

Evaluative Consequences of Sampling Distinct Information

Hans Alves¹, Alex Koch², & Christian Unkelbach³

¹Ruhr University Bochum

²University of Chicago Booth School of Business

³University of Cologne

Abstract

Hedonic sampling describes people's preference for sampling positive rather than negative information. We introduce another sampling principle according to which people seek distinct information, which is rare and diverse, and which allows to differentiate between contexts, objects, people, or groups. Among distinct information samples, however, negative information is overrepresented. This follows because negative compared to positive information is less frequent, but more diverse. Consequently, when perceivers sample distinct information, resulting impressions, attitudes, and judgments will be negatively biased.

Evaluative Consequences of Sampling Distinct Information

A central insight from sampling approaches to Psychology is that humans usually have to base their attitudes, judgments, and decisions regarding objects, people and groups on a limited sub-set of available information. The information sample that perceivers have to rely on may be the result of active information search as well as of passive reception of provided information. In the former case, the content of an information sample is influenced by certain search tendencies within the perceiver, and in the latter case, by certain filter tendencies within the information provider. Search and filter tendencies can both distort the representativeness of the information sample, and ultimately the attitudes, judgments, and decisions that rely on the sample. In that regard, past research has found that perceivers' show a motivational tendency to sample positive instead of negative information as long as the information sampling process has hedonic consequences for perceivers (Denrell, 2007; Fazio et al., 2004). This hedonic sampling tendency can be viewed as an example of the more general *law of effect* (Thorndike, 1898) according which organism are more likely to repeat responses that produced a satisfying as opposed to a discomforting effect. Hence, people for example tend to return to restaurants that they had good experiences with in the past and they seek social interactions with others who they had pleasant interactions with (Denrell, 2005). Hedonic sampling can lead to systematically biased information samples, attitudes, judgments and decisions (e.g., Denrell, 2007; Denrell & March, 2001; Denrell & LeMens, 2011; March, 1996).

In this chapter, we introduce a different information sampling tendency that is complementary to the idea of hedonism, and according to which perceivers often seek or are provided with *distinct* information. Our concept of distinctiveness is closely related to a number of other ecological, psychological, and functional variables. Ecologically, distinct information pieces are those that are *infrequent* and that are *dissimilar* from other information

pieces. On a perceptual level, distinct information is *salient*, and therefore psychologically *surprising*. On a functional level, distinct information is *informative* as it enables learning, and allows to differentiate between stimuli, categories, or contexts. We think of distinctiveness as a continuum that ranges from distinct to redundant. The most extreme form of redundancy is mere repetition of a piece of information. A milder form of redundant information may for example be a person's attribute that applies to most other people, such as "has two legs".

We suggest that more distinct information is more likely to being included in a given information sample and has therefore a disproportionately strong influence on people's attitudes, judgments and decisions. Two things are important to note at this point. First, we are by no means the first to claim that distinct (or rare, dissimilar, salient, informative) pieces of information are prioritized by perceivers and providers of information. As we will discuss below, this idea is apparent in several theories and findings from psychological research. Second, that perceivers and providers of information prefer distinct information is not at all surprising. As we will discuss below, accounting for informational redundancy is an important property of the human mind that enables causal learning (Rescorla & Wagner, 1972; Kruschke, 2003) and adherence to basic principles of rationality (Neumann & Morgenstern, 1944; Savage, 1954)

The most central insight from this chapter arises when we turn to what we have previously termed the *evaluative information ecology* (Unkelbach et al., 2019). This concept describes the distribution and structure of positive and negative information in the environment, and therefore describes a state of the external world around us. Crucially, in this external world, negative information tends to be distinct while positive information tends to be redundant, and therefore, distinct information is usually negative information. Consequently, the content of information samples, as well as people's attitudes and

judgments are often negatively biased because they disproportionately rely on distinct and thus negative information.

In the following, we will first define what we mean by distinctiveness of information. We will then review manifestations of the priority that receivers and providers of information give to distinct information in different domains, and discuss its functionality. Next, we explain why in the external information ecology, distinct information is usually negative, and how this leads to negatively biased samples, attitudes and judgments in various psychological domains. We close by discussing the relation and potential interplay between humans' tendencies to sample information that is hedonically pleasant and information that is distinct.

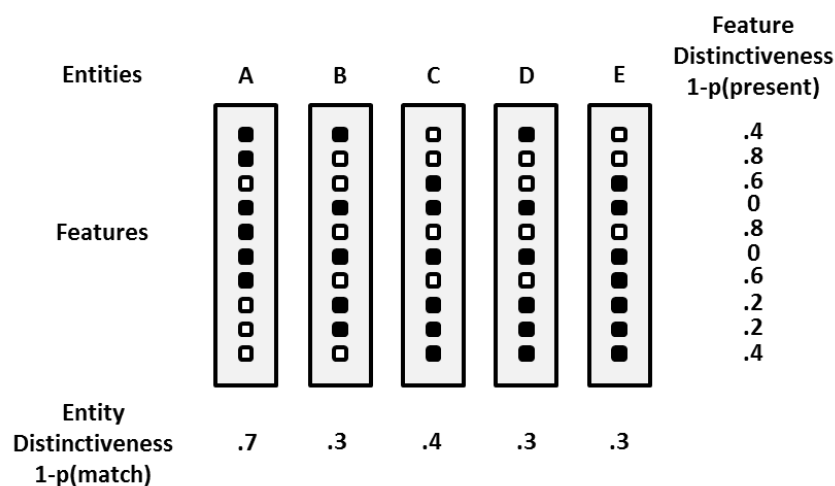
Distinct Information

To clarify what we mean by distinctiveness of information we here rely on a feature model (Tversky, 1977). This most basic conceptualization reduces informational content to binary features that can either be present or absent. Features are always embedded in a given entity, which can refer to the spatio-temporal context in which the features were present or absent, or to an object, a person, or a group that the features belong to. For example, wheels, doors, engine, etc. are features of a car entity. Importantly, entities are collections of features, but entities are also features themselves. For example, personality traits or behaviors are features of a given person entity, while the same person is a feature of a given group entity. Hence, the concepts of features and entities are interchangeable.

Distinct features/entities have two characteristics. They are *rare* and they are *dissimilar* from other features/entities. Regarding rarity, the distinctiveness D of a feature X is simply a function of the feature's probability to be present among other entities, for example $D_X = 1 - p(\text{present})$. Figure 1 illustrates five entities that are comprised of ten present (filled rectangles) or absent features (unfilled rectangles). The ten features differ regarding their distinctiveness depending on how often they are present among all entities. For

example, personality traits that can only be found in a few individuals are distinct features, while traits that apply to most people are redundant features. Features not only differ regarding their frequency but also regarding their similarity. This becomes evident if we consider that any feature is also an entity and therefore a collection of features itself. Entities can be more or less similar to other entities depending on the number of matching and non-matching features between entities (e.g. Tversky, 1977). If an entity has many features that do not match the features of other entities, it is dissimilar from the other entities and therefore *distinct*. Figure 1 illustrates how the five entities A, B, C, D, and E may differ regarding their distinctiveness based on their similarities. The distinctiveness of an entity is here a function of the mean number of matching and non-matching features with other entities, e.g. $1 - p(\text{match})$. For entity A, the probability that one of its features matches its corresponding feature in another entity is only .3; the distinctiveness of entity A is therefore high. The features of entity B have a higher mean matching probability of .7, and therefore, entity B is less distinct.

Figure 1. Degrees of Distinctiveness Among Features and Entities



To reiterate, objects, persons, and groups, as well as their attributes or co-occurring stimuli can all be considered entities (i.e. collections of features) as well as features of other higher-

order entities. Distinct information describes features/entities that are rare and dissimilar from other features/entities.

Priority of Distinct Information

After having defined our idea of information distinctiveness, we now explain why and where distinct information is prioritized by recipients and providers of information.

Learning

Why should we be more interested in distinct than redundant information? A most basic answer is provided by the insight that any kind of learning relies on observing variance. Humans and animals alike cannot detect regularities such as co-variations or cause-effect relations in the environment, without observing variation in the first place. Imagine you lived among other people who are highly similar (i.e. redundant) with regards to their personalities and behavioral tendencies. You simply would not be able to observe nor to learn much about the relation between personality and behavior. Only if distinct personalities and behaviors are introduced into your world, you are able to observe variation and thus co-variation. In order to find out how personality and behavior are related, you would want to closely observe people with distinct personalities and you would be interested in their distinct behaviors, that is, behaviors that most other people do not show. Hence, for any kind of learning, distinct pieces of information are particularly relevant, which is why we may be so interested in knowing them.

This basic insight has found its way into influential theories of learning such as the Rescorla-Wagner model (Rescorla & Wagner, 1972), which consider *surprise* as a main driver of learning (see also Kruschke 2003; Mackintosh, 1975). These models can explain basic phenomena of classical conditioning and human contingency learning such as blocking (Kamin, 1968), overshadowing (Pavlov, 1927; Mackintosh, 1976), or the inverse-base rate effect (Kruschke, 2001), which all describe a stronger impact of distinct over redundant

information during learning. For example, when a perceiver first observes that an event A is followed by an outcome X, and subsequently observes that the simultaneous occurrence of events A and B is followed by outcomes X and Y, perceivers associate B with the distinct outcome Y, while the association between B and the redundant outcome X is “blocked”.

Category Formation

The formation of categories as one aspect of learning also relies on distinct information. Categories are typically formed so that they maximize within-category similarities and between-category differences (e.g. Rosch & Lloyd, 1978). The importance of distinct information such as distinct category exemplars becomes clear if we notice that there is no need to form a new category in the first place, if exemplars do not differ. If there was only one “animal”, there were no subcategories of animals. Categories such as specific animals are therefore defined by their exemplars’ attributes that differentiate this animal class from other ones (e.g. has a trunk, can fly, can swim, etc.). Going back to our feature model in Figure 1, entities are only separate, as long as they have any distinct features, otherwise they are the same. Hence, distinct information is what initiates and drives categorization.

Choice and Attitude Formation

Another functional aspect of distinct features is that they allow the formation of choices. Note that when comparing different options, one cannot rely on the options’ redundant features to determine which option is preferable. Consequently, the *cancellation* of redundant features in choice formation is considered a basic principle of rationality, as choices can only be formed based on distinct features (Savage, 1954; von Neumann & Morgenstern, 1947). Hence, distinct features drive the formation of attitudes and choices towards consumer products and brands. The so-called *cancellation-effect* describes perceivers’ tendencies to base their attitude towards products and their choices primarily on

the products' distinct features (Alves et al., 2020; Hodges, 1997; Houston & Sherman, 1995; Sanbonmatsu, Kardes, & Gibson, 1991; Sherman, Houston, & Eddy, 1999).

In the domain of social perception, Fiske (1980) observed that when people form an attitude about a person or a group, they primarily rely on distinct attributed that differentiate the person or group from other ones (Wyer, 1974). Fiske (1980) argued that distinct attributes are simply more informative than redundant attributes as they separate the target from a larger part of the population. Likewise, research on interpersonal attraction has shown that people are especially attracted to others who share their rare and thus distinct attitudes (Alves, 2018).

The functional aspects discussed thus far, ultimately lead to the insight that a specific object, event, person or group is defined by its distinct features. *Characteristic* attributes of an individual for example, are those that differentiate the individual from other individuals. If you ask yourself what characterizes a person, you are asking in which ways that person is different from most other people.

Communication

The differentiation ability of distinct features also make them a cornerstone of communication. According to Grice's (1975) Maxim of Quantity, communicators should transmit as much information as possible but not more. When people refer to some object, person or group, they should therefore establish a unique reference in a given context and avoid referring to redundant attributes (see also Engelhardt et al., 2006; Rubio-Fernandez, 2019.) For example, in a group of mostly tall men, a communicator may refer to the one "small guy" to establish a unique reference. When the communicator wants to refer to one of the tall men, pointing to the "tall guy" is underinformative because "tall" refers to several members of the group. In that case, the communicator must find any other distinct attribute

that uniquely identifies the target such as the “bald guy”. Thus, communication processes strongly prioritize distinct information and avoid redundancy.

News Reporting

Related to distinct information’s communication value is its strong overrepresentation in news reporting. Unexpectedness of events is one of the central *news values* that determines whether news outlets report about an event or not (e.g., Galtung & Ruge, 1965). While news recipients are not so much interested in learning about frequently-occurring every-day events, their attention is drawn by exceptional events. Interestingly, negativity is commonly assumed to constitute another important news value (e.g., Bell, 1991; Bednarek & Caple, 2017). However, as we will discuss later, distinctiveness and negativity are usually confounded and at least some of negative events’ news appeal may actually be attributable to distinctiveness.

Taken together, efficient learning, categorization, attitude and choice formation as well as communication all prioritize distinct over redundant information. It can therefore be expected that the information samples that our mind operates on will strongly overrepresent distinct information. In the following, we will argue why this implies an overrepresentation of *negative* information as distinct information is usually negative.

Why Distinct Information is Usually Negative

As defined above, distinct information is rare and dissimilar from other information, while redundant information is frequent and similar to other information. In principle, the distinctiveness of information is independent of its evaluative content. That is, distinct information can be positive (e.g., winning the lottery) or negative (e.g., homicide), and redundant information can also be positive (e.g., having children) or negative (e.g., having to pay taxes). However, in the external information ecology, distinctiveness and valence of information are quite strongly related. Specifically, negative information is usually distinct and positive information is usually redundant. Conversely, distinct information tends to be

negative and redundant information tends to be positive. Hence, when information samples overrepresent distinct information they typically overrepresent negative information which can lead to negatively biased attitudes, judgments, and decisions. But why should distinct information be negative?

Frequency

The first reason is quite straightforward and given by the higher frequency of good vs. things in the environment. This positivity prevalence is evident in various domains of our daily lives. For example, in a social world governed by pro-social norms, positive attributes and behaviors occur more frequently than negative ones (Alves et al., 2017a; Clark & Clark, 1977). Because positive behavior is usually reinforced, while negative behavior is sanctioned, and because people seek positive reinforcements (Thorndike, 1898), most people behave positively most of the time. In addition, because people themselves seek positive social encounters, they create their own positive social environments (Denrell, 2005; Fazio et al., 2004). The positivity prevalence in the social world is mirrored by the fact that people show a tendency to evaluate others positively (Greenberg et al., 1978; Perlman & Oskamp, 1971; Rothbart & Park, 1986), and expect others to behave positively (Anderson, 1981; Sears, 1983). People also use positive person description words more often than negative ones (Ric et al., 2013).

The positivity prevalence is especially visible but by no means restricted to the social world. In general, positive words are used more frequently in written and spoken language (Augustine et al., 2011; Boucher & Osgood, 1969; Dodds et al., 2015; Zajonc, 1968). Consumer products that are designed to please costumers naturally evoke mostly positive reactions within consumer, which is expressed by the ubiquitous positive skew of consumer product ratings. For example, in a large analysis by Kovacs and Hannan (2010), more than 64% of costumer ratings of restaurants fell between four and five out of five stars. Finally, the

prevalence of good things in the world around us is also expressed in people's emotional states as most people indicate to feel good most of the time (Diener & Diener, 1996).

Hence, the information ecology is characterized by a high frequency of positive and low frequency of negative information. But negative information is not only less frequent, it is also less similar / more diverse than positive information, which constitutes the second pillar of distinctiveness.

Diversity

Extensive research has found that negative information is more diverse than positive information (for overviews see Alves et al., 2017b, Unkelbach et al., 2019; 2020). In other words, there are more ways to be bad than to be good. In almost all stimulus domains, negative stimuli are less similar to one another than positive ones. In the social domain for example, unattractive faces are more diverse than attractive faces (Langlois & Roggman, 1990; Potter et al., 2007), and unlikable persons, groups, traits and behaviors are more diverse than likable ones (Alves et al., 2016; Leising et al., 2012; Koch et al., 2016). The diversity asymmetry is also evident in our language, as the negative vocabulary is more diverse than the positive vocabulary (Alves et al., 2015; 2018a; Schrauf et al., 2004; Bednarek, 2008; Semin & Fiedler, 1992). Negative life events have also been found to be more diverse than positive ones (Koch et al., 2016), and the reasons for disliking something are more diverse than the reasons for liking something (Gershoff et al., 2007). Finally, the greater diversity of negativity is also expressed by our emotional response repertoire which consists of diverse negative emotions and rather similar positive emotions often subsumed under the term happiness (e.g., Ekman & Friesen, 1971; Ortony & Turner, 1990).

The Range Principle

But why is negative more diverse than positive? While there may be several reasons for the diversity asymmetry, we believe a most parsimonious explanation is given by the

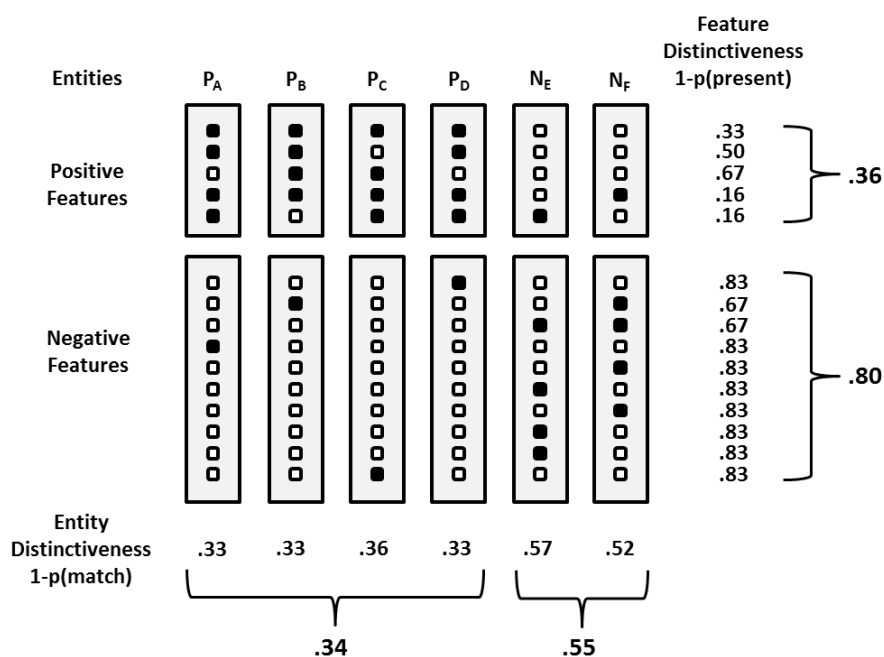
range principle (Alves et al., 2017b). In the physical world around us, most attribute dimensions that are relevant to evaluation, host one positive range of moderate extent which is surrounded by two opposite negative ranges of excess and defect. This feature of the world has already been noticed by Aristotle (340 BC), and seems to apply to physical attributes that ensure survival (e.g. temperature, oxygen concentration) but also to psychologically relevant attributes of motivation, personality and behavior (Grant & Schwartz, 2011; Koch et al., 2016). For example, a likable person does not hold too much nor too little eye contact and does not talk too much nor too little during a conversation, and adaptive personalities are essentially non-extreme (Carter et al., 2018). The range principle implies that any positive stimulus must be located in a “sweet-spot” of different attribute ranges and is therefore rather similar to other positive stimuli of the same class. Negative stimuli on the contrary can be located in various different, and highly diverse attribute spaces, and are therefore less similar to one another on average. In sum, because attribute dimensions usually host one positive but two negative ranges, there are more possible negative than positive features that a negative stimulus can possess, and consequently, negative entities are less similar to one another than positive ones and thus more distinct.

Distinct and Redundant Features

To illustrate how the lower frequency and greater diversity of negativity contribute to the larger distinctiveness of negative information, Figure 2 uses the same feature logic as Figure 1. It illustrates six entities that consist of positive and negative features. We first assume that there is a larger number of negative than positive features that any entity can possess (i.e. greater diversity of negativity). We also assume that positive features occur more frequently than negative ones (positivity prevalence). Hence, positive features are more likely to be present than negative features among most entities, and consequently, most entities are positive (P_A, P_B, P_C, P_D), while fewer entities are negative (N_E and N_F). At the feature level,

positive features therefore tend to be redundant across entities, while negative features are more distinct. At the entity level, negative entities are more distinct as they are less similar to one another compared to positive entities. In addition, negative entities are also more distinct as they are less frequent than positive ones. Note again, that the distinction between features and entities is made here only for illustrative purposes. Features and entities are interchangeable as features can be considered collections of features themselves.

Figure 2. Distinctiveness of Positive and Negative Features and Entities



The central implication of our assumptions illustrated in Figure 2 is that whenever information samples overrepresent distinct relative to redundant information, they are likely to overrepresent negative information. For example, if the information sampling process was fully determined by distinctiveness, the feature and entity distinctiveness values in Figure 2 would represent their probability of being sampled by a perceiver or being delivered by an information provider. Consequently, when the information sampling or delivery processes prioritize distinct over redundant information, resulting attitudes and judgments of perceivers tend to be negatively “biased”.

Biased by Samples of Distinct Information

We now turn to the question under which circumstances and in which domains, distinct and thus negative information is likely to end up in a sample of information and to bias attitudes and judgments.

Novelty and Familiarity

One aspect that seems to moderate the extent to which perceivers prioritize distinct over redundant information is the novelty of a given stimulus. A stimulus is relatively novel if perceivers have never or only rarely encountered that stimulus before. Hence, novelty can be conceptualized as a function of a stimuli's occurrence frequency. Novel stimuli in people's day-to-day lives can be novel individuals that people encounter in private, at the work place or in the media, such as a new colleague or politician. Likewise, people encounter novel groups, such as immigrants, or infrequent groups like minorities. In addition, people are regularly confronted with novel products, as well as beliefs, ideologies, or policy ideas. Crucially, previous research has found that perceivers' tendency to form attitudes and judgments primarily based on distinct features, is pronounced for novel stimuli and attenuated for familiar stimuli. It seems that if we encounter something novel, we want to know how that novel thing differs from what we already know.

For example, when people are first familiarized with a fictional alien group, and their members' attributes, they judge a subsequently encountered novel group primarily based on the novel groups' distinct (and thus negative) traits (Alves et al., 2018). The same principle applies when perceivers subsequently encounter potential dating partners as well as consumer products such as apartments or food products (De Bruin & Keren, 2003; Florack et al., 2021; Hodges, 1997; Houston et al., 1989, 1991). Even when perceivers form attitudes based on mere stimulus co-occurrences, they judge novel attitude objects based on those co-occurring

stimuli that differentiate the attitude object from previously-encountered ones (Alves et al., 2020).

Crucially, if novelty increases perceivers' reliance on distinct features, we can expect that people's attitudes towards novel stimuli are negatively biased. This insight has quite wide-reaching implications and may contribute to various known judgment "biases". For example, it would imply that people form negatively biased attitudes towards novel groups such as immigrants and minorities, a well-known phenomenon (e.g. Gilbert, 1951; Hewstone et al., 2002; Karlins, et al., 1969; Katz & Braly, 1932). More generally, people should form negatively biased attitudes towards all kinds of novel things, including novel ideologies, beliefs, or policy ideas. This in turn may contribute to overly conservative attitudes that resent change and favor the status-quo, another well-known phenomenon (Fernandez & Rodrik, 1991; Kahneman, et al, 1991; Samuelson & Zeckhauser, 1988). For example, consider a new policy idea or a new political candidate is introduced. Suppose that this new idea or candidate is objectively equally "good" as the status quo. If people judge the novel idea or candidate not based on those attributes that are redundant with the status-quo and that are therefore likely to be positive, but instead rely primarily on the distinct attributes of the novel candidate or idea, the resulting judgment of the new may appear inferior to the status-quo.

At least as intriguing as the priority which perceivers give to novel stimuli's distinct attributes, is the complementary phenomenon that this priority seems to vanish as stimuli become more and more familiar. It seems that after repeated exposure with stimuli, perceivers also include redundant attributes in their judgments. While it is not yet well understood how that happens, this effect becomes evident in real-life examples. Consider you are a German citizen who moves to the U.S. In the beginning, your impression of the new environment will primarily rely on how the U.S. differs from Germany (e.g. big cars, fast

food, and guns). Your initial impression may then be overly negative. After a while, the distinctiveness-perspective is attenuated and your impression will also include redundant attributes (e.g., availability of restaurants, doctors, education, and sports, etc.), and may become more positive. If you travel back to Germany at some point, you may recognize that you now apply the distinctiveness-perspective onto your former home country, and recognize what is distinctly German, which may revise your impression about Germany in an unfavorable way. While the interplay between novelty and distinctiveness priority still needs to be researched, if confirmed, it may contribute to what is commonly known as the *mere exposure effect* (e.g. Zajonc, 1968; Bornstein & D'agostino, 1992). It may turn out that frequently occurring stimuli are not only perceived as more pleasant because of perceptual fluency, or uncertainty reduction, but that perceivers begin to include redundant stimulus attributes in their impressions.

Another domain where there is a familiarity-novelty asymmetry is the perception of the self vs. others. That is, the most frequently occurring and therefore most familiar person in everyone's life is the self. It may therefore be the case that we judge other people primarily based on those behaviors or attributes that are distinct from our own ones. From this assumption, it would follow that people perceive others as less favorable than the self. Of course, there may be motivational reasons for such well-known self-superiority effects (Alicke & Govorun, 2005; Hoorens, 1993; Taylor & Brown, 1988), yet, judging others based on distinct attributes may also contribute. Likewise, when comparing the self and "the average person", our impression of the latter may overrepresent distinct and thus negative behaviors or attributes that we have witnessed in other people.

The Need to Differentiate

Because distinct information affords differentiation, we can expect people's attitudes and judgments to be negatively biased when there is a need to differentiate between attitude

objects. Most obviously, this is the case when perceivers have to make a choice between different options such as job candidates, politicians, dating partners, or consumer products. Extensive research has shown that during choice formation, perceivers mainly consider each option's distinct attributes, while they cancel out redundant attributes (Houston & Sherman, 1995; Sanbonmatsu et al., 1991; Sherman et al., 1999). This is not surprising, because redundant attributes provide no informational value as to which options are better or worse than others. We can therefore predict that in comparative settings where perceivers have to make a choice between options, they must consider distinct attributes and therefore end up with negatively biased impressions of all options. For example, search committees that compare job candidates may form overly negative impressions of the candidates. And perceivers comparing apartments may end up liking each of the apartments less after comparison.

The purpose of differentiation is also inherent to a whole class of attributes, namely stereotypes. Stereotypes describe attributes that allegedly apply to members of one group and that differentiate the group from other groups. In other words, stereotypes describe attributes that are shared (redundant) within-groups and that are unshared (distinct) between-groups. As evident from previous research, the within-group sharedness aspect is far less important to the formation of stereotypes than the between-groups distinctiveness aspect. For example, stereotypes such as "Muslims are terrorists" are often regarded as accurate by people, even when they know that only a tiny fraction of Muslims are terrorists (Leslie, 2017; Leslie et al., 2011). Research has shown that for the stereotype to be formed, it is sufficient when people believe that most terrorists are Muslims regardless of the reversed conditional probability (Cimpian et al., 2010). The distinctiveness aspect however, seems to be the driving force behind stereotype formation. For example, research by Krueger and colleagues (1989; 1994) has shown that during stereotype formation, perceivers overemphasize group

members whose attributes heighten between-group differences, leading to accentuated perceived group differences. If we acknowledge that stereotypes primarily describe attributes that differentiate groups, we can expect that negative attributes are overrepresented among stereotypes. Indeed, while researchers have reported instances of positive stereotypes (e.g. “Asians are smart”), it seems that the vast majority of stereotypes are negative (e.g., Gilbert, 1951; Karlins et al., 1969; Katz & Braly, 1933). The negativity of stereotypes may eventually result from their need to differentiate.

The Media

The overrepresentation of distinct information is arguably most apparent in media coverage. For example, unexpected and thus distinct events are far more likely to being covered in the news than expected events (Galtung & Ruge, 1965). While we do not hear about the large number of planes that safely travel across the globe every day, an aircraft accident receives extensive news coverage. It is commonly assumed that not only the distinctiveness of an event determines its news value, but also negativity per se (e.g., Bell, 1991; Bednarek & Caple, 2017). However, based on the insight that negative events are usually distinct events, it may be the case that negativity itself does not constitute a news value. Instead, negative events may receive so much coverage *because* they are distinct events. Hence, the overrepresentation of negative events in the news may result from people’s interest for distinct events. The same may be true for movie or book themes which often cover negative topics, such as crimes and questionable characters. According to our assumption about the low frequency and large diversity of negativity, negative events and characters simply provide a much larger space for story-telling. Or as expressed by Leo Tolstoi in his novel “Anna Karenina”, “Happy families are all alike; every unhappy family is unhappy in its own way.” However, the idea that the high prevalence of negative content in

the media is a result of people's interest for distinct information remains speculative at this point and needs to be empirically tested by future research.

An Alternative to Motivational Explanations

To recap, we here propose that people often base their attitudes and judgments on information samples that overrepresent distinct information. Because distinct information tends to be negative, people can be expected to form negatively biased attitudes and judgments. The degree of such negativity biases is then a function of the degree to which information samples overrepresent distinct information. This in turn, predicts several well-known judgment biases such as intergroup bias, derogation of minorities, the negativity of stereotypes, status-quo bias, self-superiority effects, and the preponderance of negative media content. Our idea of distinct information samples therefore provides an alternative explanation for these phenomena which are often explained based on motivational theories (e.g. self-serving motivations; social identity, etc.). We thereby suggest that typical judgment biases that appear to reflect some kind of motivated forces, may also be explained by what is in the information sample that people base their judgments on. These samples often prioritize distinct information and produce an overly pessimistic informational input.

Hedonic Sampling and Sampling Distinct Information

Finally, one may ask how people's desire to sample distinct information may relate to the well-documented hedonic sampling tendency according to which people seek positive information (e.g., Denrell, 2007; Fazio et al., 2004). At first sight, these two tendencies contradict each other. If people seek distinct information, they will likely find negative information and that contradicts their hedonic motivation. However, hedonic sampling applies only to situations where the outcome of the sampling process has actual hedonic consequences for the perceiver. This is obviously the case in interpersonal interactions where we avoid having to deal with an obnoxious character. Likewise, we will try to avoid sampling

a dish from a bad restaurant and instead keep coming back to the good ones. In cases where the hedonic consequences of sampling are strong, we can expect that the desire for positivity outweighs a desire for distinctiveness.

Yet, many instances of information sampling have no or only very limited hedonic consequences for perceivers. These are situations in which the sampling process does not involve an actual experience but where it is rather descriptive. In such cases, the information that is sampled by perceivers and presented by information providers is likely dominated by a desire for distinctiveness. This in turn, may then often look as if people are especially interested in negative content such as gossip, negative news, or negative movie characters, while they are actually interested in the surprising nature of the rare and diverse events that happen to be negative.

References

- Alicke, M. D., & Govorun, O. (2005). The better-than-average effect. *The Self in Social Judgment, 1*, 85-106.
- Alves, H. (2018). Sharing rare attitudes attracts. *Personality and Social Psychology Bulletin, 44*, 1270-1283.
- Alves, H., Högden, F., Gast, A., Aust, F., & Unkelbach, C. (2020). Attitudes from mere co-occurrences are guided by differentiation. *Journal of Personality and Social Psychology, 119*, 560.
- Alves, H., Koch, A., & Unkelbach, C. (2018a). A Cognitive-Ecological Explanation of Intergroup Biases. *Psychological Science, 29*, 1126–1133.
- Alves, H., Koch, A., & Unkelbach, C. (2018b). The differential similarity of positive and negative information—an affect-induced processing outcome?. *Cognition and Emotion*.
- Alves, H., Koch, A., & Unkelbach, C. (2017a). The “common good” phenomenon: Why similarities are positive and differences are negative. *Journal of Experimental Psychology: General, 146*, 512.
- Alves, H., Koch, A., & Unkelbach, C. (2017b). Why good is more alike than bad: Processing implications. *Trends in Cognitive Sciences, 21*, 69-79.
- Alves, H., Koch, A., & Unkelbach, C. (2016). My friends are all alike—the relation between liking and perceived similarity in person perception. *Journal of Experimental Social Psychology, 62*, 103-117.
- Alves, H., Unkelbach, C., Burghardt, J., Koch, A. S., Krüger, T., & Becker, V. D. (2015). A density explanation of valence asymmetries in recognition memory. *Memory & Cognition, 43*, 896-909.

- Anderson, N. H. (1981). *Foundations of information integration theory*. New York: Academic Press.
- Aristotle (translated 1999) *Nicomachean Ethics* (Ross, W.D., translator), Batoche Books.
- Augustine, A. A., Mehl, M. R., & Larsen, R. J. (2011). A positivity bias in written and spoken English and its moderation by personality and gender. *Social Psychological And Personality Science*, 2, 508-515.
- Bednarek, M. (2008). *Emotion talk across corpora*. Heidelberg: Springer.
- Bell, A. (1991). *The language of news media* (pp. 84-85). Oxford: Blackwell.
- Bednarek, M., & Caple, H. (2017). *The discourse of news values: How news organizations create newsworthiness*. Oxford University Press.
- Bornstein, R. F., & D'agostino, P. R. (1992). Stimulus recognition and the mere exposure effect. *Journal of Personality and Social Psychology*, 63, 545.
- Boucher, J., & Osgood, C. E. (1969). The Pollyanna hypothesis. *Journal of Verbal Learning & Verbal Behavior*, 8, 1-8.
- Carter, N. T., Miller, J. D., & Widiger, T. A. (2018). Extreme personalities at work and in life. *Current Directions in Psychological Science*, 27, 429-436.
- Cimpian, A., Brandone, A. C., & Gelman, S. A. (2010). Generic statements require little evidence for acceptance but have powerful implications. *Cognitive Science*, 34, 1452-1482.
- Clark, H. H., & Clark, E. V. (1977). *Psychology and language: An introduction to psycholinguistics*. New York: Harcourt Brace Jovanovich.
- De Bruin, W. B., & Keren, G. (2003). Order effects in sequentially judged options due to the direction of comparison. *Organizational Behavior and Human Decision Processes*, 92, 91-101.
- Denrell, J. (2007). Adaptive learning and risk taking. *Psychological Review*, 114, 177.

- Denrell, J. (2005). Why most people disapprove of me: experience sampling in impression formation. *Psychological Review*, *112*, 951.
- Denrell, J., & Le Mens, G. (2011). Seeking positive experiences can produce illusory correlations. *Cognition*, *119*, 313-324.
- Denrell, J., & March, J. G. (2001). Adaptation as information restriction: The hot stove effect. *Organization Science*, *12*, 523-538.
- Diener, E., & Diener, C. (1996). Most people are happy. *Psychological Science*, *7*, 181-185.
- Dodds, P. S., Clark, E. M., Desu, S., Frank, M. R., Reagan, A. J., Williams, J. R., ... & Danforth, C. M. (2015). Human language reveals a universal positivity bias. *Proceedings of the National Academy of Sciences*, *112*, 2389-2394.
- Ekman, P., & Friesen, W. V. (1971). Constants across cultures in the face and emotion. *Journal of Personality and Social Psychology*, *17*, 124.
- Engelhardt, P. E., Bailey, K. G., & Ferreira, F. (2006). Do speakers and listeners observe the Gricean Maxim of Quantity?. *Journal of Memory and Language*, *54*, 554-573.
- Fazio, R. H., Eiser, J. R., & Shook, N. J. (2004). Attitude formation through exploration: Valence asymmetries. *Journal of Personality and Social Psychology*, *87*, 293.
- Fernandez, R., & Rodrik, D. (1991). Resistance to reform: Status quo bias in the presence of individual-specific uncertainty. *The American Economic Review*, 1146-1155.
- Fiske, S. T. (1980). Attention and weight in person perception: The impact of negative and extreme behavior. *Journal of Personality and Social Psychology*, *38*, 889.
- Florack, A., Koch, T., Haasova, S., Kunz, S., & Alves, H. (2021). The Differentiation Principle: Why Consumers Often Neglect Positive Attributes of Novel Food Products. *Journal of Consumer Psychology*.

- Galtung, J., & Ruge, M. H. (1965). The structure of foreign news: The presentation of the Congo, Cuba and Cyprus crises in four Norwegian newspapers. *Journal of Peace Research*, 2, 64-90.
- Gershoff, A. D., Mukherjee, A., & Mukhopadhyay, A. (2007). Few ways to love, but many ways to hate: Attribute ambiguity and the positivity effect in agent evaluation. *Journal of Consumer Research*, 33, 499-505.
- Gilbert, G. M. (1951). Stereotype persistence and change among college students. *The Journal of Abnormal and Social Psychology*, 46, 245.
- Grant, A. M., & Schwartz, B. (2011). Too much of a good thing: The challenge and opportunity of the inverted U. *Perspectives on Psychological Science*, 6, 61-76.
- Greenberg, M. S., Saxe, L., & Bar-Tal, D. (1978). Perceived stability of trait labels. *Personality and Social Psychology Bulletin*, 4, 59-62.
- Grice, H. P. (1975). Logic and conversation. In *Speech acts* (pp. 41-58). Brill.
- Hewstone, M., Rubin, M., & Willis, H. (2002). Intergroup bias. *Annual Review of Psychology*, 53, 575-604.
- Hodges, S. D. (1997). When matching up features messes up decisions: The role of feature matching in successive choices. *Journal of Personality and Social Psychology*, 72, 1310.
- Hodges, S. D. (2005). A feature-based model of self-other comparisons. *The Self in Social Judgment*, 131-153.
- Hoorens, V. (1993). Self-enhancement and superiority biases in social comparison. *European Review of Social Psychology*, 4, 113-139.
- Houston, D. A., Sherman, S. J., & Baker, S. M. (1989). The influence of unique features and direction of comparison of preferences. *Journal of Experimental Social Psychology*, 25, 121-141.

Houston, D. A., Sherman, S. J., & Baker, S. M. (1991). Feature matching, unique features, and the dynamics of the choice process: Predecision conflict and postdecision satisfaction. *Journal of Experimental Social Psychology, 27*, 411-430.

Houston, D. A., & Sherman, S. J. (1995). Cancellation and focus: The role of shared and unique features in the choice process. *Journal of Experimental Social Psychology, 31*, 357-378.

Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). Anomalies: The endowment effect, loss aversion, and status quo bias. *Journal of Economic Perspectives, 5*, 193-206.

Kamin, L. J. (1969). Predictability, surprise, attention and conditioning. In CAMPBELL, B. and CHURCH, R. (Eds), *Punishment and Aversive Behavior*. New York: Appleton-Century-Crofts.

Karlins, M., Coffman, T. L., & Walters, G. (1969). On the fading of social stereotypes: studies in three generations of college students. *Journal of Personality and Social Psychology, 13*, 1.

Katz, D., & Braly, K. W. (1935). Racial prejudice and racial stereotypes. *The Journal of Abnormal and Social Psychology, 30*, 175.

Koch, A., Alves, H., Krüger, T., & Unkelbach, C. (2016). A general valence asymmetry in similarity: Good is more alike than bad. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 42*, 1171.

Koch, A., Imhoff, R., Dotsch, R., Unkelbach, C., & Alves, H. (2016). The ABC of stereotypes about groups: Agency/socioeconomic success, conservative–progressive beliefs, and communion. *Journal of Personality and Social Psychology, 110*, 675.

Kovács, B., & Hannan, M. T. (2010). The consequences of category spanning depend on contrast. In *Categories in markets: Origins and evolution*. Emerald Group Publishing Limited.

- Krueger, J., & Clement, R. W. (1994). Memory-based judgments about multiple categories: A revision and extension of Tajfel's accentuation theory. *Journal of Personality and Social Psychology, 67*, 35.
- Krueger, J., Rothbart, M., & Sriram, N. (1989). Category learning and change: Differences in sensitivity to information that enhances or reduces intercategory distinctions. *Journal of Personality and Social Psychology, 56*, 866.
- Kruschke, J. K. (2003). Attention in learning. *Current Directions in Psychological Science, 12*, 171-175.
- Kruschke, J. K. (2001). Toward a unified model of attention in associative learning. *Journal of Mathematical Psychology, 45*, 812-863.
- Langlois, J. H., & Roggman, L. A. (1990). Attractive faces are only average. *Psychological Science, 1*, 115-121.
- Leising, D., Ostrovski, O., & Borkenau, P. (2012). Vocabulary for describing disliked persons is more differentiated than vocabulary for describing liked persons. *Journal of Research in Personality, 46*, 393-396.
- Leslie, S. J. (2017). The original sin of cognition: Fear, prejudice, and generalization. *The Journal of Philosophy, 114*, 393-421
- Leslie, S. J., Khemlani, S., & Glucksberg, S. (2011). Do all ducks lay eggs? The generic overgeneralization effect. *Journal of Memory and Language, 65*, 15-31.
- March, J. G. (1996). Learning to be risk averse. *Psychological Review, 103*, 309.
- Mackintosh, N. J. (1975). A theory of attention: Variations in the associability of stimuli with reinforcement. *Psychological Review, 82*, 276.
- Mackintosh, N. J. (1976). Overshadowing and stimulus intensity. *Animal Learning & Behavior, 4*, 186-192.

- Ortony, A., & Turner, T. J. (1990). What's basic about basic emotions?. *Psychological Review*, *97*, 315.
- Pavlov, I. P. (1927). *Conditioned reflexes: an investigation of the physiological activity of the cerebral cortex*. Oxford, England: Oxford Univ. Press.
- Perlman, D., & Oskamp, S. (1971). The effects of picture content and exposure frequency on evaluations of negroes and whites. *Journal of Experimental Social Psychology*, *7*, 503-514.
- Potter, T., & Corneille, O. (2008). Locating attractiveness in the face space: Faces are more attractive when closer to their group prototype. *Psychonomic Bulletin & Review*, *15*, 615-622.
- Rescorla, R. A., & Wagner, A. R. (1972). A theory of Pavlovian conditioning: Variations in the effectiveness of reinforcement and nonreinforcement. In A. H. Black & W. F. Prokasy (Eds.), *Classical conditioning II* (pp. 64-99). New York: Appleton-Century-Crofts.
- Ric, F., Alexopoulos, T., Muller, D., & Aubé, B. (2013). Emotional norms for 524 French personality trait words. *Behavior Research Methods*, *45*, 414-421.
- Rosch, E., & Lloyd, B. B. (Eds.). (1978). *Cognition and categorization*.
- Rothbart, M., & Park, B. (1986). On the confirmability and disconfirmability of trait concepts. *Journal of Personality and Social Psychology*, *50*, 131.
- Rubio-Fernandez, P. (2019). Overinformative speakers are cooperative: Revisiting the Gricean Maxim of Quantity. *Cognitive Science*, *43*, e12797.
- Samuelson, W., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of Risk and Uncertainty*, *1*, 7-59.

- Sanbonmatsu, D. M., Kardes, F. R., & Gibson, B. D. (1991). The role of attribute knowledge and overall evaluations in comparative judgment. *Organizational Behavior and Human Decision Processes*, *48*, 131-146.
- Savage, L. J. (1954): *The Foundations of Statistics*. New York (2nd ed. 1972): John Wiley & Sons; New York: Dover Publications.
- Schrauf, R. W., & Sanchez, J. (2004). The preponderance of negative emotion words in the emotion lexicon: A cross-generational and cross-linguistic study. *Journal of Multilingual and Multicultural Development*, *25*, 266-284.
- Sears, D. O. (1983). The person-positivity bias. *Journal of Personality and Social Psychology*, *44*, 233.
- Semin, G. R., & Fiedler, K. (1992). *Language, interaction and social cognition*. Thousand Oaks, CA US: Sage Publications, Inc.
- Sherman, S. J., Houston, D. A., & Eddy, D. (1999). Cancellation and focus: A feature-matching model of choice. *European Review of Social Psychology*, *10*, 169-197.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: a social psychological perspective on mental health. *Psychological Bulletin*, *103*, 193.
- Thorndike, E. L. (1898). Animal intelligence: an experimental study of the associative processes in animals. *The Psychological Review: Monograph Supplements*, *2*, i.
- Tversky, A. (1977). Features of similarity. *Psychological Review*, *84*, 327.
- Unkelbach, C., Alves, H., & Koch, A. (2020). Negativity bias, positivity bias, and valence asymmetries: Explaining the differential processing of positive and negative information. *Advances in Experimental Social Psychology*, *62*, 115-187.
- Unkelbach, C., Koch, A., & Alves, H. (2019). The Evaluative Information Ecology: On the frequency and diversity of “good” and “bad”. *European Review of Social Psychology*, *30*, 216-270.

von Neumann, J., & Morgenstern, O. (1947). *Theory of games and economic behavior* (2nd ed.). Princeton: Princeton University Press.

Wyer, R. S. (1974). *Cognitive organization and change: An information-processing approach*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Zajonc, R. B. (1968). Attitudinal Effects of Mere Exposure. *Journal of Personality and Social Psychology*, 9, 1-27.