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Chapter 2

The Interplay of Heuristic and Systematic Processing of Social Information

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ABSTRACT

The heuristic-systematic model (HSM) provides a general theory of social information processing. It features two modes of social information processing, a relatively effortless, top-down heuristic mode and a more effortful, bottom-up systematic mode. The model assumes that social perceivers strike a balance between effort minimization and achieving confidence in their social judgments. The HSM emphasizes three broad motivational forces: accuracy, defence, and impression motivation. Both heuristic and systematic processing can serve either of the three motives and are capable of co-occurring in an additive or interactive fashion under specified conditions. In this chapter, we describe the HSM and present illustrative research based on the model in the areas of mood and persuasion as well as minority influence.
INTRODUCTION

When observing another person, what factors determine the manner in which we form an impression? When discussing topics with others, watching a debate, or listening to a speech, what factors influence our subsequent attitudes and beliefs? Throughout the development of social psychology, one theme has remained consistent—how we think about the social world is a joint function of the ‘objective’ properties of the stimuli we think about and the properties that we bring into the perceptual experience. Our expectancies, stereotypes, current goals, and more longstanding motives and needs affect how we think about and judge social objects. From this perspective people are not, as the associationists insisted, as pieces of clay upon which experience rains down, but shaped by selective interest which ‘makes experience more than is made by it’ (James, 1890, p. 403). Understanding the social world is thus seen as an active process, a construction, coloured by the expectancies and goals of the individual perceiver.

A separate but related theme concerns the manner in which we utilize our cognitive resources when seeking to understand the social world. Allport (1954) described humans as being guided by what he called ‘the principle of least effort’. People were seen as avoiding effortful expenditures of energy, cognitive or behavioural, whenever possible. We seek to maximize our outcomes with the least amount of work possible. Such cognitive economy allows us the ability to manoeuvre through a complex stimulus environment. It is well known that the human capacity for attending to and processing information is limited (e.g., Broadbent, 1958; Logan, 1980; Treisman & Geffen, 1967). The principle of least effort is one functional account of how people cope with limited resources—by developing information processing strategies for saving and maximizing their limited capacity.

Any answer to the question of ‘how we think about objects in our social world’ must make explicit links between the properties of the data, the individual’s motives, and information processing strategies. With its focus on how motives determine not only what we think about, but the manner in which we think, the heuristic-systematic model (HSM) seeks to explicate how social knowledge is built (Chaiken, 1980, 1987; Chaiken, Giner-Sorolla, & Chen, in press; Chaiken, Liberman, & Eagly, 1989; Eagly & Chaiken, 1993). The HSM suggests that the factors shaping thoughts about our world depend on both the motives being pursued in a given situation and the type of information processing utilized in pursuit of those motives. The most basic assumption follows Allport—that when not sufficiently motivated to engage in effortful processing, the default will be to use less effort, to follow an information processing strategy based on simple rules, schemas, and prior knowledge—what is known as heuristic processing. However, when sufficiently motivated, ‘economy’ in allocating mental resources will be abandoned in favour of more
effortful and systematic processing. Motivated effort, however, does not necessitate a search for ‘truth’. The direction in which effort is exerted—toward seeking the truth or toward other goals such as getting along with others; allaying doubts through adopting any sufficient belief (e.g., Festinger, 1957; see also Dewey’s, 1938, discussion of warranted assertibility); or promoting self-enhancement—will depend on what motives instigated the effortful processing in the first place (see also Fiske, 1993; Kruglanski 1989; Kunda, 1990).

THE HEURISTIC-SYSTEMATIC MODEL

Two Processing Modes

According to the HSM, the manner in which people construct their social knowledge occurs through two broad information processing strategies. These strategies can be viewed as endpoints on a continuum that reflects the amount of processing effort utilized in forming social judgments (e.g., attitudes, impressions, self-beliefs). On one end are effortless, mostly top-down types of processing. This includes a reliance on schemas, stereotypes, expectancies, and other forms of prior knowledge that can be imposed on the data in order to assimilate it easily to one’s existing structures. On the other end are effortful and deliberate, bottom-up types of processing. This includes an evaluation of the individuating information characterizing a stimulus, an examination of one’s thoughts and prior beliefs about this stimulus information, and integrating the information to formulate a judgment. It is important to note, however, that the HSM’s processing continuum is asymmetrical in the sense that the deliberate use of more effortful strategies does not preclude the possibility that less effortful processes continue to operate. They may occur either independently or in concert with more effortful processes, as we will elaborate shortly.

The processing continuum is a widely used metaphor in social psychology. Heider (1958) used it to describe the attribution process by alluding to the possibility that our impressions of others sometimes seem to happen in an automatic fashion, simply appearing wholly made in consciousness. Other times our impressions require a mental calculus of sorts where we somewhat rationally evaluate the qualities of others. The HSM was originally developed as a reaction against the predominant research trend of the 1960s and 1970s to view attitudes as resulting solely from detailed and rational examinations of persuasive messages, and one’s own thoughts about an issue. Other domains of social psychology followed suit and abandoned the view of humans as purely rational creatures. Similar dual process conceptualizations in more recent years include the distinction between automatic and controlled processing of information (e.g., Bargh, 1989), category-based versus individuating
processing in person perception (Brewer, 1988) and stereotyping (Fiske & Neuberg, 1990), the theory of lay epistemics (Kruglanski, 1989), and stage models of impression formation (Gilbert, 1989).

What distinguishes the HSM from other dual process models, particularly since its multiple-motive expansion beyond the persuasion context (see Chaiken, Liberman, & Eagly, 1989; Chaiken, Giner-Sorolla, & Chen, in press), is its explicit attempt to link a variety of goals to different information processing strategies. The first broad class of strategies is subsumed under the heading of systematic processing. When systematically processing a persuasive message individuals actively attempt to evaluate the arguments and issues raised in the message by actively thinking about this information in relation to other knowledge they possess. The HSM is similar to earlier information processing models of persuasion (McGuire, 1972) in that it emphasizes detailed processing of message content, one’s prior beliefs, and source-relevant and topic-relevant cognitions. When systematically processing information about another person the individual examines the individuating qualities of that person, weighs several interpretations of the person’s behaviour, and arrives at a deliberately formed impression (Thompson et al., 1994).

Because systematic processing is effortful, and people prefer to minimize effort expenditure, certain preconditions must be met in order for more than minimal amounts of systematic processing to occur. First, some degree of motivation is required to instigate systematic processing (this precondition will be explored in greater detail later). Further, one must also have the ability and the cognitive resources available to do so (see Thompson et al., 1994). Systematic processing should not be confused with objective or unbiased processing. People often exert great amounts of effort to process information in ways that serve their vested interests, to see people in prescribed ways, and to maintain certain beliefs about the self. Effort is not necessarily open-mindedness.

The HSM’s second mode of processing is labelled heuristic processing. Heuristic processing is proposed to entail only minimal information processing, thus requiring relatively little cognitive capacity in order to be carried out. Instead of exerting effort toward thinking carefully about content (whether it be the content of one’s character or the content of a message), people instead preserve their processing resources by relying on a relatively superficial assessment of available information. That is, people use heuristics—rules of thumb, schemas, expectancies, and other theories about the world—to interpret the current situation, rather than effortfully dissecting that situation to its unique and individuating components. Such heuristics are learned by individuals through their experiences in their social world and can then be readily called to action when the situation presents the individual with a heuristic cue that signals their relevance (see Chaiken, 1987, for a review).

For example, through past experiences one may learn that a position that achieves a wide consensus among a group of people is typically accurate. With
this ‘consensus implies correctness’ heuristic in hand, a future situation that confronts the individual with a majority view on an issue may be reacted to in a heuristic fashion. That is, the presence of strong consensus on an issue serves as a cue, which informs the individual of the relevance of her prior theory. Once this heuristic is found to be applicable because of the presence of the heuristic cue, the individual has a fast and efficient resolution to the challenge of forming an opinion. She can superficially assess the situation by relying on her rule of thumb, forming an opinion in a top-down fashion. In this way she simply accepts the majority position without systematically scrutinizing the actual arguments used by the majority in advocating their position. Other heuristics within a persuasion context include rules of thumb such as ‘expert statements can be trusted’, ‘length of a message implies the strength of that message’, and ‘people I like are usually right’.

The use of heuristics and failure to process information extensively is not confined to persuasion contexts. The person perception literature in particular has documented that when forming an impression of another person, people often fail to examine in detail that person’s actions and fail to systematically evaluate the possible causes for her behaviour. Instead they rely on cognitive shortcuts and heuristics, applying the explanation that is most readily available or primed (e.g., Bargh & Pietromonaco, 1982; Higgins, Rholes, & Jones, 1977; Thompson et al., 1994). Yet, not just any available theory will be used to guide one’s judgments of a person, as not all rules of thumb are utilized in irrelevant persuasion contexts. The heuristic is only engaged when it is both primed and applicable to the current situation—cues in the situation must signal that a primed construct is relevant before the heuristic is utilized (see Higgins, in press, for a review).

To illustrate, if someone has a theory that women who succeed are more aggressive than men who achieve similar levels of success, then this stereotypic expectancy will serve as a theory that is available and accessible to this person. Subsequently he can use it to guide the interpretation of events in his social environment. The theory will not lead him to see all women as aggressive. But if a woman is observed either in a situation that signals her success, or in a situation that is ambiguous as to whether she is aggressive or not, the cues in this situation can prime or activate the theory, thus making the observer perceptually ready to see her in a stereotype-consistent fashion. In fact, the more ready one is to use an heuristic, the less strong the cue may need to be. Heuristics can vary in strength so that what is needed to trigger them may range from weak cues (for strong expectancies; Bruner, 1957) to highly diagnostic cues (for weak expectancies).

It is essential in this example that there has been no extensive processing of the woman’s behaviour, only a superficial application of an available theory that has been activated by the presence of a triggering cue in the environment (see Fiske et al., 1991; Thompson et al., 1994). What is also of interest is that
such heuristics, particularly in the case of stereotypic knowledge, can often be applied without the individual being aware of his current judgments having been influenced. Much like Heider's (1958) attributions that appear ready made in consciousness, our social judgments often appear to us to be free of influence even when guided by heuristic rules. Recent research on spontaneous trait inferences (e.g., Uleman & Moskowitz, 1994) might reflect a similar, nonconscious utilization of heuristics in the person perception domain. One may infer the traits of another person without intention to do so, or knowledge of having done so, by relying on a simple information processing rule such as ‘one’s actions reflect one’s dispositions’ that is triggered when behaviour is observed.

The Least Effort Principle

Which of the two processing modes is the default? Limits in cognitive resources combined with an incredibly rich stimulus environment constrain individuals to preserve their cognitive capacity for those things which are of ‘interest’ (Allport, 1954; James, 1890). The HSM’s least effort principle adopts this classic logic. Importantly, it assumes that people prefer less effort to more effort, not because they are lazy, but because they are economy-minded processors who spend their cognitive resources only when they are truly needed—when one’s interests are engaged. This suggests that the heuristic mode is the default processing strategy because it requires much less effort and usurps much less capacity than systematic processing. Although heuristic processing should occur widely even when there are no specific motivating circumstances that promote it, this mode is not fully ubiquitous, since it requires at least the presence of appropriate heuristic cues in the environment to serve as a triggering stimulus. The more effortful, capacity-limited systematic mode should be far less pervasive, nor likely to occur in the absence of specific motivating circumstances. Implicit in the least effort principle is the assumption that (more than minimal amounts of) systematic processing will not occur without an explicit goal that prompts it; people should avoid its effortful nature in the interest of efficiency.

Most support for this logic has been gathered in persuasion contexts (see Chaiken, 1987; Chaiken, Liberman, & Eagly, 1989; Chaiken & Stangor, 1987), but it has also been shown to be applicable in other domains (e.g., Fiske, 1989; Fiske & Von Hendy, 1992; Gilbert, 1989; Higgins, 1989). For example, Thompson et al. (1994, Experiment 1) assumed that while people are capable of making complex evaluations and deliberating on the individuating qualities of others, their initial response is typically to make fast and effortless judgments that are guided by prior expectancies, accessible constructs, and schemas. Getting past these passive influences on judgment to more controlled and deliberate ones was hypothesized to require an effort that people
need to be motivated to exert. One way to do so and diminish the simple application of accessible constructs is to raise the costs of inaccurate judgments.

Thompson et al. (1994) tested this assumption in a priming experiment in which trait constructs were made accessible and subjects later were asked to make judgments about a target person on dimensions related to the primed traits. Following a procedure used by Chaiken (1980) and Tetlock (1985), motivation was manipulated by making some subjects highly accountable for their judgments. Accountability often motivates people to adopt a goal of being as accurate as possible in their judgments because of the fear of having their decisions revealed to be invalid when they later come under scrutiny. Therefore, people will not simply rely on explanations that await at the top of the head, but will exert greater effort to produce a defensible judgment. In line with expectations, motivated subjects did not show priming effects; they exerted effort to generate a more balanced interpretation that considered both prime-consistent and prime-inconsistent interpretations of the target's behaviour. Unaccountable subjects, in contrast, did show a priming effect, consistent with the idea that they had engaged mainly in heuristic processing.

These and other findings have shown that the impact of heuristic processing on social judgments is typically greatest when motivation to systematically process is low. However, when motivation and capacity for systematic processing exist, heuristic processing does not come to an end. In contrast, the model assumes that the two modes co-occur in such circumstances, but that systematic processing will often obscure or attenuate the judgmental impact of heuristic processing.

The Sufficiency Principle

If heuristic processing is the default strategy, but systematic processing generally the more impactful mode when it is produced, what mechanism accounts for which strategy will be utilized in any given social situation? We have already hinted at the answer. In instances of co-occurrence, systematic processing should often be more impactful because it generally provides perceivers with more judgment-relevant information and therefore yields more reliable, trustworthy judgments which a person can be confident in. Minimizing effort is not the perceivers' sole concern; they also desire a certain degree of judgmental confidence. The HSM's sufficiency principle embodies the idea that people seek a balance between the goal of exerting least effort and the goal of having sufficient confidence in their judgments.

More specifically, this principle asserts that for whatever task a person is confronted with—forming an impression or attitude, making a decision, etc.—there is a point at which one feels that one's task is completed and one can move on to other tasks. This point, labelled the 'sufficiency threshold', is said
to be achieved when the individual feels confident the task has been sufficiently performed. When confidence falls short of the threshold, people are assumed to exert more effort and continue working on the task until a feeling of sufficiency is achieved and the threshold is reached or surpassed. The notion of sufficiency is necessarily broad, because the experience of sufficient confidence depends on both individual differences and motivational states.

While heuristic processing more fully satisfies the least effort principle, systematic processing generally produces greater amounts of confidence and is thus better able to satisfy the sufficiency principle. The assumption that humans process heuristically by default suggests that on balance, the trade-off between less effort and sufficient judgmental confidence is more than adequately met by heuristic processing. In many situations the sufficiency threshold is set low enough so that it can be reached by heuristic processing alone (or minimal amounts of systematic processing). Systematic processing occurs when heuristic processing alone yields insufficient judgmental confidence. More specifically, the sufficiency principle claims that systematic processing is dependent on the actual amount of confidence that exists in one’s judgment falling short of the desired amount of confidence. The gap between actual and desired confidence is experienced as a feeling that one’s judgment is insufficient. People are presumed to be motivated to reduce this gap by raising the level of actual confidence to match the desired level. This requires systematic processing (e.g., Maheswaran & Chaiken, 1991).

To alter what is experienced as ‘sufficient’, two things can happen. First, one’s confidence can be undermined so that a judgment that was once firmly believed is called into doubt. Here, the threshold itself does not change, but the person’s actual level of confidence in her previous, heuristic-based judgment does (e.g., Maheswaran & Chaiken, 1991). Later we will apply this principle to instances of minority influence. A second way in which one’s experienced confidence can be altered is by a shift in the sufficiency threshold—raising or lowering the level of confidence that one aspires to. In both instances, a state of lacking confidence may be produced by creating a gap between actual and desired confidence. It is within this discrepancy and the induced experience of ‘insufficiency’ that the motivation driving systematic processing is produced.

Multiple Motives

The link between motives and information processing is thus developed from this interplay between the least effort and sufficiency principles. Which processing strategy predominates depends on where the sufficiency threshold is set and how much effort is deemed necessary for a judgment to be confidently held. There are two distinct motivational assumptions suggested by the sufficiency principle. One is that motives are capable of setting one’s level of confidence
and thus establishing (and shifting) the sufficiency threshold. A variety of motives can be successfully implicated in this shifting and setting function that serves to create gaps between actual and desired confidence. The second motivational assumption is more fundamental. It is that the existence of a gap between actual and desired confidence, the experience of feeling that a judgment is not sufficient, is in itself an unpleasant state that people seek to reduce.

Whereas this latter assumption may not have been 'sufficiently' addressed by empirical studies to date, the former has been explored in some detail. Given that discrepancies between actual and desired confidence are energizing, motives that are capable of producing such discrepancies by either raising/lowering the sufficiency threshold (thus changing desired confidence) or by undermining/bolstering one's experienced sense of confidence (thus changing actual confidence) are capable of determining whether processing will follow the heuristic or the heuristic-plus-systematic route. Further, once systematic processing is engaged, the manner in which it proceeds will be determined by the motive that helped to instigate it.

Chaiken and colleagues (Chaiken, Liberman, & Eagly, 1989; Chaiken, Giner-Sorolla, & Chen, in press; Eagly & Chaiken, 1993) have to date explored the impact of three broad motivations on information processing. The first of these has been labelled defence motivation. It reflects a desire to form and defend conclusions that are consistent with one's self-knowledge. Such knowledge includes one's social and personal identities; issues, beliefs, and people that one is committed to; and courses of action one has chosen to pursue. The goal of the defence-motivated person is to protect, verify, and enhance the self-concept and those aspects of the world in which the self has been personally vested. Thus, the desire for positive social identity, the need for specific closure (Kruglanski, 1989), self-enhancement, self-verification, and self-completion are all motives which could trigger defence-motivated systematic processing. The defensively motivated information processor is characterized by a directional, biased, or selective manner in which information is scrutinized, so as to confirm the validity and prevent the falsification of important self-relevant knowledge, beliefs, and relationships (e.g., Liberman & Chaiken, 1992).

A second class of motives has been labelled impression motivation. This is the desire to maintain attitudes, beliefs, and actions that serve one's interpersonal needs in a given social situation; the motive to produce certain desired consequences in one's interpersonal relationships through expressing beliefs that will be socially acceptable. Impression motivation is guided by the desire to project a certain image, and this is typically achieved by taking into account the qualities, views, and disposition of one's partners in a social situation, be their presence real or imagined. Such impression management (e.g. Schlenker, 1980) or self-presentational (e.g., Jones, 1990) goals allow one to not only anticipate the attributes that others wish to see, but to produce the desired outcomes from another person by displaying those desired attributes for them. Need for
approval, fear of rejection, desire for power, interaction goals such as communication and evaluation, and social role needs are capable of prompting impression motivated processing. Such processing is often selective and strategic, aimed at assessing the social acceptability of beliefs and judgments.

Finally, the last class of motives is labelled accuracy motivation. In its original conception the HSM focused exclusively on this motive as it affected processing of persuasive messages (see Chaiken & Stangor, 1987). The simple assumption was that people are motivated to hold valid beliefs; to have an objective representation of their social world. In pursuit of those valid beliefs people were said to be capable of systematically processing, but this was likely to occur only when sufficiently motivated, such as when the issue was personally relevant. Such processing promotes the attainment of valid judgments by allowing one the ability to distinguish between specious and accurate information. When accuracy motivated, processing proceeds in a more objective and unbiased fashion in an attempt to seek the ‘truth’. Fear of invalidity, desire for self-assessment, accountability, outcome dependency, and increased personal responsibility are all motives which lead one to seek truth. Of course seeking the truth is only possible if one has the capacity and the ability to do so to accompany the desire (see also Chaiken & Lutz, 1993; Thompson et al., 1994; Wood, Kallgren, & Priesler, 1985). Thus, while accuracy motivation may promote systematic truth-seeking, this is not the only strategy for eliminating the confidence gap and allaying doubt. Dewey (1938) suggested it is a process of inquiry, best described as the transformation of an indeterminate situation into one that is determinate (similar to the gestalt principle of closure), that often alleviates doubt. Thus, people can eliminate the confidence gap by settling on a belief, even if it is not the one true belief.

Co-occurrence of Processing Modes

Unlike most other dual-process models in social cognition (e.g., Fiske & Neuberg, 1990; Petty & Cacioppo, 1986), the HSM specifies the possibility that heuristic and systematic processing may co-occur. While heuristic processing predominates where motivation or ability to scrutinize information is low, more effortful systematic processing is likely to be instigated at higher levels of motivation and ability. But this does not preclude the possibility that heuristics continue to be utilized as well. This co-occurrence of processing modes may happen in either an additive or an interactive fashion, depending on a number of factors.

One possibility is that heuristic processing of non-content cues and systematic processing of content information exert independent, additive effects on judgment (additivity hypothesis). Studies in the domains of persuasion and social influence provided support for this hypothesis and showed that attitude judgments may be a function of both content-related thinking and cue-related
evaluations (Bohner, Frank, & Erb, 1995; Chaiken & Maheswaran, 1994; Maheswaran & Chaiken, 1991). However, additivity will often be difficult to detect, for two reasons. First, systematic processing frequently provides the person with more judgment-relevant information than heuristic processing does. Although, in principle, the quantitative relation between non-content and content information may vary widely, from settings that contain numerous heuristic cues and no content information at all to situations in which ample content information is present (see Bohner, 1990), in most persuasion studies that featured both heuristic cues and persuasive arguments, the latter were more numerous. Therefore, any additional impact of the heuristic cue may have gone undetected (see Chaiken, Liberman, & Eagly, 1989).

Second, the implications of content information may call into question the validity of heuristic-based inferences (when, for example, a highly expert source presents specious arguments; Petty, Cacioppo, & Goldman, 1981). Or, judgments based on information gathered through a deliberate and effortful strategy may often just be more reliable and trustworthy than those produced by a reliance on simple decision rules. For these reasons, in settings conducive to both modes of processing, systematic processing will often attenuate the effects of heuristic processing (Chaiken, Liberman, & Eagly, 1989). There is ample support for this attenuation hypothesis of the model (e.g., Chaiken & Maheswaran, 1994; Maheswaran & Chaiken, 1991; for discussion see Chaiken, Liberman, & Eagly, 1989; Eagly & Chaiken, 1993).

Our discussion suggests that attenuation rather than additivity effects will be observed primarily to the extent that content information quantitatively outweighs the information conferred by an heuristic cue, and to the extent that the implications of systematic processing invalidate the heuristic-based inferences. Such invalidation is likely to occur if content information and heuristic-based inferences directly contradict each other. Of course, it may be that heuristics differ in the degree to which they trigger expectations about the validity of content information. For example, the rule that ‘experts’ statements are valid’ is probably more likely to elicit an expectation of high argument quality than the heuristic ‘I usually agree with people I like’. We will return to this possibility below in the context of our research on attributions and minority influence.

Another way in which heuristic and systematic processing may interact is expressed in the model’s bias hypothesis (Chaiken, Liberman, & Eagly, 1989). This hypothesis asserts that heuristic processing can bias systematic processing when individuating information is ambiguous. Accordingly, under conditions of high accuracy motivation and sufficient processing resources, heuristic cues may lead people to form expectancies about message valence or strength. These expectations, in turn, should bias their message-related thoughts to the extent that message content is amenable to varying interpretations (i.e., ambiguous). This interaction hypothesis has received support in a number of
studies (Bohner, 1990; Bohner et al., 1992; Bohner, Chaiken, & Hunyadi, 1994; Chaiken & Maheswaran, 1994), some of which we discuss in some detail below.

A final possibility that has not been explicitly considered in the HSM framework so far may be labeled as the contrast hypothesis. As kind of a mirror-image of the bias hypothesis, it assumes that heuristic-based expectations may lead to a contrasting interpretation of individuating information. For example, if an individual strongly believes that 'experts' statements are valid', and if a highly salient expertise cue is present in a persuasion setting, the individual should expect the communicator's arguments to be highly convincing. If, in addition, the recipient's accuracy motivation is high and she has the capacity that is necessary to systematically process message content, she may use the initial, heuristic-based expectation as a standard against which to evaluate the actual arguments that the communicator presents. If these arguments are moderately convincing, our hypothetical recipient may think more critically about them and arrive at a more negative judgment about the communicator's position than if no expertise cue had been present at all.

What conditions determine whether direct biasing influences of heuristic information or contrast effects of such information on systematic processing are likely to occur? In both cases, the available content information must be open to varying interpretations, that is, ambiguous or moderate in strength. However, we assume that contrast effects (rather than biasing effects) should result under conditions that have been found to elicit contrast in other domains of judgment, such as awareness of a potential influence (e.g., Lombardi, Higgins, & Bargh, 1987) and high extremity of the heuristic cue (e.g. Herr, Sherman, & Fazio, 1983; for an overview see Strack et al., 1993). In our example, extremity of the heuristic cue would be defined as the degree of perceived expertise. Thus, if recipients are highly accuracy-motivated and hold strong expectations on the basis of a salient heuristic cue, both their message-related thinking and their attitude judgments may reflect an impact opposite to the implications of the heuristic cue. While both attenuation and biasing effects have been observed under the specific conditions delineated in the HSM, the contrast hypothesis still remains to be tested. Having presented the HSM in some detail, we will now report recent experimental work that investigated some of the model's assumptions in two content areas: the impact of recipients' affective states in persuasion, and processes of social influence through minorities.

AFFECTIVE STATES AND THE CO-OCCURRENCE OF HEURISTIC AND SYSTEMATIC PROCESSING

By combining assumptions of the HSM with hypotheses drawn from affect-cognition theories, at least three ways in which moods may influence persuasion can be conceived (see Bohner, in press; Petty, Cacioppo, & Kasmer, 1988;
First, mood may itself function as an heuristic cue and may thus directly influence judgments according to a 'how do I feel about it?' heuristic (Schwarz, 1990; Schwarz & Clore, 1983, 1988), independent of available content information or thoughts generated in response to it. In other words, people with low motivation or ability to process may misidentify a pre-existing mood state as a reaction to the attitude object and form attitude judgments congruent with their mood at the time of judgment. Mood influences of this kind should be most likely in the absence of systematic processing and to the extent that the person does not attribute his current mood state to a judgment-irrelevant source (e.g., Schwarz & Clore, 1983).

Second, moods may facilitate evaluatively congruent cognitive (and perhaps affective) responses to a persuasive message (Bower, 1981; Isen et al., 1978), which may then mediate mood-congruent attitude judgments. This possibility requires that some content-related thinking about the message occurs, i.e., that motivation and ability to systematically process are substantial. Third, affective states may themselves influence the extent of systematic processing, either by altering an individual’s motivation to process (Schwarz, 1990) or by competing with the persuasive message for the recipient’s cognitive resources (Ellis & Ashbrook, 1988; Isen, 1987).

Although some evidence for the first two possibilities (i.e., mood-congruent judgments and mood-biased systematic processing) has been reported (Petty et al., 1993), most studies on mood and persuasion provided evidence consistent with the third possibility. They demonstrated that positive mood reduced the amount of systematic processing in comparison with neutral or negative mood—that is, happy subjects’ judgments were generally less likely to reflect differences in argument strength than the judgments of subjects in a neutral or mildly depressed mood (e.g., Bless et al., 1990; Bless, Mackie, & Schwarz, 1992, Experiment 1; Bohner et al., 1992; Bohner, Chaiken & Hunyadi, 1994; Kuykendall & Keating, 1990; Mackie & Worth, 1989; Worth & Mackie, 1987).

**Mood and Information Processing: The Informative Functions Approach**

The most likely explanation for these mood effects assumes that motivation for systematic processing is dependent on a person’s current mood (for an alternative, capacity-based account see Mackie & Worth, 1989, 1991; for discussion see Bohner, in press; Schwarz, 1990). According to this account, the presence of a certain affective state informs the individual about the nature of her current psychological situation (Schwarz, 1990; Schwarz & Bohner, in press). Negative affect informs us that the current situation is problematic and potentially threatening and thereby temporarily heightens our sufficiency threshold, instigating detail-oriented, analytic processing aimed at regaining control or dealing with the problematic situation. Correspondingly, positive affect informs us that the current situation is safe and our current goals are not threatened, thus lowering
the sufficiency threshold, indicating no need for effortful processing and fostering simplifying, heuristic processing strategies. Recently, Sinclair, Mark and Clore (in press) provided direct evidence for this cognitive tuning hypothesis by demonstrating that sad subjects showed increased systematic processing only if they were unaware of the cause of their mood, but not if their attention was directed to an uncontrollable cause (the unpleasant weather).

While most studies on mood and persuasion found evidence for a link between affective states and the systematic processing of message content, only a few experiments included heuristic cues. In two studies, Mackie and Worth (1989, Experiment 2; Worth & Mackie, 1987) varied source expertise in addition to manipulating message strength and recipients' mood. Like the bulk of persuasion studies to date, this research featured extensive persuasive argumentation, and its results were in line with the HSM's attenuation hypothesis: happy subjects' attitudes were primarily influenced by source expertise but unaffected by argument strength, whereas neutral mood subjects' attitudes reflected an impact of argument strength but showed no influence of the expertise cue. However, according to the HSM, additive or interactive effects of both processing modes should also be likely if a person experiences a negative affective state that enhances accuracy motivation. We address this possibility in some detail in the following section.

### Negative Mood May Enhance Both Systematic and Heuristic Processing

According to our conception of systematic processing, people in sad moods should 'access and scrutinize all [italics added] informational input for its relevance and importance to their judgment task, and integrate all useful information [italics added] in forming their judgments' (Chaiken, Liberman, & Eagly, 1989, p. 212). If message content is detailed and has unambiguous evaluative implications (as in the studies by Mackie & Worth, 1989, and Worth & Mackie, 1987), sad persons' attitudes should be essentially mediated by message- and issue-related thinking, and any impact of heuristic cues should be hard to detect, due to attenuation (Chaiken, Liberman, & Eagly, 1989). If, however, argumentation is ambiguous or insufficient, sad persons' systematic processing is assumed to be biased by heuristic processing. Under these conditions, sad subjects' attitudes should also be mediated by message-related thinking, but the valence of this thought should be biased by these sad recipients' prior processing of heuristic cues, such as consensus information or source credibility. Because happy persons generally lack motivation for systematic processing, their attitudes should primarily be mediated by heuristic processing, independent of the amount, strength, or ambiguity of message arguments. If no judgment-oriented processing goal is activated, happy individuals may even be less influenced by heuristic cues than their sad counterparts (see Bohner et al., 1992, for discussion).
Initial evidence for the co-occurrence of systematic and heuristic processing under sad mood has been obtained in two experiments that featured insufficient and ambiguous message content, respectively. In a study by Bohner et al. (1992, Experiment 2), subjects who had been put in a happy or a sad mood through bogus performance feedback were later approached by a confederate who asked them to donate money to a charity. This request was insufficiently justified with only one argument, that was either plausible (the collected money would be used for the construction of ramps for wheelchairs at university buildings) or implausible (the money would be used for building a separate library for handicapped students). In addition, a salient strong or weak consensus cue (a list of contributors containing many versus few names) was presented.

As shown in Table 2.1, happy subjects' responses to the request showed no significant influence of either the heuristic cue or the content of the message, whereas sad subjects' responses were influenced by both factors in an interactive fashion: they complied with the request more frequently (and donated a greater amount) if either the strong cue or the plausible argument was present than if neither was present. Additional analyses (see Bohner, 1990) yielded results consistent with the HSM's bias hypothesis: when the request was accompanied by a strong consensus cue, sad (but not happy) subjects tended to evaluate its content more positively than when it was paired with a weak cue. Sad subjects' biased content evaluations were significantly correlated with compliance ($r = 0.64$) and with the amount donated ($r = 0.47$), whereas happy subjects' content evaluations were unrelated to behaviour ($r = 0.03$ and $-0.15$, ns, resp.).

Table 2.1 Proportion of donors and mean amount donated as a function of mood, type of request and strength of consensus cue. Adapted from Bohner et al. (1992), Table 2 (p. 522), © 1992 by John Wiley & Sons Ltd

<table>
<thead>
<tr>
<th></th>
<th>Positive Consensus cue</th>
<th>Negative Consensus cue</th>
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<tbody>
<tr>
<td>Type of request</td>
<td>Weak</td>
<td>Strong</td>
</tr>
<tr>
<td>Proportion of donors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plausible</td>
<td>1.00</td>
<td>0.88</td>
</tr>
<tr>
<td>Implausible</td>
<td>1.00</td>
<td>0.75</td>
</tr>
<tr>
<td>Amount donated (in German Marks)$^a$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plausible</td>
<td>2.25</td>
<td>1.94</td>
</tr>
<tr>
<td>Implausible</td>
<td>2.30</td>
<td>2.16</td>
</tr>
</tbody>
</table>

$^a$Subjects had at least DM 5 at their disposal, because this amount, in small change, had been paid for their participation in an ostensibly unrelated experiment.
Thus, sad subjects' high motivation to process systematically in combination with the insufficient content information brought about behaviour that was clearly a function of content-related evaluations. These evaluations, however, were biased by heuristic-based expectations that were presumably formed in response to the consensus cue. The finding that happy subjects' behaviour was neither influenced by the content of the request nor by the consensus cue can be explained by these subjects' low motivation to process, in combination with the fact that no judgment-oriented processing goal had been activated; happy subjects may just have responded on the basis of a preformed 'charity script' by indiscriminately donating a small amount (see Bohner et al., 1992).¹

In a study by Bohner, Chaiken and Hunyadi (1994), the interplay of heuristic and systematic processing under sad mood was further explored. Subjects were put in a happy or a sad mood by recalling a positive or a negative experience; later they were asked to evaluate a test report about a telephone answering machine. This report compared the target product, the 'XT-100', with two competing brands and stated that the XT-100 was best. Depending on experimental condition, this conclusion was supported by unambiguous strong, unambiguous weak, or ambiguous arguments. Importantly, all subjects learned that the message was excerpted from Consumer Reports magazine and were thus provided with a high credibility source cue. Bohner and colleagues predicted that happy subjects' attitudes toward the product would be primarily a function of source-related thoughts and evaluations, independent of message strength or ambiguity. Sad subjects' attitudes, on the other hand, were expected to be primarily a function of content-related thoughts. Importantly, however, for the case of ambiguous arguments, it was predicted that sad subjects' content-related thoughts would be positively biased by expectations based on the high-credibility cue.

Regression analyses confirmed the HSM-based predictions, as summarized in Table 2.2: happy subjects' attitudes were significantly influenced by source-related thoughts, but not by content-related thoughts, and this pattern was independent of message strength or ambiguity (see Table 2.2, panel (a)). Sad subjects' attitudes were significantly influenced by content-related thoughts, and additionally by source-related thoughts if message content was ambiguous, as evidenced by the significant interaction of valenced source-related thoughts and ambiguity (see Table 2.2, panel (b)). Further analyses revealed that sad (but not happy) subjects' content-related thoughts were significantly biased by evaluations of the source, and this influence was most pronounced in the ambiguous message conditions.

¹ An alternative interpretation that happy subjects' responses may reflect a ceiling effect is rendered unlikely by the amount of money data. All subjects had at least DM 5 at their disposal, because they had been paid this amount in advance for their participation.
Table 2.2  Hierarchical regression of happy and sad subjects’ attitudes on message factors and valenced thought measures. Adapted from Bohner, Chaiken, and Hunyadi (1994), Table 2 (p. 216), © 1994 by John Wiley & Sons Ltd

<table>
<thead>
<tr>
<th>Step</th>
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<tr>
<td>(a) Happy mood conditions</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1</td>
<td>Strength (1 = strong, 0 = ambiguous, -1 = weak)</td>
<td>0.39</td>
<td>0.35**</td>
</tr>
<tr>
<td></td>
<td>Ambiguity (-1 = unamb., +2 = amb.)</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>VAT (Valenced Attribute-Related Thoughts)</td>
<td>0.23</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>VST (Valenced Source-Related Thoughts)</td>
<td>0.31</td>
<td>0.31**</td>
</tr>
<tr>
<td>2</td>
<td>VAT x VST</td>
<td>-0.11</td>
<td>-0.08</td>
</tr>
<tr>
<td>3</td>
<td>VST x Strength</td>
<td>-0.20</td>
<td>-0.18</td>
</tr>
<tr>
<td></td>
<td>VAT x Strength</td>
<td>-0.07</td>
<td>-0.05</td>
</tr>
<tr>
<td></td>
<td>VST x Ambiguity</td>
<td>-0.17</td>
<td>-0.15</td>
</tr>
<tr>
<td></td>
<td>VAT x Ambiguity</td>
<td>-0.08</td>
<td>-0.06</td>
</tr>
<tr>
<td>(b) Sad mood conditions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Strength (1 = strong, 0 = ambiguous, -1 = weak)</td>
<td>0.44</td>
<td>0.42***</td>
</tr>
<tr>
<td></td>
<td>Ambiguity (-1 = unamb., +2 = amb.)</td>
<td>0.13</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>VAT</td>
<td>0.36</td>
<td>0.35**</td>
</tr>
<tr>
<td></td>
<td>VST</td>
<td>-0.00</td>
<td>-0.01</td>
</tr>
<tr>
<td>2</td>
<td>VAT x VST</td>
<td>-0.21</td>
<td>-0.20</td>
</tr>
<tr>
<td>3</td>
<td>VST x Strength</td>
<td>-0.02</td>
<td>-0.02</td>
</tr>
<tr>
<td></td>
<td>VAT x Strength</td>
<td>-0.19</td>
<td>-0.11</td>
</tr>
<tr>
<td></td>
<td>VST x Ambiguity</td>
<td>0.42</td>
<td>0.22*</td>
</tr>
<tr>
<td></td>
<td>VAT x Ambiguity</td>
<td>0.16</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Notes: Each effect is adjusted for all other effects entered in the same step or in preceding steps. *** p < 0.001; ** p < 0.01; * p < 0.05.

The two studies reviewed in this section provide further support for the HSM’s bias hypothesis. They demonstrate that message recipients’ mood, as other motivational variables (e.g., personal relevance: Chaiken & Maheswaran, 1994), may enhance both systematic and heuristic processing under conditions of insufficient or ambiguous message content. They further show that the heightened accuracy motivation that is elicited by sad affect (Schwarz, 1990) does not invariably lead to more valid judgments and decisions but may, under specifiable conditions, increase a person’s susceptibility to bias. The HSM has thus helped to shape our understanding of affective influences in persuasion, which in recent years has dramatically changed from the overly simplistic notion that happy people are often easy to persuade (McGuire, 1985) to the more complex but probably more accurate view that affective states influence the interplay of processing strategies by changing the person’s accuracy motivation (Bohner, in press; Schwarz, Bless, & Bohner, 1991).
Moscovici (1976, 1980, 1985) proposed a model of minority influence whose focus is on explaining when and how minorities can influence one's private beliefs. According to Moscovici, minority positions are initially regarded as illegitimate and incorrect (e.g., Moscovici & Lage, 1976; Nemeth & Wachtler, 1974). For a minority to be influential, this initial 'rejecting' reaction must be challenged and called into doubt. A minority's behavioural style was presumed to be crucial for accomplishing this task. In particular, a consistent behavioural style was said to establish the minority as being resolute, stable, unyielding, and predictable—leading the perceiver to attribute the minority position to the fact that the minority is confident and certain that their point of view is the correct one. Such attributions were said to induce tension or doubt by creating a conflict between one's initial and heuristic response to the minority and one's current attributions. To resolve this conflict and reduce this tension, Moscovici proposed that people engage in a validation process where they reassess their own beliefs and more carefully attend to the minority position.

Thus, minority influence is said to occur through conflict with the minority's consistent behaviour leading to attributions that challenge the heuristic that 'minority positions are illegitimate'. The result on the part of majority members are feelings of doubt and increased effort toward forming a valid judgment, which finally renders them susceptible to being influenced by the minority. Moscovici's contrast between a validation process, characterized by complex cognitive appraisal, and the simpler propensity to assume that minority positions are invalid and to reject them without scrutiny, is similar to the HSM's distinction between systematic and heuristic processing. The motivating tension that Moscovici describes parallels the HSM's assumption that insufficient confidence in a judgment will result in increased processing effort. Reframing Moscovici's model in terms of the HSM, it follows that given the formation of appropriate attributions, minorities can be persuasive by influencing the extent to which the recipients of their messages engage in systematic processing.

Both models assume that an initial effortless reaction to the social environment must be challenged, and that this occurs through undermining prior beliefs, with the resulting doubt being a motivator of effortful processing. The important issue for both models is how to bring about this motivating doubt or insufficient confidence. Moscovici believed the answer was through consistent behaviour as a way in which to alter attributions. Attributions thus represent a change in one's sufficiency threshold, raising what is required to feel confident, and producing the doubt that Moscovici referred to as conflict and
tension. The HSM similarly predicts that attributational logic can serve to create a confidence gap that is capable of motivating systematic processing. In the current section we will attempt to integrate two major attributational accounts of persuasion (Kelley, 1967, 1972; see Eagly & Chaiken, 1993), and their partial application to minority influence processes, into the HSM framework. Although causal attributions typically entail more extensive processing than relying on heuristics, attributational reasoning is, in turn, less effortful and capacity-constrained than systematic processing. Just like heuristic processing, then, attributational reasoning may affect judgments either directly or in interaction with systematic processing, depending on conditions specified in the HSM.

The Covariation Model and Minority Influence

The recipient of a persuasive communication may infer the causes of a communicator's statement by performing a subjective analysis of variance on information, arranged in a Persons x Entities x Occasions matrix (Kelley, 1967). Covariation across persons provides consensus information, covariation across entities (i.e., topics) furnishes distinctiveness information, and covariation across occasions supplies consistency information. According to Kelley (1967), entity attributions, and thus persuasion, should be most likely if consensus is high (i.e., most other communicators endorse the same position), if distinctiveness is high (i.e., a communicator's position is specific to the particular topic under consideration), and if consistency is high (i.e., a communicator expresses the same position across various occasions/circumstances). From this perspective, minorities face an essential disadvantage because, by definition, consensus for their position is low. Nevertheless, more recent attribution theories suggest that minorities' potential to exert influence should be greater if they fulfil the criteria of high distinctiveness and high consistency than if they do not, because then entity attributions will more likely and circumstance attributions will less likely be part of recipients' causal explanation (e.g., Hewstone & Jaspars, 1987; Hilton & Slugoski, 1986). However, all else being equal, minorities should still be less influential than majorities.

As we noted, the aspect of consistency constitutes a key concept in Moscovici's theory of minority influence (Moscovici, 1976, 1980). Research has generally supported the hypothesis that consistent minorities exert more influence than inconsistent ones (e.g., Moscovici & Personnaz, 1980; Mugny, 1982; Nemeth, Swedlund, & Kanki, 1974). Although Moscovici and colleagues have referred to Kelley's (1967) covariation principle (e.g., Moscovici & Nemeth, 1974; Moscovici & Faucheux, 1972), they did not stringently apply it. Most notably, whereas the effects of a minority's consistency over time have been extensively studied, potential effects of distinctiveness across topics have
not (see Maass & Clark, 1984). This neglect of distinctiveness information may reflect the fact that Moscovici's attributional theorizing was focused on causal inferences about the source's dispositions, such as certainty and conviction (Moscovici & Nemeth, 1974). In Kelley's model, conversely, causal inferences about the validity of the communicator's position are central, and attitude change should result if personal features of the communicator can be ruled out as causes for her behaviour (Kelley, 1967). The two models thus treat person attributions and entity attributions, respectively, as the primary determinants of influence (see Eagly & Chaiken, 1993, pp. 647–9).

While positive person attributions such as conviction and determination would certainly not hinder persuasion, it is primarily negative person attributions like self-interest that must be ruled out in order for influence to occur (Maass & Clark, 1984; Mugny & Papastamou, 1980). Because a communicator's being part of a minority implies low consensus, person attributions are likely to occur. Whether these person attributions are positive or negative, however, should depend on other factors, including distinctiveness. Thus, the perception that a communicator's minority position is highly distinctive to the particular topic at hand may render unlikely certain negative person attributions such as general dogmatism. Conversely, certain positive person attributions, such as conviction or sincerity, should increase given high distinctiveness. Thus, despite the differences between Moscovici's and Kelley's approaches, distinctiveness information seems to be an important predictor of persuasion from the viewpoint of either model, albeit for different reasons.

Another difference may be conceptualized in terms of the HSM. The judgmental implications of attributional reasoning that Kelley (1967) proposed may be conceived as an (albeit elevated) form of heuristic processing, with recipients using the heuristic 'if a position is distinctive to a particular topic, it must be valid'. In contrast, Moscovici (1980) assumed that, once positive attributions about a minority source had been formed, judgments would change through a 'validation process', a form of systematic processing.

Guided by these considerations, we conducted several studies to examine the role of distinctiveness information in minority versus majority social influence. Our experiments dealt with the topic of animal experimentation, for which pre-experimental attitudes were neutral to mildly positive in the studied population. In a pilot study, subjects learned that a communicator's position against animal experimentation was either shared by most other students or not (high versus low consensus), and expectancies regarding distinctiveness and consistency were assessed (Bohner et al., in press). We found that subjects expected that a minority (majority) communicator would hold minority (majority) views with respect to most other issues as well, and that he had expressed the same anti-experimentation view consistently on many occasions. In other words, subjects expected to find high consistency and low
distinctiveness. This raises the interesting possibility that high distinctiveness may instigate attributional reasoning and, eventually, systematic processing, because of its unexpectedness (e.g., Weiner, 1985).

In the main experiment, all three dimensions of the covariation model were manipulated, and their impact on open-ended causal attributions, expected persuasiveness, liking of the communicator, and attitudes toward animal experimentation was assessed. Low distinctiveness was represented by the information that the communicator expressed either minority or majority positions with respect to both the target topic and ‘most other topics’ (without specifying these other topics); high distinctiveness meant that he expressed a minority or majority opinion only with respect to the target topic, but not with respect to other topics. No persuasive message was presented. The results provided partial support for both Kelley’s and Moscovici’s key attributional assumptions: Entity (i.e., topic-related) attributions were generally more frequent under high than low distinctiveness, and person attributions were more positive under high than low distinctiveness. Interestingly, both liking for the communicator and expected persuasiveness were influenced by consensus and distinctiveness information. Specifically, a distinctive minority source was liked most, whereas a non-distinctive majority source was liked least. A similar pattern emerged for expected persuasiveness.

From the perspective of the HSM, the distinctiveness-based inferences that subjects made in the Bohner et al. (in press) study (entity attributions, positive person attributions, judgments of high persuasiveness and liking) might all be used as heuristic cues and directly influence attitude judgments when a person is faced with a persuasive message. For example, a person might form a positive attitude toward a minority’s position if he inferred something about

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2 Two older studies included manipulations that may be reinterpreted as variations of the distinctiveness of a minority’s response, even though their authors did not frame them in terms of attribution theory. In an experiment by Nemeth, Swedlund, and Kanki (1974), minority sources showed either ‘straight’ or ‘patterned’ responses in an alleged colour perception task. ‘Straight’ meant that they indiscriminately claimed to see blue slides as green (or, in another condition, as blue-green); ‘patterned’ meant that the minority’s response (green or blue-green) covaried with the light intensity of the slides. In the latter condition, the minority response was thus more ‘distinct’ with respect to variations in the external stimuli than in the former. Consistent with our findings and predictions of the covariation model, influence was greatest for the ‘patterned’ condition. Also, the ‘patterned’ minority was rated more likeable and more competent than the minorities in the other experimental conditions. The other pertinent experiment was conducted by Bray, Johnson, and Chilstrom (1982), who studied the influence of a dissenting minority in experimental groups that discussed several topics. The minority dissented either on all topics, or only on the last topic after showing conformity on all preceding topics. Again, these conditions can be interpreted as low and high distinctiveness, respectively. It was found that under certain conditions the ‘distinct’ minority was more influential than the ‘non-distinct’ minority. It is problematic, however, that the topics used by Bray, Johnson, and Chilstrom were highly similar and therefore what we relabelled as ‘high distinctiveness’ might as well be interpreted as low consistency. Comparable qualifications hold for the Nemeth, Swedlund, and Kanki study. In any case, the two dimensions were not independent in these studies, and thus attributional interpretation must remain speculative.
the topic as the cause of the minority's behaviour and applied the heuristic that 'positions based on external reality are valid'. Another recipient may have inferred positive personal dispositions from the high distinctiveness of the minority's position and may have formed a positive attitude toward their position on the basis of the heuristic 'people I like are usually right.' These same inferences might, on the other hand, convey the information that systematic processing will increase judgmental confidence because message content is likely to be valid, and might thus increase systematic processing of a persuasive message if such is available.

These possibilities were first explored in an unpublished study by Bohner, Frank, and Erb (1995). Female subjects read five strong or five weak arguments against animal experimentation that were ascribed to a minority or a majority source. The source's position was again described as either distinct or non-distinct to the topic at hand. No consistency information was provided. Later subjects reported their attitudes toward animal experimentation and listed the thoughts that had come to mind while reading the message. It was found that both attitudes and the valence of subject's cognitive responses were influenced by argument strength, indicating that systematic processing had occurred. In addition, high distinctiveness led to attitudes more in line with the advocated position than low distinctiveness did, independent of argument strength and minority or majority source status. This latter effect was not paralleled by a reliable effect of distinctiveness on cognitive responding. Thus, distinctiveness information seems to have been used as an heuristic cue that additionally influenced attitudes. This result provides another example for the co-occurrence of systematic and heuristic processing.

Why was no attenuation effect observed in this study, even though ample content information was available? Above we addressed one potential explanation that should be explicitly tested in future research: Different heuristic cues may be more or less conducive to attenuation effects because their associated heuristics differ in the extent to which they elicit content-related expectations. For example, information about a source's high expertise, in combination with the heuristic 'experts statements are valid' should lead a recipient to expect that convincing arguments will be presented. It is therefore not surprising that the expertise heuristic may easily be undermined if weak arguments are presented by an expert (see Chaiken, Liberman, & Eagly, 1989, pp. 232–3). With other heuristics, inferences about message content are less likely. The rule 'I generally agree with people I like' does not necessarily imply that a likeable source (such as our 'distinctive' communicator) will present convincing arguments, and may less likely be undermined if one encounters weak arguments.

The results of our distinctiveness studies have an interesting implication for strategies that minorities might use in order to establish their innovative positions. They indicate that minorities may, as an alternative (or in addition)
to displaying a consistent behavioural style, use a 'distinctiveness strategy' by pointing out that they selectively support unpopular positions with respect to one (or few) particular topic(s), but hold mainstream views with respect to many other topics. Such a strategy would also be expected to be successful on the basis of self-categorization theory (e.g., Turner & Oakes, 1989), which holds that a certain degree of similarity/ingroup status of the source is a prerequisite for influence.

The Multiple Plausible Causes Framework and Minority Influence

Kelley (1972) developed his ideas concerning the attribution process further with a discussion of simple strategies the perceiver can fall back on when only information regarding the single occurrence of a behaviour is available. The two central concepts in the multiple plausible causes framework are the discounting and augmentation principles. The discounting principle states that a perceiver can discount any one candidate as a potential cause for an event to the extent that other potential causal candidates are also available. Thus, the likelihood of any given cause is reduced as other plausible factors are introduced. According to the augmentation principle, there are both inhibitory conditions (which can interfere with the occurrence of an event) and facilitative conditions (which can increase the likelihood of an event). When an event occurs in the presence of an inhibitory condition, the facilitative condition is given more weight in determining attributions, or is inferred with greater certainty, because it was strong enough to overcome the interference.

For instance, if a communicator presents a message in support of a particular position, one obvious cause for advocating that position would be that it reflects external reality. However, there are other potential causes that may guide a person's endorsement of an issue. One may be her membership in a group that serves to gain if such positions are endorsed. Another may be that the person is paid to hold such positions, or has access to only biased information. Whether the alternative possibilities are personal (group/self benefit) or situational (biased sources) the result is the same—one can discount external reality and feel less compelled to accept the position on the issue as one's own. However, imagine if the person is a member of a group that actually serves to lose if the position advocated is endorsed. Such a possibility should inhibit or interfere with the communicator advocating the chosen position. The fact that it does not would then serve to augment external reality as a cause. We should be more willing to accept the validity of the message because of its ability to overcome a potential inhibitory factor.

This logic has been applied to social influence settings, and research within this attribution analysis of persuasion (e.g., Eagly and Chaiken, 1975; Eagly, Chaiken and Wood, 1982; Eagly, Wood and Chaiken, 1978; Wood and Eagly,
1981) has revealed broad support for these hypotheses. In these experiments, information that can establish an expectancy regarding what position a source will endorse is presented to subjects prior to hearing the message. This, in effect, establishes that the source will be biased in favour of one side of an issue. Reactions to the message will then be determined by whether the position advocated in the message is discrepant or consistent with the position the message recipient expected would be advocated. If the message disconfirms the pre-message expectancy, the message recipient will perceive the message to present an accurate description of external reality. In explaining this prediction, the augmentation principle (Kelley, 1972) is invoked. The ability to overcome the inhibitory cause (the expectancy of bias) serves to strengthen external reality as a cause. However, when the message confirms the pre-message expectancy, the message recipient will perceive the communicator as biased. The pre-message expectancy of bias serves as a sufficient cause so that subjects can discount the viability of the message being an accurate reflection of external reality.

This attribution perspective and Moscovici's model are interesting foils. Both assert that an attribution that the message may be veridical is required for successful influence. However, Moscovici maintains that behavioural consistency is a key component in shaping the positive attributions that lead to influence, whereas the Eagly model maintains that a type of inconsistency—expectancy disconfirmation—is a central component in arriving at the same type of attributions. This raises the interesting possibility that yet another tactic for minority influence may be to attempt to disconfirm majority group expectancies. Such a 'disconfirmation strategy' can represent an alternative means to instigate positive attributions in the minds of those who cast aspersive glances on the minority. This becomes particularly important in light of the fact that consistency in behaviour of the sort that Moscovici advocates may take years to affect the appropriate attributions that render innovation possible, as is obvious in the examples he uses (feminists, ecologists).

However, there is a key difference between these models that perhaps limits expectancy disconfirmation as a route to minority influence. Moscovici's model explicitly refers to minority sources, whereas the Eagly model does not refer to the group status of the source. Perhaps expectancy disconfirmation is not a successful strategy for minorities. This possibility is certainly worth considering given another difference between Moscovici's approach and attributional accounts that we already mentioned in the context of the covariation model. Whereas Moscovici maintained that positive attributions lead to influence through systematic processing (what he called a validation process), Eagly's model suggests that positive attributions lead to influence through

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3 In addition, as we noted, the disconfirmation of expectancies may be one of the basic conditions that trigger attributional activity to begin with (e.g., Weiner, 1985).
heuristic processing, by application of a simple attributional rule—augmentation. Thus, subjects are willing to accept a message without having to scrutinize its content when expectancy disconfirmation occurs. This raises the issue of whether group status information plays a role in determining the relationship between expectancy confirmation, attributions, message processing, and persuasion.

How would adding the fact that the source is a minority alter the predictions of the attribution analysis of persuasion? Knowing the source is a minority often introduces a negative expectancy, that its position is illegitimate and should be rejected. Therefore, if an expectancy of bias exists, a minority source simply should add information that can reinforce the attribution of bias; it strengthens the inhibitory cause. When the expectancy is later disconfirmed, the augmentation principle suggests that since the minority overcame an expected bias, the belief that their message is a veridical one should be enhanced. While knowing the source is a minority does not alter the initial negative attribution, it may affect message processing. Eagly, Chaiken, and Wood (1982) suggest that while expectancy disconfirmation improves chances at persuasion, it reduces the likelihood of systematic processing. Information that the source is a minority, however, should change this prediction. While disconfirmation should convey that the message is valid, the minority status should introduce doubt by revealing the position to be nonconsensual. Thus, the ability to simply follow the augmentation principle is challenged by paucity of opinion support. Therefore, for minority sources, expectancy disconfirmation should lead to positive attributions, and to persuasion, but this should occur through systematic processing (bringing the predictions in line with Moscovici's belief that positive attributions lead to a validation process).

Moskowitz (in press) initially examined whether in fact positive attributions formed toward a minority source were able to instigate systematic processing and subsequent minority influence. Rather than create a pre-message expectancy of bias, subjects were simply informed that they would read a message from a person who held a minority position on an issue. The issue concerned the requirements for awarding college scholarships to athletes. The negative expectancy associated with the source being a minority was then either disconfirmed or confirmed by providing subjects with some background information about the source. This information was used to provide subjects with either positive (expectancy disconfirming) or negative (expectancy confirming) attributions. Message quality was also manipulated so that systematic processing could be assessed through two separate means—by an interaction between expectancy confirmation/disconfirmation with message quality, and through open-ended thought listing measures that tapped subjects' cognitive responses.

As predicted, subjects were reliably more likely to agree with a minority source when the provided attributions disconfirmed the negative expectancies held. However, the more interesting predictions concern the type of
processing that subjects used. If they processed systematically, then greater influence should be found when high-quality messages were presented (relative to low quality messages)—subjects would distinguish the features of the message and derive their opinions based on this scrutiny. A reliable interaction supported the prediction that such systematic processing occurred only when subjects' expectancies had been disconfirmed (see Table 2.3). Subjects whose expectancies had been confirmed showed relatively little agreement with the minority source, and this did not vary as a function of message quality. Subjects whose expectancies had been disconfirmed through positive attributions were reliably more influenced by strong minority messages than weak ones. Thought listing measures provided support for this finding. Minority messages that were associated with positive attributions and disconfirmed expectancies led subjects to generate a reliably greater number of message-related thoughts, the index of systematic processing used. Thus, subjects were not only more influenced by a minority after expectancy disconfirmation, but this influence occurred through the systematic route.

Moskowitz and Chaiken (1995) extended these findings by replicating the procedure used in the attribution analysis of persuasion. In this way, attributions were not directly provided to subjects, but freely formed. This allowed for a more complete test of the multiple plausible causes framework as applied to minority influence, and establishing links between these models and the HSM. In addition, conditions in which the source held a majority position were also included. Once again, the issue of college athletic scholarships was used. Subjects were provided with a pre-message expectancy that suggested that the source would be biased either in favour of or against revising the regulations governing these scholarships. It was predicted that expectancy disconfirmation should lead to external reality being seen as the cause for the advocated position. However, when such attributions are formed in response to a minority source the influence exerted should be mediated through systematic processing. In contrast, expectancy confirmation should lead to an attribution of bias, and with the reinforcement of knowing the position also lacks consensual support, rejection of the message and heuristic processing.

Table 2.3  Attitudes towards the minority proposal as a function of message quality and attributions. Data from Moskowitz (in press)

<table>
<thead>
<tr>
<th>Attribution type</th>
<th>Message quality</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weak</td>
<td>4.30ₐ</td>
<td>3.14ₐ</td>
</tr>
<tr>
<td></td>
<td>Strong</td>
<td>11.44ₐ</td>
<td>5.3ₐ</td>
</tr>
</tbody>
</table>

Notes: Higher scores indicate agreement with the minority position (scale range is 1 to 15). Means with different subscripts differ at \( p < 0.01 \).
For the minority conditions, analyses on open-ended attribution data supported the prediction that expectancy confirmation would lead to the source being seen as relatively more biased. Subjects whose expectancies had been confirmed formed more negative attributions in general, and were particularly likely to attribute the cause of the position advocacy to the source's vested interest. In contrast, those whose expectancies were disconfirmed rated the source more positively, reliably rating him as more certain and confident, as well as more factual and fair-minded. More importantly, the issue of whether expectancy disconfirmation led to minority influence through systematic processing was examined through subjects' open-ended thought listing scores as well as the attitude data. As predicted, when expectancies were disconfirmed, high-quality messages led to more positive message-related thoughts than low-quality messages. However, when expectancies were confirmed, the difference in positive message thoughts between the high and low quality conditions were negligible. Negative message-related thoughts revealed consistent, though weaker, trends. Path analyses supported these findings by revealing a reliable impact of expectancy disconfirmation on message-related thoughts, mediated through the positivity of attributions that had been formed. Negative attributions did not predict message-related thoughts.

Interestingly, and contrary to the pattern found for the minority source, expectancy disconfirmation was not associated with an increase in positive attributions when the source advocated a majority position. Even though subjects still perceived an expectancy-confirming message to be biased, they nonetheless had an overall positive impression of the source if his position turned out to be a consensual (majority) one. Expectancy confirmation in the case of a majority source also led to more thoughts about the communicator—an index of heuristic processing—and to an overall positive attitude toward his position, which was independent of argument quality. Importantly, however, as with minority sources, an expectancy-disconfirming majority message led to more systematic processing of message content, as evidenced by a pronounced impact of argument quality on attitudes, albeit at a lower overall level. Thus, although expectancy disconfirmation led to systematic processing for both minority and majority sources, this effect was instigated by positive and negative attributions, respectively, and its resulting overall influence differed as well.

In sum, although research in this domain is limited, the findings thus far support the hypothesis that minority sources can instigate successful influence through disconfirming a prior expectancy. This influence occurs through the conflict and doubt raised by this disconfirmation serving as a motivator of systematic processing. In contrast, when a minority message confirms an expected bias it leads to relatively little influence, and heuristic dismissal. In support of this, studies on the effects of 'double minorities' also suggest the possible applicability of the multiple plausible causes framework to minority
influence. A double minority is one that has minority status not only by virtue of their small numbers, but because of the social status of a group which they are a member of. Maass, Clark, and Haberkorn (1982) suggest that discounting of a minority message may take place if the source argues for a position that fosters the vested interest of a social group that she belongs to. This may reflect a tendency to attribute a minority's message to aspects other than external reality if expectations arising from a person's social category membership are confirmed.

One implication of this research is that minority groups may indeed employ an 'expectancy disconfirmation strategy' by focusing on an issue where this position is actually opposite to what one might expect on the basis of the prevalent stereotype about the minority group. In this way the minority would be fighting for a position that they truly believe, but that the majority is surprised to find them in support of. The positive attributions and resulting increased scrutiny produced by this disconfirmation could create a window for the minority, through the presentation of strong arguments, to exert influence. Once they have accomplished instigating a more systematic type of processing along this one issue, perhaps further issues will be more seriously attended to. Our preliminary results also suggest, however, that this strategy should only be efficient to the extent that the minority possesses convincing arguments; if they do not, the strategy might backfire.

For majorities, heuristic processing had the advantage of leading to simple agreement, whereas increased scrutiny, so beneficial for minorities, seemed detrimental to the majority position. Thus, for such positions an appropriate strategy for influence may be to attempt the opposite—not get people thinking too much and adopt a strategy that might increase a reliance on heuristics. While this might suggest that we endorse a dual-process view of influence in which majorities and minorities instigate different kinds of processing, this is not the case. Rather, we view social influence as a complex process in which minorities and majorities have a variety of strategies accessible to them, and that, dependent on the dictates of their situation, different strategies will be effective. We do suggest that as a more general principle the heuristic path will be more successful for majorities than minorities, given the greater likelihood of negative heuristics being in place for the minority (for further discussion, see Eagly & Chaiken, 1993; Kruglanski & Mackie, 1990).

CONCLUSIONS

In this chapter we presented the heuristic-systematic model and discussed its potential as a general model of social information processing. We reviewed recent research that applied the HSM to the areas of affect and persuasion as well as minority influence. In both domains, the model could be profitably
combined with other theoretical approaches, yielding novel predictions and providing an integrative framework for further study.

In the section on mood and persuasion, we emphasized the interesting possibility that the two processing modes featured in the HSM may co-occur in an interactive fashion. Specifically, the motivation to systematically process that is instigated by sad affect may render people more susceptible to the biasing influence of heuristic cues if message content or other individuating information is insufficient or ambiguous. These predictions and findings go beyond those based on other existing theories of persuasion as well as affect-cognition models. Though the model's bias hypothesis has been tested primarily in the domain of persuasion (Bohner, Chaiken, & Hunyadi, 1994; Bohner et al., 1992; Chaiken & Maheswaran, 1994), it applies as well to other domains of social judgment. For example, an interesting but yet untested prediction would be that the impact of stereotypes on person perception should increase with the degree of perceivers' accuracy motivation if the available individuating information is ambiguous. In sum, our mood and persuasion studies illustrate the potential of the HSM to model and predict a complex interplay of cognitive processes in the social context. They added to our knowledge of affective influences on information processing and provided further evidence for the HSM's co-occurrence assumptions.

While our presentation of studies in the realm of minority influence was primarily aimed at demonstrating the HSM's potential for combining and integrating distinct theoretical approaches, one of these studies also featured the co-occurrence of the model's two processing modes. Although additive effects were rarely observed in persuasion studies that featured extensive messages (see Chaiken, Liberman, & Eagly, 1989), we obtained additivity in one of our experiments (Bohner, Frank, & Erb, 1995): A distinctive minority or majority position was generally more influential than a non-distinctive one. In seeming contrast, in our studies on expectancy disconfirmation (Moskowitz, in press; Moskowitz & Chaiken, 1995) attributional inferences about the communicator had no direct impact on judgment but affected the amount of systematic message processing. However, we think that the two sets of results are compatible. Other than varying attributional information, no attempt was made in either study to manipulate subjects' processing motivation. In the distinctiveness study, subjects' motivation may have been rather high to begin with due to the involving issue of animal experimentation, whereas in the expectancy disconfirmation studies, it may have been lower. Thus, even though high distinctiveness may have been unexpected, it may not have further increased the discrepancy between desired and actual confidence, because this discrepancy was already large. Furthermore, the disconfirmation of expectancies may have been stronger in the studies by Moskowitz and Chaiken than in the study by Bohner, Frank, and Erb. In future studies, it will be interesting to delineate and test more stringently the
conditions under which attributional inferences affect judgment in a direct, heuristic fashion or indirectly, by influencing the amount of systematic processing.

At the level of application, our minority influence research suggests two interesting behavioural strategies other than consistency that social minorities may effectively employ. They may either use an 'expectancy disconfirmation strategy' or a 'distinctiveness strategy'. One difference between these two strategies lies in the 'reality constraints' that they might face. To effectively apply the disconfirmation strategy, a minority group needs to find a focal position that it really endorses and that is in opposition to the existing group stereotype—a conjunction of features that may often be hard to find. The distinctiveness strategy, in contrast, is based on the disconfirmation of expectations regarding the general pattern of beliefs held by the minority that 'surround' the focal topic. Thus, this strategy may be easier to exploit because it should almost always be possible for a minority group to point to some topics for which they share majority views, even if the focal position they would like to promote is in line with what the majority expects from them. It is possible that the distinctiveness strategy may be employed with equal success by both minorities and majorities. In the study by Bohner, Frank, and Erb (1999), high distinctiveness was equally effective in producing attitude change for both minority and majority sources. The disconfirmation of expectancies, however, as it was featured in the studies by Moskowitz and Chaiken (1995; Moskowitz, in press), may be a more efficient means of influence for minorities than for majorities, given that they possess convincing arguments for their cause.

As our preliminary results indicate, the combination of attribution theory, minority influence models, and the HSM should provide a fertile ground for future investigations. We are confident that the heuristic-systematic model will continue to be of heuristic value for the systematic investigation of human social information processing, not only in the areas of affective processes and minority influence.

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