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Heuristics in Social Cognition

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Abstract

abspara0010 Heuristics are strategies of simplifying judgments that allow individuals to make decisions under suboptimal circumstances. The research on heuristics had a profound and lasting impact on modern psychology, particularly on social psychology. Three classical examples are outlined in detail, the availability, the representativeness, and the anchoring heuristic. Also, heuristic judgments using feelings as information as well as processing fluency are discussed.

p0010 Heuristics afford decisions under suboptimal conditions. In this article, the psychological mechanisms underlying such heuristics will be identified. After exploring their role in simplifying judgments under uncertainty, special emphasis is given to the availability, the representativeness, and the anchoring heuristic and to their importance in different social contexts. In addition, other judgmental strategies that serve the same purpose are discussed.

p0015 'Heuristics' are strategies of simplifying judgments that allow individuals to make decisions under suboptimal circumstances. The discovery of heuristics has had a profound impact on social psychology (*see* 24095), especially in the field of 'social cognition', which studies the attempts by individuals to make sense of others (*see* Mental Representation of Persons, Psychology of). This article describes the general idea of heuristic information processing, looks at specific heuristics, and examines the importance of heuristics for social psychology.

AU1

s0010 Judgments under Suboptimal Conditions

p0020 Whereas traditional theories of human decision making (*see* 24014) have focused on the normative aspects of valid judgments while neglecting the context in which they occur, the 'heuristics' approach has directed its attention to the psychological processes that enable individuals to make judgments and decisions under situational, motivational, and cognitive conditions that are less than optimal, such as under distraction or time pressure. Because decisions typically are made in a state of uncertainty, it has proven fruitful to identify the strategies that individuals actually use to arrive at solutions that do not represent the best possible outcome but simply meet specific criteria. The study of these simplifying rules of thumb, called 'judgmental heuristics', has been spearheaded chiefly by bib23 Tversky and Kahneman (1974). Because the concept of heuristics is associated closely with these authors, the application of this term is often limited to the specific mechanisms they have identified. However, the underlying logic of *heuristic processing* also applies to other strategies that serve the same purpose, that of simplifying human judgments and making them feasible under suboptimal conditions (bib4 Kahneman, 2003).

p0025 Because generally it is not possible to identify the use of a heuristic procedure from the outcome of a judgment, researchers have had to create specific conditions under which heuristics lead to errors. As a result, heuristics have often been associated with the supposed irrationality of human reasoning (e.g., bib9 Nisbett and Ross, 1980). However, just as visual illusions do not testify to the deficiency of human perception, the errors produced by judgmental heuristics are not proof of the inadequacy of human judgment in general; instead, they point to mechanisms that allow individuals to make acceptable decisions under natural constraints. These mechanisms, however, have no common psychological characteristics that would make them distinct from systematic processing as their status of a heuristic depends solely on the existence of a more systematic way of processing. That means, heuristic processing could be characterized as 'systematic' if there was a way of further simplifying the heuristic procedure. Still, heuristics are important in shedding light on new ways of simplifying judgments and thereby revealing psychological procedures that have been unknown.

p0030 The discussion that follows will introduce the three most prominent heuristics.

The Availability Heuristic

s0015

p0035 In assessing the frequency or probability of an event (or the co-occurrence of several events), individuals often employ a strategy that is based on the ease with which bits of information can be retrieved or generated from memory. Employers wishing to gauge the rate of unemployment in their community may go to the trouble of obtaining the relevant information from official sources. But if they are not motivated or able to do that, they can try to think of unemployed friends or acquaintances. The more easily they are able to do so, the higher will be their estimate of the rate of unemployment. bib22 Tversky and Kahneman (1973) called this judgment strategy the 'availability heuristic'.

p0040 A variety of judgments in the social domain have been demonstrated to be based on availability, such as self-perception (bib14 Schwarz et al., 1991). One well-researched example is judgments of risks, the assessment of which depends on the frequency with which a type of event occurs. For instance, riding a motor bicycle is risky to the extent that accidents occur frequently. However, the actual frequency of an event and the ease with which it comes to mind may be biased

by several factors, such as the frequency with which events are reported in the media. For example, bib6 Lichtenstein et al. (1978) found that causes of death frequently reported in the press were greatly overestimated in terms of their frequency.

p0045 Importantly, 'availability' has two psychological components that usually are confounded: the content that comes to mind and the ease (or effort) experienced while retrieving the information from memory (bib14 Schwarz et al., 1991). Several studies have shown that these two components can be dissociated. In their classic demonstration, bib14 Schwarz et al. (1991) asked participants to recall either six (which feels easy) or 12 (which feels hard) biographical examples in which they had shown assertive behaviors. Then, participants were asked to rate their own assertiveness. If participants would base their judgment on the retrieved content as informational evidence, they would rate themselves as more assertive in the 12 than in the six examples condition ('There are a lot of examples of assertive behaviors in my life, so I must be an assertive person.'). In contrast, if they would base their judgment on the experienced ease with which they had retrieved memory evidence, they would rate themselves as more assertive in the six than in the 12 examples conditions ('It was easy to recall assertive episodes from my life, so I must be an assertive person.'). The result was that participants based their judgments on the experienced ease of information retrieval, not on the number of retrieved examples.

p0050 Beyond this basic finding, which maps the default use of the availability heuristic, several further studies have identified factors that moderate which of the two components, experience or content of retrieval, is used, with subjective ease more likely used under suboptimal judgmental conditions such as low motivation or low cognitive capacity (bib15 Schwarz, 1998). For instance, individuals use subjective ease more likely when judging out-group members (bib12 Rothman and Hardin, 1997), or AU2 under positive mood (Ruder and Bless, 2003). Thus, the availability heuristic, such as many other heuristics (see below, for Processing Fluency), is no fixed link, but rather a flexible judgmental tool.

p0055 Apart from these examples of judgments and affective reactions on the basis of the perceived ease of cognitive operations, the 'availability principle' in its general form, that is, the finding that increased accessibility of any cognitive representation (*see* Priming, Cognitive Psychology of) influences judgment and cognitive performance, has stimulated a host of research in social psychology, such as categorization of persons, causal attribution (*see* Attributional Processes: Psychological), or the constancy of opinions after they have been discredited. Finally, the more general notion *processing fluency* (e.g., bib11 Reber et al., 2004) can be derived from the availability principle and has become a powerful conceptual tool to explain the causal undercurrents of a variety of judgments under uncertainty (see below).

s0020 The Representativeness Heuristic

p0060 The representativeness heuristic refers to people's tendency to simplify categorical judgments by relying solely or excessively on similarity. For example, a person who wants to determine the profession of another person may use the target person's similarity to the typical member of this profession. Consequently, a student might decide that a fellow student at the next table in a university cafeteria is a business administration major he or she displays the characteristics of a typical MBA student, such as reading the business section of the paper and talking about the stock exchange. Although this strategy has a logical basis, it tends to neglect other types of relevant information, such as base rates. For example, this university may have many more students of law than of business administration. Information about such a frequency distribution should affect the judgment in the same way as information about the target person. However, research by bib24 Tversky and Kahneman (1982) has demonstrated that such base rates largely are neglected even if the individuating information is not very diagnostic.

p0065 This neglect of base rates is strikingly similar to findings from attribution research. A number of studies discovered that when people identify the causes of an observed behavior, they attribute it to characteristics of the person and neglect situational influences. This response tendency implies that judges underestimate 'consensus information' (bib5 Kelley, 1967) that reflects the power of situations. 'Consensus information' describes how other people behave under the same circumstances and serves as a basic determinant of causal attributions (*see* Attributional Processes: Psychological). Specifically, if everybody shows the same behavior in a given context, there is little reason to attribute an action to the unique characteristics of the actor. The tendency to neglect such base rate information in social judgments and to give it less weight than it should have under normative considerations can be understood as a manifestation of the representativeness heuristic because it consists of drawing inferences on the basis of similarity ('a person who behaves aggressively is aggressive') at the expense of base rate information (*see* 25022).

p0070 The relationship between this attributional bias and heuristic processing was demonstrated subsequently by varying the conduciveness of the judgmental situation (for a review, see bib1 Gilbert and Malone, 1995). Researchers demonstrated that the neglect of situational influences depended on judges' cognitive resources, such that this bias was more likely to occur when people were distracted.

p0075 The use of the representativeness heuristic may also result in violations of logical principles. In one study by bib25 Tversky and Kahneman (1983), judges had to assess the probability of the joint occurrence of two characteristics of a target (a liberated woman). One feature was highly representative ('She is a feminist'), while the other was not ('She is a bank teller'). In line with the representativeness heuristic, judges considered it less likely that the target person was a bank teller than that she was a feminist bank teller, which is, of course, logically impossible.

p0080 Other effects of the representativeness heuristic concern the misperception of chance and the neglect of sample size (bib23 Tversky and Kahneman, 1974).

Anchoring and Adjustment

s0025

p0085 'Anchoring and adjustment' describes the phenomenon that judgments are assimilated toward a value that was initially

considered. For example, a person who has to estimate the proportion of African nations in the United Nations may arrive at a higher percentage if he or she has been exposed previously to a high rather than a low standard of comparison. While such an influence would be hardly surprising if this 'anchor' is offered as a piece of information that is relevant to the judgment in question, [bib23] Tversky and Kahneman (1974) were able to show that the resulting assimilation effect occurred even if relevance was ruled out by presenting the anchor as the outcome of a probabilistic process.

p0090 The psychological process that was suggested by [bib23] Tversky and Kahneman (1974) for this phenomenon is an insufficient adjustment of the final judgment. Alternatively, [bib17] Strack and Mussweiler (1997) have proposed a mechanism that is related to the availability heuristic, the so-called selective accessibility model. Here the anchoring effect involves two stages. In the first stage, judges engage in biased hypothesis testing when they consider the anchor as a possible value of the target. In this process, semantic information consistent with the anchor is activated. As a consequence of this selective activation, consistent information will be more accessible in a second stage when information for the final judgment will be retrieved. In this perspective, the anchoring effect is not the result of a numeric influence or a mere effect of insufficient adjustment but caused by a mechanism of semantic priming that has been demonstrated in many studies in social cognition (e.g., [bib3] Higgins et al., 1977).

p0095 Perhaps the most relevant social domain is that of social comparisons ([bib8] Mussweiler, 2003; *see* 24026). Here, work on the anchoring heuristic suggests a mechanism that explains why and under what conditions comparing ourselves to another person will make us appear similar to that person ([bib7] Mussweiler and Strack, 2000).

s0030 Other Heuristics in Social Psychology: Feelings and Fluency

p0100 In the previous sections, three basic judgmental strategies were introduced that were identified by Kahneman and Tversky as devices employed to form sufficiently accurate judgments under adverse conditions and with little cognitive effort, although under certain circumstances, these strategies can lead to systematic distortions. The idea of heuristic information processing has been expanded subsequently to other heuristic cues, with lasting influence on theory formation in broad areas of social psychology.

s0035 Feelings as Information

p0105 A prominent example is the use of *feelings as information* (for a recent review, see [bib2] Greifeneder et al., 2011). Specifically, it has been argued that under suboptimal circumstances, individuals use their subjective experiences to judge some other criterion or dimension. The most prominent example surely is the classical study by [bib13] Schwarz and Clore (1983) who showed that judgments of overall life satisfaction are based on current transient feelings, such as good or bad moods due to sunny or rainy weather – which are irrelevant for general life satisfaction from a normative perspective. The impact of feelings on judgments has been demonstrated for both affective (e.g., [bib13] Schwarz and Clore, 1983) (*see* 25007) and nonaffective feelings (e.g., [bib18] Strack and Neumann, 2000). For instance, [bib18] Strack and Neumann (2000) found that furrowing the brow, which evokes the feeling of mental effort, decreases the likelihood that individuals judge some target person as being familiar. Here, the nonaffective feeling of mental effort was used as a heuristic to guide familiarity judgments (cf, [bib19] Topolinski and Reber, 2010). AU3

p0110 Moreover, a next phase of psychological research does not only show that judgments can be based on (irrelevant) feelings in general but also identifies the boundary conditions and moderators of the use of feelings of information (as already addressed in [bib13] Schwarz and Clore, 1983). Specifically, calling the informational value of current affect into question using a reattribution paradigm – for instance, by telling participants that their current feelings are caused by an external source – substantially reduces or even neutralizes the judgmental impact of feelings because they are reattributed to that external transient source and thus discounted from the judgment at hand (e.g., [bib13] Schwarz and Clore, 1983; [bib14] Schwarz et al., 1991). This not only applies to judgments for which the affective cue is irrelevant and thus only a judgmental bias, such as in the studies on mood and life satisfaction ([bib13] Schwarz and Clore, 1983), but also for judgments for which current affect is a reliable cue to the judgmental criterion. For instance, while current affect – the gut feeling – is indeed a reliable predictor in intuitions on coherence and hidden structure, reattribution procedures decrease intuitive accuracy and thus sabotage intuition ([bib20] Topolinski and Strack, 2009).

p0115 Finally, beyond this instructed invalidation, other psychological moderators of the use of feelings as information exist. As reviewed by [bib2] Greifeneder et al. (2011), feelings are more likely to be used as judgmental cues when they are salient, representative, and relevant for the judgmental criterion; when the judgment itself is susceptible for affective information; and when level of processing is low (e.g., under low motivation). AU4

Processing Fluency

s0040

p0120 A common underlying mechanism of many heuristic judgments is processing fluency being the ease and efficiency of information processing ([bib11] Reber et al., 2004). Specifically, fluency can pertain to any mental operation, such as perceptual, semantic, or motor processing ([bib11] Reber et al., 2004). As already discussed, the availability heuristic is based on the fluency of memory retrieval. Relatively high fluency triggers a positive experience (e.g., [bib21] Topolinski et al., 2009), which has been shown to be used as an experiential cue in many heuristic judgments. For instance, fluency drives spontaneous preference ([bib10] Reber and Schwarz, 1999), the feeling of truth (Unkelbach, 2007), or intuitions in general ([bib20] Topolinski and Strack, 2009). AU5

p0125 Interestingly, several works have shown that the judgmental use of fluency is flexible in the way that fluency-triggered experiences can be relabeled, reattributed, and discounted. For instance, Unkelbach (2007) has shown that although high fluency is generally used as a cue signaling the truth of a statement, only a brief period of relearning this fluency–truth link

prompts individuals to use high fluency as a cue to incorrectness. Also, when the informational value of fluency as a judgmental cue is discredited – such as in the reattribution paradigms already mentioned – individuals can again flexibly discount their fluency experiences from their judgments (bib14 Schwarz et al., 1991; bib20 Topolinski and Strack, 2009).

p0130 Finally, the idea of heuristics has become effective in a second line of research in social psychology. The study of persuasive communication (*see* 24009), in particular, has profited from the distinction between heuristic and systematic processing (Chaiken and Trope, 1999). In this domain, the reliance on peripheral cues (such as the expertise of the communicator or the length of the message) instead of on central features (i.e., the strength of the arguments) was shown to occur under suboptimal conditions. Furthermore, the distinction between heuristic and systematic processing has eventually stimulated the development of dual-process models of the human mind (e.g., bib16 Strack and Deutsch, 2004), which map the twofold underlying representational modes of human judgment and behavior.

s0045 Conclusion and Future Directions

p0135 Over the years, the concept of heuristics has generated many insights into the cognitive dynamics of social behavior. At the same time, however, the idea of heuristic processing has gone far beyond the three mechanisms described by Kahneman and Tversky. In a more general perspective, a universal psychological principle has emerged that sheds light on the flexibility of human information processing under divergent epistemic goals (e.g., bib4 Kahneman, 2003). However, the work of finding the laws of this flexibility and integrating it into psychological theorizing, as well as isolating the undercurrent causal mechanisms of heuristic judgments, is still an ongoing challenge.

See also: Decision-making; 24092; Social Comparison; Attribution; Risk Taking; Social Cognition; Emotions; 24066; Persuation; Categorisation; Stereotyping.

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