators of information that is hard to observe or hard to summarize. When first meeting a group of people, for instance, we may want to know "which of these people is the type of person I would enjoy talking to?" We often use signals to determine which people we want to interact with further. Such signals may include the person's tastes, e.g., the clothes they wear, the attitudes they profess, or the phrases they use. A person's tastes provide insight into his/her identity or social type: in China, a Volkswagen Santana driver is likely a new money suburbanite. Signals can be extremely easy to detect, like whether someone has a pierced nose, or more difficult, like whether they correctly use phrases like *hegemonic discourse*, *economic value added*, or *self-regulatory process.*

Our identity-signaling approach suggests people diverge to signal their identity to others so that they can enjoy more fulfilling social interactions. Tastes gain signaling value through their association with groups or types of individuals, but these signals are only valuable to the

degree that they actually provide information. If different types of people send an identical signal, it will have no value in distinguishing between types. If Manhattan residents and weekend wanna-bees both wear mesh trucker hats, then an observer won't be able to determine whether a hat wearer has information about the newest underground band or hip night spot. Divergence makes it easier for people to identify others who are similar (to ensure future interactions with them), and different (to interact appropriately with them as well--e.g., avoiding disliked types or deferring to expert types). We suggest different types will diverge in the tastes they select and they will abandon tastes when their meaning becomes diluted.

Our model assumes that both conformity and uniqueness processes are important, but the focus of the model is collective rather than purely individual; we focus on how meaning is constructed and destroyed as collections of people interact at a social level. Individuals converge with similar others to imbue signals with meaning, and they diverge when their signals are adopted by the wrong types of people. Signals are constructed at a collective, social level, and are diluted through a collective, social process.

Introducing a Model of Identity Signaling

We propose a simple model that can account for much of the observed divergence. The purpose of the model is to rigorously articulate our assumptions and lay bare how our proposed mechanism works. Though the mathematics describing the model have been fully derived, we limit the mathematical details to the appendix. The major concepts of the model can be readily understood without them.

To illustrate the ideas of the model, we will construct it in three stages. In Model 1, we show how different types of people can use signals to improve their social interactions. Model 2 considers in which domains people will choose to signal. Finally, Model 3 adds a poseur who

would like to be treated as another type and poaches the signals of that type; we show how this kind of poaching behavior may dilute the value of signals and lead individuals to abandon tastes and behaviors they previously held.

Why Isn't Divergence Idiosyncratic? Signaling Identity

Previous literature notes that tastes can have symbolic value (Abelson & Prentice, 1986; Herek, 1986; Jetten, Branscombe, Schmitt, & Spears, 2001; Levy, 1959; Park, Jaworski, & MacInnis, 1986; Prentice, 1987; Shavitt, 1990; Solomon, 1983; Zaltman & Wallendorf, 1979), but has given less attention to how tastes actually gain this symbolic meaning (see Davis, 1992). Research suggests people express their identity through their attitudes and possessions (see Sirgy, 1982 for an early review; Abelson & Prentice, 1986; Ball & Tasaki, 1992; Belk, 1988; Escalas & Bettman, 2003; Holman, 1981; Kleine, Kleine, & Kerman, 1993; Levy, 1959; Rubinstein, 1995; Wicklund & Gollwitzer, 1982) and other work suggests that tastes act as part of the social communication system, communicating aspects of the self to others (e.g., Davis, 1992; Douglas & Isherwood, 1978; Holman, 1981; Holt, 1998; McCracken, 1986; Richins, 1994a, 1994b; Solomon, 1983; Schlenker, 1980). But for individuals to be able to communicate or signal identity through tastes, others must be able to decipher or understand those signals and previous literature has not systematically described how signals acquire or change their meaning.

Meaning Construction: Signals are socially constructed

Signals are valuable to the degree that they provide information, but individuals cannot construct signals on their own.

> Coordination Hypothesis*: tastes gain social meaning as signals when they are expressed by similar types of individuals*

We use the term "types" rather than groups because tastes frequently carry meaning even when they span traditional demographic groups. People who wear their baseball caps backwards or

who talk about Foucault may come from different races, ages, and cultures. But, as long as they are similar in some way (e.g., they all listen to the same music or have the same disdain for reifying power relationships), the taste has meaning. Thus type refers to some degree of similarity between individuals expressing the taste.

Signals cannot be constructed solely by individuals because idiosyncratic displays could not be understood by others. Consider the inference problem faced by others when an individual sets out to convey a distinctive identity by choosing a unique combination of markers (e.g., wearing a pith helmet and a football jersey): no one will know what that combination stands for and it will have no expressive value. Thus, a person's decision to adopt or abandon a taste is not just a personal choice made to create a self-image. Tastes signal identity to the broader social world.

More effective signals can be constructed when individuals join with similar others, conjointly displaying the same signal. If a group of lacrosse fans or mushroom hunters all adopt the pith helmet and football jersey combination, people may start to recognize it as a signal of identity as opposed to simply being bizarre.

Model 1: Signaling Identity

The model we develop uses the standard logic of game theory. Although we will be using the language of choice, we are not arguing that types have agency; instead we are assuming that certain "picks" are more likely to be stable in an evolutionary process of variation and selection. That is why game theory has been useful in biology where selection of strategies by animals are not conscious.

Imagine a community where actors differ in their preferences, i.e. their interests and tastes. For the purposes of simplicity, let there be two types of actors (Type A and Type B)

where all actors of the same type have identical preferences. Actors play a game with two stages. In the first stage, each actor chooses a signal. Every actor can signal by investing in some activity within a fixed domain. In the clothing domain, for instance, an actor can select the color or style of his jacket. In the domain of musical taste, an actor could develop knowledge of independent bands or opera.

In the second stage of the model, the actor randomly meets another actor that she has never met before. She does not observe the other actor's type directly, but observes the taste the other has signaled. Signals are such that they can observed relatively quickly (e.g., during a brief conversation). The receiver observes the sender's signal and then decides how she wants to treat the sender in their interaction. Suppose A is an outcast and B is an elite. If the outcast type is happy to interact with both As and Bs, but the elite only wants to interact with other Bs, then A's would pursue interaction with people who signaled membership in either type while Bs would only pursue interaction with people whose signals indicated they were Type Bs.

As a base case, let us assume that individuals want to be treated as they see themselves. People prefer to be treated as members of their type no matter whether they are interacting with members of their own type or members of another type.

Understanding the Model

In this simple model, there is no conflict of interest; everyone wants to treat senders exactly how the senders wish to be treated. This model predicts that the two types will coordinate on *different* signals so that members of each type can uniquely signal their identity. Type A actors should coordinate on one signal, i, and Type B actors should coordinate on some other signal j. These signals are social in two ways: (1) they are coordinated among members of the same type who choose the same signal, but also (2) they are coordinated across different

types who must choose different signals. This coordination improves interactions both with people of the same type and with people of other types.

Experimental results support our proposition that tastes gain meaning through expression by similar types of individuals, not by idiosyncratic individuals acting on their own (Berger & Heath, 2005b). Stanford undergraduates were given information about one or four users of a novel brand and were asked to rate the brand on a number of personality dimensions, e.g., whether it was rugged, calm, reliable, exciting, etc. (see Aaker, 1997). Half were given information about one brand user (a 25 year-old recent graduate who likes surfing, etc.) and the other half was also given information about three additional users (all around the same age, who all liked some extreme sport). We have argued that signals will be clearer when they are expressed in a coordinated way by multiple individuals. Indeed, although participants in the similar type condition came up with remarkably similar perceptions of the brand ($\alpha = .94$), there was significantly lower congruence about the brand when it was used by only one individual ($\alpha = .64$, $t(20) = 3.45$, $p < .001$, Duhachek & Iacobucci, 2004).

Seeing expression as socially coordinated differs heavily from the traditional perspective on self-expression which has emphasized the *self* who is doing the expressing. Traditionally the literature has argued that individuals use possessions, attitudes, and beliefs to pursue unique self-image (Fromkin, 1978; Gross & Osterman, 1971; Liebenstein, 1950), "maintain *self*-concept" (e.g., Ball & Tasaki, 1992, p. 155; Sirgy, 1982) and "express *self*-identities" (e.g., Prentice, 1987, p. 993) and personal values (e.g., Herek, 1986; Katz, 1960). Escalas and Bettman (2003) argue individuals "engage in consumption behavior to construct their *self*-concept and create their personal identity" (p. 339, see also Miller, McIntyre, & Mantrala, 1993). Similarly, the functional approach to attitudes (Herek, 1986; Katz, 1960; Smith, 1947; Smith, Bruner, & White,

1956) focuses on psychological benefits *individuals* derive from expressing "attitudes appropriate to his personal values and to his concept of himself," (Katz, 1960, p. 170).

While some researchers do acknowledge the social and symbolic function of attitudes (e.g., Abelson & Prentice, 1986; Shavitt, 1990), this "social identity function of attitudes…has primarily been investigated from the perspective of the attitude holder," (Shavitt & Nelson, 1999, p.38). More generally, Brewer (1991) notes that " in recent years, social psychologists have become increasingly 'self'-centered," (p. 475) and that "until recently, social psychological theories of the self focused on the individuated self-concept, a person's sense of unique identity differentiated from others," (Brewer & Pickett, 1999, p. 71). In this literature, individuals maintain self-esteem by expressing the individual identity they themselves wish to create.

By focusing on individuals, however, the literature has neglected the fact that individuals can't *express* meanings that are not socially understood. Adolescent boys can purchase muscle cars to bolster their masculine self-concept, but they cannot define the meaning of that symbol. In fact, that symbol may lose meaning over time when muscle cars are purchased by kids who can barely shave. Individuals also cannot control shifts in the meaning of the signals they send. People can buy SUVs because they want to be seen as outdoorsy, but if society comes to see SUVs as silly gas-guzzlers, the wanna-be outdoorsmen are out of luck. Finally, by concentrating on how individuals construct identities, the previous literature has neglected the broader question of how tastes gain meaning in the first place. Previous research has not entirely ignored the fact that tastes have symbolic meaning, it has just not systematically discussed how meaning is acquired.

We emphasize the social nature of identities and attempt to understand how tastes acquire their social meaning as signals of social identity. Our approach finds theoretical support from a

diverse set of literatures. Work on social identity (Tajfel & Turner, 1986) also takes identity as derived from outside the individual, but this literature focuses primarily on how individuals use social identities to manage self-esteem and how individuals react when they adopt a particular identity (e.g., by venerating the ingroup and favoring it in resource allocations). The theoretical approaches of symbolic interactionism (Blumer, 1969; Mead, 1934; Solomon, 1983) and poststructuralism (e.g., Holt, 1997) also note the social nature of the self and recognize symbols acquire shared meaning through socialization, but they do not make clear how this process occurs.

The notion that cultural tastes demarcate social groups is familiar to sociologists (Bourdieu, 1979; DiMaggio, 1987; Douglas & Isherwood, 1978; Simmel, 1904; Goffman, 1951), but they often take these markers as given. As Douglas and Isherwood (1978) note, though tastes themselves "are neutral" (p. 12) and we argue that it is only through expression by multiple individuals of the same type that tastes are imbued with meaning.

Summary: Why Isn't Divergence Idiosyncratic?

To summarize, our model suggests that tastes facilitate interaction and acquire shared meaning through association with individuals of a certain type.

Seeing tastes as signals of (type) identity immediately addresses the first question regarding moderate similarity, namely why divergence typically isn't idiosyncratic. Idiosyncratic divergence is difficult to understand. When people diverge with similar others, however, they communicate an understandable social identity. We now move to examine how our signaling approach can resolve another question neglected by previous approaches, namely where does divergence occur?

Where Do People Diverge? The Question of Domains

Simple observation shows that there is more divergence in the clothes people wear and the cars they drive than in the notebooks they write in or bike lights they use. Similarly, people care a lot more when their music tastes are co-opted by the mainstream than when everyone else uses a similar type of umbrella. What predicts the domains where people are more likely to diverge?

The Signaling Approach to Taste Domains

Little research has examined why divergence might be greater in certain domains but previous research has provided some suggestions. Divergence may increase in publicly visible domains. Ratner and Kahn (2002) suggest self-presentational concerns lead people to choose more variety in public settings than private ones (see also Bearden & Etzel, 1982).

Divergence may also increase in domains that are personally important. Campbell (1986) found that people were more likely to make judgments that protected their self-concept (e.g., underestimating the number of other who share their abilities) in personally important areas. Similarly, Kernis (1984) found that the need for uniqueness influenced false-consensus bias on various trait estimates, but only for people who listed a particular trait as highly important to their self-schemas. This work suggests people want to be more unique in areas they find personally important; a coin collector should care a lot about having unique coins.

These approaches, however, cannot explain many cases of divergence. Public domains may increase the drive for divergence, but people often seek divergence on practices (e.g., music tastes or home furnishings) that are not particularly public. Similarly, personal importance cannot explain why certain domains (e.g., music tastes or clothing) seem to elicit more divergence across people.

At an idiosyncratic personal level, if people want to protect their self-concepts, then people who are self-schematic about a particular dimension should try harder to diverge from others on practices relevant to that dimension. A coin-collector and bottle-cap collector both probably seek to be unique in their own particular hobby domains. But at a broader social level, individuals cannot idiosyncratically select domains to express their identity if they want others to receive their signal. Signaling domains must be coordinated socially, and domains people use to *express* identity should overlap strongly with the domains that others use to *infer* identity.

> Domain Overlap Hypothesis: *Because of the coordination required for signals to be understood, people should choose to self-express in domains others use to infer identity.*

Berger & Heath (2005a) found experimental support for this hypothesis in a broad Internet sample from across the United States (mean age = 38, 82% Caucasian). Separate sets of raters were given a variety of taste domains (e.g., hairstyle, toothpaste, jacket, etc.) and rated each on either self-expression (how much choice in that domain contributes to self expression) or identity inferences (how much choice in that domain is used to make inferences about others). Raters exhibited high agreement about which domains were used in self-expression ($\alpha = .93$) and about which domains they used to make inferences about others ($\alpha = 91$). Supporting the Overlap hypothesis self-expression and inference making were highly correlated ($r = .97$). In general, respondents suggested they were more likely to infer identity in domains like hairstyle or musical tastes than backpack or stereo brand. These results support the proposition that self-expression is not an idiosyncratic activity; there is coordination on what domains people use to infer things about others and people express themselves in these identity-related domains.

We suggest divergence is driven by the need to maintain clear signals of identity, thus divergence should be greater in identity-related domains.

Domain Divergence Hypothesis: *Divergence will be greater in identity-related domains.* Applying this hypothesis to the divergent findings of convergence and divergence proves immediately useful. While many conformity studies used choices likely to have a right answer and hence choice was not particularly self-expressive (e.g., length of a line, Asch, 1951, movement of a point of light, Sherif, 1936, or weight of items, Allport, 1924), the few studies where divergence was found concern categories such as attitudes (Weir, 1971) that relate more to identity.

To test the domain divergence hypothesis, Berger and Heath (2005a) asked a broad Internet sample from across the United States to choose options in various preference domains (e.g., dish soap, stereos, hairstyles, favorite CD). In each domain, they were told 65% of people preferred Option A, 25% preferred Option B, and 10% preferred Option C, and they indicated which option they would choose. Supporting the Domain Divergence hypothesis, people preferred more divergence in identity related domains (Figure 1); respondents were more likely to select the option preferred by 10% of others in domains like hairstyle and favorite music artist than dish soap or toothpaste. People also avoided tastes held by too many others in identity-related domains; while only 24% of people chose Option A in domains used to infer identity (median split), 46% did so in less identity-related domains.

These results suggest that divergence is more likely in domains used to infer identity. But this raises another important question. *Why* are some domains used to infer identity? Why are hairstyles or music (as opposed to back packs or bike lights) better signals of identity?

Previous research suggests visibility or publicness may influence the degree to which tastes are used to make inferences about the individual (Belk, 1991; Ratner & Kahn, 2002; Shavitt & Nelson, 1999). But the public/private distinction does not capture enough of the

variance (see Bearden & Etzel, 1982). Indeed, in our own 65%/25%/10% study, domain publicness was somewhat predictive of divergence, but only marginally so. A moment's introspection will quickly suggest that domain visibility cannot be the only factor that influences identity inference making. A person's clothing is about as observable as their notebook, yet only one of those domains is used to infer identity. And we often infer identity from domains that aren't particularly observable (e.g., music tastes aren't easy to observe in most situations). Thus, while visibility is likely to be important, it is not the whole story.

Functionality

We suggest that some domains operate more effectively as signals of identity because they are easier to interpret. Most cultural practices have some functional value as well as some self-expressive or symbolic value (Abelson & Prentice, 1986; Levy, 1959; Zaltman and Wallendorf, 1979). We argue that practices with a salient functional component will be harder to interpret as identity signals. Did someone buy the new power-sander because its design appealed to their aesthetic sense or because they had something to sand? When options are functionally equivalent (e.g., a black jacket vs. a brown jacket), it is less likely that an individual's choice will be attributed to function.

Based on standard theories of psychological discounting (Kelly, 1973; Morris & Larrick, 1995), we predict that people will have greater difficulty identifying a practice as signaling identity when it has a higher functional component. Thus, we predict that certain taste domains may be particularly suited for signaling identity because others cannot easily attribute choice within the domain to functional reasons.

> Afunctionality Hypothesis: *Domains will operate more effectively as signals of identity when choice in them is less attributable to function.*

Bike lights are less likely to signal identity than hairdos because the choice of a bike light is based more on function. Similarly, in cultural beliefs and practices where people think there is a right answer, functionality is high, so those beliefs are less likely to be used to infer identity. Admiring Newton as a scientist will be less identity revealing than admiring Rousseau as a philosopher. Worshiping a particular god will be less identity revealing in a monotheistic culture (where there seems to be a single right answer) than in a polytheistic culture.

Model 2: Introduction of Costs and Influence of Domain on Signal Interpretation

In the previous model we did not differentiate among domains. We now expand the model to allow different domains to provide different benefits. This allows us to ask the following question: If we allowed types to choose which domain to signal in—hairstyle, music taste, clothing—which domain would they pick?

Formally, assume that an activity, i, provides benefits, b_i and costs, $c_{i,x}$, to the actor, x. In the domain of fashion, the activity of wearing a biker jacket provides the benefit of warmth and protection but imposes the cost of the purchase of the jacket. In the domain of musical tastes, specialized knowledge about hip-hop imposes the cost of time spent learning who was featured on a given artists last album. If the domain is a certain kind of lingo, the cost is time spent listening to others speak the lingo. For simplicity, assume each actor can only invest in one signal each period.

Understanding the Model

The main insight provided by Model 2 is that signaling is more likely to occur in afunctional domains. In functional domains, most people will select the option that provides the most benefit and consequently choice is not a good signal of identity. Choices on intellective tasks or choices of stereos or notebooks will probably not provide good signals. Some practices

can also be broken down into aspects that might signal identity and those that don't. On a cold day, the *act* of wearing a coat doesn't provide a signal but the coat's color does provide a signal because the benefits of various colors are similar. Thus, we expect signaling is more likely in afunctional domains.

Consistent with the afunctionality hypothesis, Shavitt and Nelson (1999) found that people make fewer personality or individuating attributions for utilitarian products (e.g., aspirin). In the study of domains we mentioned previously (Berger & Heath, 2005a), respondents rated each domain on functionality. Supporting the afunctionality hypothesis, there was a high negative correlation ($r = -.90$) between functionality and identity-relatedness; the less people saw others' choices as being determined by function, the more they used it to infer identity.

Our signaling logic implies that a particular cultural practice will act more effectively as a signal when people could easily choose other cultural practices that have the same functional value. A Burberry raincoat is a fashion statement even on a rainy day because other raincoats could have served the same function at less expense. A black leather jacket with metal spikes sends a strong signal because a plain brown one would have kept the wearer just as warm.

Another implication of our signaling logic is that individual tastes (e.g., fashion trends) can identify themselves as identity-signaling by strategically violating functionality. Sunglasses are more of a fashion statement indoors than out. A cap is more of a fashion statement when the bill is turned backwards so it no longer serves its functional purpose. Afunctional behaviors are also good signals. Beehive hairdos and mohawks are time-consuming to maintain, tattoos and body-piercing are painful, high-heeled shoes are difficult to walk in, goldfish-swallowing and phone-booth stuffing are obviously pointless, baggy Zoot suits waste cloth (indeed the War Production Boards in WWII banned them because they wasted material). The afunctionality

hypothesis helps us understand why Zoot suits are baggy, beehive hairdos high, and low-riders low.

Summary: Where Do People Diverge?

Our identity-signaling approach answers the question of where divergence takes place and why. Divergence occurs more in music tastes than toothbrushes because music tastes are seen as signals of identity and people diverge to maintain the clarity of their signal. The social coordination highlighted by our signal model ensures that individuals must express themselves in the same domains others use to infer identity. Furthermore, it predicts that afunctional domains are better suited for identity inferences because those domains make it easier to determine meaning.

These results are difficult for prior approaches to explain. The uniqueness literature argues people should diverge when they feel the most similar, but since people are more likely to share the same pen or bike light than they are to have the same shirt, the uniqueness literature would predict a pattern of divergence across domains that is opposite to the one found here. Similarly, theories of novelty-seeking suggest that people should diverge when they are bored, but without a specific theory of why boredom should vary by domain, it cannot explain domain differences in divergence.

Our approach also improves on previous domain approaches suggesting when we should see convergence versus divergence. In functional choices or those more likely to have a right answer, social influence should elicit convergence. In a dot estimation task, for instance, others' estimates will provide information that leads to convergence, as long as we think the quality of their vision is similar to ours. Others' type, however, should play a larger role in judgmental or identity-oriented choices. People should converge with others of the same type, but diverge from

different types; our friends using a catchphrase should prompt us to use it more, but other groups using it may lead us to diverge.

So far our signaling model has been helpful in addressing some questions that have been unresolved by prior approaches, but the current model still faces a serious challenge. If types just want to be identified by others then why do many signals end up being costly or subtle? Why would people get body-piercings or spend countless hours listening to music if they could just wear t-shirts with smiley faces or motorcycle jackets? The probability of correct signal identification presumably increases with observability, so why would people select anything but the cheapest and most observable signals?

For simplicity, our first two models have assumed that everyone wants to be identified as their own type. But this is too simple: the middle class might want to be treated as wealthy, the unsophisticated as sophisticated, and the tragically unhip as hip. We now expand the model by adding poseurs who want to be treated as members of a type they don't belong to and we investigate how their presence influences the signals people use and the way people diverge. We investigate, in particular, a particularly stringent form of divergence--when people *abandon* practices and tastes they once held.

Who Drives Divergence? Signal Poaching and Abandonment

> It seemed only yesterday that Von Dutch trucker hats were worn by half the aggressively stylish people in the world. Now they are scorned in the hipster circles that only recently flaunted them (Lindgren, 2004, C4).

So far we have discussed how signaling identity causes people to diverge in the tastes they select, but there is also another type of divergence, namely taste *abandonment*. Not only do different types of people select different tastes to maintain clear signals (e.g., teenagers choose different music than their parents), but in some cases people also abandon tastes they previously

held. Catchphrases die, people stop wearing certain styles of clothes, and fans abandon the very musical artists they once followed zealously. Why?

We suggest individuals may abandon tastes when they are adopted by other social types and thus their signal value is lost. Just as tastes gain meaning when they are associated with particular types of individuals, they can lose meaning when they are adopted by other types.

> Abandonment Hypothesis: *individuals of one type will abandon previously held tastes when adoption by other types reduces their signaling value.*

If Type A people ride Harley motorcycles, and Type B people (say brat pack Hollywood actors or suburban accountants) start riding them, then an observer who sees someone riding a Harley will find it more difficult to determine the person's type. Consequently Type As may abandon the taste because its signal value has been diluted/polluted.

In many cases, abandonment is driven by poseurs. In our basic model, types wanted to be identified as their own type, but in many cases people of one type might prefer to be considered another type. These poseurs may express another type's signal in the hope of taking on some of the attributes of that type. Teenagers may purchase fake Prada handbags to appear rich and rich people may adopt teenage slang in an attempt to seem hip.

Model 3: Identity Poaching and Abandonment

To explore identity poaching and fashion abandonment, let us consider a sub-type, Type BA. These poseurs are members of Type B, but prefer to be treated as members of Type A. Formally, they want their interaction partner to choose action α, but other actors consider them members of B, and prefer to choose action β. Furthermore, to allow the possibility of dynamic change over time, consider a repeated version of the preceding game. Each period could be a day, a week, etc., but in each period all actors choose to signal and then have the chance to interact.

Understanding the Model

Over time, poaching will undermine the signal, leading to abandonment. Consider a domain (e.g., music tastes) where Type A has coordinated on signal *i* (e.g., hip-hop knowledge), and Type B has coordinated on signal *j* (e.g., pop knowledge) and that signal costs are stable over time. For the moment, take it as given that it is cheaper for Type A to signal hip-hop knowledge than it is for Type BA. Members of Type A choose hip-hop and Type B choose pop, and they treat others as members of their type when they display the appropriate musical taste. Members of Type BA would prefer to learn hip-hop but most will find it too costly and will continue with pop. However, some who do not find it too costly will switch to hip-hop.

If an actor sees someone with knowledge of pop, he can be sure they are of Type B. If an actor sees someone with knowledge of hip-hop, the person is likely Type A, but there is some small chance that the other is a poseur (BA). As long as this chance is small, Type A people will continue to interact with hip-hop signalers, risking the chance of interacting with a poseur for the greater reward of meeting one of their own.

Suppose, however, MTV starts playing more hip-hop, making it cheaper for poseurs to learn about it (see Polhemus, 1994 for a discussion of media's role in facilitating imitation). Over time, more and more Type BA people will choose hip-hop, and the effectiveness of hip-hop as a signal of identity will decline. If the number of poseurs who adopt hip-hop grows sufficiently, the signaling will break down and the taste will be abandoned.

In addition to explaining why tastes are abandoned, the key insight of this model is that the tastes that are most effective at signaling identity are those that maximize the cost differences between groups, imposing a low cost for in-type members and a high cost for out-type members. In the example above, poseurs were originally kept out by the high cost of knowing about hip-

hop. But if the difference in costs were to disappear (because of MTV or some other factor), poseurs enter, dilute the taste's signal value, and signaling breaks down.

What Prior Literature Says About Abandonment

Sociologists agree that individuals make cultural choices to set themselves apart from members of other social categories (Bourdieu, [1979] 1984; Davis, 1992; DiMaggio, 1982; Dooley, 1930; Gans, 1974; Levine, 1988; Robinson, 1961; Simmel, 1904 [1957]; Veblen, 1899[1912]), but they have primarily focused on processes in which groups with traditionally high status (e.g., wealthy, educated groups) diverge from traditionally low status adopters (see Pesendorfer, 1995 and Bernheim, 1994 for economic treatments of the topic). Bourdieu ([1979] 1984) finds that, when asked what scene would make a great photo, people with higher levels of education tend to skip over objects most likely to be popular with the masses (e.g., first communion or sunset). Other work has shown that educated people tend to actively dislike music associated with people of lower average education (e.g., rap, country and heavy metal, Bryson, 1996) and that in the early 1900s, whites distanced themselves from the first names used by blacks (London & Morgan, 1994).

Emphasizing that groups compete over identities in the broader social environment provides a healthy corrective to views that presume individuals construct their own identities in isolation, but unfortunately, the sociological literature has focused too narrowly on situations where people compete over identities related to status as defined by particular macro-demographic characteristics. This literature is based primarily on the trickle down theory of fashion (Barber, 1957; Foley, 1893; Rae, 1834; Robinson, 1961; Simmel, 1904 [1957]; Veblen, 1899 [1912]), which suggests people adopt from those above them in the status food chain. Fashions are initiated by the higher class and imitated by the lower classes. But, once the lower

classes have adopted, the signal value is lost and consequently high class people abandon the taste. In the context of social groups in the United States, this literature has essentially endeavored to explain why Northeastern WASPs seek to distance themselves from every other group in the country (e.g., blue collar workers, Southerners, Catholics, ethnic minorities).

As Mark (2003) notes, the original emphasis of the distinction literature is overly asymmetric, focusing too much on high status people distancing themselves from low status others. Many examples of abandoning tastes are not easy to classify in terms of a unidimensional status ordering. Teenagers reject catchphrases once they creep into their parent's lexicon and, just as whites select names to distance themselves from blacks, blacks often abandon clothing styles or slang that are adopted by whites. Fashion does not solely originate among the upper classes (Davis, 1992), and, in fact, often comes from low-status or somewhat marginalized groups. Much of fashion has been started "not so much by the upper or even middle classes, as by the déclassé, anti-class youth, and counterculture. Long hair, head bands, beads, tie-dyed apparel...not only mock the materialistic status symbols of the established classes, but have successfully spread into the enemy camp, Fifth avenue and Main Street, where they have caught on and been copied," (Blumberg, 1971, p. 493).

While some theoretical approaches have touched on the notion of bidirectional influence (e.g., mass market or trickle across theories--Sproles, 1981, 1985; King, 1963) and subcultural leadership (e.g., Blumberg, 1974; Field, 1970), they have not systematically discussed how the process works, and in particular they have not recognized that adoption by mainstream types will lead the counterculture to abandon tastes.

Our identity-signaling perspective takes a more general approach to divergence; rather than divergence driven by status, we suggest divergence is driven by people's desire for beneficial interactions.

Experimental Evidence on Abandonment

Some experimental evidence has shown that taste abandonment is not driven purely by macrodemographic status. Berger and Heath (2005a) examined whether adoption by other students would lead students to abandon tastes. In the first stage of the experiment, students in a mass testing session provided their preferences in a number of taste domains. In the car brand domain, for instance, participants were presented with five car brands (Acura, BMW, Mercedes-Benz, Volvo, Lexus) and asked to circle which they preferred. Two to three weeks later, participants came to the lab in small groups for a seemingly unrelated study about how people discuss their preferences. As they walked in, a research assistant was working at a side table in the experiment room, visibly entering data. After an initial exercise, the experimenter apologized, saying he had run out of copies for the second portion and had to go make more. While the experimenter was gone, participants were asked to help the assistant tabulate some preference data (to fill the time). Each participant was given a stack of surveys that had been carefully tailored to suggest that in certain target domains, other respondents shared the preferences they had expressed in the mass testing session (e.g., 8 out of 10 of the data sheets they tallied showed choice of the same car brand that they chose previously). When the experimenter returned with the copies, participants completed a preference questionnaire which included the target domains. They then met as a group to discuss which options they had selected.

We hypothesized that when students learned their taste was shared by a majority of other students, they would think that the taste was not a good signal of their type of student (e.g., jock, geek, etc.). Indeed, results of a pre-test found that students who were told that 8 of 10 (vs. 2 of 10) other students shared one of their preferences were more likely to believe the preference was held by people outside their own group. This dilution in signal value should lead people to abandon tastes in identity-related domains.

Supporting the abandonment hypothesis, participants who were confronted with similar responses by 6-8 others abandoned some of the tastes they had expressed in the earlier questionnaire. Furthermore, supporting the domain hypothesis, they were more likely to abandon tastes in domains that were afunctional and more identity relevant. A mean split on identity inferences found that participants diverged 28% of the time in domains used to infer identity (e.g., music preference) but only 17% of the time in domains not as likely to be used to infer identity (e.g., bike lights). (This pattern of divergence was not echoed in a control condition where people were not exposed to others' preferences.) Because both the participants and supposed adopters were students, one cannot explain the results in terms of status-based divergence.

In another study, we tried to create a situation in which people could actually see that a certain taste no longer had value in distinguishing between types. In the summer of 2004, the Lance Armstrong Foundation started selling yellow Livestrong wristbands to support cancer awareness and research. Originally, the wristbands were worn primarily by athletes, but they later caught on more broadly and spread contagiously in the general public (see Walker, 2004).

During the upswing of this trend, we distributed these wristbands to various dorms on a university campus to examine how signal dilution might affect abandonment. Specifically, we

sold 38 wristbands to one dorm of 60 people (high prevalence condition), and half that many were distributed to each of two other same-sized dorms on separate parts of campus (low prevalence conditions). A week later, researchers returned to the dorms and, through an unrelated questionnaire, measured whether dorm members were wearing the wristband they had purchased. We predict people in the high prevalence dorm should be less likely to wear the wristband because its meaning has become more diluted. Most dorm members weren't athletes, and consequently, the more people in the dorm wearing the wristband, the greater the percentage of wristband wearers a person interacts with who are not athletes (and are everything from computer scientists to hardcore partiers). This should dilute the taste's signal value. Indeed, abandonment was greater in the high prevalence dorm, where a smaller percentage of members actually wore the wristband to house meeting (58% vs. 88% in low-prevalence dorms).

These experimental results are difficult for the uniqueness literature to explain. A greater number of others sharing one's car preference or possessing the same wristband might have made people feel slightly less unique, but the differences used here (e.g., 38 vs. 19 others owning a wristband) are nowhere near the extreme similarity manipulations used in the traditional uniqueness experiments (e.g., 80% similarity to 10,000 students on 30 attitude items, Ganster, McCuddy & Fromkin, 1977).

Abandonment Based on Who is Adopting

We can also use the framework of model three to think about signaling in a richer setting populated by multiple types of people. Overall, adoption by other types should lead to divergence, but we predict that divergence may be greater when the adopting type is more

dissimilar to the current taste holders.[1] Presumably, larger type differences imply that people experience higher costs when they are misidentified as members of the wrong type. That is, the differences between correct and incorrect identification become larger when the types are more dissimilar. Snowboarders might not want to be identified as skiers, but they might prefer that mistake to being misidentified as a golfer.

Alternatively, if tastes diffuse across similar types, then tastes that have been adopted by very dissimilar types are likely to have been adopted by more people (all the types in between), thus the signal has experienced a higher degree of dilution. Consequently, one would expect that divergence would increase with dissimilarity.

To test this notion, Stanford undergraduates were told to imagine their groups of friends engaged in a certain behavior that had been adopted by some other group (Berger & Heath, 2005b). For each of 15 social groups (e.g., 40 year old white business executives, janitors, college professors, suburban teenagers, etc.) participants were asked to rate how many people (outside that group) were likely engaging in the behavior, given that a given social group had adopted it. Another set of raters rated the groups on similarity. Supporting our prediction, adoption estimates were highly negatively correlated with similarity ($r = -.74$); people assumed more people had adopted the taste if the adopting group was dissimilar.

It is worth noting that there exists a countervailing effect that should lead to relatively increased divergence when adopting types are extremely similar. The previous two points were based on the costs of misidentification, but the probability of misidentification should also vary. When types are more similar, they are more likely to overlap in their tastes and they may be

[1] We use similarity in a broader sense than mere demographic similarity. A hip teenager may be demographically dissimilar to a 50-year-old business executive, but if the executive has a shaved head, wears black, and makes independent movies, the two may be considered similarly hip even though they differ demographically.

more likely to be confused with each other. Cooper and Jones (1966) found that people diverged from an obnoxious lab partner, but more so when the partner seemed similar (e.g., father had a similar occupation). Also, similar types should be more likely to encounter each other than to encounter more distant types.

Combining these factors, we predict a curvilinear relationship between similarity of the adopting type and divergence; people will be more likely to abandon a practice when it is adopted by dissimilar types, but they may also increase abandonment if it is adopted by types who are extremely similar.

> Similarity Hypothesis: *the influence of similarity of the adopting type on divergence will be curvilinear; both extreme dissimilarity and extreme similarity will lead to increased divergence.*

We tested this hypothesis (as well as the effect of adopter status) in a study regarding catchphrase usage (Berger & Heath, 2005b). Stanford undergraduates were told to imagine their group of friends liked to say a particular catchphrase that no one else was saying. Then they were asked to rate how their use of the phrase would change if it were adopted by various other social groups (the same 15 used in the previous study). Other sets of students rated each group on similarity, liking, or demographic status.

For 14 of the 15 groups, participants said they would be likely to abandon the catchphrase if others adopted it (see Figure 2). Abandonment was most pronounced for highly dissimilar groups but was also noticeable for similar groups. The curvilinear effect of similarity held even when we controlled for liking and demographic status.

These results are consistent with the identity-signaling approach but inconsistent with other theories. Theories of conformity obviously predict convergence when other people adopt a taste, not divergence. Other theories might predict that people diverge from disliked others (e.g.,

Bryson, 1996; Wood, Pool, Leck, & Purvis, 1996), but the similarity result holds even when liking is controlled. This makes intuitive sense-- kids may like their parents a lot, but diverge when parents adopt their slang or way of dress. Sociological models of status also have difficulty explaining these results: the status of the adopting group was not significantly correlated with divergence and people diverged even when their taste was adopted by a higher status group.

An additional study tested both the similarity and domain hypotheses, examining how similarity of the adopting group and the particular taste domain would influence divergence. Stanford students were given 10 domains (varying in identity-relatedness) and asked to imagine that members of a certain social group had started to copy their preference in that domain (e.g., Princeton students had started adopting their favorite type of music). They then indicated what level of adoption by the other group would lead them to abandon the taste (e.g., would they abandon if 10% of Princeton students had adopted? 50%? Never?). The other group that adopted was varied in a between subjects design; we chose three groups (40 year old business executives, inner city teens, and Princeton students) that were rated equivalently on a measure of liking but varied on similarity.

Both divergence predictions were supported: people were more likely to diverge in identity related domains (e.g., clothing versus bike lights), and there was a curvilinear relationship between amount of divergence and the similarity of the adopting group--participants diverged more when the adopting group was either extremely dissimilar (i.e. 40 year old business executives) or extremely similar (i.e. Princeton students) than when it was in the middle (inner city teens); see Figure 3. Furthermore, consistent with our approach, there was also an adopter similarity x domain interaction: both similar and dissimilar groups prompted divergence in

domains used to infer identity, but similarity had no effect in domains where tastes are not used to infer identity (e.g., toothpaste). This interaction provides particularly clear support for signaling and not mere association or liking--people care about the clarity of their signals, but only in identity related domains.

Summary: Who drives divergence and why?

Our identity-signaling approach answers the question of who drives divergence and why. People diverge when other types adopt their practices and their identity signals become diluted. This relationship is curvilinear--people diverge from similar others (when the *likelihood* of misidentification is high), and they diverge more from very dissimilar others (when the *cost* of misidentification is high).

A major advantage of our model is the capacity to explain why divergence occurs even when the adopting group is dissimilar. Previous literature has emphasized similarity-- the uniqueness literature argues divergence is driven by similar others and social identity research has argued groups feel increased pressure to differentiate themselves from similar outgroups (Brown & Abrams, 1986; Diehl, 1988; Roccas & Schwartz, 1993). But previous research has not explained why groups might want to differentiate themselves from dissimilar others. This seems to neglect some key phenomena in the environment: punks or inner city teens would probably abandon tastes that were adopted by suburban teens (or, even more serious, suburban parents).

Although we have argued that pressures to diverge are more general than suggested by literature that has focused on macro-demographic status, that literature has correctly recognized that some social groups may find the problems of poaching to be particularly acute. If people like to appear wealthy, the rich must keep switching signals. But our model goes beyond the

traditional sociological emphasis on macro-status because it predicts the divergence race will also be more intense for types that are highly imitated because they are interesting or cool. When suburban kids imitate inner city teens or when straight metrosexuals imitate the signals of gay men, the original groups will also be forced to change signals in order to maintain signal clarity.

Our research also provides some experimental backing to the notion that tastes may die when they become too popular (the classic example of a non-conformity effect, e.g., Lieberson, 2000). "Smiley-face t-shirts were cast off as uncool and the word 'acid' was dropped from club names and music genre classifications as soon as 'acid house' became a term familiar to general readers of national newspapers," (Thorton, 1997, p 6.). This presents an interesting macro-level paradox that points out one limit to conformity processes. While people may be drawn to popular things because others like them, if too many people hold the same taste it loses both its value as a unique attribute and as an identity signal, and people will abandon it.

Costly Signals

As discussed previously, signals are often costly, yet the prediction of Model 1 was that signals would be visible and low cost. The idea of poaching provides insight into why costly signals may persist. While people might prefer to signal with the least possible cost, cheap signals are the most likely ones to be poached. Thus costly tastes should be more likely to persist over time because they impose barriers that make adoption relatively difficult: Goth style "is by its very nature off-putting and therefore has avoided being drawn into the mainstream" (Polhemus, 1994, p. 97). Tastes that are painful (e.g., piercing), require lots of money (e.g., expensive jewelry), or take a long time to acquire (e.g., a love of chess) make poaching harder, so they may resist signal dilution. Knowledge based tastes (e.g., an appreciation of Gregorian

chant) may be particularly resistant to poaching because they cannot just be purchased by anyone willing to put up the money. In many situations costly signals may evolve in a relatively unplanned way (e.g., certain tastes happen to be more costly, and thus happen to persist because they are less likely to be poached by others). But in other cases, types may deliberately select costly tastes to foil poachers: the jazz musicians who developed the New York sound "deliberately sought to restrict white identification by producing a jazz which was difficult to listen to and even more difficult to imitate" (Hebdige, 1987, p. 47).

Visibility

Visible signals create a tension: visibility makes signals easier to see but also easier to poach. If Harley Davidson riders wear black leather jackets, it will be easier to associate jacket-wearing with Harley-riding than with some other, more private, signal (e.g., a tattoo that is typically hidden). But this visibility also makes it easier for poseurs to recognize the signal and copy it. Visible signals should lose meaning faster, and consequently, we should see faster turnover in taste domains that are more public.

Visibility also interacts with opportunity costs. Some highly visibility signals may be less likely to be copied because they impede interactions with other types (e.g., Mohawks may make it difficult to find a job). Conversely, some types may select a low visibility signal to allow for easy interactions with other types but still identify each other. Rubinstein (1995) notes that before the 1980s, most gay men felt pressure to remain invisible to mainstream culture. Consequently, they had to come up with subtle signals that could be identified by other gay men but not by outsiders. To do so, they adopted what has been termed the Old Clone look, wearing "jeans, lumber shirts, jackets, and heavy boots and sporting a mustache and sunglasses…instantly recognizable by other gay men, the look would not offend at work, for

most non-gay colleagues would miss its significance" (p. 215). By selecting subtle signals, they were able to signal only to others of the same type.

General Discussion

We have proposed an identity signaling approach to divergence: people diverge to signal their identity to others so that they can enjoy more fulfilling social interactions. Importantly, this process is socially driven. Instead of focusing on idiosyncratic individual drives, we focus on how people communicate and receive meaning. Tastes acquire meaning when they are expressed by similar types of people and they lose meaning when they are adopted by other types.

Our approach answers a number of questions that have been unanswered by previous approaches to divergence. Divergence does not occur idiosyncratically by individuals, rather types of individuals diverge when signals of identity have been undermined. Divergence should be more prevalent in domains used to infer identity and these domains are likely to be ones in which choice is not based on function. Divergence is not driven by similar others, but occurs whenever adoption by other social types reduce a taste's signal value.

Although the game theoretic model we use invokes the language of choice, we do not believe that divergence is necessarily conscious or intentional. Social influence can often occur nonconsciously (Pronin, Berger, & Molouki, 2005), and research on mere exposure (Kuntz-Wilson & Zajonc, 1980) and social mimicry (Chartrand & Bargh, 1999) suggests people may come to like things others like or to imitate their behavior, all without awareness that they have been influenced. (For example speech patterns and pronunciations are often quite subtle and may be hard to acquire consciously but they demonstrate some of the divergence processes we have described, Eckert, 1989, 2000). Similarly, people may diverge from others because others'

tastes just don't seem "right" for them (see work on prototype matching, Niedenthal, Cantor, & Kihlstrom, 1985). Yet the formal model is useful because we assume that, whether selected consciously or unconsciously, some patterns of practices are more likely to lead to an equilibrium that allows for efficient coordination, and those practices are more likely to persist.

Divergence and Culture

Cultural psychologists suggest that relative to Americans, members of East Asian cultures prefer less uniqueness (Aaker & Schmitt, 2001; Kim & Markus, 1999; Kim & Drolet, 2003). As a result, uniqueness based explanations have trouble explaining why we still see much divergence in East Asian cultures; just as the U.S has skaters, surfers, punks, etc. Japan has kawaii (baby doll), yamamba (mountain witch), bodikon (skimpy skirts and high-heeled boots), (Mead, 2002). A signaling approach, however, does not have such difficulty. Even though the self is less focal (e.g., Morris & Peng, 1994), members of East Asian cultures should diverge for the same reason Americans do, to signal clear identities as members of types or collectives. Indeed, if collectives are more important in East Asian cultures, then identity signaling dynamics may be even more important (Wong & Ahuvia, 1998).

The Dynamic Meaning System

The fact that meaning changes socially suggests that even if individuals want to express a consistent identity, they may have to adopt different tastes over time. A rich white male may have originally worn Tommy Hilfiger to signal his upscale preppy identity, but the adoption of Hilfiger clothing by hip-hop artists in the early 1990's meant that those clothes came to signal an entirely different identity. Consequently, rich white men may have needed to diverge just to maintain a consistent signal.

While our discussion has focused on active divergence when signals lose their value, the identity signaling suggests convergence and divergence happen even in the absence of these drives. People may end up conforming not because they want to imitate others, but because they *do not* want to send out the wrong signals. When hairstyles were trending longer in the 1960s, the typical person may have been forced to track the expanding length because they did not want to send a strong signal on either end--too short and they are considered stodgy and conservative, too long and they are considered to be hippies. The social nature of signaling means that even when individuals want to avoid sending a particular signal, they may need to alter their behavior to stay in step with the social dynamic.

Cycles of Fads and Fashions

Seeing tastes as signals of identity also helps understand why fads and fashions fluctuate. Fads are not limited to frivolous consumables (e.g., Beanie Babies and Hula Hoops, see Aguirre, Quarantelli, & Mendoza, 1988; Arthur & Lane, 1993; Blumer, 1969; Fearon, 2005; Robinson, 1958). Indeed, fad-like processes of rapid adoption and abandonment occur in everything from management practices (e.g., Total Quality Management) to public policies (e.g., whole math) to academic theories (e.g., consider Strauss and Quinn's 1997, p. 12, comments about how theories rise and fall in anthropology). While lay theories of fads and fashion suggest people abandon practices because they just "get tired of them" (some disciplinary theories suggest the same, see Sproles, 1981) a signaling perspective provides more insight. Whenever tastes signal identity, and especially when they are visible and thus easy for poseurs to poach, we should see upswings in popularity followed by abandonment as taste holders diverge because the taste's signaling value has been diluted.

Identity and Social Influence

More attention needs to be given to the role of identity in social influence. Much social influence research suggests that people will converge to the behavior of others, but the evidence provided here suggests that when the others are members of a different social type, people may in fact diverge. These results are difficult to explain using the traditional distinction between normative and information social influence (e.g., Deutsch & Gerard, 1955). The studies contained few vehicles for rewards and punishments and, if anything, the information provided by others' choices should have led people to converge. The referent informational influence approach (e.g., Hogg & Turner, 1987; Turner, 1982) does a better job of taking the identity of the influencer into account and deserves more attention, but this theory focuses predominantly on conformity and thus has less to say about divergence. Consequently, more work needs to be done to incorporate identity into social influence. People's tastes may be greatly influenced by the tastes and behavior of others, but teens and their parents, jocks and geeks, and residents of Shanghai and New York know that social influence may lead people to diverge as well as conform.

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Figure 1: Divergence in Taste Selection by Taste Domain

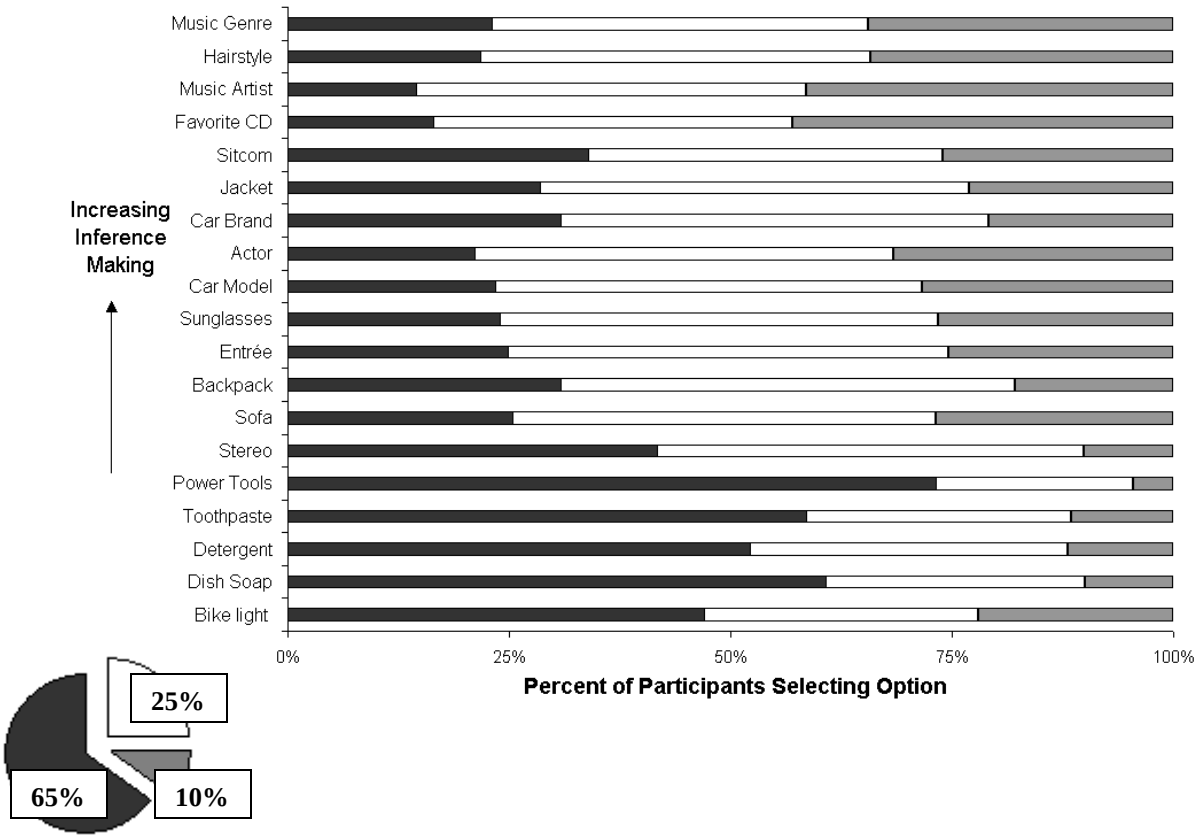


Figure 2: Change in Taste Expression Based on Similarity of the Adopting Group

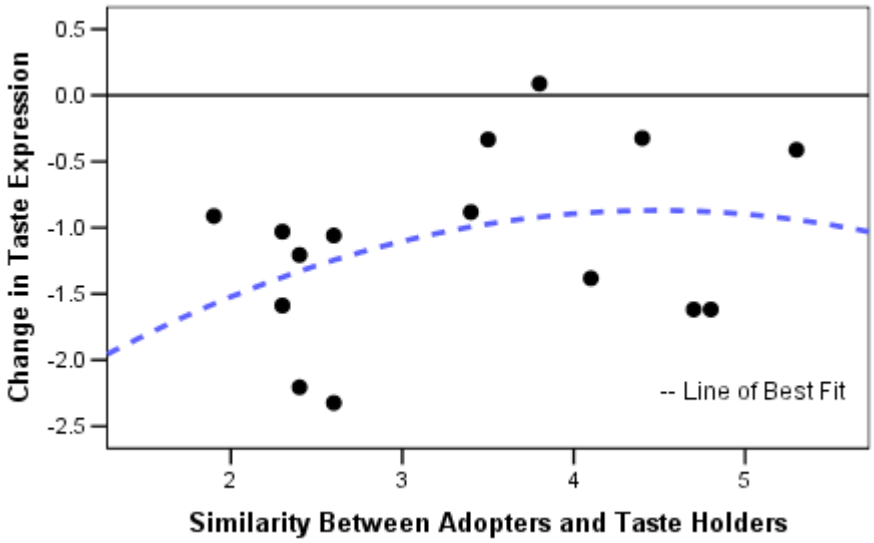
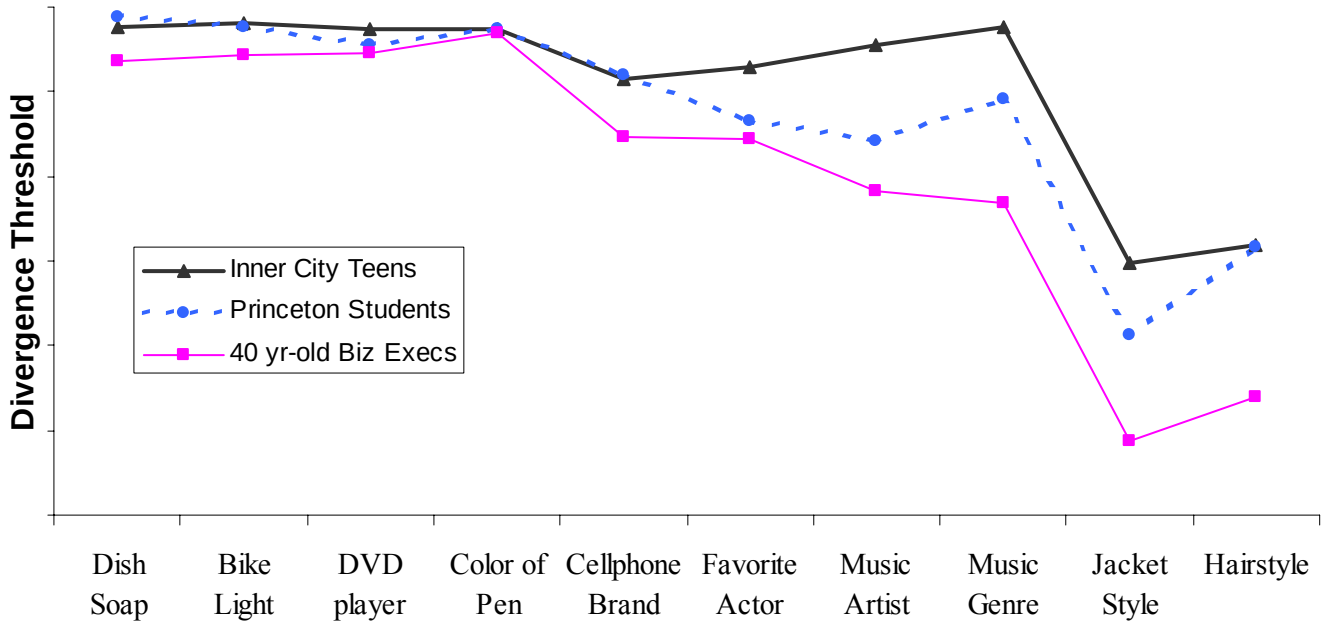


Figure 3: Divergence Threshold Based on Similarity of Adopters and Taste Domain



Mathematical Appendix Material

There have been a number of important economic theory papers on the subject of fads and fashion. Bernheim (1994) argues that the desire for status is the driver of conformity. Becker and Murphy (2000) argue that leaders abandon old fashions in order to maintain distinction.

The contribution of this model is that the driver behind fads and fashion is not status, but identity, where identity is important for allowing effective social interactions. Further, change is not driven by the production technology of the fashion industry (see Pesendorfer 1995), but based on changes in behavior within the population. The richness of the model allows us to identify other properties of fashion, beyond price, that allow us to predict what products and activities are likely to become fashion statements and thus suffer the ups and downs of fad-like behavior.

Presented below are the technical details of the models presented in the paper. Let there be a large community of actors of different types--say A and B to start--with population proportion fixed at p_A, p_B . Presume individuals are myopic to simplify dynamics. Actors have preferences over interactions and over signals. Presume separability, so that in each sub-stage, an agent of type θ who chooses signal $i \in \boldsymbol{Z}$, has history of signal choice $\boldsymbol{h}$, and interacts with another agent of type θ^- with interaction a, receives stage utility of

$U_{recv}(a,i|\theta,\boldsymbol{h}) = b_{recvr}(a,\theta,\theta^-) - c(i, \theta, \boldsymbol{h})$
$U_{send}(a,i|\theta,\boldsymbol{h}) = b_{send}(a,\theta,\theta^-) - c(i, \theta, \boldsymbol{h})$

where $b(-)$ represents the benefits of the interaction and $c(-)$ represents the costs associated with choosing that particular signal.

In the interaction stage, one party is randomly selected as sender, and the other as receiver. We take the cost function to be given exogenously. We presume the cost of any given signal is the same for all members of the same type except for an individual specific normally distributed zero-mean error term. Also, each possible signal choice, i, has associated visibility, $v(i)$, the probability it will be observed.

Each period of the game proceeds as follows. In the first stage, all actors simultaneously choose a signal. In the second stage they are randomly paired. With equal probability, one is randomly assigned to be the signal sender, the other is the receiver. The receiver observes the sender's signal chosen in the first stage with probability $v(i)$, and then chooses how to treat the sender. The receiver has preferences over how she treats the sender as a function of their types, and the sender has preferences over how he wants to be treated.

Let there be two types of interactions, $\{\alpha, \beta\}$. The receiver always prefers to choose α if the sender is of Type A and always prefers to choose β if the sender is of Type B. That is, all receivers have a preferred mode of interaction with a sender of a given type:

$b_{recv}(\alpha, A, A) > b_{recv}(\beta, A, A)$ and $b_{recv}(\alpha, B, A) > b_{recv}(\beta, B, A)$
$b_{recv}(\beta, A, B) > b_{recv}(\alpha, A, B)$ and $b_{recv}(\beta, B, B) > b_{recv}(\alpha, B, B)$

Similarly, for the preferences of the sender, assume for the moment that individuals of either type are happy with how other types want to treat them.

$b_{send}(\alpha, A, A) > b_{send}(\beta, A, A)$ and $b_{send}(\alpha, B, A) > b_{send}(\beta, B, A)$
$b_{send}(\beta, A, B) > b_{send}(\alpha, A, B)$ and $b_{send}(\beta, B, B) > b_{send}(\alpha, B, B)$

Here, however, for simplicity, assume that all types get utility $\sigma > 0$ when they are treated as they wish to be treated, and utility 0 when they are not. That is, let

$b_{send}(\alpha, A, A) = b_{send}(\alpha, B, A) = b_{send}(\beta, A, B) = b_{send}(\beta, B, B) = \sigma$
$b_{send}(\beta, A, A) = b_{send}(\beta, B, B) = b_{send}(\alpha, A, A) = b_{send}(\alpha, B, A) = 0$

For the purpose of this analysis, assume costs are history independent. Also, assume for simplicity that if no signal is observed, no interaction occurs and the benefit is zero. We justify this assumption by assuming that the cost of mis-interaction is high in the absence of any information.

Solving the Model

We focus on pure strategy sub-game perfect Nash equilibria where all individuals of the same type choose the same action. By the myopia assumption, we can focus on just one period. We solve by backward induction; that is, we describe what happens in the second stage of the game where individuals interact, and then use that to solve for what happens in the first stage (the choice of signal). In the second stage, receivers observe the signal and update their beliefs regarding the sender's type. Based on those beliefs the receiver chooses the appropriate interaction. Beliefs are based on the signals actors choose in equilibrium in the first stage. Specifically, suppose some signal k is observed by the receiver. Let r be the proportion of Type A actors in the population who chose signal k. Let s be the proportion of actors of other types that chose signal k.

Then the receiver's belief that the sender is of Type A is equal to the actual probability the sender is that type and is given by:

$$m(k) = \Pr[type = A \mid signal = k] = \frac{r}{r+s}$$

We call this expression, $m(k)$, the meaning of signal k. In a world with many people, r and s are ratios set by large populations. The change of signaling behavior by any one person has little impact on the meaning of a signal. Furthermore, we make the assumption that r and s are inferred from observations from past periods, and that off-the-equilibrium-path attempts to signal alone—choosing a signal where $m(k)=0$—will result in no interaction.

The first stage is essentially a coordination game, so nearly any set of signals can be part of a coordination game equilibrium. In this simple example, we have perfect alignment of preferences. If each type chooses a different signal, then there will be perfect identification

whenever the signal is observed. Thus we would expect Type A to choose a signal *i* and Type B to choose a different signal *j*.

Utility for each individual is given by the benefits of interaction minus the cost of signaling. Given symmetry, the receiver chooses the action that corresponds to the type that is over 50% likely. Some simple derivations show that the benefits of interaction are as follows:

$U_A = v(i)[\, m(i)\ \sigma + (1\text{-}m(i))\ 0] - c(i,A)$
$U_B = v(j)[\, m(j)\ \sigma + (1\text{-}m(i))\ 0] - c(j,B)$

However, since in this simple case, each signal identifies the other individual with probability 1, and the receiver will always treat the sender as she wants this simplifies to

$U_A = v(i)\ \sigma - c(i,A)$ and $U_B = v(j)\ \sigma - c(j,B)$

Thus, the optimization problem is given by

$max_{i \in Z}\ U_A = v(i)\ \sigma - c(i, A)$ and $max_{j \in Z}\ U_B = v(j)\ \sigma - c(j, B)$

We maximize by differentiating the actor's utility functions with respect to visibility, v_i, and cost, c_i.

$$\frac{\partial U_A}{\partial v} = \sigma$$
$$\frac{\partial U_A}{\partial c} = -1$$

Since the derivative with respect to visibility is positive, actors would choose signals with the highest possible visibility. Since the derivative with respect to costs are negative, actors would choose signals that minimized costs.

Choice of Domains

The basic model above can be applied to understand which domains actors choose to signal in. Formally, let us pre-pend another stage before the stages in the game above. Before signals are selected, actors select a domain in which to signal.

Define domain to be a set containing each of the possible signaling behaviors actors can choose to engage in. For example, the power saw domain contains the set of possible power saws on the market. The coat domain contains the set of coats one might wear. Each coat has a bundle of attributes each providing a different set of costs and benefits. The baseball cap wearing domain contains the set of possible ways to wear a cap, such as backwards or sideways

Assume, for simplicity, that if more than one domain is selected, visibility goes to zero. Actors simultaneously choose a domain in which to signal, effectively determining the choice set of

signals that are available to them in the signal selection stage. Formally, let *D* denote the set of possible domains. Then the maximization problem becomes:

$max_{Za \in D}\, max_{i \in Za}\ U_A = v(i)[\, m(i)\ \sigma\,] - c(i,A)$
$max_{Zb \in D}\, max_{j \in Zb}\ U_B = v(j)[\, m(j)\ \sigma\,] - c(j,B)$

In equilibrium, actors will choose the same domain, $Z_b = Z_a = Z$, since by our assumption miscoordination on domain leads *v(-)* to go to zero. We see from the utility function that if signaling loses visibility, actors are incurring costs with no benefits. The maximization problem is over the same function, so low cost and high visibility is still preferred. However, here the choice set is over domains. Thus, instead of choosing a signal with one associated cost, the groups are choosing sets of cost. The socially optimal choice maximizes some social welfare function, for instance, the simple sum of utilities

$Welfare = U_A + U_B = b(-,A) - c(i,A) + b(-,B) - c(j,B)$

We saw from the first model that types A and B should optimally choose different signals, $i \neq j$, in order to effectively differentiate. Ignoring visibility for the moment, without loss of generality, let *i* be the signal that minimizes *c(i,A)* and normalize $c(i,A) = c(i,B) = 0$. Then, if *i* also minimizes costs for group B, then signal *j* can only be second best.

$i = argmin_{i \in Z}\ c(i,A)$
$j = argmin_{j \in Z,\, j \neq i}\, c(j,B)$

Since a welfare maximizer cares about the sum of *c(i,A)* and *c(j,B)*, the second best is crucial. Thus the domains that are best suited for signaling are domains where the difference between the first best and second best are minimized.

There are two properties of domains that help minimize this difference. The first is to choose domains where costs are unlikely to be perceived similarly by different groups. In functional domains, the tangible costs and benefits will likely be the same for different groups such that

$c(s,A) = c(s,B)\ for\ all\ s \in Z$

In these domains, the first best for both groups will be the same, and one will be forced to accept second best.

The second is to choose domains where the difference in tangible costs/benefits associated with any particular style are minimal (e.g., those based on color or style). Power saws are mostly differentiated by functional attributes such as power or speed and people are more likely to agree on which saw is optimal; not choosing the optimal saw for a given task is potentially quite costly. However, in the domain of coats, different coats are largely differentiated by color or style and people are less likely to agree on which is optimal: differences in costs and benefits across coats are quite minimal and likely outweighed by differences across people. Thus, the requirement that different groups choose different signals is only minimally costly.

Though considering the functionality characteristics and cost minimization properties of domains explains a wide variety of domain choice, there are some domains where signaling is quite costly—e.g., body piercings or arcane knowledge—domains whose cost functions defy these predictions. Some other mechanisms must be at work. Our proposed candidate is signal poaching.

Signal Poaching

To consider signal poaching, let us return to considering domains as being exogenously fixed, but now, add a third type, Type BA. Others would prefer to treat BA's like Bs:

$b_{recv}(\beta, A, BA) > b_{recv}(\alpha, A, BA)$ and $b_{recv}(\beta, B, BA) > b_{recv}(\alpha, B, BA)$

However, BA's would prefer to be treated like A's.

$b_{send}(\alpha, BA, A) > b_{send}(\beta, BA, A)$ and $b_{send}(\alpha, BA, B) > b_{send}(\beta, BA, B)$

Or again, we simplify and say

$b_{BA}(A, \beta) = b_{BA}(B, \beta) = \sigma$ and $b_{BA}(A, \alpha) = b_{BA}(B, \alpha) = 0$

By introducing the BA types, things get more complicated. Type BA would like to choose signal *i* rather than signal *j* in the choice of signal stage, but would only do so if the benefits received from the interaction stage outweigh the costs.

Let π be the fraction of poseurs that adopt signal *i*. The fraction π is based on the random noise of the cost function. More precisely, π is the fraction of the poseur population, where the net benefits of posing, $v(i)\, m(i)\, \sigma - c(i, BA)$, are greater than the net benefits of not posing, $-c(j, BA)$.

$$\pi = \Pr[v(i)m(i)\sigma - c(i, BA) > -c(j, BA)]$$

Recall that p_A is the fraction of the population of Type A. Note that all actors of Type A will choose signal *i* (we assume the cost for these types has low enough variance to assure this). In that case, the probability that an actor showing *i* actually is of Type A would be given as

$$m(i) = \frac{p_A}{p_A + \pi}$$

Recall that receivers of Type A will treat the sender as a member of Type A so long as the benefits of choosing α outweigh the benefits of choosing β:

$$m(i)b_A(A, \alpha) + (1 - m(i))b_A(B, \alpha) > m(i)b_A(A, \beta) + (1 - m(i))b_A(B, \beta)$$

Rearranging we get

$$m(i) > \frac{b(\beta, A, B) - b(\alpha, A, B)}{b(\beta, A, A) - b(\alpha, A, A) + b(\beta, A, B) - b(\alpha, A, B)}$$

Rearranging again, and defining the right hand side of the above equation as ρ, we can say that the signal will remain meaningful so long as

$$\pi < p_A\left(\frac{1-\rho}{\rho}\right)$$

Note that ρ gets larger as the penalty from making a mistake increases. Then we can say that a given signal retains meaning so long as π is below some critical threshold that is decreasing in the penalty for a mistake, ρ, and increasing in the proportion of other A types in the population . We can now write sender of Type A's optimization problem as

$max_{i \in Z}\, v(i)\, [p_A/(p_A+\pi)]\,\sigma - c(i, A)$

We can differentiate with respect to π to get

$$\frac{\partial U_A}{\partial \pi} = \frac{-p_A}{(p_A+\pi)^2} v(i)\sigma$$

This term is negative, so Type A wants to keep π as low as possible. One way to do this is by choosing a signal *i* that makes *c(i, BA)* as high as possible.

However, as before, Type A would still also want to choose a signal *i* that minimizes costs *c(i, A)*.

Combining these two results, we see that in the presence of poaching, the actor is no longer just minimizing costs, but instead, maximizing the difference in costs *c(i, BA) – c(i, A)*, incurred by the poseurs versus the real thing.

When signals are scarce

If we want to consider situations where there are many groups, and only a few signals available, actors have to budget their use of signals. It is reasonable to assume that actors would allocate those signals to applications with the highest payoffs.

To extend the model, let us fix one group A, but consider group A's possible interactions with other groups *g*, where *g* could be group B, but could also be group C, group D, etc. each with their own poseurs, of Type BA, CA and DA, etc. respectively. Define f_g to be the frequency of interaction with any given group.

Now, we can write total utility as

$$U_A = \sum_g f_g \left(v(i_g) m(i_g) b_A(g, \alpha) - c(i_g, A) \right)$$

Thus, if there were a limited number of signals available, the benefits to signaling would be highest when either frequency of interaction f_g was highest, such as the case when dealing with similar others, or when the consequences of failed identification are highest,

$b_A(g,\sim\alpha) << 0$.

Alternatively, there could be some exogenous probability of automatic recognition that varies by group dyads. College students from different schools would have a low chance of automatic recognition, whereas teenagers compared to executives would have a high chance of automatic recognition. In cases where automatic recognition is low, the benefits to signaling are high.

Extensions

Clearly this model is far more general than is necessary to explain the phenomena explored in the paper. However, it is intended to provide a systematic general way of thinking about these interactions to allow for future work on questions of cost dynamics, social networks, opportunity costs, interactions with visibility, and a typology of benefit functions.

So far we have focused on the interaction and not the identity of counterparty. Imagine, however, the case of a persecuted group (e.g., homosexual men in the early 1960's). Let this persecuted group be A and the mainstream be B. The persecuted group would like to be treated as mainstream by B receivers, but be treated as themselves by A members:

$b_{send}(\alpha, A, A) > b_{send}(\beta, A, A)$ and $b_{send}(\beta, A, B) > b_{send}(\alpha, A, B)$

Thus they would choose signals visible to their group, but hidden to the mainstream.