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Levels of Mental Construal

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Philosophical realism is the view that there is a realm of objects and facts that exists independent of the mind (Frege, 1980). Although debated among philosophers, both psychologists and lay people largely subscribe to this view, and the present chapter is no exception. At the same time, it is clear that our construals¹ of objects are far from being mere reflections of objective reality. For one thing, there are multiple ways to construe the same object. For example, the same object could be represented as “a generation 4 iPhone,” as “a cellular phone,” or as “a communication device.” The same action could be seen as aggressive or as desperate.

Because people rely on their senses and do not have direct access to reality, they in fact regulate themselves with respect to construals of objects rather than the objects themselves. For example, people choose between mental representations of different cars, not between cars. People love a mental representation of a partner rather than the partner. It is for this reason that understanding how people form construals is of central importance to psychologists.

Indeed, many subdisciplines in psychology investigate regularities of construal. The psychology of perception studies, among other questions, how we construe input into perception of movement, color, size, and direction. The psychology of cognition studies questions such as how people learn concepts and how they categorize objects. Social psychology studies how people imbue objects with valence and other socially shared, cultural meaning. These subdisciplines of psychology address very different types of construals. Yet, we would like to argue that two issues are universally relevant to construals, and thus run

across these subdisciplines of psychology. The first is the question of accuracy: i.e., the extent of correspondence between construals and objective reality. This question has received much attention in each of the subdisciplines, and we will only refer to it briefly. The second fundamental aspect of construal is its level: i.e., the extent of reduction to what the perceiver designates as the primary elements. This relatively less emphasized dimension of mental construal is the main focus of the present chapter.

ACCURACY: CORRESPONDENCE OF CONSTRUAL TO REALITY

A primary function of construals is to enable self-regulation in reality. For example, we may want to estimate the size of represented objects in order to be able to grasp them or walk through them. As another example, we infer traits of individuals in order to predict their behavior. A primary question of concern is therefore the construals' veridicality: namely, the extent of correspondence between people's construals and objective characteristics of the construed object. Indeed, the question of veridicality runs through many fields in psychology. For example, in perception, the classic psychophysical questions of sensitivity to change in stimulus characteristics and minimal threshold of detection concern the correspondence between mental representations and physical characteristics of objects (e.g., level of energy), or, in our terms, the accuracy of representation. In cognition and social cognition, examples of accuracy-related

issues are the questions of accuracy of memory, stereotypes, and trait inferences. Judgment and decision-making research concerns the correspondence between mental representations and objectively verifiable attributes of decision alternatives.

The conclusion in all these disciplines is that construals depart from objective reality in a predictable way. There are many reasons and mechanisms that may explain such departure; many of these mechanisms apply to a wide range of construals, from simple percepts to complex social evaluations. For example, effects of the context of the stimulus and the context of the perceiver – the constructs that happen to be accessible in his or her mind, his/her expectancies, and motivation – have been found in every subdiscipline in psychology. Thus, range frequency theory (Parducci, 1965, 1974) suggests that the context of the evaluated stimulus affects its estimation (e.g., after lifting many heavy objects, a medium-weight object would seem lighter than in another context; after reading a few bad essays, a mediocre essay would seem better than in another context). This theory has been applied successfully to a variety of domains, from perceptual judgments of sizes of squares and darkness of dot patterns (Mellers & Birnbaum, 1982; Parducci & Wedell, 1986) to social judgments of physical attractiveness, equity, and psychopathology (Mellers, 1982, 1986; Wedell, Parducci, & Geiselman, 1987; Wedell, Parducci, & Lane, 1990). As another example, the principle of priming suggests that a perceiver's mind may have varying degrees of readiness to process stimuli (e.g., due to recent encountering, due to active goals, etc.), resulting in faster and more efficient recognition of that stimulus. This principle, too, applies to both processing simple perceptual stimuli (Balci & Dunning, 2006; Liberman & Förster, 2009b) and processing of complex, social concepts (e.g., DeCoster & Claypool, 2004; for a review on priming effects, see Förster, Liberman, & Friedman, 2007).

Although construals depart, sometimes markedly from objective reality, people often hold to naïve realism, believing that their construals reflect “what is there.” Some important consequences of naïve realism have been described by Griffin and Ross (1991). For example, people are often surprised to find out that other people's construals of the same object differ from their own. People treat construals that deviate from their own with suspicion, and attribute the discrepancy first to the other perceiver's misperception or incompetence and then, if this attribution does not suffice (e.g., if the other perceiver sticks to his/her belief despite being exposed to all of the needed information), they resort to inferring an intentional bias (e.g., Vallone, Ross, & Lepper, 1985).

For example, opponents in a conflict often think that if a third party sympathizes with the other side, it is because they are misled by propaganda. They first attempt to present the third party with what they think is the objectively correct information. When that does not help sway the third party, the conflict partisan may conclude that the third party is biased towards the other side.

To summarize, the question of veridicality has been central to the study of mental construals and has received much attention in psychology. Psychologists have studied both the laws that transform objective properties of stimuli into mental representations and the consequences of imperfect transformation. In this chapter, however, we would like to concentrate on another dimension, besides veridicality, on which construals vary: namely, their level of abstraction.

LEVEL OF CONSTRUAL

As mentioned above, we believe that construals serve self-regulatory needs. Critically, although we directly experience only ourselves, here, and now, we self-regulate towards objects that lie outside of this restricted circle: we plan for the future, draw conclusions from the past, evaluate alternatives to reality, consider the perspectives of other people and of other spatial locations. Effective self-regulation, then, concerns not only objects in the immediate environment of the actor but also objects that are distal in time or space, objects that are part of other people's reality, and objects that are hypothetical rather than real. Distal objects cannot be directly perceived but can be only construed. Construal, then, is necessitated by the need to regulate towards distal objects.

Construal level theory (CLT; Liberman & Trope, 2008; Trope & Liberman, 2010) conceptualizes temporal distance, spatial distance, social distance, and hypotheticality as psychological distances. Obviously, distance changes objects and changes what we might need from them. The need to regulate towards distal objects calls for construing those objects using aspects that are invariant across distances with respect to one's self-regulatory needs. For example, when buying clothes, one may have to consider usefulness in situations that are increasingly different from the current one – situations in which one will have different needs, and in which yet unfamiliar people, perhaps in unfamiliar situations, would look at the clothes.

When regulating towards distal objects, people ask themselves: “What is it about this object that really matters? What are the things that are

important to preserve across time, different perspectives, and alternative scenarios?" Such questions form the core of the process of forming higher-level construals. *Whenever we move to a higher-level construct we make a distinction between primary, defining features, which are relatively stable and invariant, and secondary features, which may change with changes in context and hence are omitted from the higher-level representation.* For example, construing a person as "an old woman" renders age- and gender-defining and other attributes such as skill, intellect, or likability, irrelevant. A *higher-level construal is a statement that alternative worlds with different low-level features are similar to each other. In that sense, higher-level constructs form bridges across hypothetical worlds, thereby allowing people to traverse hypotheticality.*

Many acts of reasoning involve forming higher-level construals, and in fact create constructs that remain unchanged across hypothetical variations. For example, when we categorize an object (e.g., "this is a chair"), we suggest that some of its features but not others may vary without causing important change (e.g., changing its color would not change its category, but removing its legs would). As another example, when we reduce a problem to a mathematical formula, we strip it of its content (e.g., calculating velocity or population growth), allowing this content to vary without changing what we see as the underlying structure of the problem. Similarly, when we infer a personality trait (e.g., "smart") from a behavior (e.g., "got an A on an exam"), we allow the specific behavior to vary without changing its meaning. And when we note that a group of elements form a gestalt, we imply that the elements may vary in nature but as long as the relations between them remain, the gestalt will be the same.

CLT contends that regulating towards distal objects requires forming high-level construals: namely, removing from mental construals incidental, mutable aspects and retaining central, invariant aspects. For this reason, according to CLT, distancing and abstraction are cognitively associated, with distancing facilitating abstraction, and abstraction facilitating distancing. Many conceptual distinctions that have been studied within cognitive and social psychology may be related to the dimension of level of construal: namely, may be viewed as distinctions between primary aspects and mutable, secondary aspects. Without denying the uniqueness of each distinction, we propose that it is useful to consider their relations to level of construal. For example, labeling a person "an African American" means "For the present purposes, what I find important about that person is that he is African American; I find other details, such as his personal qualities,

his personal history, or his goals relatively less important." It is also useful to map different conceptual distinctions onto level of construal because, according to CLT, higher-level construals would be used more frequently for more distal objects, and higher-level construals would bring to mind objects that span across a wider range of times, spaces, societies, and hypothetical situations. This prediction has potentially rich implications, as we will see in the review that follows.

In the following sections, we describe how the notion of level of construal can be applied to the distinctions between categories and exemplars, primary and secondary features, gestalt and details, figure and context, superordinate and subordinate elements, theories and noise, as well as symbolic and analog representation. We discuss how each of these may be viewed as a different way of distinguishing between primary and incidental aspects, review extant findings that connect these distinctions to psychological distance, and make new predictions that derive from conceptualizing these distinctions in terms of level of construal. Some constructs we discuss may be classified into more than one category. For example, inferring traits from behavior could be viewed as an instance of applying a causal theory as well as an instance of categorizing an exemplar. This is because causal theories oftentimes (but not always) underlie categories. Despite this partial overlap, we believe that theories, categories, and the other constructs we review are distinct ways of forming high-level construals.

Categories versus exemplars

Exemplars make up categories. For instance, the objects chair, table, sofa, desk, and closet are exemplars of the category "furniture." The many chairs I have seen in the course of my life make up the category "chair." Inanimate objects, events, and people can be represented using different levels of categorization, ranging from low-level, narrow categories, to wider, more inclusive ones.

Moving to a more inclusive category involves a decision about what is primary and what is secondary, and thus more inclusive categories are, in terms of CLT, higher-level construals. For example, representing a dog more abstractly as "a mammal" involves a decision that the feature "gives birth to live offsprings" is more important than the feature "domesticated." Obviously, having a different goal in mind could have afforded a different categorization of the same exemplar. For example, if one wishes to buy a dog, then "a pet" would be a more relevant superordinate category for a dog, because it would suggest a pet shop as

a good place to visit. That abstraction, too, involves rendering some features (e.g., size) primary and other features (e.g., reproduction ways) less important.

Because categorization involves a statement about what is primary and what is secondary, it might be offensive when applied to people. For example, categorizing a person as “Latino” implies that race is central, whereas other qualities are less important. This is just fine in some contexts (e.g., when filling out different pieces of information on a form) but perhaps not in others (e.g., when saying “a Latino applied to the job we advertised”).

Although categorization is goal-dependent, there are also “default” common abstractions that may seem independent of goals, but actually presume “default goals.” For example, “fruit” might seem as a default category for “an apple.” Yet, this category would not be applied if instead of eating the apple or serving it (which are the commonly assumed, default goals) the apple is used for an unusual purpose, such as throwing it at someone. In such a case, “hard” and “easy to grasp” would be more pertinent superordinate categories.

Higher-level categories afford psychological distancing more than lower-level categories because they are more likely to apply to distal times, places, individuals, and possibilities. For example, in the more distant future and in more remote counterfactual situations, I can more safely assume that I will need furniture rather than chairs, and hence it is more useful to construe distant future needs in terms of “furniture” rather than “chairs.” Also, people from other cultures are more likely to use furniture than chairs, and hence, when communicating to a person from another culture, it is more useful to use the broader category. Similarly, high-level categories bring to mind exemplars that span across a wider range of times, places, social targets, and hypothetical situations, and thus expand one’s mental horizons. For example, using the term “food,” compared to “macaroni and cheese,” connects one to more distal historical periods, to more remote places and social groups, and to less likely hypothetical situations.

Breadth of categories

Consistent with CLT, research has shown that people group objects (e.g., things that one would take to a trip) into fewer, broader categories when they imagine using them in the more distant future (Liberman, Sagristano, & Trope, 2002, Study 1) or in a less likely situation (Wakslak, Trope, Liberman, & Alony, 2006). Likewise, participants primed with high power (an instance of social

distance; Smith & Trope, 2006) were more inclusive in categorizing atypical exemplars (e.g., *sled* for the category *vehicle*) than those primed with low power (Smith & Trope, 2006, Study 1).

It has also been found that broad, general categories promote a sense of psychological distance. A recent series of studies by Wakslak and Trope (2009) manipulated level of categorization and found the predicted effect on event likelihoods. In one study, participants generated either superordinate categories or subordinate exemplars for 40 objects (e.g., *table, sport, book*; Study 2). Next, participants completed a supposedly unrelated questionnaire where they made a series of probability judgments. As expected, participants who had been primed with categories (a high-level construal mindset) indicated that the events were less likely to occur compared to those who had been primed with exemplars (a low-level construal mindset).

Another study (Stephan, 2006, Study 12) supported the same prediction with social distance. Participants read about an actor interacting with either a general category or specific exemplars of the same category (e.g., “Diana is ordering *dessert vs cake and ice cream*”). Participants rated the actor as more familiar (i.e., less socially distant) when the sentence included exemplars rather than a category.

Assimilation versus contrast

When perceiving two stimuli in relation to each other (as compared to perceiving the same stimuli separately), a perceiver may assimilate the two stimuli to each other, thereby perceiving them as more similar to each other, or contrast them away from each other, thereby perceiving each of the stimuli as more distinct from the other stimulus (Parducci, Perrett, & Marsh, 1969; Schwarz & Bless, 1992, 2007). For example, when considering a paper of a student in relation to the best paper in class (vs considering it in isolation), the focal paper may be assimilated to the excellent paper and thus seem better, or it may be contrasted away, and thus seem worse. In view of the opposite effects of assimilation versus contrast, the question of what makes each of them more likely becomes crucial (Mussweiler, 2001; Schwarz & Bless, 1992, 2007).

Most germane to the present framework are Schwartz and Bless’ inclusion/exclusion model (Schwarz & Bless, 1992, 2007) and Förster, Liberman, and Kuschel’s (2008) global/local model (GLOMO) of social judgment. According to these models, because global, high-level construals are more inclusive, using those construals is likely to result in including two stimuli in the same category and produce an assimilation effect.

Using low-level construals, however, is likely to result in applying narrower categories, and hence categorizing the two stimuli as exemplars of separate categories and a contrast effect. Consistent with this view, it has been found that priming of high-level construal and greater temporal distance enhances assimilation and reduces contrast. For example, in one of the studies (Förster et al., 2008, Study 3), participants compared their athletic skills to either a moderately high standard or a moderately low standard and then rated their expected athletic performance in an athletic competition that would take place the next day (a proximal temporal perspective) or a year later (a distal temporal perspective). In the control condition, time was not specified. The results showed that a distant time perspective enhanced assimilation (i.e., produced a high self-rating after comparison to a high standard and a low self-rating after comparison to a low standard), whereas a proximal time perspective enhanced contrast (i.e., produced a low self-rating after comparison to a high standard and a high self-rating after comparison to a low standard).

Group-based stereotypes

Another way in which people may categorize others is based on the social groups they belong to, such as age, gender, or race. In the social cognitive literature, group-based categorization is often contrasted with individuating information, such as the person's actions, intentions, and traits. Using group-based categories implies that information on group belongingness is central, whereas individuating information is secondary and mutable. It is an implicit statement that the target of such categorization is equivalent to other members of that category, and that those of his or her characteristics that are not inferable from category membership are secondary.

To the extent that group-based categorization is a relevant abstraction, CLT predicts that it would be more likely with increasing psychological distance. Indeed, research has shown that individuals are more likely to stereotype out-group members who, in CLT terms, are socially distal, as compared to in-group members, who are socially proximal (for reviews, see Hewstone, Rubin, & Willis, 2002; Hilton & von Hippel, 1996). However, this effect could be attributed to a difference in amount of information, as people generally have more information and more concrete information about in-group vs out-group members. Future studies could examine the influence of social distance on stereotyping when amount of information is held constant. Extensions to other dimensions of psychological distance would be interesting as well.

Inferring traits from behaviors

People in Western cultures tend to interpret others' behavior as exemplifying dispositional traits (Asch, 1946; Heider, 1958; Jones & Davis, 1965). For example, many different behaviors, such as donating money, sharing information, or offering a ride home, could exemplify the trait of helpfulness. It is possible to think of behaviors as exemplars of traits. As with other categories, inferring traits involves a distinction between essential aspects and mutable aspects: namely, using a trait term to describe a behavior typically implies that specific aspects of the behavior (e.g., the identity of the recipient of the action, the objects used in the action) are secondary and mutable, whereas a characteristic of the actor is central. Traits are by their very definition enduring and applicable across many situations, and in that sense, "travel well" across psychological distances.

Research on spontaneous trait inference (STI; Winter & Uleman, 1984) demonstrates that people infer traits from behavior even without explicitly having the intention to form impressions (i.e., through task instructions) and without being aware of having made any inferences. For example, upon reading the sentence "*The secretary solved the mystery halfway through the book,*" they spontaneously encode the trait "clever," even under conditions of time pressure or cognitive load (Todorov & Uleman, 2003; Winter, Uleman, & Cunniff, 1985). A CLT analysis of STIs suggests that STI formation will be enhanced for psychologically distal vs proximal actors. Indeed, Rim, Uleman, and Trope (2009) demonstrated more STIs from behaviors of others who were described as being in a spatially remote (vs proximal) location (Study 1), or from the distant (vs recent) past (Study 2).

Converging evidence comes from research that used Semin and Fiedler's (1988) linguistic categorization model (LCM), which classifies linguistic representations of actions into four levels of abstractness. At the most concrete level are descriptive action verbs (*lift, take*), which are typically directly observable. Interpretative action verbs (*pretend, help*) are more abstract, as they involve interpretation and require some knowledge of a context larger than the immediately perceived. Most relevant to the current discussion, it is possible to think of descriptive action verbs as exemplars and of interpretative action verbs as categories. For example, "hand a dollar bill to a homeless person" is an exemplar of "helping." This abstraction rests on a decision that the dollar and the fact that the recipient is homeless are incidental, whereas the presence of a helper and a recipient, as well as an act by the former that is beneficial to the latter, are central. State verbs

(*prefer, understand*) are still more abstract, and adjectives (*helpful, aggressive*) are the most abstract category. Using an adjective to describe a behavior is akin to inferring a trait from that behavior.

The LCM is a useful tool for examining the relationships between psychological distance and abstractness (or construal level) of actions. Indeed, various kinds of distance have been found to affect abstractness of language. For example, people used more abstract language when describing another person's actions than their own actions (Semin & Fiedler, 1989; see also Fiedler, Semin, Finkenauer, & Berkel, 1995), when describing spatially distant interactions than spatially near interactions (Fujita, Henderson, Eng, Trope, & Liberman, 2006), and when instructed to address another person politely (i.e., in a socially distant manner) rather than colloquially (Stephan, Liberman, & Trope, 2010a).

Would the reverse direction of influence hold? That is, would linguistic abstractness affect perceived psychological distance? Semin and Smith (1999, Studies 2, 3) provided participants with retrieval cues of varying abstractness and examined the temporal distance of the events they recalled. For example, participants were asked to recall either an occasion in which they helped somebody (i.e., a concrete, behavioral retrieval cue) or an occasion in which they displayed helpfulness (i.e., an abstract, trait retrieval cue). As predicted, trait retrieval cues prompted older memories than memories that were prompted by behavioral retrieval cues.

Relational categorization and analogical mapping

Analogy is a special kind of similarity, in which two situations share a common structure of relationships between their constituent elements, even though the elements themselves may differ (Gentner, 1983; Holyoak, 2005). For example, in a picture-mapping task commonly used to measure analogical thinking (Markman & Gentner, 1993, Experiment 1), participants are shown pairs of pictures. The pictures in each pair share a relational structure (e.g., both exemplify a relation of *giving*), while the elements differ between pictures (e.g., the upper picture shows a man giving food to a woman, whereas the bottom picture shows a woman giving food to a squirrel; Figure 12.1). Analogical mapping involves matching the elements in both scenes based on their similar roles in the relational structure, while ignoring perceptual similarities that might interfere with such mapping (e.g., Gentner & Toupin, 1986; Markman & Gentner, 1993). For example, in order to match the woman in the upper picture

with the squirrel in the bottom picture (both in the role of the receiver in the relation), participants have to ignore the perceptual similarities between the woman in the upper picture and that in the bottom picture.

Representing a situation in terms of its relational structure reflects categorization, whereas representing it in terms of its perceptual features reflects attention to concrete, individuating information (which is incidental from the perspective of the relational structure). Categorizing a situation in terms of the relations it exemplifies (e.g., "This scene exemplifies relations of giving and receiving") is based on identifying the relations as primary, and the identity of the actors (a woman, a man, a squirrel) as well as the context of the act (e.g., the type of house where the woman lives) and its content (e.g., what is being given) as incidental.

Psychological distance (vs proximity) should thus promote relational categorization and also analogical mapping, as well as other downstream processes of analogical thinking. In a preliminary study that tested this prediction (Elias & Shapiro-Pavlovsky, 2009), participants were primed with high or low power using a scrambled sentences task. They then performed the picture-mapping task described above (Markman & Gentner, 1993, Experiment 1), where elements in one picture in a pair can be matched with elements in the other picture either based on relational role or perceptual similarity (Figure 12.1). As predicted, participants primed with high power made more relational mappings as compared to participants primed with low power. We are currently exploring effects of other manipulations of psychological distance on analogical mapping and other processes of analogical thinking. For example, we plan to study whether psychological distancing helps people transfer a solution from one insight problem to a problem from a different domain but with the same structure. As processes of analogical thinking are central in learning and problem solving (e.g., Gentner & Colhoun, 2010; Holyoak, 2005), this seems like a promising avenue for research.

It is noteworthy that we think of both trait inferences and analogy by relational structure as instances of high-level construal. For example, when we see one person giving food to another, we may attribute a trait to the actor (e.g., *generosity*), abstract a relation between the figures (e.g., *giving-receiving*), or do both. It would be interesting to examine how distance interacts with factors that sway our mind towards one kind of high-level construal or another. For example, it has been found that people from collectivist cultures or in a collectivist mindset are *less* likely to make trait inferences than people from



Figure 12.1 A pair of pictures exemplifying analogy. Both pictures show a relation of giving, but the role fillers differ between pictures. Adapted from Markman and Gentner (1993).

individualistic cultures or in an individualist mindset (e.g., Choi, Nisbett, & Norenzayan, 1999; Oishi, Wyer, & Colcombe, 2000; Oyserman, Coon, & Kimmelmeier, 2002). It would be interesting to examine also whether people from collectivistic cultures would be also *more* likely to make relational inferences (and analogies), and whether distance would have a different effect on people with individualistic versus collectivistic tendencies.

Primary versus secondary aspects of objects

We mentioned earlier that abstraction rests on a distinction between primary and secondary aspects

of objects. Yet, not all such distinctions amount to forming categories. Regardless of whether or not categories are formed, central, goal-related features of objects constitute high-level construals, whereas peripheral, relatively goal-irrelevant features constitute low-level construal of those objects. Distancing an object should therefore promote construals that focus on primary features and de-emphasize secondary features. Trope and Liberman (2000) found support for this prediction in studies on evaluations of objects and events containing both a primary and a secondary aspect. For instance, participants imagined buying a radio set either the next day or 1 year later, in order to listen to morning programs. In one version, participants read that the sound quality of the radio set (i.e., a goal-relevant, primary aspect) was good, but that the clock that was incidentally

included (i.e., a goal-irrelevant secondary aspect) was relatively useless. In another version, participants read that the sound quality of the radio set was poor, but that the clock aspect was quite useful. As expected, thinking about the radio set in the more distant future increased satisfaction when the sound quality was good and the clock poor, but decreased satisfaction when the sound quality was poor and the clock good, indicating that time delay increased the weight of central features and decreased the weight of peripheral features (for related findings in persuasion contexts, see Fujita, Eyal, Chaiken, Trope, & Liberman, 2008). Conceptually similar findings were obtained with social distance, operationalized as interpersonal similarity (Liviatan, Trope, & Liberman, 2008) and social power (Smith & Trope, 2006).

Interestingly, research that compared the decisions people make for themselves to the advice they give to others obtained similar findings. Kray and Gonzalez (1999) and Kray (2000) compared participants' own choices to the advice they gave to socially close and distant others. They found that in advising others, especially socially remote others, participants tended to give more weight to a single attribute which they designated as the most important and less weight to other, more peripheral attributes. For example, when advising another person about choosing between two jobs, participants gave more weight to personal satisfaction (which they viewed as the most important dimension) and less weight to salary and location (the less important dimensions) than when choosing for themselves (Kray, 2000, Study 2). In two other studies, Kray found that this preferential weighting of important attributes was stronger in advising a distant social target (a student in another department) than a closer target (a student in one's own class). Moreover, as advisers, participants rated central attributes as highly important and peripheral ones as unimportant, whereas as deciders they rated the various attributes as relatively similar in importance. In our terms, these findings demonstrate choosing according to more central, high-level aspects for socially distant than social close others.

Goal-dependent importance

As we noted earlier in the discussion of categorization, importance is goal-dependent. When on a diet, caloric value of food becomes primary and its color secondary, but when decorating a plate for a fancy reception, the relative importance of these aspects might reverse. If goal change reverses the relative importance of aspects, then the effect of distance would likewise depend on goals. Support for this prediction comes from a study

that independently manipulated affective and cognitive value, temporal distance, and goals (Trope & Liberman, 2000, Study 5). The study assessed desirability ratings of four films, varying in affective value (funniness) and cognitive value (informativeness). The films were, thus, funny and informative, funny but uninformative, not funny but informative, or neither funny nor informative. Some of the participants expected to watch the films in the same experimental session (i.e., near future), whereas other participants expected to watch them in the second session of the study, 2 months later (i.e., distant future). The goal of watching the films was also manipulated: it was either affective (getting oneself into a good mood) or cognitive (learning about a topic). We assumed that the features of the film that are related to the goal would be more central than the goal-irrelevant aspects, and thus would constitute a high-level construal of the film. Thus, depending on the goal, either affective aspects or cognitive aspects of the films were more central (constituted the high-level construal of the films), whereas the other type of features was rendered goal-irrelevant, and thus part of the low-level construal of the films. Consistent with the predictions of CLT, we found that temporal distance increased the influence of the informativeness versus the funniness of the films when the goal was cognitive, but decreased the influence of informativeness versus the funniness of the films when the goal was affective: i.e., psychological distance increased the importance of the goal-relevant aspect of the film over the goal-irrelevant aspect.

Alternatives versus attributes in choice matrices

Prior to making a decision, people often search for information on the available alternatives. Decision theoretic work has distinguished between searching within attributes – across alternatives and searching within alternatives – across attributes (Tversky, 1972). In a typical study, participants are presented with a matrix of information in which rows represent alternatives (e.g., different apartments), columns represent attributes (e.g., price, location, noise), and cells include the standing of each alternative on the corresponding attribute. Participants search this matrix by exposing the information in each cell, one at a time (see Payne, Bettman, & Johnson, 1988, for a review of this paradigm).

Borovoi, Liberman, and Trope (2010) found that when presented with a choice matrix, participants think of attributes as being more central than alternatives. For example, they tend to think that deleting an entire column (i.e., deleting information on the standing of all the alternatives on a

certain attribute) would change the choice situation more than deleting an entire row (i.e., deleting all information on one of the alternatives). Notably, it is probably the case that distance typically changes the alternatives in a choice set more than it changes the attributes. For example, when looking for an apartment in a different place or a long time in advance, the alternatives might be unknown, but the dimensions (e.g., price, location, and size) most likely remain similar to those that apply to proximal sets.

Based on CLT, Borovoi et al. (2010) predicted that within-attribute search would characterize processing of distal decision situations, whereas within-alternative search would characterize processing of proximal decision situations. They tested this prediction with both temporal and social distances. In a study on temporal distance, participants considered a choice for either the near future (e.g., choosing an apartment to rent in the following two weeks) or the distant future (e.g., choosing an apartment to rent a year later). In a study on social distance, participants considered a choice either for themselves or for another student. As expected, there were more within-attribute steps and less within-alternative steps when making decisions for psychologically distal situations than for psychologically proximal situations. Importantly, in both studies participants opened an equal number of cells and invested a similar amount of time in both distance conditions, indicating that they were not less motivated in the distal condition than in the near condition.

Gestalt versus details

We tend to perceive Figure 12.2 as alternating lines of black and white. This perception is a classical demonstration of gestalt. More generally, according to the principle of gestalt, people tend to order their experience in a manner that is regular and simple. Two of the laws of gestalt – similarity and proximity – are of relevance in the example in Figure 12.2: they state, respectively, that similar elements are grouped together into collective entities, and elements that are spatially or temporally proximal to each other are grouped together (Koffka, 1935).

Perceiving a gestalt involves a decision that the elements that make it up are less important than their organization relative to each other. In Figure 12.2, perceiving black and white lines renders the circles that make up these lines unimportant – they could have been replaced by other shapes without affecting the gestalt. In that sense, a perception of a gestalt renders its elements secondary, low-level constructs.

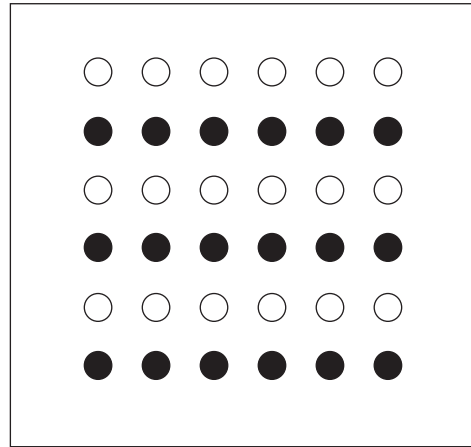


Figure 12.2 Gestalt principles of proximity and similarity.

As noted earlier, abstract categorization is achieved by making *some features of the exemplars which make up the category* primary and some secondary. A gestalt, on the other hand, is achieved by making *the relations between the elements* primary and their particular identities secondary. In that sense, the relation between a gestalt and its elements is not the same as that between a category and its exemplars. Nevertheless, in both cases a higher level of construal is achieved by assigning more importance to some elements of a stimulus than to others.

The laws of gestalt, which specify the conditions that promote organization of elements into gestalts, include, in addition to the laws of similarity and proximity, symmetry, continuity, and common fate. To the extent that all these promote perceptions of a gestalt, they also promote a perception of its elements as secondary, mutable, and relatively unimportant. In other words, the basic notion of gestalt – that the whole is more than the sum of its parts – also means that the parts are unimportant relative to the whole, a notion that might have a troubling flavor when applied to gestalts that are made of people, such as in human pyramids or in military parades.

Distance and composite letters (the Navon task)

Lieberman and Förster (2009b) conducted a series of studies in which participants were primed with psychological distance or proximity and then completed the Navon (1977) task. In this well-known task, participants see a series of large letters (the gestalt) made up of smaller letters

(the elements), and are asked to indicate as quickly as possible whether a target letter (e.g., *H*) appeared on the screen. As predicted, when primed to think about the distant future (Study 1), a distant spatial location (Study 2), and distant social relations (Study 3), participants were faster to indicate that a target letter (*H*) had appeared on the screen when it was the global (*H* made up of *L*s) vs the local (*L* made up of *H*s) letter. When primed with proximity in time, space, and social relations, participants were faster when the target letter was the local (vs global) letter.

To examine the reverse direction of influence – namely, that of global perception on estimated psychological distance – Liberman and Förster (2009a) procedurally primed participants with either global or local perceptual processing, using a variation of Navon's (1977) task. In the global priming condition, the target letters were always global, and in the local priming condition the target letters were always local, whereas in the control condition the targets were global in half of the trials and local in the other half. Relative to the control condition, global processing led to greater estimates of temporal distance, spatial distance, social distance, and hypotheticality. Local processing had the opposite effect. For example, participants who were primed with global processing estimated temporal distance to a dental visit as longer and spatial distance between themselves and a designated point in the room as larger than participants primed with local processing. In a related vein, Wakslak and Trope (2009) found that priming global processing (vs local processing) through the Navon task led participants to assign lower probability to a variety of everyday-life occurrences.

Distance and gestalt completion

In the Gestalt Completion Test (GCT; Street, 1931; see also Ekstrom, French, Harman, & Derman, 1976) participants are presented with fragmented images, and have to identify them. In this task, performance depends on detecting the global pattern, and attending to details interferes with performance. In a series of studies, participants completed what they believed to be sample items of the GCT, supposedly as a practice version before they performed the actual task. Participants' performance improved when they anticipated working on the actual task in the more distant future (Förster, Friedman, & Liberman, 2004), when they thought the actual task was less likely to take place (Wakslak et al., 2006), and when social distance was enhanced by priming of high social status (Smith & Trope, 2006). Thus, a psychologically distant perspective seems to enable people to better see the gestalt.

While distance improves the ability to perceive the gestalt in a visual array, it should have the opposite effect when the task requires attention to details. Distance should therefore have a detrimental effect on the ability to identify a missing local element within a coherent whole (e.g., a missing hand on a watch, a missing handle on a drawer chest). Wakslak et al. (2006) used the picture completion subtest of the Wechsler Intelligence Scale for Children (WISC; Wechsler, 1991) to test this prediction. As expected, participants did worse on sample items of this task when they believed they were less likely to later complete it.

Segmentation

Segments of continuous events (e.g., events in a movie; stages of a disease) may be regarded as elements of a gestalt that are grouped together due to proximity and continuity. Distance should, therefore, interfere with isolating segments of continuous events. Consistent with this idea, two studies have found that when ongoing events were described as psychologically distal, they were chunked into broader and fewer segments than when they were described as psychologically proximal. In the first study participants watched an animated film clip depicting two triangles and a circle (Heider & Simmel, 1944) and segmented the clip into as many meaningful sections as they thought appropriate. Participants (New York University [NYU] undergraduates) were either told that the film portrayed the actions of three teenagers at a summer camp on the East Coast (spatial proximity condition) or the West Coast (spatial distance condition). As predicted based on the association between distance and level of construal, participants segmented the video into fewer, broader sections when they believed it portrayed a spatially distal (vs proximal) event (Henderson, Fujita, Trope, & Liberman, 2006). Converging evidence was found using subjective probability as a manipulation of psychological distance; unlikely (i.e., more distal) events were chunked into broader units than likely events (Wakslak et al., 2006).

Focal object versus context

The distinction between object and context assigns importance to one element of an array of information and renders the elements surrounding it less important. For example, when observing one's kid in a school yard, one would typically think of the child as the focal element and of the yard (and possibly of other kids) as the surrounding context. It is quite possible that the architect who designed

the yard would have the opposite perception, viewing the yard as the focal object and the kids as context. In perception, the conceptually similar distinction between figure and ground assigns more importance to the figure and less importance to the ground: changing the ground or the context would be thought of as less substantial than changing the figure. As with other distinctions between more important and less important aspects of stimuli, the distinction between object and context maps onto level of construal: we consider a decontextualized construal of an object as being of a higher level than a construal rich in contextual detail.

Figure versus ground distinctions in visual input

In complex visual arrays, people tend to identify as the figure elements that are salient – by being bigger, brighter, and/or more mobile than others. For example, Masuda and Nisbett (2001) studied the context sensitivity of American and Japanese participants with animated vignettes of underwater scenes. The vignettes featured “focal fish,” which were large, had lively colors and clear shapes, and moved actively. In contrast, the background included smaller water animals, which had pallid colors and unclear shapes, and moved more slowly, along with inert objects, such as vegetation and rocks.

Goal relevance is of course another determinant of figure/ground decisions. For example, if one is looking for the letter *B* among other letters, then *B* is the figure and the rest of the letters form the ground (or the context). CLT predicts that psychological distance would reduce attention to contextual elements and increase focus on the figure. For example, memory for the context (e.g., the non-focal elements in a visual array) should be poorer if the visual array presents a place that is more geographically distal, a place to be visited in the more distant future, a place to be visited by a more distal person, or a place to be visited with less likelihood. To the best of our knowledge, this prediction still awaits empirical examination.

Dispositional versus situational attributions

In social psychology, the object vs context distinction has been applied to individuals behaving in a situation. A prominent example is Heider's (1958) classic notion that the behavior “engulfs the field” and the common finding that situational forces receive little attention from most observers of the behavior (at least in Western cultures), who identify the actor and his or her dispositions as the object and the situational forces as the (relatively less important) context (e.g., Jones, 1979).

Consistent with this analysis is the correspondence bias, whereby people tend to attribute the behaviors of others to internal, dispositional causes even when they are aware of situational constraints (Gilbert & Malone, 1995; Jones, 1979).

According to this analysis, dispositional factors constitute high-level construals, which should receive more weight with increased psychological distance, whereas situational factors constitute low-level construals, which should receive less weight with increased psychological distance. In other words, according to CLT, the correspondence bias should intensify with psychological distance. In line with this prediction is the actor–observer effect in attribution, which describes the tendency for people to attribute others' behaviors (e.g., failing an exam) to dispositional causes (“because he is stupid”) while attributing one's own behaviors to situational causes (“because the exam was unfair”; e.g., Heider, 1958; Jones & Nisbett, 1987). This classic finding lends some support to construal-level theory's prediction, because others are, by definition, more distant than the self. However, differences in amount of information and/or differences in informational salience could account for these effects as well. Thus, an important question is whether psychological distance affects the tendency to give a dispositional attribution for an actor's situationally constrained behavior, controlling for the nature and amount of information given.

Nussbaum, Trope, and Liberman (2003) found an answer in the affirmative. Participants were students at an Israeli university, and they read an essay purportedly written by another student arguing in favor of Israel's withdrawal from Southern Lebanon (which was then occupied by Israel). In the constrained condition, participants were told that the writer was instructed to write the pro-withdrawal essay, and in the unconstrained condition, they were told that the writer was free to express his/her own opinion. Correspondent attitude inferences in the constrained condition were greater after participants had made judgments regarding the writers' distant (vs near) future behaviors. Henderson et al. (2006) replicated this effect manipulating spatial distance: that is, perceivers were more likely to ignore situational information and draw correspondent inferences when the actor was believed to be spatially remote vs proximal. Thus, increasing temporal or spatial distance of the actor's behavior increases the tendency for perceivers to draw correspondent inferences even when amount and type of information given is held constant.

Could the reverse direction of influence hold? That is, would making dispositional rather than situational attributions for actors' behaviors

facilitate thinking about those actors as being temporally, spatially, or socially remote? Stephan, Liberman, and Trope (2010b) found support for this prediction with social distance. They found that participants who first provided a dispositional (vs situational) explanation for a person's action thought that the actor was less similar to them, and allocated him or her less of their resources. In another study (Stephan et al., 2010a), a similar manipulation made people address the actor in a more polite manner, signifying a greater sense of social distance.

It is worth noting that people from different cultures do not make as sharp a distinction between figure and ground (for reviews, see Nisbett, Peng, Choi, & Norenzayan, 2001; Norenzayan, Choi, & Peng, 2007). Thus, whereas individuals from West European and North American (independent) cultures process stimuli as isolated from the immediate context, individuals from Asian and South American (interdependent) cultures process stimuli in a more contextual manner, attending more to the relationships between the focal object and the field. Accordingly, people from interdependent cultures seem to be less prone to perform the correspondence bias (e.g., Miller, 1984; for reviews, see Choi et al., 1999; Norenzayan & Nisbett, 2000). It would be interesting to examine whether the effects of psychological distance on correspondent attribution would be attenuated or even reversed among individuals from interdependent cultures (as compared to independent cultures).

Contextual primes

Semantic primes influence the impressions and evaluations people form of other people (for reviews, see DeCoster & Claypool, 2004; Förster et al., 2007; Higgins, 1996). Those primes are oftentimes presented in the context of the target of evaluation. For example, in the classic study by Higgins, Rholes, and Jones (1977), participants' judgments of a person who engaged in risky behaviors were influenced by prior exposure to semantic primes: those who were first presented with words related to adventurousness (a positive construct) rated the target more positively than those primed with recklessness (a negative construct).

If, as CLT contends, distance focuses attention on an object and attenuates attention to its context, then it should also attenuate the effects of contextual primes. Henderson and Wakslak (2010) found support for this prediction. Building on Higgins et al.'s (1977) paradigm, they primed participants with words related to adventurousness or recklessness. They then presented them with pictures of individuals performing behaviors (skydiving,

motor biking) that are ambiguous with respect to being either adventurous or reckless. As predicted, judgments of the targets were influenced by the prime when the target was described as spatially close (Study 1) or as likely to repeat the behavior (Study 2), but not when the target was described as spatially distant or unlikely to repeat the behavior.

Subordination

Feature A is subordinate to feature B when A depends on B more than B depends on A. Consider, for example, arguments in favor of an action (pros) and against an action (cons). In deciding whether to undertake an action, cons are subordinate to pros because the subjective importance of cons depends on whether or not pros are present more than the subjective importance of pros depends on whether or not cons are present. For instance, if we know that a medical treatment has some health benefits (i.e., pros), we would inquire about its potential side effects (i.e., cons) before making a decision. But if the treatment has no benefits, we would decide against taking it without further inquiry about its side effects. In contrast, we would inquire whether a medical treatment has health benefits whether or not it has side effects. Thus, the importance of side effects depends on whether the treatment is known to have benefits, but the importance of benefits is independent of whether the treatment is known to have side effects. Subordinate features, more than superordinate features, may vary without changing the meaning of the object. Relations of subordination exist not only between arguments in favor and against an action, as just explained, but also between ends and means, desirability and feasibility, and value and probability in positive bets, as well as causes and effects.

Because subordination is a property that defines features as high level versus low level, we expect that superordinate features would be more salient relative to subordinate features as the psychological distance from the object increases. We now turn to examine how this prediction bears out with different manifestations of subordination. Because we believe that goals are especially important cognitive structures, we discuss subordination of goals in a separate section.

Arguments in favor versus against an action

As explained above, in deciding whether to undertake an action, cons are subordinate to pros, making pros higher-level construals than cons. Therefore, pros should become more salient as

temporal distance from the action increases, whereas cons should become less salient as temporal distance from the action increases. Eyal, Liberman, Trope, and Walther (2004) asked participants to generate arguments in favor and against new (i.e., non-routine) near-future or distant-future actions, such as introducing a new exam procedure (e.g., switching to open-ended questions instead of multiple-choice questions, Study 2), social policies (e.g., restricting private cars in the city center, Study 3), and a variety of personal and interpersonal behaviors (e.g., approaching a fellow student and offering to write an assignment together, Studies 4–6). As predicted, in all the studies, participants generated more pros and less cons as temporal distance from the actions increased.

In an extension of these findings, Herzog, Hansen, and Wänke (2007) suggested that, if pros are more salient as temporal distance increases and cons are more salient as temporal distance decreases, then an increase in temporal distance should make it easier to generate pros and more difficult to generate cons. Furthermore, because attitudes tend to be more in line with content when the retrieval is experienced as easy (Wänke & Bless, 2000), the ease of retrieval associated with generating pros and cons of near- and distant-future activities should influence attitudes toward those activities, even when the number of arguments is held constant. In a test of these ideas, participants read about a proposed action that was to happen in the near or distant future, and were instructed to write down either four pros or four cons regarding the activity. As expected, participants (a) found it easier to generate pros and more difficult to generate cons when the issue concerned the distant rather than near future and (b) had more favorable attitudes toward the action when it was to occur in the distant future.

Value versus probability in positive bets

In the normative expected utility model, probability and payoffs combine multiplicatively and therefore have symmetric weight in determining the attractiveness of gambles. Our studies, however, have demonstrated that people tend to view the probability of winning as subordinate to the payoff: i.e., people tend to think that probability is important only if the payoff is high, but that payoff is important regardless of whether the probability of winning is high or low (Sagrignano, Trope, & Liberman, 2002, Study 1). This establishes payoffs as pertaining to a higher construal level than probabilities, and entails a prediction by CLT that people would assign more weight to payoffs and less weight to probabilities in deciding for the more distant future.

A series of studies on preference for near- and distant-future gambles tested this prediction (Sagrignano et al., 2002). For example, one of the studies assessed monetary bids for gambles to be played on the same day or 2 months later. Participants were presented with a set of 20 bets that varied in probability of winning (0.1, 0.3, 0.5, 0.7, and 0.9) within each of four levels of expected value (\$4, \$6, \$8, and \$10), and were asked to state the amount of money they were willing to bid to play each gamble. The prediction was that near-future participants would prefer to sacrifice payoff for better odds, whereas distant-future participants would be willing to risk poorer odds for higher payoffs. As expected, for near-future gambles, bids were higher for high-probability and low-payoff bets than for low-probability and high-payoff bets, whereas for distant-future gambles, bids were higher for low-probability and high-payoff bets than for high-probability and low-payoff bets.

It would be interesting to test whether other dimensions of psychological distance would have a similar effect. For example, would betting for another person rather than for oneself, buying tickets for a gamble that is unlikely to take place, or about outcomes taking place in other countries (e.g., the Football World Cup) rather than in one's own country make one prefer more risky bets?

Causes versus effects

Effects are subordinate to causes because, by definition, effects depend on causes but causes do not depend on effects. In the cognitive literature on concept representation and categorization, a concept's causal features are considered to be more central than its effect features, because causes are less mutable and afford greater inductive power (Ahn, 1998; Ahn, Kim, Lassaline, & Dennis, 2000; Kim & Ahn, 2002).

Would a psychologically distal perspective facilitate representation of events in terms of their underlying causes rather than effects? Rim, Hansen, and Trope (2010) found a relationship between temporal distance and the frequency of generating causes and effects. Participants were initially induced to be in a temporally distal or proximal mindset by imagining their lives 1 year later or the next day, respectively. Subsequently, they were asked to generate causes or effects for a series of events (e.g., getting a tooth cavity). Those in the temporally distal condition imagined the events as occurring on the day 1 year later, which they described before; those in the temporally proximal condition imagined the same events as occurring the next day. As predicted, participants generated more causes when they had been

initially placed in a temporally distal mindset and imagined events as occurring at that distant-future time. They generated more effects when they had been placed in a temporally proximal mindset and imagined events as occurring at that near-future time. There is also evidence for the reverse direction of causality. One study showed that when participants generated causes (vs effects) for various events, they believed that the events were likely to take place in the more distant future. Additional studies extend these ideas using less obtrusive measures to examine spontaneity of inference generation and look into other instances of distance (e.g., spatial distance, social distance, power, and hypotheticality).

Subordination of goals

Actions can be represented in terms of the reasons *why* one performs an action, the ends, or in terms of *how* the action is performed, the means (Vallacher & Wegner, 1989). Means are subordinate to ends because means derive their value from ends rather than vice versa. For example, if I need to get a cab in order to get to the airport, then how important it is for me to get the cab derives from the importance of getting to the airport, but the importance of getting to the airport does not derive from the importance of getting the cab.

Research has found that, when given a choice, people tend to represent psychologically more distal actions in terms of high-level ends rather than low-level means. For example, participants tended to describe more distant future activities (e.g., *studying*) in high-level terms (e.g., *doing well in school*) rather than in low-level terms (e.g., *reading a textbook*; Liberman & Trope, 1998). Similar effects emerged when actions were to take place in a more spatially distant location (Fujita et al., 2006), when the actions were framed as less likely to actually take place (Wakslak et al., 2006), and when the actor was less similar to the perceiver (Liviatan et al., 2008).

It seems also that activating higher-level goals leads people to think of more psychologically distal events. For example, thinking about an activity in high-level, *why* terms rather than low-level, *how* terms led people to think of the activity as taking place in more distant points in time (Liberman, Trope, McCrea, & Sherman, 2007) and led to more delayed enactment (i.e., procrastination; McCrea, Liberman, Trope, & Sherman, 2008). Similarly, participants who described a target's actions in high-level, *why* terms (vs low-level, *how* terms) allocated to him or her less of their resources, which indicates greater social distance (Stephan et al., 2010b).

Desirability versus feasibility

When thinking about an action (e.g., attending a guest lecture), desirability refers to the value of the action's end state (e.g., how interesting the lecture is), whereas feasibility refers to the ease or difficulty of reaching the end state (e.g., how convenient the timing of the lecture is). The feasibility of an action is subordinate to its desirability, in that desirability is subjectively important whether the end state is feasible or not, but feasibility is important mainly when the end state is desirable. For example, if a guest lecture is interesting, we will consider attending it regardless of whether the timing is convenient or inconvenient. However, we will not consider attending a boring guest lecture just because its timing is convenient.

Desirability should therefore receive greater weight over feasibility concerns as psychological distance increases. Liberman and Trope (1998) examined this prediction as it pertains to temporal distance. Participants in one study (Study 2), for example, made decisions about three situations (e.g., deciding whether to attend a guest lecture) that they imagined occurring to them in either the near or distant future. For each situation, the desirability of the outcome (e.g., how interesting the lecture was) and its feasibility (e.g., how convenient the timing of the lecture was) were varied between participants. Consistent with CLT, results revealed that the effect of desirability increased over time, whereas the effect of feasibility decreased. Namely, the attractiveness of the options increased or decreased as a function of the source of the attractiveness: when outcomes were desirable but hard to obtain, they were more attractive when imagined to occur in the distant (vs near) future; when outcomes were less desirable but easy to obtain, they were more attractive when imagined to occur in the near (vs distant) future. Similar results have been found for other distance dimensions, including hypotheticality and social distance (e.g., Liviatan et al., 2008; Todorov, Goren, & Trope, 2007; see review by Liberman, Trope, & Stephan, 2007).

Values as guides of behavior

Values are commonly viewed as abstract, trans-situational guides for action (Schwartz & Bilsky, 1987). In our terms, values may be conceptualized as superordinate goals and thus should be more readily applied to and guide intentions for psychologically more distant situations. Eyal, Sagristano, Trope, Liberman, and Chaiken (2009) empirically examined this prediction. One study used Schwartz's (1992) value questionnaire to assess the importance participants assigned to a wide range of values (e.g., power, benevolence,

hedonism), and then asked participants to imagine 30 behaviors (e.g., *rest as much as I can*) and to indicate the likelihood of performing each behavior either in the near future or in the distant future. Eyal et al. correlated the rated importance of each value and the mean likelihood of performing the behaviors corresponding to that value. As expected, these correlations were higher when the behaviors were planned for the distant rather than the near future, suggesting that people's values are better reflected in their intentions for the distant future than in their intentions for the immediate future or their actual behavior. For example, being high (vs low) in hedonism might mean planning hedonic activities for the distant future, but not necessarily for the upcoming week.

Extending this line of thought, Eyal, Liberman, and Trope (2008) argued that people judge immoral acts as more offensive and moral acts as more virtuous when the acts are psychologically distant than near. They showed that transgressions against core values that are deemed harmless due to extenuating circumstances (e.g., eating one's dead dog) were judged more severely when imagined from a more distant temporal or social perspective. Conversely, moral acts which might have had ulterior motives (e.g., adopting a disabled child when a government pays high adoption pensions) were judged more positively from temporal distance. The findings suggest that moral criteria are more likely to guide people's judgments of distant rather than proximal behaviors.

Ideology versus social influence

Ideologies, like values, can be conceptualized as superordinate goals, and, as such, constitute high-level constructs. The effect of ideology on people's actions and attitudes can be contrasted with social influence, which, from the perspective of the actor, can be considered as a contextual, low-level factor. CLT therefore predicts that social influence would be stronger when an attitude object is psychologically near, whereas the effect of one's ideology would be stronger with increasing psychological distance.

A series of studies by Ledgerwood, Trope, and Chaiken (2010) tested the hypothesis that attitudes would align with those of another person in the local social context more when psychological distance is low (vs high). For example, one of the studies (Study 3) used an anticipated interaction paradigm, in which participants read about a policy that would increase the deportation of illegal immigrants starting either the week after (near future) or the following year (distant future), and learned that their discussion partner was either in favor of or against deporting illegal immigrants. They then privately reported how likely they

would be to vote in favor of the policy. Participants' voting intentions shifted toward the interaction partner's attitude when the policy was set to be implemented in the near future, but not when it was to be implemented in the distant future. However, voting intentions more strongly reflected participants' previously assessed ideological values when the policy was to be implemented in the distant (vs near) future. Specifically, the more participants valued preserving the societal status quo, the more they supported a distant-future policy that would enforce the deportation of illegal immigrants.

Theories versus noise

Theories make predictions. From the perspective of the theory, non-predicted events are incidental and unimportant. For example, trait theories of human behavior hold that extraverted people would tend to behave in an extraverted way. From these theories' point of view, non-trait-related variations in extraversion are considered incidental and unimportant – they are noise. Of course, one theory's prediction is another theory's noise. For example, situation theories of human behaviors would hold that behavior is determined by situations, and that individual differences in behavior are incidental. In terms of CLT, events that are predicted by theories form higher-level construals, whereas noise, or theory-unpredicted events belong to the low level of construal.

Theories are meant to uncover regularities, and their usefulness for traversing distances is apparent – theories may help to predict the future, to understand the perspective of others, and to simulate hypothetical situations. According to CLT, psychological distance should increase the salience of theory-driven prediction and diminish the weight of noise. This should hold for both scientific prediction and lay theories, as we now turn to discuss.

Theory versus noise is scientific prediction

A study by Nussbaum, Liberman, and Trope (2006, Study 1) examined the confidence of advanced psychology students in replicating classic findings in psychology in either the near future or the distant future. For example, participants imagined entering a class at the university, either the next day or a year later (depending on experimental condition), handing the students a list of words to memorize, and then testing how well they remember it after moving some of the students to a different room. Participants estimated how likely it is that those tested in the same room

would outperform, on average, those that were moved to a different room, thus replicating the encoding specificity effect (Tulving & Thomson, 1973). Participants were more confident that they would replicate this effect when they imagined conducting the experiment in the distant future than in the near future, especially when reminded of the theory underlying prediction. The same pattern of results was obtained with other classic findings in social, cognitive, and developmental psychology (Nussbaum et al., 2006).

We predict similar effects for other distances – people would tend to feel that theories work better for other people, in distal times and places, and in hypothetical situations rather than in practice. From a closer perspective, noise would become more salient and would undermine confidence in prediction.

Global trends versus local deviations

Continuous processes sometimes show a clear global trend despite local deviations from that trend. For example, some experts contend that the globe is steadily warming over the last 100 years, although on a more local scale, some season in some places could be exceptionally cold. It is possible to see the global trend as a theory and the local deviation as noise and predict, based on CLT, that psychological distance would increase the salience of global trends and decrease the salience of local deviations.

In a study on spatial distance (Henderson et al., 2006), NYU participants viewed a series of graphs depicting information from the years 1999–2004 (e.g., average number of photocopies per student). The information was said to pertain to the NYU campus in Manhattan (spatially near condition) or to the NYU campus in Florence, Italy (spatially distant condition). Each graph showed either an upward or downward trend, with the final year (2004) always deviating from that global trend. Participants estimated the likelihood that the year 2005 would follow the global trend and the likelihood that it would follow the more recent local deviation. As expected, spatial distance enhanced the tendency to predict that the global trend would persist rather than the local deviation.

Extending the logic of these findings, we could expect that people would more readily predict from global trends when they think of the more distant future, when they think of hypothetical situations, and when they think of other people and strangers rather than themselves or close others. Global warming, for example, would be more readily detected in noisy data that pertains to spatially, temporally, and socially more distal situations, and in hypothetical data more than in real data. Recession, likewise, would be more clearly

detected from noisy signals in historical data than in current economic indicators.

Primacy versus recency effects

The primacy effect refers to the tendency to form impressions that are more sensitive to the information that is presented earlier in a sequence. In classic studies by Asch and others (Asch, 1946; Hamilton & Zanna, 1974), when positive traits (e.g., intelligent) were presented first and were followed by less positive traits (e.g., envious), participants formed a more favorable impression of the target than when the order was reversed. Different accounts of the primacy effect (Anderson, 1981; Anderson & Jacobson, 1965; Asch, 1946; Dreben, Fiske, & Hastie, 1979; Hamilton & Zanna, 1974) all suggest that traits encountered initially create expectations about the target, which further organize remaining traits into a coherent impression, imbuing meaning to these traits and shifting attention towards traits consistent with the schema and away from other traits. In some sense, the initial traits form a schema, or a mini-theory about the target of impression.

Based on a CLT, Eyal, Hoover, Fujita, and Nussbaum (2011) have proposed that psychological distance should enhance the primacy effect. In their study, participants read a description of an applicant for a job to begin the week after (near future) or 6 months later (distant future). The description included six traits, presented from positive (e.g., *intelligent*) to negative (e.g., *envious*), or vice versa. Participants in the distant-future condition formed more favorable impressions of the target when positive traits appeared first, displaying a primacy effect. Consistent with the predictions and contrary to the primacy effect, participants in the near-future condition formed more favorable impressions of the target when positive traits appeared last.

Self-construal

People have theories not only about the external world but also about themselves. They seek to maintain a sense of themselves as a single entity that has consistent and enduring qualities (Bem & Allen, 1974). As with other theories, CLT predicts that people would apply this view to a greater extent when they think about themselves from a psychologically more distant perspective (Wakslak, Nussbaum, Liberman, & Trope, 2008). Support for this prediction comes from several studies on temporal distance. Using Linville's (1985, 1987) and Donahue and colleagues' (1993) measures of self-complexity, Wakslak et al. found that self-descriptions were more structured and less complex (i.e., less “noisy”) when they referred

to a distant-future self than to a near-future self. Also related to this point is research by Pronin and Ross (2006), which shows that people more likely view their future and past selves than their present selves in terms of general personality traits. In a related study, Wakslak et al. (2008) asked participants to imagine themselves in different situations either in the near future or in the distant future, and indicate the extent to which their behavior in those situations would reflect each of the Big Five personality traits. It was found that in the distant future, compared to the near future, participants expected to exhibit their traits more consistently across situations. These findings suggest that the distant-future self is represented more in terms of theoretically coherent structures than the near-future self.

It would be interesting to examine in future research the effects of other distances on the self-concept. For example, would thinking of oneself in an unlikely situation or in a remote spatial location make one see oneself in a more coherent way? Does thinking about ourselves from another person's perspective make us see ourselves as more coherent and predictable?

Symbolic versus analog representations

The same object can be represented in a symbolic, digital way, or in an analogical way. Consider a simple example. "A $2 \times 3 \times 4$ cm³ box" is a symbolic, digital representation of an object. To make an analog representation of this object, we could, for example, build a model of the box. Building the model inevitably imbues the symbolic representation of the box with incidental details, such as material, color, strength, and the means that hold the surfaces together. Any model or, for that matter, any simulation is bound to do the same: namely, add incidental details. Conversely, moving from an analog representation to a digital one strips the analog representation of irrelevant details (or rather, omits details that by the very act of moving to the digital representation are rendered irrelevant). In terms of CLT then, symbolic representations are of a higher construal level than analog representations, such as models and simulations. We examine the implications of this theorizing for the distinction between symbolic and embodied representations and between words and pictures.

Symbolic versus embodied representations

Theories of embodied cognition (Barsalou, 1999; Niedenthal, Barsalou, Winkielman, Krauth-Gruber,

& Ric, 2005; Winkielman, Niedenthal, & Oberman, 2008) suggest that mental representations are embodied: namely, involve motor and perceptual simulations (Barsalou, 2008). For example, when representing the concept "water," people simulate in their minds activities that involve interaction with water and include both motor and sensual information (e.g., drinking, swimming, walking in the rain, wiping a flooded floor). In support of this notion, research has shown, for instance, that when participants had to verify the plausibility of sentences including action-object pairs (e.g., "close the drawer"), they responded faster when the response was compatible with the action (e.g., when responding by pressing a button away from themselves, thereby requiring an extension of the arm) rather than incompatible with it (i.e., when responding by pressing a button located closer to themselves, requiring arm flexion; Glenberg & Kaschak, 2002). Thus, it seems that processing the sentences involved simulating the described action, a simulation which either facilitated or inhibited the required response. It was also found that, when processing sentences that describe motor actions, brain areas in the motor and premotor cortex are activated in a way corresponding to when performing those same actions (Hauk, Johnsrude, & Pulvermuller, 2004; Tettamanti et al., 2005).

Is it possible that as psychological distance increases, representation would be less embodied: i.e., would contain less perceptual and motor detail, and would be increasingly more symbolic? For example, in the experiment describe above, would the effect of action compatibility be attenuated if the sentences described actions performed by socially distal people as compared to socially close people?

Words versus pictures

Pictures are icons, analog representations of objects, whereas words are symbolic representations of objects (Amit, Algom, & Trope, 2009a; Amit, Algom, Trope, & Liberman, 2009b). An object's picture bears concrete resemblance to it and contains incidental details, whereas a word to describe the same object is abstract and captures its essence. Even a line drawing of an object is more concrete than a word representing the same object.

Consistent with CLT, participants were faster to identify spatially, temporally, and socially proximal (vs distal) pictures and faster to identify spatially, temporally, and socially distal (vs proximal) words on a speeded identification task (Amit et al., 2009a). Furthermore, distance affected memory for pictures vs words. Using various dimensions of psychological distance (spatial,

temporal, and social), Amit, Trope, Rim, and Algom (2010) found that proximal pictures were remembered better than distal pictures, and distal words were remembered better than proximal words. Thus, words and pictures behave like other dimensions of high- and low-level construal and are associated with distance and proximity, respectively.

CONCLUSION

Understanding the nature of mental construal is a central goal of many fields in psychology. One dimension on which construals vary is veridicality – the extent of correspondence between construals and the objective attributes of the objects they represent. Understanding what makes construal more or less veridical has been central to the study of perception, cognition, social psychology, and decision making. Another dimension on which construals vary is level, which we defined as the extent of reduction to primary elements that are central to a representation and omission of incidental elements. We reviewed various manifestations of level of construal that differ in the mapping of their features onto importance: categorization, primary and secondary aspects, gestalt, distinguishing a figure from its context, subordination, theories versus noise, and digitization of construals. Across these different manifestations of level of construal, we suggest that the perspective of construal level enriches our understanding of the constructs.

NOTE

1 Unlike “representation,” “construal” conveys an active process rather than a passive reflection of reality. This is the standard view in psychology – even perceptual processes are subject to “top down” influences by prior knowledge, conditioning, and expectations.

REFERENCES

- Ahn, W. (1998). Why are different features central for natural kinds and artifacts? The role of causal status in determining feature centrality. *Cognition*, *69*(2), 135–178. doi:10.1016/S0010027798000638
- Ahn, W. K., Kim, N. S., Lassaline, M. E., & Dennis, M. J. (2000). Causal status as a determinant of feature centrality. *Cognitive Psychology*, *41*(4), 361–416. doi:10.1006/cogp.2000.0741
- Amit, E., Algom, D., & Trope, Y. (2009a). Distance-dependent processing of pictures and words. *Journal of Experimental Psychology: General*, *138*(3), 400–415. doi:10.1037/a0015835
- Amit, E., Algom, D., Trope, Y., & Liberman, N. (2009b). “Thou shalt not make unto thee any graven image”: The distance dependence of representation. In K. D. Markman, W. M. P. Klein, & J. A. Suhr (Eds.), *Handbook of imagination and mental simulation* (pp. 53–68). New York: Psychology Press.
- Amit, E., Trope, Y., Rim, S., & Algom, D. (2010). *Do you remember seeing it or reading about it? The distance dependence of memory for pictures and words*. Manuscript submitted for publication.
- Anderson, N. H. (1981). *Foundation of information integration theory*. New York: Academic Press.
- Anderson, N. H., & Jacobson, A. (1965). Effect of stimulus inconsistency and discounting instructions in personality impression formation. *Journal of Personality and Social Psychology*, *2*(4), 531–539. doi:10.1037/h0022484
- Asch, S. E. (1946). Forming impressions of personality. *The Journal of Abnormal and Social Psychology*, *41*(3), 258–290. doi:10.1037/h0055756
- Balcetis, E., & Dunning, D. (2006). See what you want to see: Motivational influences on visual perception. *Journal of Personality and Social Psychology*, *91*(4), 612–625. doi:10.1037/0022-3514.91.4.612
- Barsalou, L. W. (1999). Perceptual symbol systems. *Behavioral and Brain Sciences*, *22*(4), 577–660.
- Barsalou, L. W. (2008). Grounded cognition. *Annual Review of Psychology*, *59*, 617–645. doi:10.1146/annurev.psych.59.103006.093639
- Bem, D. J., & Allen, A. (1974). On predicting some of the people some of the time: The search for cross-situational consistencies in behavior. *Psychological Review*, *81*(6), 506–520. doi:10.1037/h0037130
- Borovoi, L., Liberman, N., & Trope, Y. (2010). *The effect of psychological distance on information search in decision making*. Unpublished manuscript, Tel Aviv University, Israel.
- Choi, I., Nisbett, R. E., & Norenzayan, A. (1999). Causal attribution across cultures: Variation and universality. *Psychological Bulletin*, *125*(1), 47–63.
- DeCoster, J., & Claypool, H. M. (2004). A meta-analysis of priming effects on impression formation supporting a general model of informational biases. *Personality and Social Psychology Review*, *8*(1), 2–27.
- Donahue, E. M., Robins, R. W., Roberts, B. W., & John, O. P. (1993). The divided self: Concurrent and longitudinal effects of psychological adjustment and social roles on self-concept differentiation. *Journal of Personality and Social Psychology*, *64*(5), 834–846. doi:10.1037/0022-3514.64.5.834
- Dreben, E. K., Fiske, S. T., & Hastie, R. (1979). The independence of evaluative and item information: Impression and recall order effects in behavior-based impression formation.

- Journal of Personality and Social Psychology*, 37(10), 1758–1768. doi:10.1037/0022-3514.37.10.1758
- Ektstrom, R. B., French, J. W., Harman, H. H., & Derman, D. (1976). *Manual for kit of factor-referenced cognitive tests*. Princeton, NJ: Educational Testing Service.
- Elias, S., & Shapiro-Pavlovsky, A. (2009). *The sense of power as psychological distance: Implications for analogical thinking*. Unpublished manuscript, The Open University of Israel.
- Eyal, T., Hoover, G. M., Fujita, K., & Nussbaum, S. (2011). The effect of distance-dependent construals on schema-driven impression formation. *Journal of Experimental Social Psychology*, 47(1), 278–281. doi:10.1016/j.jesp.2010.10.007
- Eyal, T., Liberman, N., & Trope, Y. (2008). Judging near and distant virtue and vice. *Journal of Experimental Social Psychology*, 44(4), 1204–1209. doi:10.1016/j.jesp.2008.03.012
- Eyal, T., Liberman, N., Trope, Y., & Walther, E. (2004). The pros and cons of temporally near and distant action. *Journal of Personality and Social Psychology*, 86(6), 781–795. doi:10.1037/0022-3514.86.6.781
- Eyal, T., Sagristano, M. D., Trope, Y., Liberman, N., & Chaiken, S. (2009). When values matter: Expressing values in behavioral intentions for the near vs. distant future. *Journal of Experimental Social Psychology*, 45(1), 35–43. doi:10.1016/j.jesp.2008.07.023
- Fiedler, K., Semin, G. R., Finkenauer, C., & Berkel, I. (1995). Actor–observer bias in close relationships: The role of self-knowledge and self-related language. *Personality and Social Psychology Bulletin*, 21(5), 525–538.
- Förster, J., Friedman, R. S., & Liberman, N. (2004). Temporal construal effects on abstract and concrete thinking: Consequences for insight and creative cognition. *Journal of Personality and Social Psychology*, 87(2), 177–189. doi:10.1037/0022-3514.87.2.177
- Förster, J., Liberman, N., & Friedman, R. S. (2007). Seven principles of goal activation: A systematic approach to distinguishing goal priming from priming of non-goal constructs. *Personality and Social Psychology Review*, 11(3), 211–233. doi:10.1177/1088868307303029
- Förster, J., Liberman, N., & Kuschel, S. (2008). The effect of global versus local processing styles on assimilation versus contrast in social judgment. *Journal of Personality and Social Psychology*, 94(4), 579–599. doi:10.1037/0022-3514.94.4.579
- Frege, G. (1980). On sense and meaning. In P. Geach & M. Black (Eds.), *Translations from the philosophical writings of Gottlob Frege* (3rd ed., pp. 578–6). Oxford: Blackwell (Original work published 1892).
- Fujita, K., Eyal, T., Chaiken, S., Trope, Y., & Liberman, N. (2008). Influencing attitudes toward near and distant objects. *Journal of Experimental Social Psychology*, 227(21), 9044–9062. doi:10.1016/j.jesp.2007.10.005
- Fujita, K., Henderson, M. D., Eng, J., Trope, Y., & Liberman, N. (2006). Spatial distance and mental construal of social events. *Psychological Science*, 17(4), 278–282.
- Gentner, D. (1983). Structure-mapping: A theoretical framework for analogy. *Cognitive Science: A Multidisciplinary Journal*, 7(2), 155–170.
- Gentner, D., & Colhoun, J. (2010). Analogical processes in human thinking and learning. In B. Glatzeder, V. Goel, & A. Müller (Eds.), *On thinking: Vol. 2. Towards a theory of thinking* (pp. 35–48). Berlin: Springer.
- Gentner, D., & Toupin, C. (1986). Systematicity and surface similarity in the development of analogy. *Cognitive Science*, 10(3), 277–300.
- Gilbert, D. T., & Malone, P. S. (1995). The correspondence bias. *Psychological Bulletin*, 117(1), 21–38.
- Glenberg, A. M., & Kaschak, M. P. (2002). Grounding language in action. *Psychonomic Bulletin & Review*, 9(3), 558–565.
- Griffin, D. W., & Ross, L. (1991). Subjective construal, social inference, and human misunderstanding. *Advances in Experimental Social Psychology*, 24, 319–359.
- Hamilton, D. L., & Zanna, M. P. (1974). Context effects in impression formation: Changes in connotative meaning. *Journal of Personality and Social Psychology*, 29(5), 649–654. doi:10.1037/h0036633
- Hauk, O., Johnsrude, I., & Pulvermüller, F. (2004). Somatotopic representation of action words in human motor and premotor cortex. *Neuron*, 41(2), 301–307.
- Heider, F. (1958). *The psychology of interpersonal relations*. Mahwah, NJ: Lawrence Erlbaum Associates. doi:10.1037/10628-000.
- Heider, F., & Simmel, M. (1944). An experimental study of apparent behavior. *The American Journal of Psychology*, 57, 243–259. doi:10.2307/1416950
- Henderson, M. D., Fujita, K., Trope, Y., & Liberman, N. (2006). Transcending the “here”: The effect of spatial distance on social judgment. *Journal of Personality and Social Psychology*, 91(5), 845–856. doi:10.1037/0022-3514.91.5.845
- Henderson, M. D., & Wakslak, C. J. (2010). Psychological distance and priming: When do semantic primes impact social evaluations? *Personality and Social Psychology Bulletin*, 36(7), 975–985. doi:10.1177/0146167210367490
- Herzog, S. M., Hansen, J., & Wänke, M. (2007). Temporal distance and ease of retrieval. *Journal of Experimental Social Psychology*, 43(3), 483–488. doi:10.1016/j.jesp.2006.05.008
- Hewstone, M., Rubin, M., & Willis, H. (2002). Intergroup bias. *Annual Review of Psychology*, 53, 575–604.
- Higgins, E. T. (1996). The “self digest”: Self-knowledge serving self-regulatory functions. *Journal of Personality and Social Psychology*, 71(6), 1062–1083. doi:10.1037/0022-3514.71.6.1062
- Higgins, E. T., Rholes, W. S., & Jones, C. R. (1977). Category accessibility and impression-formation. *Journal of Experimental Social Psychology*, 13(2), 141–154.
- Hilton, J. L., & von Hippel, W. (1996). Stereotypes. *Annual Review of Psychology*, 47, 237–271.
- Holyoak, K. J. (2005). Analogy. In K. J. Holyoak & R. G. Morrison (Eds.), *The Cambridge handbook of thinking and reasoning* (pp. 117–142). New York: Cambridge University Press.
- Jones, E. E. (1979). Rocky road from acts to dispositions. *American Psychologist*, 34(2), 107–117.

- Jones, E. E., & Davis, K. E. (1965). From acts to dispositions: The attribution process in person perception. *Advances in Experimental Social Psychology*, 2(4), 219–266.
- Jones, E. E., & Nisbett, R. E. (1987). The actor and the observer: Divergent perceptions of the causes of behavior. In E. E. Jones, D. E. Kanouse, H. H. Kelley, R. E. Nisbett, S. Valins, & B. Weiner (Eds.), *Attribution: Perceiving the causes of behavior* (pp. 79–94). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Kim, N. S., & Ahn, W. K. (2002). Clinical psychologists' theory-based representations of mental disorders predict their diagnostic reasoning and memory. *Journal of Experimental Psychology: General*, 131(4), 451–476. doi:10.1037/0096-3445.131.4.451
- Koffka, K. (1935). *Principles of Gestalt psychology*. Oxford, England: Harcourt, Brace.
- Kray, L., & Gonzalez, R. (1999). Differential weighting in choice versus advice: I'll do this, you do that. *Journal of Behavioral Decision Making*, 12(3), 207–217.
- Kray, L. J. (2000). Contingent weighting in self-other decision making. *Organizational Behavior and Human Decision Processes*, 83(1), 82–106. doi:10.1006/obhd.2000.2903
- Ledgerwood, A., Trope, Y., & Chaiken, S. (2010). Flexibility now, consistency later: Psychological distance and construal shape evaluative responding. *Journal of Personality and Social Psychology*, 99(1), 32–51. doi:10.1037/a0019843
- Liberman, N., & Förster, J. (2009a). Distancing from experienced self: How global-versus-local perception affects estimation of psychological distance. *Journal of Personality and Social Psychology*, 97(2), 203–216. doi:10.1037/a0015671
- Liberman, N., & Förster, J. (2009b). The effect of psychological distance on perceptual level of construal. *Cognitive Science: A Multidisciplinary Journal*, 33(7), 1330–1341.
- Liberman, N., Sagristano, M. C., & Trope, Y. (2002). The effect of temporal distance on level of construal. *Journal of Experimental Social Psychology*, 38, 523–534.
- Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Personality and Social Psychology*, 75(1), 5–18.
- Liberman, N., & Trope, Y. (2008). The psychology of transcending the here and now. *Science*, 322(5905), 1201–1205. doi:10.1126/science.1161958
- Liberman, N., Trope, Y., McCrea, S. M., & Sherman, S. J. (2007). The effect of level of construal on the temporal distance of activity enactment. *Journal of Experimental Social Psychology*, 43(1), 143–149. doi:10.1016/j.jesp.2005.12.009
- Liberman, N., Trope, Y., & Stephan, E. (2007). Psychological distance. In E. T. Higgins & A. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (Vol. 2, pp. 353–381). New York: Guilford Press.
- Linville, P. W. (1985). Self-complexity and affective extremity: Don't put all of your eggs in one cognitive basket. *Social Cognition*, 3(1), 94–120.
- Linville, P. W. (1987). Self-complexity as a cognitive buffer against stress-related illness and depression. *Journal of Personality and Social Psychology*, 52(4), 663–676.
- Liviatan, I., Trope, Y., & Liberman, N. (2008). Interpersonal similarity as a social distance dimension: Implications for perception of others' actions. *Journal of Experimental Social Psychology*, 44(5), 1256–1269. doi:10.1016/j.jesp.2008.04.007
- Markman, A. B., & Gentner, D. (1993). Structural alignment during similarity comparisons. *Cognitive Psychology*, 25(4), 431–467. doi:10.1006/cogp.1993.1011
- Masuda, T., & Nisbett, R. E. (2001). Attending holistically versus analytically: Comparing the context sensitivity of Japanese and Americans. *Journal of Personality and Social Psychology*, 81(5), 922–934. doi:10.1037/0022-3514.81.5.922
- McCrea, S. M., Liberman, N., Trope, Y., & Sherman, S. J. (2008). Construal level and procrastination. *Psychological Science*, 19(12), 1308–1314. doi:10.1111/j.1467-9280.2008.02240.x
- Mellers, B. A. (1982). Equity judgment: A revision of Aristotelian views. *Journal of Experimental Psychology: General*, 111(2), 242–270. doi:10.1037/0096-3445.111.2.242
- Mellers, B. A. (1986). Fair allocations of salaries and taxes. *Journal of Experimental Psychology: Human Perception and Performance*, 12(1), 80–91.
- Mellers, B. A., & Birnbaum, M. H. (1982). Loci of contextual effects in judgment. *Journal of Experimental Psychology: Human Perception and Performance*, 8(4), 582–601.
- Miller, J. G. (1984). Culture and the development of everyday social explanation. *Journal of Personality and Social Psychology*, 46(5), 961–978.
- Mussweiler, T. (2001). 'Seek and ye shall find': Antecedents of assimilation and contrast in social comparison. *European Journal of Social Psychology*, 31(5), 499–509.
- Navon, D. (1977). Forest before trees: Precedence of global features in visual perception. *Cognitive Psychology*, 9(3), 353–383.
- Niedenthal, P. M., Barsalou, L. W., Winkielman, P., Krauth-Gruber, S., & Ric, F. (2005). Embodiment in attitudes, social perception, and emotion. *Personality and Social Psychology Review*, 9(3), 184–211. doi:10.1207/s15327957pspr0903_1
- Nisbett, R. E., Peng, K. P., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. *Psychological Review*, 108(2), 291–310. doi:10.1037/0033-295X.108.2.291
- Norenzayan, A., Choi, I., & Peng, K. (2007). Perception and cognition. In S. Kitayama & D. Cohen (Eds.), *Handbook of cultural psychology* (pp. 569–594). New York: Guilford Press.
- Norenzayan, A., & Nisbett, R. E. (2000). Culture and causal cognition. *Current Directions in Psychological Science*, 9(4), 132–135.
- Nussbaum, S., Liberman, N., & Trope, Y. (2006). Predicting the near and distant future. *Journal of Experimental Psychology: General*, 135(2), 152–161. doi:10.1037/0096-3445.135.2.152

- Nussbaum, S., Trope, Y., & Liberman, N. (2003). Creeping dispositionism: The temporal dynamics of behavior prediction. *Journal of Personality and Social Psychology, 84*(3), 485–497. doi:10.1037/0022-3514.84.3.485
- Oishi, S., Wyer, R. S., & Colcombe, S. J. (2000). Cultural variation in the use of current life satisfaction to predict the future. *Journal of Personality and Social Psychology, 78*(3), 434–445. doi:10.1037/0022-3514.78.3.434
- Oyserman, D., Coon, H. M., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin, 128*(1), 3–72. doi:10.1037/0033-2909.128.1.3
- Parducci, A. (1965). Category judgment: A range-frequency model. *Psychological Review, 72*(6), 407–418.
- Parducci, A. (1974). Contextual effects: A range-frequency analysis. In E. Carterette & M. Friedman (Eds.), *Handbook of perception* (pp. 127–141). New York: Academic Press.
- Parducci, A., Perrett, D. S., & Marsh, H. W. (1969). Assimilation and contrast as range-frequency effects of anchors. *Journal of Experimental Psychology, 81*(2), 281–288.
- Parducci, A., & Wedell, D. H. (1986). The category effect with rating scales: Number of categories, number of stimuli, and method of presentation. *Journal of Experimental Psychology: Human Perception and Performance, 12*(4), 496–516.
- Payne, J. W., Bettman, J. R., & Johnson, E. J. (1988). Adaptive strategy selection in decision making. *Journal of Experimental Psychology: Learning Memory and Cognition, 14*(3), 534–552.
- Pronin, E., & Ross, L. (2006). Temporal differences in trait self-ascription: When the self is seen as an other. *Journal of Personality and Social Psychology, 90*(2), 197–209.
- Rim, S., Hansen, J., & Trope, Y. (2010). *Causes and effects of psychologically distant and near events*. Unpublished manuscript, New York University.
- Rim, S., Uleman, J. S., & Trope, Y. (2009). Spontaneous trait inference and construal level theory: Psychological distance increases nonconscious trait thinking. *Journal of Experimental Social Psychology, 45*(5), 1088–1097. doi:10.1016/j.jesp.2009.06.015
- Sagrignano, M. D., Trope, Y., & Liberman, N. (2002). Time-dependent gambling: Odds now, money later. *Journal of Experimental Psychology: General, 131*(3), 364–376.
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp. 1–65). San Diego, CA: Academic Press.
- Schwartz, S. H., & Bilsky, W. (1987). Toward a universal psychological structure of human values. *Journal of Personality and Social Psychology, 53*(3), 550–562.
- Schwarz, N., & Bless, H. (1992). Scandals and the public's trust in politicians: Assimilation and contrast effects. *Personality and Social Psychology Bulletin, 18*(5), 574–579.
- Schwarz, N., & Bless, H. (2007). Mental construal processes: The inclusion/exclusion model. In D. A. Stapel & J. Suls (Eds.), *Assimilation and contrast in social psychology* (pp. 119–141). New York: Psychology Press.
- Semin, G. R., & Fiedler, K. (1988). The cognitive functions of linguistic categories in describing persons: Social cognition and language. *Journal of Personality and Social Psychology, 54*(4), 558–568.
- Semin, G. R., & Fiedler, K. (1989). Relocating attributional phenomena within a language–cognition interface: The case of actors and observers perspectives. *European Journal of Social Psychology, 19*(6), 491–508.
- Semin, G. R., & Smith, E. R. (1999). Revisiting the past and back to the future: Memory systems and the linguistic representation of social events. *Journal of Personality and Social Psychology, 76*(6), 877–892.
- Smith, P. K., & Trope, Y. (2006). You focus on the forest when you're in charge of the trees: Power priming and abstract information processing. *Journal of Personality and Social Psychology, 90*(4), 578–596. doi:10.1037/0022-3514.90.4.578
- Stephan, E. (2006). *Social distance and its relations to level of construal, temporal distance, and spatial distance*. Unpublished doctoral dissertation, Tel Aviv University, Israel.
- Stephan, E., Liberman, N., & Trope, Y. (2010a). Politeness and psychological distance: A construal level perspective. *Journal of Personality and Social Psychology, 98*(2), 268–280. doi:10.1037/a0016960
- Stephan, E., Liberman, N., & Trope, Y. (2010b). The effects of time perspective and level of construal on social distance. *Journal of Experimental Social Psychology, 46*(1), 101–116. doi:10.1016/j.jesp.2010.11.001
- Street, R. F. (1931). A Gestalt completion test. *Teachers College Contributions to Education, 48*1, vii.
- Tettamanti, M., Buccino, G., Saccuman, M. C., Gallese, V., Danna, M., Scifo, P., et al. (2005). Listening to action-related sentences activates fronto-parietal motor circuits. *Journal of Cognitive Neuroscience, 17*(2), 273–281.
- Todorov, A., Goren, A., & Trope, Y. (2007). Probability as a psychological distance: Construal and preferences. *Journal of Experimental Social Psychology, 43*(3), 473–482. doi:10.1016/j.jesp.2006.04.002
- Todorov, A., & Uleman, J. S. (2003). The efficiency of binding spontaneous trait inferences to actors' faces. *Journal of Experimental Social Psychology, 39*(6), 549–562. doi:10.1016/S0022-1031(03)00059-3
- Trope, Y., & Liberman, N. (2000). Temporal construal and time-dependent changes in preference. *Journal of Personality and Social Psychology, 79*(6), 876–889.
- Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review, 117*(2), 440–463. doi:10.1037/a0018963
- Tulving, E., & Thomson, D. M. (1973). Encoding specificity and retrieval processes in episodic memory. *Psychological Review, 80*(5), 352–373.
- Tversky, A. (1972). Elimination by aspects: A theory of choice. *Psychological Review, 79*(4), 281–299.
- Vallacher, R. R., & Wegner, D. M. (1989). Levels of personal agency: Individual variation in action identification. *Journal of Personality and Social Psychology, 57*(4), 660–671.
- Vallone, R. P., Ross, L., & Lepper, M. R. (1985). The hostile media phenomenon: Biased perception and perceptions of media bias in coverage of the Beirut massacre. *Journal of*

- Personality and Social Psychology*, 49(3), 577–585. doi:10.1037/0022-3514.49.3.577
- Wakslak, C., & Trope, Y. (2009). The effect of construal level on subjective probability estimates. *Psychological Science*, 20(1), 52–58. doi:10.1111/j.1467-9280.2008.02250.x
- Wakslak, C. J., Nussbaum, S., Liberman, N., & Trope, Y. (2008). Representations of the self in the near and distant future. *Journal of Personality and Social Psychology*, 95(4), 757–773. doi:10.1037/a0012939
- Wakslak, C. J., Trope, Y., Liberman, N., & Alony, R. (2006). Seeing the forest when entry is unlikely: Probability and the mental representation of events. *Journal of Experimental Psychology: General*, 135(4), 641–653. doi:10.1037/0096-3445.135.4.641
- Wänke, M., & Bless, H. (2000). The effects of subjective ease of retrieval on attitudinal judgments: The moderating role of processing motivation. In H. Bless & J. P. Forgas (Eds.), *The message within: The role of subjective experience in social cognition and behavior* (pp. 143–161). New York: Psychology Press .
- Wechsler, D. (1991). *Wechsler Intelligence Scale for Children* (3rd ed.). San Antonio, TX: Psychological Corporation.
- Wedell, D. H., Parducci, A., & Geiselman, R. E. (1987). A formal analysis of ratings of physical attractiveness: Successive contrast and simultaneous assimilation. *Journal of Experimental Social Psychology*, 23(3), 230–249.
- Wedell, D. H., Parducci, A., & Lane, M. (1990). Reducing the dependence of clinical judgment on the immediate context: Effects of number of categories and type of anchors. *Journal of Personality and Social Psychology*, 58(2), 319–329.
- Winkielman, P., Niedenthal, P. M., & Oberman, L. (2008). The embodied emotional mind. In G. R. Semin & E. R. Smith (Eds.), *Embodied grounding: Social, cognitive, affective, and neuroscientific approaches* (pp. 263–288). New York: Cambridge University Press .
- Winter, L., & Uleman, J. S. (1984). When are social judgments made? Evidence for the spontaneousness of trait inferences. *Journal of Personality and Social Psychology*, 47(2), 237–252.
- Winter, L., Uleman, J. S., & Cunniff, C. (1985). How automatic are social judgments. *Journal of Personality and Social Psychology*, 49(4), 904–917.