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SOCIAL HEURISTICS IN INTERIOR DESIGN PREFERENCES*

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Abstract

A model of aesthetic impression formation is introduced which had been developed according to the heuristic–systematic processing theory in social judgment. It is assumed that heuristic processing is based upon socially relevant aspects of lifestyles (labeled as social heuristic), whereas structural properties are processed in a systematic analysis. Theory suggests that the social heuristic allows a faster and more certain aesthetic decision-making than the systematic attribute analysis. The social heuristic, however, can only be adopted if the target's social information is decodable and consistent (social prototypes). If a target's social properties are not decodable or inconsistent (polyvalent), theory assumes a systematic analysis of nonsocial properties.

Two experiments were conducted to confirm the existence of social heuristic processing in aesthetic judgment. In the first experiment, an on-line measure to control latencies for preference judgment was used in a priming paradigm. Experiment two is based on a paper-and-pencil task in which subjects had the free choice of ranking the targets to be evaluated. Data from both experiments reveal the expected higher latencies and higher mean ranks in the evaluation order for polyvalent rather than prototypical targets. These results are interpreted as indicators of the same underlying pattern of successful social heuristic processing in prototypes, and its failure in polyvalents.

Introduction

The character of everyday life aesthetics

The goal of this paper is to explain the processes of aesthetic impression formation in daily life. Daily life aesthetics differ from the so-called pure aesthetics in art through a target's functional value in being used for specific purposes. Automobiles, furniture, clothes, all these daily life objects serve primarily for transport, dwelling, or dressing. The aesthetic value of daily life objects is therefore only of secondary interest. Art, however, serves primarily aesthetic purposes, and is even defined through its uselessness (Kant, 1986; Henckmann & Lotter, 1992). Whether a daily life target gains aesthetic quality as a surplus to its basic function depends on the intentions of the person dealing with the object and not in the object's qualities alone. A car, for example, might be considered by one person as having no aesthetic qualities at all, but rather as simply having been built to serve as a means of transportation. Another person might indeed perceive aesthetic qualities (or the lack thereof) in the very same car. When you consider buying a new car, you probably first decide upon its functional categories (such as size, security standard, and price range) before finally deciding on aesthetic qualities such as colors and cloth. Although aesthetic qualities of everyday life targets come second, they nevertheless allow us to differentiate between different examples of the same functional category (e.g. midsize cars) and thus become important in the decision-making process.

Identifying preference-related parameters

Psychology offers a long tradition of research on preference-related parameters beginning with the famous 'Vorschule der Ästhetik' of Gustav Fechner (1871) near the end of the 19th century. Fechner

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identified a still virulent and well-received rule in the psychology of aesthetics, which claims perceived unity in diversity ('Einheit in der Mannigfaltigkeit') to be crucial for an aesthetic experience.

It was the so-called 'new experimental aesthetics' founded through Berlyne (1971, 1974a,b), that proposed a motivation-based theory. Berlyne himself considered preferences to be a prototypical example for explorative behavior which allows the establishment of a link between stimulus patterns and behavior. Stimulus patterns were described in terms of collative properties, defined as variations along simple–complex, familiar–novel, etc. dimensions (1974a). With the introduction of such structural properties, Berlyne explicitly argued against the historically old and popular belief that aesthetic objects generate pleasure through their emotional impact (1974a, p. 8). According to Berlyne's theory, the collative variables evoke cognitive comparison of the incoming stimulus with former experienced stimuli. The result of this comparison induces a physiological reaction (arousal), which determines the explorative behavior preference.

The new experimental aesthetics has stimulated a huge corpus of research, conducted by Berlyne and his followers. Some data indeed revealed the proposed relation between complexity resp. novelty and pleasure (e.g. Cupchik & Berlyne, 1979) which is supposed to be an inverse curvilinear function. The investigated targets of most studies that confirm this relation, however, are polygones, that is, artificially constructed material (Aks & Sprott, 1996; Berlyne, 1974a). Concerning art data are much more heterogeneous [see for visual art: Cupchik & László (1992); for music preferences: Niketta (1987)]. In the area of daily life aesthetics, however, studies have been so far unable to confirm the impact of collative properties on preference judgments. This disappointing insight led the environmental psychologists Bell, Holbrook, and Solomon to conclude that "the cue configuralities which seem so plausible in theory may not matter very much in practice" (Bell *et al.*, 1991, p. 244). Therefore, we have to face the question of which ways the aesthetic quality of polygon material differs fundamentally from art and, moreover, from daily life targets to explain the divergent impact of structural properties on pleasure.

A first approximation to this question is offered by authors who can be much better located in the area of environmental psychology than in new experimental aesthetics. They concordingly focus on the meaning of objects and environments (i.e. Boesch, 1980; Groat, 1981; Fischer, 1990; Schneider, 1990; Silbermann, 1991; Temme, 1993; Kraft Alsop, 1996; Wilson & Mackenzie, 2000). Besides their formal structural properties, targets contain meaning. The meaning in daily life aesthetic material can be described in terms of semantic connotations which are related to lifestyles. For example, the quality of a BMW (besides function and price) does not only differ from a Volkswagen in terms of shape, proportion, and color (structural properties), but also according to the lifestyle that is associated with the cartype itself (social meaning).

Since the semantic qualities have so far only been considered as being relevant for status communication and demarcation, they are explicitly not assumed to be related to the pleasure experience (i.e. Dittmar & Hempstead, 1992; Sadalla & Sheets, 1993; Nasar, 1994). Environmental psychology has still been trying to explain the aesthetic experiences through the impact of collative properties alone.

Most interestingly, even Fechner, as well as Berlyne, pointed to non-structural target properties as relevant for aesthetic decision-making. Fechner introduced the principle of association as a semantic-connotative mind-generated process which—together with clarity and consistency—determines preferences. In his later work done shortly before his death, Berlyne (1974b) explicitly mentioned that a concentration on formal–structural properties neglects the importance of semantics in aesthetic judgment. He even reported data showing that semantically decodable visual material is more liked than polygones (Berlyne, 1974b). Although both of these early researchers broadened their own views including both formal and content properties, their scientific reception narrowed them to content-free aesthetic theories (Allesch, 1987).

The dichotomy between (in the tradition of the new experimental aesthetics) aesthetically relevant structural properties on the one hand and aesthetically unrelated yet nevertheless important social meanings (as introduced in environmental psychology) on the other shall be questioned here while pointing to another area of research activities: During the last decade, social psychology developed models for social impression formation supported by a wide range of empirical data (i.e. Brewer, 1988; Chaiken *et al.*, 1989; Fiske & Neuberg, 1990; Macrae *et al.*, 1994). Although these models differ in minor aspects—such as postulating either a continuum (Fiske & Neuberg, 1990) or a distinct two-way processing (Brewer, 1988; Chaiken *et al.*, 1989)—they have a common basis in integrating two different traditions of social perception: First, the schema-based, top-down processing which has been

intensely studied in stereotypes and prejudices and can also be described as heuristic (Chaiken *et al.*, 1989) or gestalt-like; and second, the bottom-up processing of single and detailed attributes which is also referred to as systematic (Chaiken *et al.*, 1989). Crucial to these models of social perception is (1) the assumption of a processing which allows reference to different kinds of information, depending on a person's intentions, and (2) the reality that they may lead to different results depending on the information actually processed. In social perception, idiosyncratic features should be processed systematically, whereas (for example) race, gender, age, or social status facilitate a heuristic processing.

Although the heuristic–systematic model has been confirmed in a number of studies on impression formation, the studies to date have concentrated exclusively on social perception. In 1996 Ritterfeld was arguing to adopt the basic idea of combining the processing of heuristic, schema-based and systematic, attribute-based information for aesthetic judgment in everyday life. The author hereby assumed an analogy between the attribute analyses in social perception and the analyses of collative properties in aesthetic evaluation. She also suggested the possibility of heuristic processing in aesthetic judgment based on social meanings, as will be shown in the next paragraph.

Heuristic–systematic processing in aesthetic judgment

With the introduction of her 1996 model of aesthetic impression formation (see Figure 1), Ritterfeld tried to combine some aspects of the three research traditions mentioned above: From new experimental aesthetics the notion about collative properties had been adopted; from environmental psychology the elaboration of social meanings; and from social psychology the current models of heuristic–systematic impression formation. Hereby the basic assumption includes that the processing of the formal collative properties can be conceptualized as a bottom-up attribute-based analysis, whereas social meanings are considered to be established as schemata which enable a top-down heuristic processing. Both information qualities, however, are supposed to carry a potential for the aesthetic decision-making.

As shown in Figure 1, the model distinguishes between different levels of the information processing which are defined through the information quality processed at a specific level: either socially meaningful or not. The order of the processing is based on a principle which shall be labeled 'social heuristic'. According to this principle, the process starts with the decoding of social meanings [Information Processing Level (IPL) 1] resp. with the question whether social meanings are decodable and consistent. Still, even a successful decoding does not allow any evaluation at this point. The inferred valence is located on the next level (IPL 2), where the decoded social meaning is related to the coder's own social background in the sense of preferred lifestyles (Schulze, 1992). The coder basically is supposed to answer the question of whether his or her own social background correlates to the perceived social meaning of the evaluation target. If so, it is called a social fit; if not, it is called a social nonfit. In both cases the principle of the social heuristic works. In the case of social nonfit, the social heuristic leads to social distinction (Tajfel, 1978; Bourdieu, 1987; Schulze, 1992) followed by a negative evaluative response. In the case of social fit, it is suggested that the coder becomes involved with the target which determines a positive judgment. The stronger the distinction resp. involvement, the greater the valence of the response.

It can be argued that it is easier to establish a (negative) judgment on the basis of social distinctions than to get involved through identifying social fit because the latter implies one's own positioning in social terms. In both cases, however, the social heuristic enables one to process successfully and evaluate the given information.

If the processing on the first level reveals nondecodable or inconsistent social meaning, the social heuristic cannot be applied, and an alternate strategy must be performed. Bruner argued already in 1957 that ambiguous or problematic situations call for bottom-up processing, because the top-down (here: social heuristic) processing implies reliance on general structures, which cannot be applied. Thus, the processing skips the second level of the model and moves straightforwardly to the third one. Here the systematic and bottom-up processing of formal–structural attributes takes place.

Two questions might arise: first, for what reason should a heuristic processing be considered at all; and second, why can not the systematic analysis start from the beginning. The first question can be answered with the empirical data mentioned above, which reveals no significant impact of the structural properties on pleasure if applied to everyday targets (Bell *et al.*, 1991). But it did for polygones. Polygones would, by definition, not allow any decoding of social information, which means that other information qualities have to be effective. Still, everyday life targets' pleasure might rely on other than the structural information qualities, that

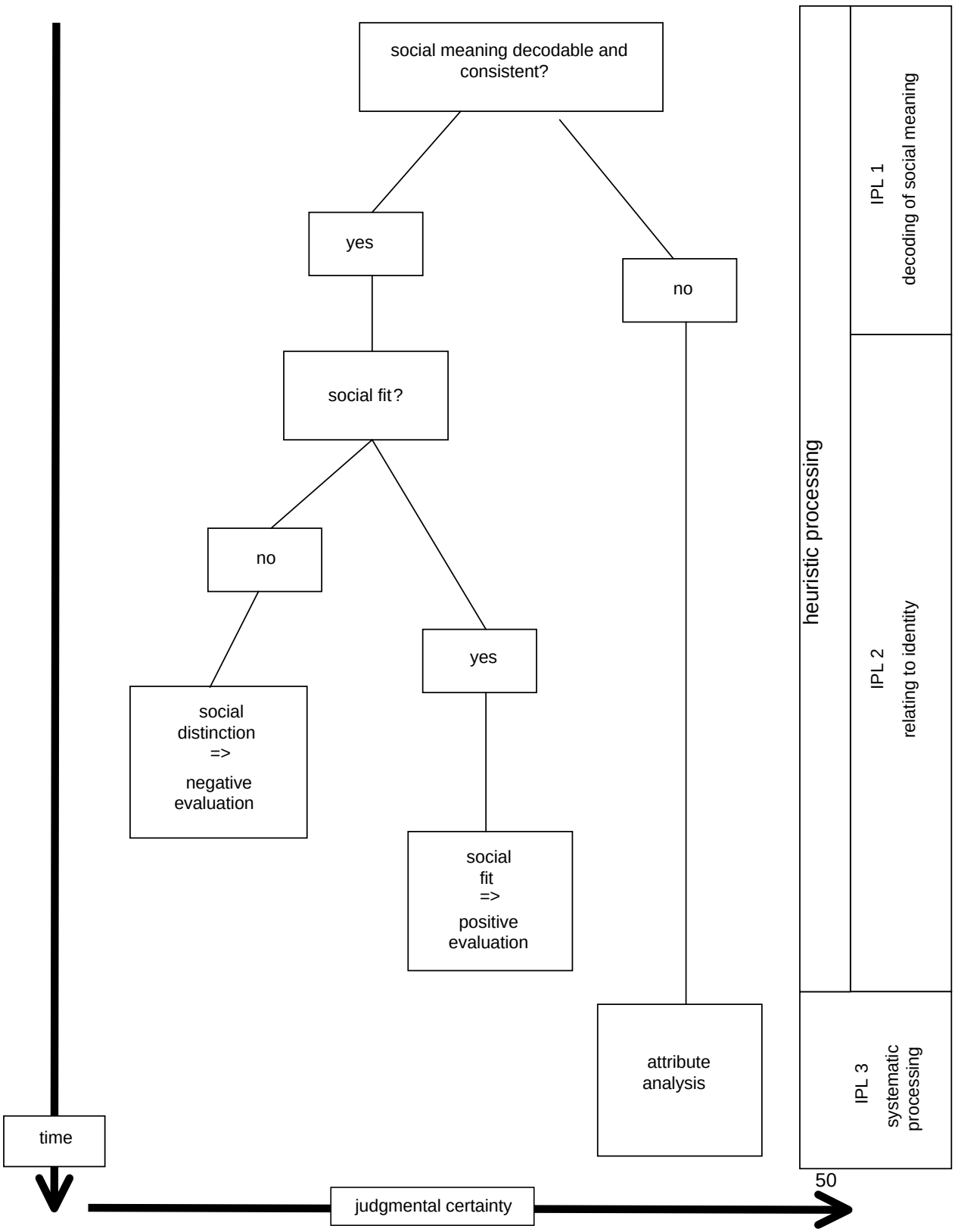

Figure 1. Heuristic-systematic Model of Aesthetic Impression Formation

is, on social information. Second, it is well known that heuristic processing follows the principle of economy (Strack, 1985), and there is no evidence that aesthetic judgments are an exception to this rule. Heuristic processing means that not all information available is being processed, but rather that some is selectively chosen with the intent of reducing uncertainty and processing quickly. In the case of the social heuristic, it is assumed that this principle enables to uncertainty reduction in aesthetic decision-making and allows a quick response to a given target. An attribute analysis, on the other hand, is supposed to take longer, which also means that the status of evaluative uncertainty has to be tolerated for a longer period of time.

Because of the assumed differences in a target's information qualities, the model is built as a decisional tree which forces the election of alternative ways of processing which finally lead to different kind of decisions: attribute-based or heuristic. Therefore, the process of impression formation is not considered to be analogous to a continuum, as Fiske and Neuberg (1990) suggest for social perception, but as a basically two-choice theory which is more similar to the Chaiken *et al.* (1989) heuristic–systematic model. This is because social perception models differ in one major aspect from the proposed information processing in aesthetic judgment: Social perception does not distinguish between two kinds of information qualities, as formal–structural and meaningful. They are exclusively dealing with meaningful information, even on the attribute level. In aesthetic judgment, however, the structural and meaningless properties have always been considered as being basically responsible for the aesthetic quality (Berlyne, 1974a,b; Raab, 1981), and are still integrated in the heuristic-systematic model to explain aesthetic preferences in daily life.

Structural and meaningful qualities

According to the proposed theory, aesthetically relevant targets of everyday life can be described in terms of their structural properties such as complexity or novelty on the one hand and in terms of social meaning on the other. Structural properties offer the advantage of having been investigated over decades. As primary variables, the dimensions of simple–complex and familiar–novel have been used (Berlyne, 1974*b*; Raab, 1981; Voss, 1981; Cupchik, 1986; Niketta, 1987). Ammermann (1971) pointed to another quality which can be described as collative, as well. He proved the impression of structure resp. in order to be independent from complexity as well as familiarity (see also Wohlwill, 1980), and Niketta (1987) could empirically show that the structure variable is related to the liking of music. Structure is defined through its poles: confusing–structured or unorderly–orderly. The structure variable might be the best operationalization of the Fechner principle of unity in diversity (1871), since it takes both the amount of information and their interrelations into account.

More crucial to an empirical investigation of the proposed model of aesthetic decision-making is the concept of social meaning. As defined above, social meaning contains the connotative aspects of lifestyles. Lifestyles, however, are fuzzy sets, used in cultural sociology to distinguish between social subgroups in summarizing patterns of values, attitude orientations, and preferences (Müller, 1989, 1992; Diewald, 1990). Fundamental to the concept of lifestyles are preferences in everyday life (Zapf *et al.*, 1987; Schulze, 1992), since they can be considered as observable expressions of a person's values and attitudes (Lüdtke, 1989), or, to put it in other words, about someone's cultural and materialistic capital (Bourdieu, 1984). The lifestyle concept is superior to the well-known milieu concept through its dynamic character (Lüdtke, 1989; Diewald, 1990, p. 3; Hradil, 1990). Whereas milieus are just descriptions of different social subgroups, lifestyles label the dimensions on which persons vary in two ways. First, single beings can be positioned with regard to how much they represent specific lifestyles. Second, the biographical history of humans can be shown through a modification in lifestyle. This dynamic character is the result of the understanding of a relative change in social development not only between generations, but also in biographies. In doing so, the concept bridges sociology and psychology (Ritterfeld, 1996).

Aesthetic preferences and social identity

From a social psychological point of view, preferences can be considered as manifestations of values and attitude orientations, and in that, of identities. In expressing preferences through verbal evaluations, housing decoration, or the choice of couture, a person locates himself or herself in the social world, though these expressions are not only individually relevant, they can also be read by others. Whereas preferences, according to the lifestyle concept, communicate identity-related aspects, negative evaluations become even more interesting. They are perfect in establishing social distinction, a concept used both in sociology (i.e. Bourdieu,

1987) and in social psychology (Tajfel, 1978; Tajfel & Turner, 1979). The concept describes the motive of distinguishing oneself resp. the own group towards others. Richter (1989) made very plausible the idea of studying social distinctions that allow a closer approximation of true values and attitudes than preferences. According to Richter's analysis preferences are more intentionally expressed, that is why they are more biasable than distinctions.

In 1992, Schulze published a tremendous work revealing the empirically established lifestyles throughout Germany.[1] Schulze's data include a wide range of self-reported values, attitudes, and preferences in daily life such as political attitudes, voting or health behavior, professional and leisure activities, or preferences in sports, music, newspaper, television, etc. as well as observational data of a person's habitus, speech, and dwelling situation. The data were factor analysed and the three emerging lifestyle factors were labeled the 'high culture', the 'trivial' and the 'sensation seeking' schema (in German: 'Spannungsschema'). The high culture schema is defined through the basic value of perfectionism and education, contemplation as the favorite mode of experience, and a so-called anti-barbaric distinction which means a distinction against noneducation. A prototypical activity would be the opera visit, which is appreciated most greatly with knowledge about the time during which it was composed (education), and perfectly tuned voices (perfection), and which requires a mental reception without bodily involvement (contemplation). The trivial schema is constituted through a seeking for harmony and 'Gemütlichkeit', an anti-eccentric distinction motive, whereas the sensation seeking schema is based on sensation seeking with a highly narcistic orientation (having fun is most important in life), and an anti-conventional distinction motive. An example of the trivial schema being adopted might be the behavior pattern well known in the Bavarian Hofbräuhaus, where 'Schunkeln' (rhythmic movements while being pulled together) as a bodily effect of drinking beer even together with strangers is well appreciated. The sensation seeking schema might be demonstrated through risky sport activities which focus on an intense mental as well as bodily experience for one moment while at the same time neglecting a long-term perspective on life security.

There is one crucial aspect about the lifestyle schemata: All schemata are supposed to be common knowledge. Independent of one's own schema preferences, everybody is expected to know about the compatibility of the most significant schema aspects. Whether or not you like Bach's well-tempered piano, you know very well that Bach is much more closely related to Goethe's poems than to Grisham's best-selling novels.

The examples used above to demonstrate the three dimensions of lifestyles discovered in West Germany focus on behavior. However, Schulze (1992) applies his three-dimensional system to objects and environments, too. They also can be described with regard to how much they represent the different lifestyle attributes. Furthermore, they can serve as more or less typical examples of each of the three lifestyle schemata.

Going back to the model of aesthetic judgment introduced above, one can argue that the decodability and consistency of a target's social meaning is fulfilled if a dominant lifestyle schema is represented, or, in other words, if a target can be categorized as either belonging to the high culture, the trivial or the sensation seeking schema. Keep in mind that the decodability is supposed to be independent from a coder's own lifestyle orientation.

In a study published in 1996, Ritterfeld introduced a semantic differential scale to measure the lifestyle representation resp. social meanings of interior design targets based upon Schulze's three schemata. The scale used seven adjectives representing each one of the schemata in a descriptive, nonpejorative way. For example, the adjectives 'elegant' (elegant), 'classic' (klassisch), and 'nobel' (edel) were used to operationalize the high culture; 'traditional' (traditionell), 'harmonious' (harmonisch), and 'gemütlich' were used to operationalize the trivial; and 'individual' (individuell), 'extravagant' (ausgefallen), or 'modern' (modisch) were used to operationalize the sensation-seeking schema. For stimulus examples a pool of 100 couches were collected and pretested. Each sofa appeared on 9×15 cm color photographs with a neutral background, which were attached to cardboard for better handling. The 12 best targets were ultimately selected, with each group of four of them representing one of the three lifestyle schemata: That is, high factor scores on one lifestyle dimensions and low factor scores on the other two. The chosen examples were labeled 'social prototypes'. Four more targets were included which had been measured as nondecodable and inconsistent in terms of social meaning and therefore were labeled 'polyvalents'. It had been made sure that the selected targets (prototypes versus polyvalents) differed in terms of their decodability and consistency of social meaning, but not in terms of structural properties such as complexity, novelty and structure (Ritterfeld, 1996, p. 110ff.).

The material was already used in an experiment to test the hypothesis of a more stable judgment evaluating social prototypes than polyvalents (Ritterfeld, 1996, p. 139f.).

Under the assumption of a social heuristic principle being in effect, it can be argued that the decision-making process will be sufficiently completed when the moment the decision is made. If the applicability of the social heuristic fails, other information qualities are expected to become relevant. Since no schema can be adopted easily in these cases, but a variety of single attributes could be processed, the information processing might less likely come to a definite end. Therefore, it seems plausible that the attribute-based decision itself is less stable and more vulnerable toward correction than the heuristic-based decision. Subjects were told to sort the couches first into five pleasure categories, which represented a 5-point scale. After completing some personality scales they were asked to perform the sorting task for a second time. Judgmental stability was defined as the reliability of the two evaluative responses. Data confirmed the hypothesis of lesser judgmental stability in the case of polyvalents than in the case of social prototypes at the 0.01 per cent level (Ritterfeld, 1996, p. 139f.).

The following two studies are intended to produce further support for a social heuristic being in effect.

The first experiment tries to compare the processing of social prototypes vs polyvalents in terms of latencies and judgmental certainty. With the second experiment it shall be shown that social prototypes are easier to evaluate than polyvalents.

Experiment 1

Theory predicts the applicability of a social heuristic only in the case of social prototypes. Polyvalents, on the other hand, are expected to require a systematic attribute analysis. Since the heuristic processing is designed to be more effective than the attribute-based analysis, it is argued that social prototypes are processed more quickly and certain than the polyvalents (hypothesis 1).

The processing model predicts the structural properties to become relevant if the social heuristic fails. This failure was assumed to be directly connected to the nondecodability and inconsistency of the social information in the questioned targets, and the principle can be considered as taking place in a more automatic way of processing. However, it is not determined to follow the hypothesized rules. Instead, we can easily imagine that cognitive predispositions may interfere, such as a priori intention to focus on structural properties. In this case, the analysis of social meanings is simply skipped, and the information processing starts with the formal analysis from the very beginning. Similarly, it can be expected that the use of a priming paradigm offers the potential to influence the focus of perception. As Higgins *et al.* (1977) demonstrated, a category representation in memory can have its accessibility increased by priming, making the category more likely to be used when it is applicable to an object. Thus, a priming of social attributes should interfere with the required systematic processing in polyvalents but not of prototypes since the processing of prototypes is supposed to make profit of the social heuristic anyway. A structural priming on the other side should facilitate the processing of polyvalents which require such a structural analysis but not of prototypes. According to this assumption, I expect—compared to prototypes — a slower and less certain preference judgment of polyvalents under the social prime condition as well as a faster and more certain preference judgment of polyvalents under the structural prime condition (hypothesis 2; Table 1).

With the postulate of the social heuristic hypothesis, another aspect is implied: The assumption of an emerging motive of social distinction that takes place if the connotative social information of the perceived target differs from the lifestyle the judge prefers, which results in a negative target evaluation. In the case of a connotative fit between preferred lifestyle and the targets social qualities, however, I hypothesize the judging persons to become involved in reflecting about their own social positioning. The distinction-motivated processing of nonfit targets on the other side requires no such reflection. This argumentation led Richter (1989) to

TABLE 1
Expected effects of social and structural priming on the processing of prototypes and polyvalents

	Required time and judgmental uncertainty compared to baseline (no prime)
Social priming × prototypes	No differences
Social priming × polyvalents	Increase
Structural priming × prototypes	No differences
Structural priming × polyvalents	Decrease

claim that analysis-based preferences are more difficult to express than distinctions. Therefore, it shall be tested whether the distinction-motivated evaluations are indeed much more quickly and with higher certainty performed than evaluations based on perceived social fit (hypothesis 3).

Method

A 3×2 design was realized in a computer-based experiment with the priming condition (no priming, social priming, structural priming) as a between-subject factor, and the target category (social prototype vs polyvalent targets) as the within factor. The computer measured the time elapsed between the display of the target and the recipient's responses to the nearest millisecond. As stimulus material, the same targets were used as in the Ritterfeld (1996) study already described above. For each target category (the three social prototypes plus the polyvalents), a sample of four objects was chosen. Every target appeared on the screen together with a scale to measure preferences (1 = do not like at all, 7 = like very much) and judgmental certainty (1 = not certain at all, 7 = very certain). Subjects had to mark their option through a mouse click. After completing the scale, subjects had to move forward intentionally through another mouse click to activate the next image on the screen. The stimuli targets were shown in random order.

Procedure

To search for participants, an advertisement was published in the daily newspaper and several hundred handbills were distributed in shopping malls. Each subject was offered DEM 15 (at that time about USD 8). Before starting the program, information that the study was about furniture preferences was distributed. The program first explained how to use the mouse and how to navigate on the screen and through the program, and then it asked subjects to practice the handling. Several mouse activities had to be performed to get used to move the cursor. Every subject in the experimental conditions received a priming focusing either on social aspects or structural properties of three couches, that had been measured as polyvalent too. As for social aspects subjects completed a multiple choice questionnaire on the fit of the couch example on life style attributes (i.e. what kind of sport/drink, etc. would a person owning that couch most likely prefer). Under the structural priming condition subjects were undertaking a recognition task on formal attributes of the couch, such as shapes and colors. The control group had to answer arithmetic multiple choice questions. Afterwards, subjects had to complete an evaluation task on 16 targets with six judgments each.

Subjects needed on average $M = 16{\cdot}8$ min (S.D. = 8·76) to complete the whole program. The fastest person (at 7·7 min) was ten times as quick compared to the slowest (77·3 min).

Participants

Three hundred and fifteen subjects participated in the experiment with 46·5 per cent men and 53·5 per cent women. The average age was 30·8 years (S.D. = 10·34); the range varied between 17 and 68 years. The majority (47·6%) held a high school degree, followed by 28·6 per cent with a university degree, 19·0 per cent with 'Mittlere Reife' (10th grade), and 4·8 per cent with 'Hauptschulabschluss' (9th grade). Subjects were randomly assigned to the three experimental groups: $n = 103$ (32·7%) received no priming, $n = 108$ (34·3%) the social priming, and $n = 104$ (33·0%) the structural priming.

Reliability of target scales

Four stimulus targets comprised each one of the four categories: high culture, trivial, sensation seeking, and polyvalent. Reliability analyses were conducted to test the homogeneity of the target scales. High reliability in liking was expected for the three social categories, but not for the polyvalent since in that case the criteria for liking should vary. For judgment latency as well as for evaluation certainty, however, homogeneity in all categories was expected. Cronbach's alphas (Table 2A–C) confirm these expectations: Liking ratings of all social prototypes are homogeneous within the social prototype categories, whereas for polyvalents they are not. For liking latency and certainty we do not find such big differences in reliability between all four target scales. Keep in mind that all scales consisted of only four items. Although the trivial examples resulted as the most reliable scale, others with a reliability coefficient of almost 0·6 are considered of being satisfying: Since daily life objects such as the chosen couches do not only carry aesthetically relevant meaning but can also serve as idiosyncratic symbols (such as: My grandma had a couch like that. Because I liked her I liked the couch). Therefore, further analyses were conducted using the

TABLE 2

	Sensation seeking targets	High culture targets	Trivial targets	Polyvalent targets
(a) Chronbach's alpha for liking	0·59	0·58	0·80	0·28
(b) Chronbach's alpha for preference judgment latency	0·56	0·67	0·73	0·64
(c) Chronbach's alpha for judgmental certainty	0·61	0·52	0·61	0·54

mean scales, i.e. the means of all four category examples.

Results

Effect of priming facilitation and target category on latencies

Target category was expected to become a relevant factor in the judgmental processing in that polyvalents were supposed to require more time (hypothesis 1). With hypothesis 2, I expected an inhibiting effect of the social prime on the preference judgment of polyvalents as well as a facilitating effect of the structural prime on the preference judgment of polyvalents. A multifactorial analysis with the between factor of priming (no priming, social, structural), the within factor target prototypicality (prototypical, polyvalent), and liking as covariate on latency as the dependent measure resulted in a significant main effect for target category (Table 3). Priming as a main effect did not qualify, nor did the interaction between target category and priming condition. The covariate liking becomes significant with $F(6; 308) = 12{\cdot}11$ ($p < 0{\cdot}001$).

TABLE 3
Effect of priming condition and target category on judgmental latency

	M	*F*(6; 306)	*p*
Prototypes	19·32	30·57	<0·001
Polyvalents	27·26		
No priming	22·55	1·26	N.S.
Structural priming	21·01		
Social priming	21·09		
No priming × prototypes	19·76	2·05	N.S.
No priming × polyvalents	28·75		
Social priming × prototypes	18·56		
Social priming × polyvalents	30·50		
Structural priming × prototypes	19·74		
Structural priming × polyvalents	23·76		

Examined more closely, prototypes seem to be immune towards any kind of priming. For polyvalents, however, a significant difference can be demonstrated between the two experimental priming conditions [$F(4; 207) = 4{\cdot}71$, $p < 0{\cdot}05$]. As shown in Figure 2a comparison of the two priming conditions with the no prime condition reveals an decrease of latencies in the structural prime condition. Under the social priming condition judgmental latencies develop almost parallel to the no prime condition.

Negative evaluation occurs quickly

We not only assumed a faster processing if taking advantage of the social heuristic than in evaluating polyvalents, but also that less time is required for the social distinctive mechanism which takes place if targets are disliked compared to a positive judgment. As mentioned above, liking already qualified as a covariate in the multi-factorial design. Therefore, a paired *t*-test was now used to compare the latencies for more or less liked targets while neglecting the target category. This time the priming conditions were excluded to allow an analysis on the basis of an unmanipulated processing. A median split for liking was used to group the targets. Analysis reveals a significant lower latency for disliked ($M =$ than for liked ($M = 35{\cdot}89$) stimuli ($t(97) = -2{\cdot}81$; $p < 0{\cdot}01$).

Judgmental certainty

With the heuristic–systematic model on aesthetic processing, I assumed an increase in judgmental

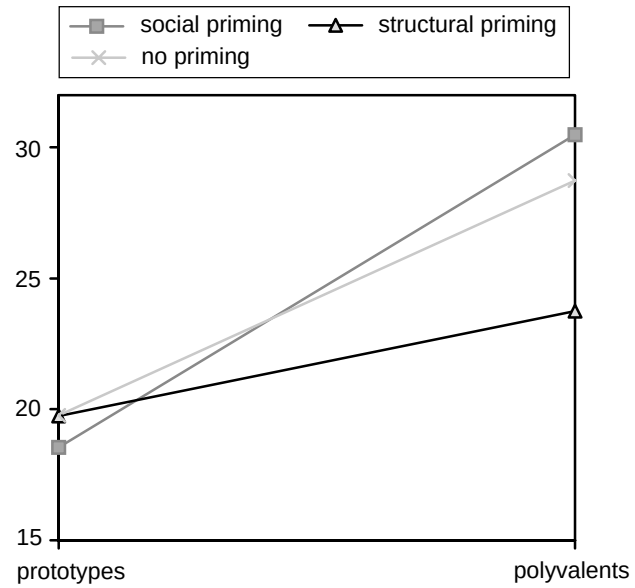

Figure 2. Effect of Priming Condition and Target Category on Judgmental Latency

uncertainty depending on the preference (with more certainty in disliking than in liking) and the target category (with more certainty in social prototypes than in polyvalents). An ANOVA with the between factors of liking (gained through median split) and target category (prototypical vs polyvalent), priming condition (no, social, structural priming) as within factor, and judgmental certainty as the dependent variable (with high values indicating high certainty) was conducted. Table 4 shows that priming did not qualify as a main effect. Target category just missed the level of significance, but reveals the expected tendency of higher means for prototypes than for polyvalents. For the *post hoc* factor of target liking we find a significant main effect in the expected direction. Disliked targets are judged with more certainty than liked targets. Interactions between the factors did not qualify.

TABLE 4
The effect of priming condition, target category, and target liking on judgmental certainty

	M	*F*(11;290)	*p*
No priming	6·14	0·07	N.S.
Social priming	6·09		
Structural priming	6·14		
Prototypes	6·19	3·43	<0·07
Polyvalents	5·94		
Disliked Targets	6·26	9·68	<0·01
Liked Targets	5·87		

Discussion

According to the social heuristic assumption, I expected a faster and more certain (hypothesis 1) preference judgment in the case of evaluating prototypes. Latency measurements confirm this hypothesis. The comparison of judgmental certainty of prototypes vs polyvalents, however, does not reach significance.

With hypothesis 2 an interaction effect of priming and target category was predicted. Social priming was expected to inhibit the evaluation of polyvalents, whereas structural priming should facilitate the evaluation of the very same targets. Latency data indeed reveal a significant difference caused by the two types of priming on the evaluation of polyvalents. Structural priming obviously enhances the processing of polyvalents, although the social prime does not inhibit it. Again, the measurement of judgmental certainty did not result in the same pattern. Finally, with hypotheses 3, I addressed the differences in judgmental facilitation depending upon the evaluative valence. In this a faster and more certain processing was predicted in the case of social distinction compared to a fit between the social background and the perceived social information of the target material. The evaluative valence does in fact qualify in determining both, the required time for judgmental processing and the perceived judgmental certainty.

In sum, for latencies we find a consistent pattern which reveals evidence of a more difficult processing for polyvalents compared to prototypes, which can be explained through the assumption of a social heuristic being in effect in prototypes but not in polyvalents. Furthermore, the facts that first, none of the two primings effected the evaluation of prototypes, and second, that the judgmental processes developed parallel under the social and the no prime condition strongly supports the assumption of a prevalent social heuristic processing. With other words: If the social heuristic can be applied it will be used no matter of the cognitive predisposition. Only if the social heuristic cannot be applied (in the case of polyvalents) the processing may be influenced through cognitive predisposition. The observed facilitating effect of the structural priming on evaluating polyvalents indicates that the triggered analytic mode is in fact necessary to process those socially unidentifiable targets. Social priming on the other side seems to simulate the unprimed condition, where a prior social perspective requires a time consuming attention shift from the schema based to the analytic mode.

Striking, however, is the fact that we find empirical support using the nonreactive latency measures but not for subjects perceived judgmental certainty. Only for the evaluative valence both dimensions seem to be affected: Subjects needed less time for evaluation and were more certain in their judgments when they were experiencing pleasure compared to nonpleasure. Both, required processing time and judgmental certainty had been chosen as indicators of a more difficult processing. A statistical explanation for this inconsistent pattern can be derived from the fact that the certainty scale obviously produced very low variance with all means being higher than 5·87 on a 7-point scale. A theoretical explanation, however, would have to distinguish the psychological processes underlying the two dimensions. Latencies are per definitionem not guided intentionally. The rating of judgmental certainty on the other hand requires self-reflection. Telling somebody that you feel insecure in evaluating trivial things like furniture might possibly cause a conflict in self-esteem, and could therefore be disturbed significantly through social desirability. For that reason an alternative method to measure judgmental certainty was used in experiment 2 that proved to be more successful.

Experiment 2

In experiment 1 an on-line measurement was used to compare latencies required for judgmental responses. In this paradigm it was obligatory to present the targets one after the other. Given the choice of order in which to evaluate the targets, one can expect subjects to start with those targets they are most certain to evaluate. Judgmental certainty can therefore be measured through the rank of each target to be evaluated in a free choice of order task with low ranks representing high certainty and vice versa. Given the social heuristic hypothesis that the decodability of social meanings facilitates the evaluative processing, we can therefore expect that social prototypes are chosen first out of the whole target sample for judgment if all targets are available from the beginning (hypothesis 1).

With experiment 2, I intended also to test the hypothesis that the aesthetic evaluation processing follows an ex negativo strategy. In an earlier study, Ritterfeld (1996) used an interview method to explore how customers in a furniture store justify evaluative judgments. Most customers agreed on the fact that it is very difficult to make a preference judgment, but quite easy to decide what they dislike. Hodges (1997) argued that for evaluation it is generally more important to know about negative rather than positive aspects of a target. The discovery of one negative attribute might be sufficient for deciding against the target. Discovering one positive attribute, however, can never be sufficient for basing the entire decision because one cannot be sure that there are no hidden serious disadvantages. To be sure that the positive evaluation is reliable, processing has to go further. Negative aspects are more often considered to be distinctive than positive aspects (one may become a liar if he or she once lied, but not an honest person if he or she once was honest). Kahnemann and Tversky (1984) empirically found negative features to be more potent than positive features during the decision-making, and Cacioppo *et al.* (1997) have even argued for distinguishable motivational systems underlying the assessment of the positive and negative evaluations. Thus, the asymmetric schema is functional in an economic sense: Processing stops as quickly as possible without taking too many risks of a false decision. A negative evaluation implies fewer risks than a positive one. Accordingly, it is plausible to predict a general ex negativo strategy, which is indicated through an easier decision-making in the case of nonpreference than in the case of preference. Thus, preference of targets is expected to correlate with rank order (hypothesis 2a).

But still, we cannot conclude a positive linear relationship between pleasure and difficulty in aesthetic judgment in general. In fact, it seems more plausible to assume that it is even easier to figure out what you really like than to decide upon targets to which you respond more ambivalently. In these less extreme cases, a person would have to calculate positive and negative aspects to a final evaluation. We suggest that this calculation requires more effort than a decided response of whatever valence. Thus, we can specify the second hypothesis: Extreme preference judgments are easier to make than moderate preference judgments (hypothesis 2b).

Above we already followed Richter's (1989) argument, who pointed out that negative distinctions are highly automatic whereas preferences are much more guided through intentions. Consider, for example, that you are looking for a new sweater in a store. You probably very suddenly decide on sweaters you dislike, but it takes time to develop a positive choice. Furthermore, you might be uncertain for a while which of two or three sweaters is the most appealing. Then you start looking at yourself while activating different self-schemas: One sweater makes you look more businesslike, another more

casual. Both schemas of yourself seem to fit your self-concept. This situation might not be very convenient, since you do have to make a reflected choice for which situation or self-image you intend to have a new sweater. Richter's argument taken seriously would imply that we would expect no general ex negativo strategy but only for social prototypes. Following from this argument, I assume that the negative choice of disliking social prototypes is easier to make than the positive decision of liking prototypes, but that there is no difference for polyvalents (hypothesis 2c), which is another specification of hypothesis 2a.

Method

Procedure

The set of 16 pictures used in experiment 1 was presented as hard covers and in a random order. Individuals were told to first become familiar with the material and afterwards to evaluate them by putting the pictures into four boxes. The boxes were labeled 'like it the best,' 'like it a little,' 'dislike it a little,' and 'like it least.' Every box could be used as often as necessary; no box had to be used. Before presenting the targets, subjects were asked to evaluate them exactly as they were shown in the picture. Whether a model would appear differently in another color should not be considered. In addition, functional aspects, financial aspects, and whether a model fits with their own house should be neglected. Only the visual appearance of the target in the photograph was to be used as the basis for evaluation. Individuals were finally told to put one target after the other into the boxes, and that it was up to them which picture they preferred to begin with. A confederate noted the rank order and the box selected for each target.

Participants

Sixty-eight West Germans participated in the study with 51·5 per cent ($n = 35$) being male and 48·5 per cent ($n = 33$) being female. The average age was 39·5 years with S.D. = 16·5 and a range between 18 and 74 years. The educational level of 26·5 per cent was below a high school degree, 26 per cent had earned a high school degree, and 19 per cent had earned at least a master's degree. Analysis revealed no significant differences in preferences by education, gender, and age.

Results

Uncertainty as a function of non-decodable social meaning

At first the hypothesis was tested that the polyvalent targets lead to more uncertainty in preference. A Wilcoxon matched-pairs signed-ranks test with the factors polyvalent vs socially meaningful targets was used to test mean differences in the position variable. The mean rank for polyvalents ($M = 34{\cdot}56$) was significantly [$z(67) = -0{\cdot}54$; $p < 0{\cdot}001$] higher than the mean for social prototypes ($M = 21{\cdot}35$). To check whether this effect did in fact result as a function of the decodability of social meanings and not as an effect of the positive–negative asymmetry in evaluation, an additional paired t-test for liking in the case of polyvalent versus socially meaningful targets was conducted. Prototypes received in sum marginally better evaluations ($M = 2{\cdot}31$) than the polyvalent pictures [$M = 2{\cdot}19$; $t(67) = 1{\cdot}85$; $p > 0{\cdot}7$]. That is, even though polyvalents are tendentiously less liked they are evaluated the last.

Ex negativo processing

The next step was to test the hypotheses proposing that evaluation for less liked targets comes first compared to better liked targets. A rank correlation between the average liking of each target with the mean rank position of each target resulted in $r = 0{\cdot}67$ with $p < 0{\cdot}001$, with low scores indicating disliking resp. early evaluation, and high scores liking resp. late evaluation. Furthermore a Mann–Whitney U-test with the factor 'liking' (extreme vs moderate) and the dependent variable 'position' was conducted to test the hypothesis that distinct negative or positive evaluations (scores 1 and 4) are in general easier to make than less distinct preferences (scores 2 and 3). A significant effect resulted with $U = 637$, $p < 0{\cdot}001$. The extreme judgments (liking or disliking) had a mean rank of $M = 38{\cdot}49$, and the moderately liked or disliked targets a mean rank of $M = 67{\cdot}42$. Thus, distinct positive as well as distinct negative judgments were performed earlier than moderate judgments of either valence.

A Kruskal–Wallis one-way ANOVA was used to check whether this positive–negative asymmetry is a general effect or occurs only in the case of social prototypes. For social prototypes we find a significant effect [chi-square (3) = 13·54; $p < 0{\cdot}01$] showing smallest mean ranks for the most disliked

($M = 16{\cdot}72$), followed by the most liked ($M = 20{\cdot}25$), second liked ($M = 26{\cdot}94$), and second disliked targets ($M = 33{\cdot}64$). For polyvalents, however, the effect vanishes: Mean ranks differ no more significantly [Chi-square (3) $= 6{\cdot}12$; $p > 0{\cdot}11$) with $M = 20{\cdot}79$ for extreme negative, and $M = 21{\cdot}11$ for extreme positive evaluations.

Interpretation

According to the social heuristic hypothesis, the decoding of social meaning was as we predicted to determine preferences (hypothesis 1). Decodability of social meanings (as in social prototypes) was supposed to facilitate the evaluation compared to nondecodability (as in polyvalents). Data confirm the expected pattern: Social prototypes are generally evaluated before polyvalents although they are tendentiously preferred more. Thus, an ex negativo effect does not explain the finding. Instead, the observed differences in evaluating social prototypes vs polyvalents can be better explained through the prediction of the social heuristic.

With the positive–negative asymmetry in evaluation, either (hypothesis 2a) a general principle can be assumed or, according to Richter (1989), only negative evaluations which are based on social distinction can be performed more easily than positive judgments (hypothesis 2c). At first glance, negative evaluations seem to be the easiest. More closely examined, however, the data confirm this pattern only for social prototypes. Since we do not find the same pattern for polyvalents, the ex negativo processing did in fact not qualify as a general effect, but only for the applicability of the social heuristic. In the case of a possible social distinction, preference judgment is facilitated compared to a fit of social information in the target and the lifestyle of the judging person. But analysis could also demonstrate that the positive–negative asymmetry exists only if we deal with distinct judgments (hypothesis 2b). For moderate judgments of either positive or negative valence, however, we find much later decisions compared to distinct judgments.

General discussion

The overall pattern of the results basically confirms the social heuristic hypothesis: The applicability of a social heuristic facilitates the evaluative processing. At this point we have to be more precise in which way we consider evaluation to be effective.

With the heuristic–systematic model two distinct modes of information processing were implied. According to Shiffrin and Schneider's (1977) early elaboration of this two-way information processing theory, the heuristic processing is more automatic and less controlled than the systematic attribute analysis. Also, category-based heuristic processing relies on epistemic knowledge, whereas an attribute analysis is based on empirical evidence. In that we do not only differentiate between two modes of processing (heuristic vs systematic), but also between the processed information (epistemic knowledge vs empirical evidence). There is one major question that goes along with these two distinctions: At what point does evaluation emerge in the information processing? It was Bruner (1957) who first pointed out that the very act of perception is categorical by character, but that categorization is not only determining perception, but evaluation as well. While pointing to the perceiver's allocation of attention to predicting which category will be used when many are available, Smith *et al.* (1996) more recently supported this idea. They argued that categorization may result in prescriptive judgments directly linked with the category used. If an attitude is accessible, someone will use the related categorization for a perception of the object and thus includes an evaluation, directly deduced from memory. Research on automatic activation of attitudes (Bargh, 1994; Fazio, 1995; Bargh & Barndollar, 1996) more shows that attitudes are often activated from memory automatically on mere exposure of an attitude object, and Chaiken and Maheswaran (1994) reported that people appear to have no trouble reporting attitudes even towards unfamiliar objects. According to Fazio (1995), attitudes are defined as object-evaluation associations stored in memory. Attitude strength determines the accessibility of the attitude and through that the extent to which the evaluation is capable of automatic activation from memory when the perceiver encounters an object. The authors suggest that the evaluative processing occurs in an early stage of information processing.

From a connectionist point of view, Lepore and Brown (1997) conceptualize stereotypes as the paradigmatic example of an evaluative category (Brown, 1995) which are automatically activated upon the perception of a category member. Stereotypes are considered to be networks of linked attributes variously conceptualized, with traits becoming associated with the group node (category) through frequency and consistency of activation. When encountering a category member, the group node is activated, and excitation spreads from it to other

connected nodes which represent the stereotypic characteristics (Lepore & Brown, 1997, p. 275). To answer the question of whether all characteristics the individual knows to be stereotypical are automatically activated, the authors argue that some links may be stronger than others. Attributes corresponding to strong links are the ones that will be activated automatically. In this model, automatic stereotype activation is not a consequence of categorization, but rather of stereotypic judgment. For example, high and low prejudice people know the stereotype of black people in much the same way and to the same extent. Because of this, they do not differ in their automatic response when some negative aspects of the stereotype are activated. But their automatic responses differ depending upon the category activation (Lepore & Brown, 1997, p. 283).

This approach is placed in the tradition of claiming spontaneous and automatic evaluation processes too. I assume that the mere activation of a social category in the social heuristic processing implies an evaluation going along with it. But, the evaluation itself might differ depending on a person's social background. We all know, at least in Germany, about the high culture, the trivial, and the sensation seeking schema and are capable of identifying them. But their valence to each individual differs. If a person is activating the schema, the valence is activated as well and allows for the heuristic-based evaluation of a given target. Or as Bargh *et al.* (1996) put it, "chronically accessible mental representations become active upon the presence of relevant environmental information, even if intentional thought and attention are directed elsewhere" (p. 105). Thus, the mere exposure to a target (here: a social prototype) activates the social schema the target belongs to. According to one's own social positioning, the valence of the schema is directly linked to the schema and becomes active the moment the schema is triggered. This explains the fast processing in social prototypes compared to polyvalents. More closely examined, the reported results revealed even faster and more certain processing for disliking than for liking. This can be explained as an effect of multiple categorization:

In general, a single object or person never belongs to just one category, but to multiple groups. One person can be categorized by gender, age, profession, hair color, etc.; a piece of furniture can belong to the group of cupboards, to the group of wooden materials, to the group of industrial-produced objects or to the group of lifestyle symbols. It seems plausible to assume that the number of possible categories adopted for social perception is smaller than for self-perception. Thus, the problem of multiple categorization is higher for liked targets than for disliked targets and explains the differences in processing.

Another question, however, is which category will be used by a perceiver. Smith *et al* (1996) addressed this problem of multiple categorization while asking for the factors which are influencing a perceiver's choice of one category rather than another. They were able to show that the accessibility of the perceiver's attitude toward a category is a determining factor. If the attitudes toward an object are highly accessible, they automatically attract attention (Roskos-Ewoldsen & Fazio, 1992). It can be argued that identity-related categories are highly accessible, which enhances their probability of being applied. There are two arguments which assume a specifically high accessibility for social schemata in general. First, they are not target specific. It is even theorized that the three identified schemata serve as categories for all forms of habitus (Bourdieu, 1987), manifest, for example, in furniture, clothing, music or even eating preferences. Second, they are identity related since they serve for social positioning.

As mentioned above, the concept of social prototypes elaborated in this paper might be described in terms of stereotypes too, known by everybody, but having different valences associated with them. If a target is perceived as representing the category, the stereotypic characteristics are automatically activated. We already argued that categorization implies evaluation. The potential of automatic valence deduction from memory explains the higher efficiency of social-prototype processing as described above. In identifying the target as a member of a social category, individuals gain access to the category-based knowledge. This knowledge allows them to infer object characteristics which are not actually perceived. Hence, the aesthetic evaluation of those targets has only to be deduced from memory, whereas the evaluation of polyvalents requires at least to some degree the creation of valence. In other words, since categorization might in fact be evaluative from the very beginning, we are not yet convinced that an evaluative act is implied in the processing of single attributes as well. Instead, one might argue that it is basically the nonaccessibility of an evaluative category that makes one process more systematically. Then, evaluation is not derived from memory but has to be developed using the attribute information that is accessible. If this is the

case, the systematic processing is not evaluative from the very beginning, which explains the higher latencies required for preference judgments.

So far we have differentiated between the categorical heuristic processing which enables individuals to automatically deduce evaluation from memory and the systematic attribute analysis where the evaluation has to be developed. Social cognition, however, would question this dichotomy, since "strictly speaking, nearly all cognition and perception is evaluative . . .. It is not possible to view a social object or a social act without at the same time making an assessment on dimensions closely corresponding to good/bad, pleasant/unpleasant, etc." (Markus & Zajonc, 1985, p. 210). No couch carries a valence by itself. But the very act of perception makes the target an evaluative object: "One central feature of human cognition is its contrast readiness to go beyond the information given, contaminating authentical data with subjective inferences" (Fiedler *et al.*, 1996, p. 861). Valence is a prototypical example of this principle since it appears to be most important. Osgood *et al.* (1957) consistently found that evaluation emerged as the central dimension of connotation in judgments of a wide variety of objects. If using the EPA-structure in semantic differentials, the evaluation factor alone is able to explain between 50 per cent and 75 per cent of variance. Following these arguments, even the attribute analysis could be proposed as evaluative by character as well. But still we need an explanation for the differences in processing prototypes or polyvalents. How could the attribute analysis be relieved from spontaneous automatic evaluation that makes the processing last longer and be less certain? We might assume that the perception of each single attribute is prescriptive and allows a fast response too. But still, the overall evaluation of the whole target is required. This means that all positive and/or negative attribute qualities of the object have to be put together. This could be an explanation accounting for the higher latencies in evaluating polyvalents. Still, the effect of less certainty cannot satisfactorily be explained. Judgmental certainty, however, seems to be perfectly explainable through the extent of attitude strength. Attitude strength might determine the potential of a categorical automatic activation, for example, in processing prototypes. In contrast, polyvalents are not supposed to trigger strong attitudes. Thus, automatic evaluation as well as judgmental certainty are much weaker. Whereas the earlier work of Fazio *et al.* (1986) did indeed indicate an automatic evaluation effect for only strong attitudes, Bargh *et al.* (1996) made it convincingly clear that even weak attitudes may be capable of automatic activation and, thus, that the phenomenon occurs upon the mere presence of a target. The occurrence of an automatic evaluation effect under the mere presence paradigm proves its unconditionality. Or, as Bargh *et al.* (1996) put it, there is "no need for the person to have the intention or goal to evaluate the object or to have to think about how he or she feels about it" (p. 108). That is, automatic evaluation implies that subjects have no conscious, intentional appraisal goal. Assuming that there is no appraisal goal required for the aesthetic evaluation of prototypes to make them like or dislike spontaneously, one might argue that a failure of this principle, emerging in the perception of polyvalents, makes evaluation a conscious goal, requiring more time and reducing judgmental certainty.

In the very beginning of this paper, I announced the elaboration of a social psychological model to explain aesthetic preferences. At the very end of the paper, I finished exclusively with reference to research in social cognition. Findings reveal some interesting parallels between the information processing while evaluating persons or objects. In forming an impression, individuals may in both cases use information specific to the target as well as to the category the target belongs to (Brewer, 1988; Fiske & Neuberg, 1990). Under varying circumstances the impressions are more dominated by the individuating or the categorical information. With the social heuristic hypothesis, a dependency of the impression formation from the decodability of social meanings in the targets was implied. Theories of social perception, however, postulate motivational factors as antecedents. Fiske and Neuberg (1990), for example, postulate an accuracy motivation guiding the two processes, which paradigmatically occurs when anticipating interaction with the target person. Besides the accuracy goal, which aims the most objective inference, Kunda (1990) proposed a directional goal which reflects best a person's preference. Accuracy as well as directional goals are supposed to enhance systematic processing. Sanitioso *et al.* (1996) introduced self-related motivation (i.e. through anticipated interaction with the target person) as a necessary factor for the more costly individuating processing, and Brömer (1998) recently reported data which convincingly demonstrated the influence of self-efficacy on the systematic processing. The more a person is convinced of his or her ability and knowledge for systematic attribute analysis, the more he or she is likely to perform it.

In any case, authors agree upon the potential of free choice upon the way processing occurs and no

determinism on the target's characteristic. I do not think that this difference in approach is strictly deduced from theoretical assumptions, but rather that it is more a consequence of the research topic and the discipline within it has traditionally been investigated. While studying aesthetic preferences we are historically focused on objects and environments. Only the lack of satisfaction in explaining preferences made us broaden and shift our view towards social psychological models including motivational states which guide one's processing. In social psychology, however, the historical development of research on social perception made us focus exclusively on social factors determining perception. The guiding question in social psychology is: What makes us categorize/like/dislike/etc. others? In psychological aesthetics, researchers so far have tried to answer the question: In what ways do liked resp. disliked objects or environments differ? With the proposed model to explain aesthetic preferences in daily life, an integrative view could be introduced including target features as well as motivational conditions in the perceiver as preference-determining factors. Besides the target-related decodability of social meanings, I implied a self-related goal in assuming the motivation to decode those social meanings and comparing them with one's own social positioning. In other words, a strong self-related goal is supposed to result in a more categorical processing. Accuracy goals, however, may lead to the opposite effect: If, for example, the exact matching of colors has the priority in choosing a couch, we have no evidence to assume that the spontaneous social heuristic processing cannot intentionally be overcome by a systematic attribute analysis, too. Thus, the social heuristic model for aesthetic preferences allows as much flexibility as heuristic–systematic models in social perception. Generally speaking, evaluative processing in social as well as in object perception might be explainable by the same social psychological algorithm.

Note

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[1]Since his data were collected prior to the German reunification, his results only cover the situation in West Germany, the former Federal Republic. Because some cultural orientations have been differing significantly in East compared to West Germans (Vester, 1995), I myself will stick to solely relating to West Germany throughout this paper for compatibility.

References

Aks, D. J. & Sprott, J. C. (1996). Quantifying aesthetic preferences for chaotic patterns. *Empirical Studies of the Art*, **14,** 1–16.

Allesch, C. G. (1987). *Geschichte der psychologischen Ästhetik*. Göttingen: Hogrefe.

Ammermann, C. (1971). *Experimente zur Instrumentenentwicklung und Validierung: Strukturiertheit und Komplexität des Stimulusmaterials. Intrinsische Motivation (IM) und kognitive Leistung.* Unpublished manuscript.

Bargh, J. A. (1994). The four horsemen of automaticity: awareness, intention, efficiency, and control in social cognition. In R. S. J. Wyer & T. K. Srull (Eds), *Handbook of Social Cognition*. Hillsdale, NJ: Erlbaum, pp. 1–40.

Bargh, J. A. & Barndollar, K. (1996). Automaticity in action. The unconscious as repository of chronic goals and motives. In P. M. Gollwitzer & J. A. Bargh (Eds), *The Psychology of Action*. New York: Guilford Press, pp. 457–481.

Bargh, J. A., Chaiken, S., Raymond, P. & Hymes, C. (1996). The automatic evaluation effect: unconditional automatic attitude activation with a pronunciation task. *Journal of Experimental Social Psychology*, **32,** 104–128.

Bell, S. S., Holbrook, M. B. & Solomon, M. E. (1991). Combining esthetic and social value to explain preferences for product styles with the incorporation of personality and ensemble effects. *Journal of Social Behavior and Personality*, **6,** 243–274.

Berlyne, D. E. (1971). *Aesthetics and Psychobiology.* New York: Appleton-Century-Crofts.

Berlyne, D. E. (1974a). The new experimental aesthetics. In D. E. Berlyne (Ed.), *Studies in the New Experimental Aesthetics: Steps Toward an Objective Psychology of Aesthetic Appreciation*. New York: John Wiley & Sons, pp. 1–26.

Berlyne, D. E. (Ed.). (1974b). *Studies in the New Experimental Aesthetics: Steps Toward an Objective Psychology of Aesthetic Appreciation.* New York: John Wiley & Sons.

Boesch, E. E. (1980). *Kultur und Handlung. Eine Einführung in die Kulturpsychologie.* Bern: Huber.

Bourdieu, P. (1987). *Die feinen Unterschiede. Kritik der gesellschaftlichen Urteilskraft.* Frankfurt: Suhrkamp.

Brewer, M. B. (1988). A dual process model of impression formation. In T. K. Srull & R. S. Wyer (Eds), *Advances in Social Cognition,* Vol. I. New York: Guilford, pp. 1–36.

Brömer, P. (1998). Einstellungen gegenüber unvertrauten Produkten: Selbstwirksamkeit bestimmt die Intensität der Verarbeitung relevanter Produktattribute. *Zeitschrift für Sozialpsychologie*, **29,** 124–133.

Brown, R. (1995). *Prejudice: Its Social Psychology.* Oxford, Engl.: Blackwell.

Bruner, J. S. (1957). On perceptual readiness. *Psychological Review*, **64,** 123–152.

Cacioppo, J. T., Gardner, W. L. & Berntson, G. G. (1997). Beyond bipolar conceptualizations and measures: the case of attitudes and evaluative space. *Personality and Social Psychology Review*, **1,** 3–25.

Chaiken, S., Liberman, A. & Eagly, A. H. (1989). Heuristic and systematic information processing within and beyond the persuasion context. In J. S. Uleman & J. A. Bargh (Eds), *Unintended Thought: Limits of Awareness, Intention, and Control*. New York: Guilford, pp. 212–252.

Chaiken, S. & Maheswaran, D. (1994). Heuristic processing can bias systematic processing: effects of source credibility, argument ambiguity, and task importance on attitude judgment. *Journal of Personality and Social Psychology*, **66,** 460–473.

Cupchik, G. C. (1986). A decade after Berlyne. New directions in experimental aesthetics. *Poetics*, **15,** 345–369.

Cupchik, G. C. & Berlyne, D. E. (1979). The perception of collative properties in visual stimuli. *Scandinavian Journal of Psychology*, **20**, 93–104.

Cupchik, G. C. & László, J. (Eds). (1992). *Emerging Visions of the Aesthetic Process. Psychology, Semiology, and Philosophy*. Cambridge: University Press.

Diewald, M. (1990). *Von Klassen und Schichten zu Lebensstilen — Ein neues Paradigma für die empirische Sozialforschung?* Berlin: Wissenschaftszentrum.

Dittmar, H. & Hempstead, H. (1992). *The Social Psychology of Material Possessions. To Have Is to Be*. Hertfordshire: Harvester Wheatsheaf.

Fazio, R. H. (1995). Attitudes as object-evaluation associations: determinants, consequences, and correlates of attitude accessibility. In R. E. Petty & J. A. Krosnick (Eds), *Attitude Strengh: Antecedents and Consequences*. Hillsdale, NJ: Erlbaum, pp. 247–282.

Fazio, R. H., Sanbonmatsu, D. M., Powell, M. C. & Kardes, F. R. (1986). On the automatic activation of attitudes. *Journal of Personality and Social Psychology*, **50,** 229–238.

Fechner, G. T. (1871). *Vorschule der Ästhetik*. Leipzig: Breitkopf & Härtel.

Fiedler, K., Armbruster, T., Nickel, S., Walther, E. & Asbeck, J. (1996). Constructive biases in social judgment: experiments on the self-verification of question contents. *Journal of Personality and Social Psychology*, **71,** 861–873.

Fischer, G.-N. (1990). *Psychologie des Arbeitsraumes*. Frankfurt: Campus.

Fiske, S. T. & Neuberg, S. L. (1990). A continuum of impression formation, from category-based to individuating processes: Influences of information and motivation on attention and interpretation. *Advances in Experimental Social Psychology*, **23,** 1–74.

Groat, L. (1981). Meaning in architecture: new directions and sources. *Journal of Environmental Psychology*, **1,** 73–85.

Henckmann, W. & Lotter, K. (1992). *Lexikon der Ästhetik*. München: Beck.

Higgins, E. T., Rholes, W. S. & Jones, C. R. (1977). Category accessibility and impression formation. *Journal of Experimental Social Psychology*, **13,** 141–154.

Hodges, S. D. (1997). When matching up features messes up decisions: the role of feature matching in successive choices. *Journal for Personality and Social Psychology*, **72,** 1310–1321.

Hradil, S. (1990). Milieus, Subkulturen, Lebensstile—Alte Begriffe und neue Strukturen. In L. Vaskovics (Ed.), *Subkulturen und Subkulturkonzepte*. Opladen: Westdeutscher Verlag.

Kahnemann, D. & Tversky, A. (1984). Choices, values, and frames. *American Psychologist*, **39,** 341–350.

Kant, I. (1986). Geschmack: Einsamkeit und Geselligkeit. In T. H. Macho, M. Moser & C. Subik (Eds), *Ästhetik*. Stuttgart: Reclam, pp. 109–110.

Kraft Alsop, C. (1996). *Dinge, Orte, Paare. Zur Bedeutung von Objekten, Orten und Zeremonien im Leben von Paaren*. Münster: Waxmann.

Kunda, Z. (1990). The case of motivated reasoning. *Psychological Bulletin*, **108,** 480–498.

Lepore, L. & Brown, R. (1997). Category and stereotype activation: Is prejudice inevitable? *Journal of Personality and Social Psychology*, **72,** 275–287.

Lüdtke, H. (1989). *Expressive Ungleichheit. Zur Soziologie der Lebensstile*. Opladen: Westdeutscher Verlag.

Macrae, C. N., Milne, A. B. & Bodenhausen, G. V. (1994). Stereotypes as energy-saving devices: a peek inside the cognitive toolbox. *Journal of Personality and Social Psychology*, **66,** 37–47.

Markus, H. & Zajonc, R. B. (1985). The cognitive perspective in social psychology. In G. Lindzey & E. Aronson (Eds), *Handbook of Social Psychology*. Hillsdale, NJ: Erlbaum, pp. 137–230.

Müller, H.-P. (1989). Lebensstile. Ein neues Paradigma der Differenzierungs- und Ungleichheitsforschung. *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, **41,** 53–71.

Müller, H.-P. (1992). *Sozialstruktur und Lebensstile. Der neuere theoretische Diskurs über soziale Ungleichheit*. Frankfurt: Suhrkamp.

Nasar, J. L. (1994). Urban design aesthetics. The evaluative qualities of building exteriors. *Environment and Behavior*, **26,** 377–401.

Niketta, R. (1987). *Sozialpsychologie der Ästhetik*. Unpublished Habilitation Thesis, University of Frankfurt, Germany.

Osgood, C. E., Succi, G. J. & Tannenbaum, D. H. (1957). *The Measurement of Meaning*. Urbana, IL: University of Illinois Press.

Raab, E. (1981). Ästhetik und Neugier. In H.-G. Voss & H. Keller (Eds), *Neugierforschung*. Weinheim: Beltz, pp. 263–308.

Richter, R. (1989). Subtile Distinktion. Zur Reproduktion sozialer Ungleichheit im mikrosozialen Bereich. *Österreichische Zeitschrift für Soziologie*, **3,** 53–63.

Ritterfeld, U. (1996). *Psychologie der Wohnästhetik: Wie es uns gefällt!* Weinheim: Psychologie Verlags Union.

Roskos-Ewoldson, D. R. & Fazio, R. H. (1992). On the orienting value of attitudes: attitude accessibility as a determinant of an object's attraction of visual attention. *Journal of Personality and Social Psychology*, **63,** 198–211.

Sadalla, E. K. & Sheets, V. L. (1993). Symbolism in building materials. Self-presentational and cognitive components. *Environment and Behavior*, **25,** 155–180.

Sanitioso, R., Freud, K. & Lee, J. (1996). The influence of self-related goals on the use of stereotypical and individuating information. *European Journal of Social Psychology*, **26,** 751–761.

Schneider, G. (1990). Image: Bedeutungsbezogene Umweltrepräsentationen. In L. Kruse, C. F. Graumann & E. D. Lantermann (Eds), *Ökologische Psychologie*. Ein

Handbuch in Schlüsselbegriffen. München: Psychologie Verlags Union, pp. 278–287.
Schulze, G. (1992). *Die Erlebnisgesellschaft. Kultursoziologie der Gegenwart*. Frankfurt: Campus.
Shiffrin, R. M. & Schneider, W. (1977). Controlled and automatic human information processing: perceptual learning, automatic attending, and a general theory. *Psychological Review*, **84,** 127–190.
Silbermann, A. (1991). *Neues vom Wohnen der Deutschen* (West). Köln: Verlag Wissenschaft und Politik.
Smith, E. R., Fazio, R. H. & Ceijka, M. A. (1996). Accessible attitudes influence categorization of multiply categorizable objects. *Journal of Personality and Social Psychology*, **71,** 888–898.
Strack, F. (1985). Urteilsheuristiken. In D. Frey & M. Irle (Eds), *Theorien der Sozialpsychologie. Motivations- und Informationsverarbeitungstheorien*. Bern: Huber, pp. 239–267.
Tajfel, H. (1978). *Differentiation Between Social Groups: Studies in the Social Psychology of Intergroup Relations*. London: Academic Press.
Tajfel, H. & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. C. Austin & S. Worchel (Eds), *The Social Psychology of Intergroup Relations*. Moneterey, CA: Brooks & Cole, pp. 7–24.
Temme, J. E. V. (1993). Fechner's primary school revisited: Towards a social psychology of taste. *Poetics*, **21,** 463–479.
Vester, M. (1995). Milieuwandel und regionaler Strukturwandel in Ostdeutschland. In M. Vester, M. Hofmann & I. Zierke (Eds), *Soziale Milieus in Ostdeutschland: Gesellschaftliche Strukturen zwischen Zerfall und Neubildung* Köln: Bund-Verlag, pp. 7–50.
Voss, H.-G. (1981). Kognition und exploratives Handeln. In H.-G. Voss & H. Keller (Eds), *Neugierforschung*. Weinheim: Beltz, pp. 175–196.
Wilson, M. A. & Mackenzie, N. E. (2000). Social attributions based on domestic interiors. *Journal of Environmental Psychology*, **20,** 343–354.
Wohlwill, J.-F. (1980). The place of order and uncertainty in art and environmental aesthetics. *Motivation and Emotion*, **2,** 133–142.
Zapf, W., Breuer, S., Hampel, J., Krause, P., Mohr, H.-M. & Wiegand, E. (1987). *Individualisierung und Sicherheit. Untersuchungen zur Lebensqualität in der Bundesrepublik Deutschland*. München: Beck.