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Minority and Majority Influence on Attitudes

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1. Introduction

1.1 What is an attitude?

In a complex world a quick evaluation of objects and situations is very helpful. It can guide our attention and behavior toward the things that matter to us. Attitudes are such evaluations. They can refer to anything one can conceive of: individuals and groups, products, music, or even smells, as well as suggestions and ideas. For example, when we meet someone new, we form an attitude toward our new acquaintance within seconds. Often, we do not know where this affective reaction comes from.

Attitudes can be formed in various ways: Imagine you are browsing the Internet for a holiday destination. You will find hundreds of different offers for package tours: how do you decide which one to book? You may like the pictures of the sea or of people relaxing in a bar. Maybe the web advertisement claims that 89% of costumers were highly satisfied with the holiday. Or, if it is very important to you not to spend too much money, you will elaborate carefully on which services are included. Eventually, you will come up with a summary evaluation regarding which offer is the best, and, if you consider the price to be appropriate, perhaps buy it. As this example illustrates, many different aspects can impact the evaluation of an object. A spontaneous affective reaction is immediately activated (in this case that could be a positive reaction to sunny pictures), heuristic inferences are made, for instance, "if 89% were happy it must be quite good", or very systematic thinking about the concrete features of the offer results in a judgment of whether this holiday suits you or not (see Erb, et al., 1998, expt. 2).

1.2 How to measure attitudes?

Social psychologists invented a large range of measurement paradigms that tap into different aspects of attitudes and attitude change. The simplest way to assess an attitude is to just ask people how they like something, on a scale, for instance, from "not at all" (1) to (7) "definitely like it," or to ask whether or not they agree with statements in favor or disfavor of the attitude object (Likert scale; Likert, 1932). Those are examples of self-report measures of attitudes that will be referred to as explicit attitudes in this chapter. When attitudes are measured by asking people explicitly how the object of interest is liked, respondents are usually able to answer this question. However, the outcome is also subject to impression management and may not cover all aspects like spontaneous affective reactions. To eliminate effects of social desirability on attitude measures social psychologist developed several "tricks".

They used feigned lie detectors (bogus pipeline, Jones & Sigall, 1971), word fragment completion tests (Gilbert & Hixon, 1991), and numerous other paradigms.

A relatively new class of attitude measures concentrates on reaction time effects of attitude stimuli. In a nutshell, attitudes are inferred from effects of interference or facilitation on very fast evaluative responses. These paradigms allow to measure spontaneous, difficult-to-control reactions that will be referred to as implicit attitudes in this chapter. Two paradigms have been predominantly applied: the implicit association test (IAT, Greenwald, et al., 1998) and the evaluative priming task (Fazio, et al., 1995; for a review see De Houwer, et al., 2009). When answering an IAT, participants classify stimuli via key-presses with respect to a target category or to their valence. Two sorts of experimental blocks are conducted with several trials each: in a "compatible" block, the target categories and positive or negative answers share response keys according to their presumed association. For example, participants press the left key for insects or negative stimuli, and the right key for flowers or positive stimuli. In an "incompatible" block, one of the key-assignments is reversed (insects or positive – left; flowers or negative – right). Differences in response times between the two blocks (incompatible minus compatible) indicate the difference in implicit attitudes toward the two concepts. More positive implicit attitudes toward flowers (versus insects) result in shorter reaction times in the compatible block and longer ones in the incompatible block, thus resulting in a positive difference. For more information about implicit measures of attitudes we refer the reader to other volumes (see e.g. De Houwer et al. 2009; Gawronski & Payne, 2010), as a full discussion would exceed the range of this chapter.

In sum, we have seen that attitudes can be measured in different ways. Attitudes have consequences on how we think and act (Allport, 1935). Thus, measuring different aspects of attitudes can help to predict how people eventually act. The prediction of both spontaneous and deliberate aspects of behavior may improve when applying both implicit and explicit measures of attitude (Friese, Hofman, & Wänke, 2008).

2. Attitudes and attitude change

As in other fields of social cognition, the notion of automaticity was central to attitude research within the last two decades (Bargh, 2007). Although implicit measures are probably not the "bona fide pipeline" (Fazio, et al., 1995) to attitudes, they do provide the means to investigate automatic evaluative responses that are often not easily accessible to introspection – and therefore cannot be easily reported in questionnaires. A great number of studies employing several variants of implicit measures of attitudes aimed to disentangle the processes underlying spontaneous attitude formation and change (e.g. Conrey, et al., 2005). Concerns, with respect to internal and construct validity of implicit measures have been extensively discussed (e.g. Rothermund & Wentura, 2004; Moors & De Houwer, 2006). Meta-analysis suggests that implicit and explicit attitudes are generally related, but higher levels of elaboration can reduce correlations (see Hofmann, et al., 2005). For the purposes of this chapter we will assume that implicit measures tap more or less into spontaneous affective reactions, while explicit measures reflect more effortful thinking including self-presentational issues.

Several models have been proposed to integrate results from implicit and explicit measures, including the meta-cognitive model (Petty, et al., 2007) and the reflective-impulsive model

(Strack & Deutsch, 2004). We will concentrate here on one of the most influential models, the associative-propositional evaluations model (APE model, Gawronski & Bodenhausen, 2006a).

2.1 Explicit attitude change: How many routes to persuasion?

An early explanation for attitude change was cognitive dissonance theory (Festinger, 1957). Cognitive dissonance emerges when interrelated cognitions contradict each other. For example, if I drink a coffee with my colleagues after every lunch although I do not like coffee in general, this would give rise to dissonant feelings about coffee. On the one hand, I don't like the taste, but on the other hand, I drank it, so I must like it (Bem, 1972). When individuals have a reason to which they can attribute their behavior, this reason can be added as dissonance-reducing cognition and no attitude change is necessary. In the coffee example, such additional cognitions could be "it's nice and sociable to have a coffee together" or "drinking a coffee makes me alert enough to concentrate on my work". When no external justification and no other way to resolve dissonance can be found, attitudes are often changed to regain cognitive consistency. In this example, the attitude toward coffee would become more positive. This effect was shown with participants who were asked to tell another participant that a boring experiment they had just attended was in fact exciting (Festinger & Carlsmith, 1959). They were either paid 1 $ or 20 $ for lying. The group who received the large amount of money did not change their attitude toward the experiment, whereas the group who received only 1 $ liked the experiment more. Here, the relatively large amount of money served as external justification for the positive statement about the experiment. If only little money was received this was not sufficient to resolve dissonance, so attitudes were changed.

Dual-process models of persuasion – the elaboration likelihood model (ELM, Petty & Cacioppo, 1986) and the heuristic-systematic model (HSM, Chaiken, 1987) – emphasize that attitude change can be due to low-effort or high-effort processing, termed peripheral and central route in the ELM and heuristic and systematic processing in the HSM. Which processing style occurs depends on a person's current motivation to hold a correct attitude and limits to processing capacity. Low motivation or scarce capacity will result in peripheral/heuristic processing, whereas high motivation and ample capacity lead to central/systematic processing of the arguments. The ELM emphasizes that any variable in the persuasive setting can function in "multiple roles" (Petty & Wegener, 1998). Take, for example, the presentation of a car by an attractive model: People may either process effortlessly, misattributing the positive affect elicited by the model to the car, or they may apply more processing effort, thus realizing that the attractiveness of the model does not say anything about the quality of the car. Moreover, the attractiveness of the model could also trigger motivation to associate oneself with her by liking the car she drives and thus motivation to find reasons to like the car by increased central processing. The ELM also predicts that the amount of central processing an individual engages in is positively related to the strength of resulting attitudes (Petty, et al., 1995).

The HSM assumes that both heuristic and systematic processing may serve multiple motives: accuracy, impression, and defense motivation. Accuracy-motivated individuals strive to hold correct attitudes, thus systematic processing is increased. When the impression motive is high, social needs will be served through expressing socially

acceptable views; thus, impression-motivated processors will need to determine which attitude is most socially desired. Defense-motivated processing tends to confirm a person's self-relevant views and to avoid or reject opposing views. The HSM also features hypotheses about the co-occurrence and interplay of heuristic and systematic processing (Bohner, et al., 1995; Chaiken, et al., 1989): The *bias hypothesis* predicts that heuristics may lead to systematic processing in line with the valence of a heuristic cue. For instance, Chaiken and Maheswaran (1994) found that, under conditions of high task-importance, systematic elaboration of ambiguous arguments was biased by source credibility cues. Thus, readers' evaluation of a fictitious answering machine was more positive when ambiguous reasons to buy came from an independent test magazine rather than when the same arguments were stated in a retail chain's advert. Evaluative judgments were mediated by the valence of listed thoughts, indicating that systematic processes were indeed biased by cue information. A mirror-image of the bias hypothesis is the *contrast hypothesis*, which assumes that source cues can bias message processing in a direction opposite to the evaluative implications of cue valence. This effect was shown with expert and lay communicators giving strong versus weak arguments on a tunnel project (Bohner, et al., 2002). When experts promoted the tunnel with only weak arguments, participants' attitudes were less favorable than when the same weak arguments came from a lay person. Conversely, strong arguments presented by a lay person (vs. an expert) tended to be more persuasive. Presumably, when argument quality violates expectancies derived from source information, the result is a contrasting evaluation of the topic.

Despite their ability to predict attitude change in persuasion research, dual-process models of persuasion were challenged by the unimodel (Kruglanski & Thompson, 1999). The unimodel claimed that differential effects for cue versus message processing were due not to qualitatively distinct *processes* but rather to the different *nature of the information*. In typical persuasion experiments, cues were relatively short and easy to process, whereas arguments typically consisted of longer texts that consume more effort and time to read. Therefore, unsurprisingly, it takes more effort to process lengthy message arguments than, for instance, a short sentence about source expertise. Moreover, in research on dual-process models, persuasion cues were typically presented at the beginning, and arguments followed later. Kruglanski and Thompson (1999) argue that all processing of attitude-relevant information could be conceptualized better via a single underlying mechanism of syllogistic reasoning: When a recipient reads a persuasive message, she will compare the information with available relevant knowledge. For instance, if an expert from a renowned 'Institute for Natural Energy Resources' claims that oil is becoming scarce, every part of the sentence will run through a check-up with relevant knowledge. A major premise (i.e. prior knowledge) in this case may be "experts know a lot about their field and are usually right", and the minor premise taken from the persuasive information could be "this is an expert on the topic", and the conclusion will then be "… so she is probably right, and oil is indeed becoming scarce". Similar inferences can be made about specific arguments of the message. In this case, one of the arguments could be that oil prices are constantly rising, which can be related to know-ledge about price increases following the scarcity of a product. The unimodel postulates that some parts of information may be processed relatively easily, whereas some inferences may require relatively large amounts of effortful thinking. How much effort is put into pro-cessing of a persuasive message is determined by motivation and capacity to process. If mo-tivation or capacity to process is low, elaboration will end relatively early. Consequently, in-

formation that is presented first – like cue-information in studies on dual-processes in persuasion – will affect the evaluative judgment more strongly than identical information that is presented later. In sum, the unimodel does account for evidence that had been interpreted in terms of dual-process models; moreover, it explains additional effects of order of presentation (see e.g. Erb, et al., 2007), which dual-process models could not easily explain.

As models of persuasion were primarily concerned with the explanation of effects on explicit evaluative judgments, they cannot be directly applied to findings from studies employing implicit measures of attitudes (but see Petty & Wegener, 1998). The next section will introduce a model that integrates findings from explicit and implicit attitudes.

2.2 Integration of implicit attitudes and explicit attitude change

Based on a constructionist concept of attitudes (Schwarz & Bohner, 2001; see also Bohner & Dickel, 2011), the APE model (Gawronski & Bodenhausen, 2006a) discusses the interplay between changes on implicit and explicit measures. It proposes two general, distinct processes of attitude change: associative change, i.e. change in the automatic activation of cognitions associated with an attitude object, which is largely reflected in changes on implicit measures, and propositional change, which is characterized by the process of consciously ascribing a truth value to a thought about an object; the latter is captured mostly by explicit attitude measures.

Associative structure is modeled based on connectionist theory (for connectionist conceptualizations of attitudes see Conrey & Smith, 2007; Monroe & Read, 2008; Smith, 1996). "Connectionism is an approach to cognitive modeling that uses linked networks of concepts to represent cognitive structures. In these networks, activation flows between nodes and changes the activation of individual cognitions" (Monroe & Read, 2008, p. 735). The APE model assumes that *associative change* – as captured by implicit attitudes – relies either on changes in the associative structure or on changes in the activation pattern of associations. When a stimulus is perceived, associated cognitions are activated automatically, irrespective of the personal approval of an association. According to the APE model, the prototypical case of change in associative structure is evaluative conditioning, a procedure by which an originally neutral stimulus acquires valence when perceived together with a positive or negative stimulus. For example, in a study on evaluative conditioning with children, unknown cartoon characters were repeatedly presented paired either with ice cream or with Brussels sprouts (Field, 2006). Afterwards, the children liked the characters more when they had been presented together with ice-cream than when they had been presented with Brussels sprouts. The APE model assumes that procedures like this change the associative structures and therefore produce change on implicit attitudes. Associative change can also occur due to changes in pattern activation, this means, accessible parts of the associative structure are activated situationally. For illustration, consider a consumer who usually buys the same brand of a chocolate bar, because he likes the sweetness, color of packaging, texture, etc. When he is on holiday he might associate completely different aspects related to chocolate than usual, which have become more accessible through the unfamiliar situation. For instance, when it is hot, chocolate might be considered to melt easily, or different product alternatives might be available. Depending on the context – home versus holiday – different aspects are highly accessible: at home the usual association of the bar as being smooth and sweet is likely to be activated, whereas on holiday, when it is hot, the sticky aspect of melt-

ing chocolate might take priority. After all, our consumer will perhaps buy some olives instead. Hence, different contexts can render certain aspects accessible, i.e. the pattern of activation can differ depending on the context. A research example for context-effects on implicit attitudes is an IAT-study by Foroni and Mayr (2005), who showed a reversed pattern of liking for insects and flowers after participants imagined a fictional post-nuclear war scenario, where insects were the only healthy nutrition and flowers were contaminated (for more evidence of context-sensitivity of implicit attitudes see e.g. Barden, Maddux, Petty & Brewer, 2004). The APE model emphasizes that associations are activated automatically independent of personal approval.

In contrast, *propositional change* of attitudes, according to the APE model, is based on careful thinking about a topic. Every thought is given a positive or negative truth value. Consequently, the set of considered propositions can be consistent or inconsistent. Evaluative implications of automatic associations are set into proportion to propositions and will be either approved or rejected. The amount of propositions that is generated or considered is determined by motivation and opportunity to process. Longer engagement in propositional evaluation will result in more propositions, which, in turn, increases the likelihood of imbalance within the set of propositions. In our example on oil prices, additional thoughts like "distributors may have deliberately flowed less oil to increase prices" could weaken our earlier reasoning that rising oil prices allude to significant scarcity of natural oil resources, and would call into question the expertise of the communicator and her statement. These new propositions are added to the set of considered propositions and might result a higher degree of inconsistency. Individuals can adopt several strategies to reconcile inconsistent propositions (see Festinger, 1957). Inconsistency can be resolved either by rejecting an inconsistent proposition as false or by finding new propositions that resolve the inconsistency. Only the first strategy will result in explicit attitude change.

According to the APE model, attitude change can occur independently via both processes, and one process can also be mediated through the other, respectively. However, the default case is approval of the associative evaluation, as individuals usually invest as little cognitive effort as possible (see also the "cognitive miser", Fiske & Taylor, 1991). If motivational factors lead to further elaboration, automatic evaluations can be rejected, or systematic thinking can bring propositions to mind that reflect on associative structure, for instance with the activation of incidents like the crash of the oil rig "deepwater horizon", which was associated with destruction of nature, thus presumably activating negative associations.

The assumption that processes of implicit and explicit change differ qualitatively from each other has been questioned (Kruglanski & Dechesne, 2006) – a discussion resembling that between dual-process models and the unimodel in persuasion research. In particular, the view that activation of an association is independent of assigning a truth value to it, and that evaluative conditioning is a paradigmatic case of associative change has been much debated (Kruglanski & Dechesne, 2006; Mitchell, et al., 2009). Against the view that the activation of associations can be thought of as rule-based ("if … then rules" like in the unimodel, Kruglanski & Thompson, 1999), Gawronski and Bodenhausen (2006b) hold that associative pattern activation may well follow rules, but these do not have to be consciously represented by individuals; instead, they can be inferred by researchers observing behavioral data. With respect to evaluative conditioning, a recent approach postulates a merely propositional process to underlie evaluative conditioning (De Houwer, 2009).

Despite these controversies, for our analysis it seems crucial that implicit measures of attitude capture very quick reactions that reflect more difficult-to-control affective reactions to an object (Hofmann, Friese, & Strack, 2009), whereas explicit measures of attitude capture more reflective, controlled evaluations (see also Strack & Deutsch, 2004).

Having introduced major theories of attitude concepts and attitude change in general, we will now turn to a highly interesting special case of attitude change – social influence on attitudes exerted by minorities and majorities. On the one hand, it will be very helpful to have theories of attitude change as a background for analyzing effects of minority and majority communication. On the other hand, sometimes paradoxical findings in minority and majority influence research provide the chance to test the applicability and limits of recent attitude change theories. In the last part of the chapter this discussion will converge into a new model of consensus effects.

3. Minority and majority influence

Although the origins of majority and minority influence research started with the investigation of the malleability of perceptual judgments, most studies conducted since the late 1980s have concentrated on how attitudes are influenced by minority and majority sources. We will nevertheless start with a short discussion in honor of the seminal works by Solomon Asch (1952, 1956) and Serge Moscovici and his colleagues (1969, 1980), because most studies still refer to the methods and assumptions introduced by them.

3.1 The roots of social influence research: Conformity and nonconformity in perceptual judgments

3.1.1 Nothing but conformity?

Under the impression of the Holocaust, social psychology used to focus very much on effects of group pressure. Solomon Asch asked whether we may "simply conclude that [groups] can induce persons to shift their decisions and convictions in almost any desired direction [...]” (Asch, 1956, p. 2). In his seminal studies on conformity (1956, Exp. 1) he investigated whether even simple perceptual judgments could be affected by a contradictory majority claim. A confederate majority of eight students and a minority of one participant engaged in a line judgment task that compared the length of a standard line to a set of three comparison lines. The line of equal length should be identified and stated out loud. In critical trials, the majority unanimously gave an evidently wrong answer. Compared to a control condition, where participants and confederates wrote down their answers silently, the likelihood of wrong answers in critical trials increased dramatically when participants answered in public.

Asch's work started up a whole field of research in social psychology. Many studies investigated the circumstances that cause conformity and the processes that underlie conforming behavior. A meta-analysis conducted on 133 studies that employed the line judgment task (Bond & Smith, 1996) showed conformity to be stronger in collectivist countries than in individualist countries. Other moderators of conformist behavior were (a) type of stimulus material: the more ambiguous the material the greater the influence by the majority (e.g. Crutchfield, 1955), (b) out-group versus in-group status: out-group majorities had signific-

antly less influence than in-group majorities (e.g. Abrams, et al., 1990), and (c) the proportion of female respondents: a larger proportion of females in the sample increased the size of the majority effect (see Bond & Smith, 1996, p. 120).

In summary, although at least half of Asch's sample can also be said to have acted sensibly by just occasionally giving in to signal their willingness to cooperate with the majority (see Hodges & Geyer, 2006), most researchers in the 1950s to 1970s including Asch himself saw overwhelming evidence for non-rational conformist behavior (Milgram, Bickman, & Berkowitz, 1969; for a review see Cialdini & Trost, 1998). This prevailing perspective provoked Moscovici and his colleagues to challenge the one-way reasoning on social influence processes by investigating how minorities can exert influence on majority members.

3.1.2 The rehabilitation of the minority

If conformity were the dominant principle in groups and societies, a complete synchronization of thoughts, actions and attitudes would result, and no societal change would ever happen. Thus, new ideas that are usually supported by minorities at the beginning would never succeed. However, there are numerous examples from history that social change is possible, and hence minorities do exert some influence. A very successful social movement that was supported by a minority of people at the beginning was, for example, the environmental movement. Thirty years ago the use of recycling paper and saving energy was rather exotic, but today has become rather common.

Moscovici and his colleagues wanted to find experimental evidence that minorities also could exert substantial influence on majority members' judgments. For this purpose, a perception task was used (Moscovici & Personnaz, 1980): Predominantly blue slides with little proportions of green were projected on a white wall. A confederate and a participant were asked to publicly name the color of the slides and then, in private, to name the color of the afterimage that appeared on the white background after the stimulus had disappeared. Due to features of human vision, the color of this afterimage is complementary to the originally perceived color. The confederate answers (always "green") were allegedly either associated with a minority of 18% or with a majority of 82% from earlier experimental trials. As a result, public responses on the color of the slide did not differ between the minority and majority condition. However, color judgments of the afterimage given in private tended to be closer to the afterimage of green in the minority condition than in the majority condition (Moscovici & Personnaz, 1980). Studies on the afterimage effect constituted the core endorsement of Moscovici's conversion theory (1980), which assumes that minority and majority influence engender two different processes: individuals confronted with a majority engage in a comparison process, which compares their own tendency to answer with the majority's response, but do not consider in detail the reasons behind the majority statement. The detection of differences between one's own answer and the predominant answer results in public compliance, but not in private change. Minority positions, in contrast, due to their distinctiveness, set off a validation process that strives to understand why the minority's response is different. Minorities, thus, can cause private change that is usually not stated publicly, as people do not want to be associated with a minority (see Mugny, 1982).

The afterimage studies and conversion theory have been most influential in social influence research and induced several research projects on the impact of minorities (e.g. Mugny,

1982; Nemeth, 1986). However, despite its large influence, the original studies turned out to be difficult to replicate (see Wood et al., 1994, who found authorship effects with higher levels of indirect minority influence for studies conducted by Moscovici or his students as compared to other research groups, p. 335). Several criticisms concerning the methodology of the after-image studies lead to rejection of the evidence from the afterimage paradigm (see Martin & Hewstone, 2001). Still, – much like conversion theory itself assumes – the afterimage studies and their precursors, initially being a minority position in the scientific field, directed attention toward the impact of minorities and have stimulated a lot of research, of which a selection will be reviewed in the next section.

3.2 How many routes to minority and majority effects on explicit attitudes?

Much like in persuasion research generally, there are two lines of modeling processes of minority and majority influence. On the one hand, approaches based on Moscovici's conversion theory assume two distinct cognitive processes underlying minority and majority influence (e.g. Crano & Alvaro, 1998; Nemeth, 1986). While minorities urge people to think carefully about the positions and agree rather privately than in public, majorities cause public conformity without much systematic thinking. On the other hand, some models posit the same underlying process for minority and majority influence, with power of influence proportionate to the level of support (e.g. Doms & van Avermaat, 1983; Kruglanski & Mackie, 1990). Although the implementation of paradigms from persuasion studies in minority and majority influence research (e.g. Baker & Petty, 1994; Erb et al., 1998; Maass & Clark, 1983; see also Bohner, et al., 1995) allowed for a more direct assessment of the amount of processing that was triggered by each source, as we will see, the findings are mixed (see Wood et al., 1994). This is mainly due to different experimental designs and operationalizations, which will be discussed.

3.2.1 Dual-process accounts

Most of the dual-process models of minority and majority influence assume that minorities – due to their distinctiveness – attract larger amounts of attention toward their positions (Moscovici, 1980; Nemeth, 1986). If not derogated per se, e.g. because the minority belongs to an out-group (Mugny, 1982), minority statements will be elaborated more intensely than majority issues (Crano & Alvaro, 1998). More intense elaboration of strong arguments should result in greater change, especially when no prior judgment has to be defended (Crano & Hannula-Bral, 1994; Petty & Cacioppo, 1986). This change, however, is often not expressed as people often do not want to be associated with a minority. Change on the focal judgment can also be blocked and transferred to indirectly related judgments. In a series of studies, Crano and his colleagues (Alvaro & Crano, 1997; Crano & Alvaro, 1998) employed an indirect measure of minority and majority influence. Attitude change following in-group minority communication emerged on topics that were only indirectly related to the focus of persuasion, with the participants being unaware of this relation (cf. Mackie, 1987, who found change on related topics following both minority and majority communication).

Since the formulation of dual-process models of persuasion, pronounced parallels to social influence research have become evident (Bohner, et al., 1995; Maass & Clark, 1983; Nemeth, 1986). Both systematic processing (HSM) and the central route to persuasion (ELM) comprise careful scrutiny of available information, which can be seen as similar to the presumed

validation process triggered by minority communication. Also, low effort processing modeled by HSM and ELM are comparable to low-effort compliance to majority statements. Thus, minority and majority influence research could benefit from methodological advancements, such as systematic variations of argument quality, to investigate more directly the processes at play.

In an experiment using a thought listing technique, Maass and Clark (1983) assessed which kind of processing route (in terms of the ELM) participants would engage in after minority and majority communication. Following simultaneous exposure to minority and majority argumentation on gay rights (with positions counterbalanced across experimental groups), participants completed a questionnaire either in private or in the expectation that it would be presented publicly to a discussion group. Much in line with conversion theory, attitudes moved toward the majority if expressed publicly and toward the minority if recorded privately (exp. 1 and 2). Thought listings on the topics showed – interestingly – the same level of cognitive activation (i.e. number of thoughts) for both minority and majority sources. As predicted by conversion theory along with the ELM, persistent attitude change was mediated by level of cognitive activity (central route processing), but compliance was not (expt. 2).

Inspired by the HSM (Chaiken, 1987; Chaiken, et al., 1989) and attribution theory (Kelley, 1967, 1973), Bohner, et al. (1996) conducted a study which addressed the role of distinctiveness information in minority and majority influence. Conversion theory (Moscovici, 1980) promotes distinctiveness – besides consistency – as one of the central factors that exclusively increase minority persuasion because it attracts attention to the issue and the minority's position, which should be scrutinized more systematically as a consequence. However, distinctiveness in terms of conversion theory (Moscovici, 1980) differs substantially from distinctiveness as employed by attribution theory (Kelley, 1967): Moscovici concentrates on the salience of the minority members, whereas Kelley focuses on which opinion is salient. The framework of the covariation model, hence, predicts high levels of persuasion when distinctiveness, consistency, *and* consensus are high. Under these conditions high levels of persuasion are mediated by entity attributions (to the facts concerning the persuasive topic). Predictions by attribution theory were supported, showing a disadvantage for minority (as compared to majority) persuasion if distinctiveness and consistency are constant for both conditions. Ironically, Moscovici was right to identify distinctiveness and consistency as powerful mediators of persuasion, although, this applies to both minority and majority sources. However, these results do not speak to the question of whether high levels of distinctiveness lead to more systematic processing. This was further clarified by another experiment (Bohner, Frank & Erb, 1998) which found independent main effects of argument strength and distinctiveness, indicating that distinctiveness in itself did not affect the level of systematic processing.

Evidence by Nemeth and colleagues suggests that it is rather the *type* of thinking than the amount of attention which is guided by consensus information (Nemeth, 1986). In a figure-comparison task where all patterns that contained a standard figure should be identified, participants found more alternative solutions after they had seen a minority (rather than a majority) member find a solution that differed from the most obvious solution (Nemeth & Wachtler, 1983). Thus, following minority influence participants found more alternative solutions, which Nemeth (1986) interpreted as due to a *divergent thinking* style, whereas

majority influence prompted mere reproduction of the demonstrated solution, which Nemeth interpreted as due to *convergent thinking*. Further results indicating divergent thinking following dissent were found with other dependent variables like word-associations (Nemeth & Kwan, 1985) and free recall (Nemeth, et al., 1990). Evidence for divergent thinking was also found by Erb and colleagues (1998), who analyzed the content of thought listings following minority communication in a persuasion paradigm: Independent of valence, consensus information predicted the novelty of thoughts. Nemeth (1986) attributed the larger creativity to the fact that being confronted with a minority is generally less stressful than being confronted with a majority. Moreover, when levels of stress are high, more attention is driven to the central task, peripheral aspects are neglected. Thus, the lower levels of stress experienced when confronted with a minority widens the focus and allows for more creative solutions (see also Gawronski & Bodenhausen, 2006a, p. 700). According to the mere consensus approach, a more general explanation for increased levels of divergence following minority communication may be priming unusualness. Minorities – due to their inherent property of being unusual – will make more creative solutions more accessible.

In summary, the adoption of persuasion paradigms by social influence studies has ruled out largely the assumption of high- versus low-effort processing as attached to minority and majority communication. Rather, minority sources (as compared to majority sources) elicit a different focus of thinking: Minority communication seems to widen the focus of the addressee whereas majority communication narrows the focus. Alternatives to social influence models that assume two different modes of processing have proposed a single modus at operation irrespective of the minority versus majority status of the communicator.

3.2.2 Single-process accounts

Single process accounts assume a general influence process for both minority and majority sources (Doms & van Avermaet, 1980; Latané & Wolf, 1981; Tanford & Penrod, 1984). With their social impact model, Latané and Wolf (1981) criticized that minority and majority influence could not be compared validly in many studies to that date, because the direction of influence was either from an active majority to a passive minority or vice versa and was often confounded with power of the source. They proposed that the influence of both sources should instead be studied simultaneously and be defined merely by their numerical differences. As a result, consensus is disentangled from power and other factors that may affect level of influence. The remaining difference in support for a topic can be estimated as a function of numerical group size. Hence, a unitary influence by majorities as well as minorities is predicted by three factors: strength, closeness, and size of a group (Latané & Wolf, 1981). A study on social impact in electronic groups (Latané & L'Herrou, 1996), investigated how spatial relations between people affect the spread of influence and maintenance of diversity. It showed that complex geometries (with clustering in families, etc.) and boundaries to communications (like rivers, walls etc.) promote influence by minorities, whereas open social networks without spatial boundaries foster larger majority influence.

In her studies, Mackie (1987) specifically questions the core assumption of most dual-process accounts, that majority sources elicit less elaboration of the topic than minority sources do. She argues that high consensus usually indicates correctness, and hence, if it differs from one's own position it is worth spending some thought on the majority's statement (see also Bohner, et al., 1998). She had participants listen to tape-recorded discussions with

arguments for both sides. Arguments were counterbalancedly attributed to either a minority or a majority; consequently participants were exposed to minority and majority position simultaneously (exp. 1 and 2). Attitudes toward the topic were assessed privately both before and after the message and again with a week's delay. In addition to the focal attitude, related topics were tested. Those participants who had been opposed to the majority's opinion significantly changed their mind in the direction of the majority position, whereas all others did not. Majority-induced attitude change generalized to related topics. Also, the recall and amount of elaboration of arguments predicted immediate attitude change. Thus, participants did process systematically what the majority said. In a similar vein, Baker and Petty (1994, Expt. 2) found that both processing of minority positions and of majority positions can be enhanced when their arguments contradict source-related expectations. That is, majorities that claimed positions opposed to prior attitudes held by participants as well as minorities stating the participant's position were surprising and thus gave rise to scrutinity.

In response to this challenge to dual-process explanations, it could be argued that single-process approaches did not include measures of latent influence that should emerge primarily following minority positions, and therefore the differential impact of minorities (compared with majorities) could not be detected (Maass & Clark, 1984; Nemeth, 1986). Some studies (e.g. Mackie, 1987) considered this aspect by including measures of indirect attitude change, but still did not confirm a duality of processes.

3.2.3 Discussion of both approaches

Kruglanski and Mackie (1990) offered a framework for examination of whether minority and majority influence are driven by distinct processes or rely on the same principles. According to their analysis, strongest evidence for process distinctiveness would be given if a factor affected minority influence in a different way than majority influence. For example, if high behavioral distinctiveness increased only minority influence but decreased majority influence, two different mediating processes could be assumed. As we have seen, however, distinctiveness does not moderate minority versus majority influence (Bohner et al., 1996; Bohner et al. 1998). Factors that necessarily covary with relative source size and mediate the persuasive outcome would also support the duality assumption. In their review, Kruglanski and Mackie (1990) identified only one variable that is necessarily tied to consensus information, namely the applicability of the consensus heuristic ("majorities are usually right"). No other strong cases for process distinctiveness were observed. However, even in cases when source impact moderates the outcome, it is not compulsory to assume two processes at operation (see also Kruglansi & Thompson, 1999, and Miller & Pederson, 1999).

In their meta-analysis, Wood and her colleagues (1994) found mainly quantitative differences between minority and majority influence. Solely for studies with perceptual measures of social influence, a superior minority influence could be shown. However, as mentioned above, due to their methodological flaws these studies should not be counted as evidence for duality of processes in minority and majority influence. A large variety of experimental designs makes direct comparison between studies on minority and majority influence difficult. Minority and majority status was sometimes implemented in combination with power (Mugny, 1982), prior attitudes were either moderate or opposed to the persuasive message (e.g. Mackie, 1987), sources had in- or out-group status (David & Turner, 1999), and other

factors were varied (see Wood et al, 1994). At the same time various operationalizations were used, including fictitious (Erb et al., 1998) versus real topics (Maass & Clark, 1983; Alvaro & Crano, 1997), or real groups (Moscovici, et al., 1969) versus reported poll results (Thoben & Erb, 2010). These diverse paradigms complicate a generalization of findings across studies.

However, with their mere consensus approach, Erb and Bohner (2001, 2010) propose to study minority and majority influence detached from all other factors. They argue that "… even if messages are not discrepant and influence groups are not socially relevant to individuals, consensus can have profound effects on message-related processing and subsequent attitude judgments" (2001, p. 43). Responses to high consensus are predicted to be usually more positive than responses to low consensus. This initial evaluative response is said to bias processing of the message. Message processing might also be biased with regard to novelty of thoughts. With messages that comprise several intermediate arguments and few weak and strong arguments, and thus vary argument quality within participants, the biasing effect of consensus information on message processing can be detected more sensitively (mixed-message method, Erb, et al., 2005). Erb and colleagues (1998) report biasing consensus effects even with a pure numerical definition of minorities and majorities, and with fictitious topics where no prior attitudes exist. Majorities do evoke more positive evaluations of attitude objects and cognitive responses. Consequently, consensus in and of itself has a profound influence on social judgments, independent of conflict, power, or prior attitudes.

Of all things, distinctiveness and consistency do not seem to enhance minority influence exclusively (Moscovici, 1980); instead, these factors generalize to majority influence as well (Bohner, et al., 1996; see also Doms & VanAvermaet, 1980). Still, there are factors that seem to moderate whether minority or majority influence prevails: opinion discrepancy (Baker & Petty, 1994; Erb, et al., 2002), in-group versus out-group status (Crano & Alvaro, 1998), need for uniqueness (Imhoff & Erb, 2009), risk priming (Erb, et al., 2009), and motivational states (Bohner, et al., 2008). According to our analysis, these moderating effects of motivation and context are rather due to activation of different aspects that are associated with minorities and majorities than to distinct underlying processes. This idea will be discussed in the remaining sections.

4. Automatic to systematic consensus influence (ASCI) model

With our model of minority and majority influence on implicit and explicit attitudes we argue that introducing automatic processes to minority and majority influence can open a new perspective to the field and generate new predictions. Drawing on the associative and propositional evaluations (APE) model (Gawronski & Bodenhausen, 2006a) and on assumptions about the impact of motivational states on systematic processing, as proposed in the heuristic-systematic model (e.g. Bohner, et al., 1995), we assume that evaluation of minority and majority positions is shaped by the context of presentation and inner motivational and emotional states (see also Kruglanski & Mackie, 1990), at both an implicit and explicit level of information processing.

Figure 1 depicts a schematic illustration of the ASCI model. We will elucidate from the perspective of the ASCI model how information from persuasive settings with minority or ma-

jority sources is processed. The level of explicitness is conceptualized as continuous rather than dichotomous, ranging from very fast, spontaneous (or automatic) reactions over the effortless application of heuristics to any desired level of effortful thinking ('continuum of explicitness' in Figure 1). When a perceiver first sees the text with a minority or majority cue and the persuasive message, external input and internal states determine automatic activation of concepts related to the text. External input could be consensus information, message content, the way and the situation in which the text is presented, etc. Internal states can facilitate processing of matching external input as well as activate concepts from memory. For instance, the need to affiliate with others is likely to render majority sources more positive as they provide a larger basis of social support. Other motivational states include the need to be accurate or for a positive self-concept. Automatically activated concepts related to majorities could be: 'safe', 'correct', 'boring', or even 'repressive', etc. For minorities, concepts like 'rare', 'deviant', 'alternative', or 'risky' might be activated. The affective component of automatic associations is assessed via implicit measures of attitude.
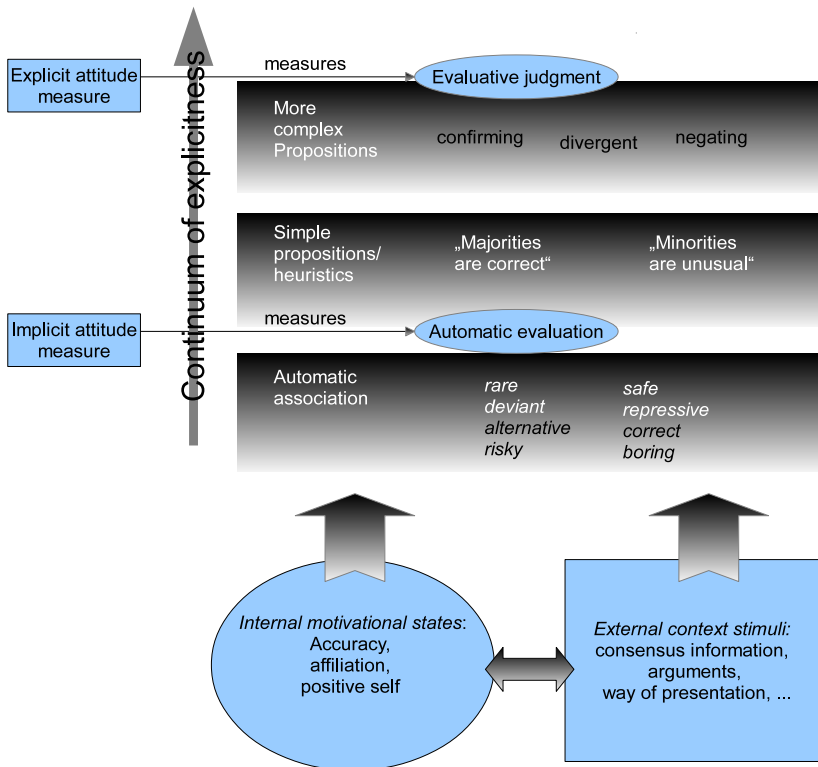

Fig. 1. Motivational states and external context determine automatic associations, simple heuristics and systematic thought about consensus information and persuasive content.

When the level of elaboration increases, simple propositions or heuristics are built upon the activated associations. When motivation to process is high enough, more complex inferences about the relation of consensus information, message content, and other relevant evidence

will be built. At all levels of explicitness, evaluative processing is shaped by external input and inner motivational states. Evaluative judgments measured with self-report questionnaires are assumed to reflect high levels of elaboration about the persuasive setting. Moreover, processing of information can be either broad or narrow; we assume that minority cues trigger divergent processing of information at all levels of explicitness. These assumptions by the ASCI model will be outlined and illustrated in the following sections.

4.1 Implicit minority and majority influence

Implicit measures of attitudes provide the possibility to tap (more or less) into effortless, difficult-to-control or automatic manifestations of attitude change (e.g. Moors & DeHouwer, 2006). So far, implicit reaction-time based measures of attitudes have been applied only in very few studies on minority and majority influence. Extending on mere consensus studies (Erb et al., 1998), we added an implicit measure of the target attitude to investigate whether minority or majority persuasion would emerge at an automatic level (Dickel, 2011). Either a minority of 14% or a majority of 86% recommended a fictitious holiday area (the 'Curutao Lake') quoting several arguments of mixed strength (see Erb et al., 2005). Later, participants engaged in an evaluative priming task, where they categorized target words via left-hand and right-hand key-presses according to their valence. Target words were preceded either by the standard primes 'rain' or 'sun', or by the name of the recommended holiday region 'Curutao'. Interestingly, although explicit attitudes were more positive in the majority condition (compared to the minority condition), the implicit measure of the target attitude was not affected by source status. That is, the 'Curutao' prime did not facilitate responses to positive target words or negative target words in either condition. Yet, automatic evaluation of standard evaluative primes ('rain' versus 'sun') was reversed in the minority condition, i.e. participants that had read the minority position on the lake, responded faster to positive targets that were preceded by the 'rain' prime, indicating, that they evaluated 'rain' positively, whereas 'sun' was automatically evaluated negatively. Following majority communication, the usual evaluation of sun and rain was found at an automatic level. This pattern was interpreted as divergent processing at an automatic level (see also Nemeth, 1986) which could be grounded in a creative mindset (see Galinsky & Moskowitz, 2000) activated by minority cues. To corroborate our view, further studies have to be conducted.

To assess automatic evaluation of minorities and majorities per se, Mucchi-Faina, Pacilli, and Pagliaro (2011) had participants complete an implicit measure of attitudes. In a lexical decision task participants decided via key-presses if a letter string was a word or not. Letter strings were preceded by very short (15ms) masked presentation of the labels "minority" and "majority". Response to positive words was facilitated by majority primes, whereas minority primes did not affect target classification. The results indicate a positive connotation of the word "majority", whereas the word "minority" is not unitarily evaluated.

On the basis of these preliminary results from implicit measures and recent theorizing on attitude change, we propose a theoretical reframing of studies that showed an increased impact of consensus information under conditions of low processing effort. Traditionally, such results have been interpreted in terms of heuristic processing. For instance, when argument quality is not considered by participants, indicating that elaboration effort was low, consensus information becomes more predictive of thought valence and evaluative judgments (e.g. Erb et al., 1998). The application of heuristics like "majorities usually hold correct

opinions" would require active thought or – in terms of the APE model – propositional thinking. However, increased impact of minority versus majority status when processing effort is low could also be explained by assuming (partial) implicit or automatic processing and evaluation of consensus information. The positive automatic reaction to the majority would then mediate the positive attitude toward the persuasive topic.

Moreover, recent studies (Bohner, et al., 2008; Erb, et al., 2009; Imhoff & Erb, 2009) found low effort influence by minorities and majorities on attitudes that was affected by context information or current motives of the perceiver. For example, when participants' need for uniqueness (Snyder & Fromkin, 1977) was high, participants judged minority positions to be more and majority positions to be less attractive even when there were no explicit arguments (Imhoff & Erb, 2009, exp. 1). Here, in our view, the current motivational state shaped processing of consensus information to serve the need for uniqueness – even at an automatic level. As being affiliated with minority sources provides the possibility to enhance one's own unusualness, minority stimuli were automatically evaluated more positively. Finally, the evaluative judgment was based on this positive automatic evaluation of consensus (see APE, case 1). In another study, minority positions were more attractive when participants had been subtly primed with risk-related concepts (Erb et al., 2009). As statements endorsed by minorities are more risky in the sense that they are not as socially approved as majority positions, participants can gain the valuable position of being one of the few 'clever ones' who were correct – but this outcome is fraught with uncertainty. Consequently, minority positions should be more attractive when people are in a "risky" mindset (Erb et al., 2009). Because participants were not aware of the risk-priming, it is plausible to assume that the priming shifted the automatic evaluation of consensus information. The explicit measures employed in the research just described do not speak to the potential impact of automatic evaluations, but, they may well reflect a blend of automatic and heuristic processing.

In the following sections we will take a closer look at how implicit evaluations of consensus information are formed and changed and how they can impact on more explicit evaluative judgments. Building on the APE model, we assume that the pattern of spontaneous activation of concepts (see e.g. Smith, 1996) related to consensus and the persuasive topic is shaped by contextual input and internal motivational states. Which aspects are activated depends on the current accessibility of concepts, which in turn depends on the context of presentation and on motivational or emotional states within the perceiver. Applied to minority and majority influence, context will render specific aspects of consensus information (or parts of information from the arguments) more accessible. For example, in the context of elections large majorities of more than 90% would likely be associated with cheating, whereas in online customer evaluations a consensus of 99% is quite usual and associated positively. In a study that investigated the effects of large minorities and small majorities – at least outside the context of elections – Erb, et al. (2006) found increased minority influence and decreased majority influence when explicit consensus information was larger for minorities (e.g., 48%) and smaller for majorities (e.g., 52%) than the consensus inferred in conditions where no explicit percentages were provided.

Presumably even more powerful than contextual input, internal motivational states can also shift automatic activation of associations (Ferguson & Bargh, 2004). Aspects that are functional to reach current goals will be highly accessible. For example, when a person's need to be unique is high (Fromkin & Snyder, 1977), associations toward minority cues such as

"special" or "rare" might be rendered more accessible because they are goal relevant in the sense that being associated with a minority makes a person more unique (Imhoff & Erb, 2009). Hence, high accessibility of positive aspects related to minorities will result in a more positive implicit attitude toward them. In the same vein, when people are highly accuracy motivated, associations between high consensus and correctness (Bohner et al., 2008; Mackie, 1987) will become more accessible and lead to a positive implicit attitude toward majorities.

To organize the motivational impact on automatic activation of associations toward minorities and majorities we will adopt a catalogue of goals by Cialdini and Goldstein (2004): accuracy in ones judgments, affiliation to others, and maintaining a positive self-concept. When motivation to hold accurate attitudes is high, presumably valid and important information in the persuasive setting is functional to reach the goal, thus, corresponding concepts are activated (e.g. majorities = correct; scientific study = approved). High motivation to affiliate with others will highlight socially relevant aspects that help to reach the goal of affiliation. For example, the aspect that majorities comprise a large source of support might be activated automatically. Ingroups should be evaluated even more positively under high affiliation motivation. When the motivation to maintain a positive self-concept is dominant, aspects that support own held beliefs will be more accessible.

Research from the domain of stereotype reduction (Sassenberg & Moskowitz, 2005) suggests that automatic perception of minority and majority cues might not only impact accessibility of concepts related to consensus information, but could also be capable to affect the *way* in which information is processed (Nemeth, 1986) – even at an automatic level. A creative (versus thoughtful) mindset was activated when participants described three instances where they had been creative (versus thoughtful). Subsequently, a lexical decision task with facial primes of African and European Americans was completed to reveal racial stereotypes of African Americans. Stereotype activation was significantly reduced for participants in a creative mindset (Sassenberg & Moskowitz, 2005). Relating this to our finding, discussed above, that the automatic evaluation of standard words was reversed following minority communication (Dickel, 2011), we assume that considering minority arguments might result in divergent processing that operates at a non-conscious level.

In sum, we argue that automatic associations of consensus cues affect the persuasive outcome – either at an implicit level or by indirectly affecting explicit evaluative judgments (Figure 1). How automatic associations can affect explicit judgments will be outlined next.

4.2 Explicit minority and majority influence

We assume that more systematic processing minority and majority communication can be measured with explicit self reports – like propositional processes in the APE model and systematic processing in the HSM. In line with the APE model we assume that the most common case of propositional thinking is approval of the automatic affective reaction. When motivation and opportunity are sufficiently high to elaborate further, automatic evaluations are compared with inferences about the information. For example, the association "majority = correct = positive" could be questioned when propositions like "majorities also supported genocides" come into play. Such a consideration would create cognitive inconsistency (Festinger, 1957), which could be reconciled by rejecting the association on the basis of

strong arguments. The amount of propositions that are taken into account is affected by the amount of time new propositions are considered, which in turn can depend on (a) current processing goals that define whether the actual level of confidence in the judgment is sufficient or not (Bohner et al., 1995), (b) context effects, e.g. how clearly the information is presented, and (c) available processing capacity. Hence, changes in the considered set of propositions result in changes in explicit evaluative judgments. The content of propositions can – like automatic associations – depend on processing goals and context of presentation.

For example, when accuracy motivation is high, the automatic reaction to the majority label could be positive (see above). Because accuracy-motivated individuals are likely to consider a large range of propositions, they might bring to mind instances where the majority heuristic was misleading. When arguments are strong, this might attenuate the heuristic value of consensus information for accuracy-motivated individuals (see attenuation hypothesis Bohner et al., 1995) – resulting in rejection of the automatic affective reaction – and guide their attention toward other information in the persuasive setting. Thus, when processed with the goal of accuracy, attitudes should be determined by argument quality. However, when arguments are ambiguous, participants with high accuracy motivation presumably accepted the positive automatic reaction toward the majority as a valid source for correct attitudes (Bohner et al., 2008, accuracy conditions), and moderately agreed with the majority. Importantly, if the goal to affiliate or to maintain a positive self-concept is active, the set of considered propositions may differ according to their relevance for the current motive.

The motive to affiliate with others, too, will affect the considered set of propositions that are aggregated in an evaluative judgment or explicit attitude. In general, individuals will strive to identify and adopt attitudes and arguments that are socially accepted. Participants with a highly activated affiliation motive (Bohner et al., 2008, affiliation conditions) accepted the majority's position – irrespective of argument quality. In our terms, they presumably based their judgment predominantly on the positive automatic evaluation of the majority cue as a large source of social support. As motivation to discount majority arguments was presumably low, search for more thoughts was ended relatively early, not bringing to mind conflicting propositions. In contrast, minority positions were scrutinized for valid arguments. As being associated with a minority is usually seen as opposed to the goal to affiliate (see Mugny, 1982), minority arguments have to be really convincing to be adopted.

A study by Erb et al. (2002) illustrates how the need for a positive self-concept can shape propositional processes in minority and majority influence. The authors found more systematic processing of majority messages than minority messages when participants' prior attitudes were moderate; however, when participants' prior attitudes were opposed to the message's position, minority messages were considered more extensively than majority messages. When prior attitudes oppose persuasive arguments, the motivation to maintain a positive self and to reject the arguments is likely to be high. Thus, as it serves the current motivational state, participants will consider a selection of propositions that can easily be discounted and dismissed – resulting in regained consistency between considered thoughts. Here, consensus information can corroborate inferences that the information given is invalid. The aspect of minorities' being deviant and incorrect is highlighted. Consequently, searching for the flaws in minorities' argumentation may appear more fruitful than scrutinizing majorities' messages – higher levels of systematic thinking are thus more likely for opposing minority views (Erb et al., 2002, p. 1180). However, when arguments are strong, and

thus validated to be correct, the proposition that the minority is probably incorrect has to be rejected, to re-establish consistency among propositions. Moreover, an additional proposition might be generated like 'a correct minority is brighter than the majority and brave', which should contribute to the positive evaluation of strong arguments. On the other hand, when arguments are weak, source status implies a simple new proposition that can resolve inconsistency between recipients' own attitudes and views communicated by minorities: Arguments dysfunctional to maintain a positive self-concept can be rejected on the basis that the source is probably incorrect anyway.

Attitude change through effortful thinking following minority and majority communication emerges not only via consideration of different sets of thoughts and motivated rejection of certain parts of the active set of thoughts, it can also be due to changes in the strategy to reconcile contradicting propositions into a consistent judgment (see Gawronski & Bodenhausen, 2006a, p. 701). For instance, by giving example to solve tasks in an unconventional manner, minority sources will highlight the possibility to think outside the box. Although this point should generally transfer to majorities, minorities seem to trigger a processing style that may be characterized as creative or divergent (see above). Thus, contradicting propositions may be more easily reconciled when a person is thinking in a more creative or open way (for theoretical frameworks of processing styles see e.g. Förster & Dannenberg, 2010). Thinking more creatively may well be grounded in automatic processes. On the basis of automatic divergent associations (Dickel, 2011; Galinsky & Moskowitz, 2000; Sassenberg & Moskowitz, 2005) creative thoughts might be more accessible. Also, if group status is manipulated between participants, the existence of more than one alternative group beside a minority could be inferred by the participants, setting a higher norm of general divergence. This reasoning is less likely for (large) majorities (see also Naumer, 1996). Strategies to reconcile contradicting propositions can, again, be shaped by motives and context.

How automatic associations can affect explicit judgments beyond mere approval or disapproval of their evaluative implications will be considered in our assumptions on the interplay of automatic and systematic processing of minority or majority communication.

4.3 Interplay of automatic and systematic processing in minority and majority influence

From the perspective of the APE-model changes in associative structure and/or pattern activation can influence propositional thinking when the automatic association is considered a valid or invalid basis to form an evaluative summary (case 1). Conversely, change in propositions can mediate associative processes by bringing propositions to mind that activate automatic associative reactions (case 4). These cases appear to be conceptualized in the APE model as additive influences with varying weights on associations and propositions. For example, in the evaluative conditioning study described above (Field, 2006), where children liked cartoon characters more after they had been presented together with ice-cream (than with Brussels sprouts), the APE model would assume a change in associative structure of the character's representation. Corresponding change on explicit measures would be due to the approval of the associative implication (Gawronski & Bodenhausen, 2006a).

By contrast, we assume that automatic associations can trigger assimilating and contrasting biases in propositional thinking. Consensus information and dominant features of the mes-

sage will automatically activate certain aspects of the concepts. Which aspects will be activated depends on the context of presentation and on the perceiver's motivational state. For example, a majority cue could activate the concept 'correct' or 'safe' when an accuracy goal prevails. Based on these active concepts effortful thinking will bring to mind inferences about source implications and the topic. Thus, once a majority cue has been evaluated positively (e.g. due to the perceiver's motivational state), the perceiver will be more likely to generate thoughts that will support the majority's arguments. Hence, the valence of thoughts will be assimilated to the initial automatic affective reaction. We assume that an assimilating bias in effortful thinking will occur only when message arguments are open to interpretation to some extent. If, however, message arguments violate the implications of initial associative reactions to the source, these initial reactions will be actively rejected, and the result will be a contrasting bias in effortful thinking (see Bohner et al., 2008).

4.4 New predictions

Implicit attitudes toward consensus information and toward the message topic change according to motivational states and context factors. When accuracy motivation prevails, high consensus usually activates positive (goal-serving) associations of correctness, whereas low consensus activates negative associations of incorrectness. When affiliation motivation prevails, minority and majority stimuli will activate different aspects of the concept: Belonging to a majority will usually satisfy the need to be connected more effectively than being associated with a minority. When the motivation to maintain a positive self-concept prevails, consensus information can be functional to discount or corroborate a perceiver's own views, which will trigger appropriate automatic associations. Depending on the information given in the context, different associations can be activated.

Explicit attitudes toward consensus information and toward the message topic also change according to motivational states and context factors. When accuracy motivation prevails, evaluative judgments will usually be based on argument quality. When arguments are unclear, however, individuals can rely on consensus information as indicating the level of support for the message position. Thus, arguments will be assimilated to (automatic) source evaluation. If arguments clearly violate such initial evaluations, more effortful judgments of the issue will be contrasted to them. Correlations between implicit and explicit change will increase when assimilating bias occurs, and decrease when contrasting bias occurs. When affiliation motivation prevails, perceivers will bring to mind or highlight thoughts that are functional for social affiliation. When the motivation to maintain a positive self-concept prevails, consensus information can be functional to discount or corroborate the perceiver's own views, which will trigger appropriate thoughts. Depending on the information given in the context, different thoughts will be brought to mind.

The amount of listed thoughts is a function of motivation strength and opportunity to process the information of interest. The larger the gap between perceivers' actual and desired confidence in their own judgment, the greater will be the perceivers' effort to scrutinize given information and to generate thoughts (see sufficiency threshold, e.g. Bohner et al., 1995).

The content of both thought listings and automatic associations is influenced by more divergent processing following minority than majority communication. Whether this is due to

different levels of arousal or the activation of different mindsets should be investigated further. Instruments that assess the novelty of concepts (Vinokur & Burnstein, 1974) or self-generated arguments (Bohner & Schwarz, 1993) can be applied to address this question.

4.5 Discussion

We acknowledge that, to date, much of our analysis is speculative and many of our conclusions are based on plausible inferences rather than on empirical findings. Thus, the predictions outlined above have to undergo extensive testing. However, we hope to have demonstrated the exciting opportunities of integrating theorizing on automatic associations into the study of minority and majority influence.

Going beyond the APE model and the HSM, we have outlined in detail how automatic associations may bias systematic thinking. This is specified for the case of consensus effects on persuasion. Although the APE model mentions that motivational states affect propositional thinking (Gawronski & Bodenhausen, 2006a, p. 711) and automatic associations (p. 700), they do not explain in detail how motivational states affect attitude change. We assume that motivational states affect both implicit and explicit attitudes by making goal appropriate associations and/or propositions more accessible. Moreover, we allow for and predict assimilating and contrasting bias in the interplay of automatic and systematic processing.

Different from the APE model and the HSM, we do not assume two distinct processes but rather a continuum of implicitness versus explicitness in the processing of consensus and message information.

5. Conclusion

In conclusion, we argue that – as persuasion research has cross-fertilized research on minority and majority influence – new methodological and theoretical paradigms in attitude research have the potential to generate new insights into minority and majority influence processes. Applying implicit measures of attitude to majority and minority influence can enhance our understanding of which cognitive processes are affected by consensus information. In particular, the use of response-time based paradigms may enhance our understanding of the extent to which consensus information and messages aspects may be processed automatically. The assumption of a continuum of explicitness may help us to generate and test new hypotheses about consensus effects. More generally, the concept of gradually changing explicitness of evaluations (instead of dichotomous implicit versus explicit evaluations) could provide a noteworthy extension for attitude change theories.

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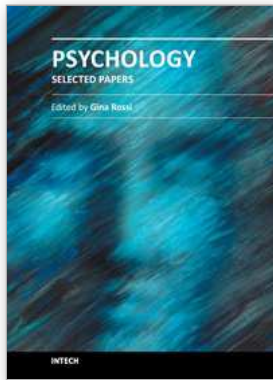
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