



The flexible unconscious: Investigating the judgmental impact of varieties of unaware perception ☆

Diederik A. Stapel^{a,*}, Willem Koomen^b

^a Department of Social and Organizational Psychology, University of Groningen, The Netherlands

^b Department of Social Psychology, University of Amsterdam, The Netherlands

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Abstract

Two studies were conducted to investigate the notion that stimulus exposure time, target category, and mindset orientation can influence the impact of subliminally presented emotion faces on judgments of neutral targets. Specifically, Study 1 showed that when the stimulus and target were from different categories, assimilative judgments occurred at both short and long (but still subliminal) stimulus exposure times. Yet, when the stimulus and target were from the same category, assimilation occurred at short exposure times, and contrast occurred at long exposure times. Findings from Study 2 show that this effect is moderated by one's goal during processing. That is, when motivated to see a specific type of stimulus, contrast occurred regardless of stimulus exposure time; however, when one is not poised to see specific stimuli, assimilation occurred at short exposure times and contrast occurred at long exposure times. These findings support the notion that unconscious perception is flexible and goal contingent.
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When we say “Marcelle is happy,” we probably mean that Marcelle is happier than she *was* or that she is happier than *other people*. We know what things are by relating their attributes to those of other stimuli. Put differently, judgments typically consist of two core ingredients, a target (e.g., *Marcelle*) and a standard (e.g., *others*). How these two ingredients are perceived and cognitively represented thus provides important input for the judgment process (see Schwarz & Bless, 1992). Previous priming research has demonstrated how subtly activated information may affect the encoding of target stimuli. Furthermore, such *target* encoding effects may

occur even when priming is *subliminal* (see Greenwald & Banaji, 1995). Interestingly, whereas studies of subliminal priming effects on the encoding of *target* stimuli are plentiful, much less is known about whether and how subliminal priming may affect the *standards* of comparison (Stapel, Koomen, & Ruys, 2002).

Interpretation or comparison?

Some researchers have suggested that social stimuli can only function as comparison standards when these stimuli are explicitly and consciously evaluated and judged (e.g., Parducci & Wedell, 1990). According to this view, it is unlikely for subliminally presented information to be used as a comparison standard. In the present paper, we challenge this perspective. Following Stapel and Koomen's (2001) *Interpretation Comparison Model* (ICM) of knowledge accessibility effects, we test the hypothesis that

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* Corresponding author. Fax: +31 50 363 4581.

E-mail address: d.a.stapel@rug.nl (D.A. Stapel).

subliminally primed information may lead to assimilative interpretation as well as contrastive comparison effects. Which of these effects will be strongest depends on *what type* of information is perceived. The ICM posits that *distinctness* and *categorical similarity* are two important variables that determine whether a stimulus will be used as an interpretation frame or a comparison standard.

With regard to the *distinctness* concept, Helson (1964) noted that stimuli that do not provide judges with information that is perceived as “distinctive” will not be used as subjective standards for purposes of comparison. Distinct information constitutes a separate entity with clear object boundaries (e.g., a specific person, “a smiling woman”) and is therefore more likely to be used as a specific comparison standard in the construction of judgments. Diffuse information (e.g., an abstract construct, “positive”) is more likely to be used as an interpretation frame, to “blend with the target” and result in assimilation. There are now several empirical studies that support this distinctness hypothesis. For example, we found that when the task is to judge an ambiguously friendly target person, priming diffuse trait information (*hostile* vs. *friendly*) results in assimilative interpretation effects, whereas priming distinct person information (*Dracula* vs. *Mandela*) yields contrastive comparison effects (see Stapel & Koomen, 2001).

Distinctness alone, however, is typically not a sufficient precondition for information to be used as a comparison standard (Schwarz & Bless, 1992). To be used as a comparison standard, accessible stimuli also need to possess *categorical similarity*. That is, they have to belong to the same category as the target stimulus, because “one does not compare apples with oranges.” In recent empirical tests of this similarity criterion, we found that priming *animals* (e.g., *Puppy* vs. *Shark*) are not used as a comparison standard when judging a human target stimulus, whereas priming *people* (e.g., *Gandhi* vs. *Hitler*) does result in contrast effects (Stapel & Koomen, 2001).

Of course, whether prime and target are subjectively perceived as similar may be determined by other variables than their “objective” category membership. As Barsalou (1983) has shown, for example, categorizations often have an ad hoc character. An animal (your puppy dog) and a human being (your child) may be categorized as similar when one is thinking of “that what needs taking care of.” Whatever the source of category similarity, however, the ICM maintains that contrast should be more likely to occur when prime and target exemplars are perceived as categorically similar.

Flexibility in unconscious perception

Are distinctness and categorical similarity stimulus characteristics that can be perceived without awareness? We posit that “it depends.” As we have argued earlier, it

is likely that there are *varieties of unconscious perception* (Stapel, 2003; Stapel et al., 2002). In the present paper, we will test the hypothesis that what type of information is activated when people are exposed to a specific stimulus depends on the answer to two questions, (a) How long is information presented? and (b) What is one looking for? In other words, we posit that what people “unconsciously” perceive depends on what they are looking *for* as well as what they are looking *at*.

What is one looking at?

The theory of affective primacy (Zajonc, 1980) proposes that affective or evaluative reactions (e.g., positive–negative classifications) occur *prior* to non-affective reactions (or more “descriptive” responses, such as big–small classifications). And indeed, several lines of research have found support for the hypothesis that the affective qualities of stimuli (“Is Chris happy or sad?”) are processed more readily than their non-affective attributes (“Is Chris a man or a woman?”). It is important to note that this should not be taken to mean that non-evaluative information cannot be perceived without awareness. As a host of studies have shown, purely descriptive, evaluatively *neutral* information can be detected very well without awareness (see Stapel, 2003).

This implies that there is a variety as well as a hierarchy in unaware perception. Both evaluative and non-evaluative information can be detected without awareness, but evaluative information is detected earlier than non-evaluative, descriptive information (Stapel, 2003). At very short exposures, gross evaluative classifications may take place. At longer exposures, stimuli are also likely to activate more complex networks of associations allowing for feature identification and recognition (see Murphy & Zajonc, 1993; Stapel et al., 2002).

Translated to the present concerns this suggests that the distinctness and category membership of priming stimuli will be picked up later than their evaluative tone. Thus, when presenting people with a distinct stimulus (e.g., a picture of a smiling Asian woman), exposure time is one important determinant of what one actually perceives. At very short exposures, only the valence of the facial expression should be detected (e.g., *positive*). At longer exposure, however, information about other features of the picture will also become available (e.g., *a smiling Asian woman*).

The idea that one can distinguish early, diffuse, cognitively unappraised reactions vs. late, distinct, cognitively appraised reactions to subliminally presented stimuli suggests that the automatic effects of such stimuli may be diametrically opposite (assimilative vs. contrastive), depending on how many milliseconds have elapsed. As the ICM maintains, for comparison contrast to occur, a stimulus needs to be distinct and categorically similar to the target. Whereas for assimilation the activation of

affective appraisals is sufficient (positive, negative), for contrastive comparison a stimulus needs to be affectively as well as cognitively appraised. In combination with the notion that affective reactions to subliminally presented stimuli occur prior to cognitive appraisals, this ICM logic suggests that exposure time may determine whether primed information will lead to assimilation or contrast. Extremely short exposures lead to assimilation. Slightly longer exposures lead to contrast.

What is one looking for?

Another aim of the present research is to investigate to what extent this effect of exposure time may be moderated by people's goals or concerns, by "what people are looking for." Specifically, the speed and readiness with which stimuli will be cognitively as well as evaluatively appraised may be a function of whether these cognitive appraisals fit an individual's goals, needs, or environmental demands at the time these stimuli are presented. To give an example, a hairdresser may need less exposure time to "see" a person's hairdo than a perceiver who is not professionally inclined to look at people's hairstyles. Similarly, a highly prejudiced individual may perceive the skin color of person primes more quickly than an unprejudiced perceiver.

Study 1

As posited earlier, we argue that the affective primacy hypothesis suggests that in the earliest stages of impression formation, priming stimuli activate information that is diffuse and should lead to interpretative assimilation effects. In later stages of the impression formation chain, priming stimuli activate more distinct stimulus representations. This opens the door to contrastive comparison effects. Whether comparison contrast actually occurs, however, should depend on whether the priming and target stimuli are categorically similar.

To test this hypothesis, we used a paradigm that was previously used by Stapel et al. (2002). That is, we compared conditions in which priming was *extremely short* with conditions in which priming was *moderately short*. In addition to these earlier studies, we manipulated the categorical overlap between priming and target stimuli. Specifically, in all conditions the priming stimuli were (happy or sad) faces of an Asian male. However, in the high overlap conditions, the target stimulus was a neutral face of an Asian male, whereas in the low overlap conditions, the target stimulus was a White male. The prediction was that contrast is most likely to occur when prime exposure is moderately (rather than extremely) short and when there is a match (rather than a mismatch) between the prime and target's ethnicity. In all other conditions, assimilation should occur.

Method

Participants and design

Participants ($n = 147$) were undergraduates who participated in exchange for partial course credit. The participants were randomly assigned to the conditions of a 2 (Prime Exposure: moderately short, extremely short) \times 2 (Prime Valence: positive, negative) \times 2 (Target: Asian, White) between-participants design.

Overview

Upon arrival, participants were seated in front of a computer. First, participants performed a parafoveal vigilance task in which the emotion faces were presented outside of awareness. After having completed the vigilance task, participants were thanked for their participation and given a questionnaire. On the first page of this questionnaire, participants were presented with a picture of a neutral male face and were asked to rate this face on a sad–happy dimension. Next, participants received a prime recognition task and a funnel debriefing procedure.

Materials and dependent measure

Priming stimuli were a (black-and-white) photograph of an Asian male face with either a happy expression (pre-tested by Stapel et al., 2002 on a 7-point sad–happy rating dimension, $M = 5.87$, $SD = 0.98$) or a sad expression ($M = 2.03$, $SD = 0.80$). Depending on the condition, the target stimulus was a neutral Asian male face ($M = 3.92$, $SD = 1.02$) or a neutral White male face ($M = 3.82$, $SD = 1.24$). Participants were asked to indicate on a 7-point rating dimension to what extent they thought the target stimulus was sad or happy.

Priming procedure

The priming task was modeled after Bargh's parafoveal priming task. This priming task has been used reliably to prime information without awareness (see Bargh, 1997; Stapel, 2003). Once participants were seated in front of their computer, the experimenter explained the vigilance task. The experimenter then instructed participants to place their index fingers on two keys of the keyboard and to press the left key, labeled "L," if a flash appeared on the left side of the screen, and the right key, labeled "R," if a flash appeared on the right side of the screen. A fixation point consisting of one X was presented continually in the center of the screen. Participants were given 10 practice trials to become familiar with the procedure. After answering any questions, the experimenter began the 60 experimental trials of the vigilance task.

All pictures presented on the computer screen were 20 mm tall. The pictures that were presented in the 10 practice trials and in 45 of the experimental trials were pictures of Chinese characters and geometrical shapes.

In the remaining 15 experimental trials, either the positive or the negative Asian male face was presented. The order in which pictures were presented was random. In the moderately short conditions pictures were presented for 100 ms. In the extremely short conditions, pictures were presented for 30 ms. In all conditions, these pictures were immediately followed by a 120-ms mask.

Awareness and suspicion

Previous subliminal priming studies have shown that the paradigm employed here provides sufficient safeguards to prevent participants from becoming aware of the priming stimuli (see Stapel et al., 2002). However, to ensure that in both our moderately short and extremely short priming conditions, participants were not aware of the priming stimuli, we used an extensive funnel debriefing procedure in which participants were asked increasingly specific questions about the study. Next, participants were given the priming stimuli used in this experiment (the positive or negative face) and were told that at some of the trials one of these pictures was presented. Participants were then asked to choose (guess) which picture was presented.

All participants reported that they had seen flashes. And although some reported to have seen “pictures,” no participant could report on the general or specific contents of the primes. Furthermore, participants’ guesses of which of the two pictures they had seen did not exceed chance, nor differed between conditions ($F_s < 1$). Finally, there were no participants who thought the vigilance and evaluation tasks were related. Thus, we could conclude that we were successful in presenting our priming stimuli outside of awareness.

Results and discussion

The effects of the independent variables on target judgments were investigated by performing a Prime Exposure \times Prime Valence \times Target analysis of variance (ANOVA). This analysis revealed the predicted three-way interaction, $F(1, 139) = 6.39, p < .05, \eta^2 = .04$, a Prime Valence \times Target interaction, $F(1, 139) = 8.88, p < .01, \eta^2 = .06$, a Prime Valence \times Prime Exposure interaction, $F(1, 139) = 8.55, p < .01, \eta^2 = .06$, and a main effect of Prime Valence, $F(1, 139) = 10.70, p < .01, \eta^2 = .07$ (other $F_s < 1$).

As can be seen in Table 1, these effects reflect, as expected, that in the White target conditions, Asian emotion faces evoked an assimilation effect, such that happy faces led to more positive target judgments ($M = 4.54, SD = 0.93$) than sad faces ($M = 3.53, SD = 1.06$), $F(1, 139) = 18.89, p < .01, \eta^2 = .12$. In the Asian target conditions, however, Asian faces evoked assimilation when prime exposure was extremely short and contrast when prime exposure was moderately short. Specifically, in the extremely short exposure conditions, happy faces led to

Table 1

Mean (*SD*) sad–happy ratings of a neutral target face as a function of target, prime valence, and prime exposure

Prime valence	Target			
	White		Asian	
	Positive	Negative	Positive	Negative
Prime exposure				
Extremely short	4.58 (0.96)	3.50 (0.99)	4.58 (0.96)	3.65 (1.06)
Moderately short	4.50 (0.92)	3.55 (1.15)	3.56 (0.81)	4.40 (0.94)

Note. Scale range is from 1 (“sad”) to 7 (“happy”).

more positive target judgments ($M = 4.58, SD = 0.96$) than sad faces ($M = 3.65, SD = 1.06$), $F(1, 139) = 7.20, p < .01, \eta^2 = .05$. Conversely, in the moderately short exposure conditions, happy faces led to less positive target judgments ($M = 3.56, SD = 0.81$) than sad faces ($M = 4.40, SD = 0.94$), $F(1, 139) = 5.47, p < .05, \eta^2 = .04$.

These findings support our view that subliminal priming may result in contrast as well as in assimilation effects. Which of these effects occur depends on both exposure time and categorical overlap between primed and judged stimuli. Our results suggest that contrast is most likely to occur when subliminal priming is long enough to activate a distinct representation of the primed information and when the prime belongs to the same category (e.g., Asians) as the target stimulus. These findings replicate the findings of Stapel et al. (2002). More important, this study provides the first evidence that when it concerns reading emotion faces, *ceteris paribus*, ethnicity is read later than affect. An interesting avenue for future research might be how this affective-early, ethnicity-late pattern may be moderated by prejudice level. When doing so, it is important to fully cross prime and target ethnicity. Then the prejudice level hypothesis may be investigated to its fullest extent.

Study 2

In Study 2, we investigate the hypothesis that the contents of unconscious perception are also dependent on what one is looking for (i.e., With what concern is one performing a priming task?). We argue that the notion that social perceivers cannot detect descriptive information in a subliminally activated stimulus when exposure time is extremely short may indeed be a *ceteris paribus* argument (see above). If other things are not equal, the pattern of previously observed exposure time effects may be different.

We know from research on biases in social perception how conscious perception can be moderated by people’s concerns, expectancies, or prejudices. We argue here that unconscious perception may be contingent in a similar way. In the present study we explore the notion that whether extremely short stimulus exposure induces mainly affective appraisals (and activates diffuse

information) or affective + cognitive appraisals (and activates distinct information) may be a function of what one thinks the priming task entails. We tested this hypothesis as follows. Participants were subliminally primed with happy vs. sad Asian male faces. Priming was either extremely short or moderately short. After the priming task, participants were asked to judge a neutral Asian face on a sad–happy dimension. Half of the participants were told the priming task was an assessment of “Cultural Differences in Vigilance.” The other half was told the priming task was an assessment of “Individual Differences in Vigilance.”

We predicted that in the *cultural* conditions, the valence as well as the ethnicity of (happy vs. sad) Asian faces may be detected more readily than in the *control* conditions. In the cultural conditions, participants are likely to look for cultural cues. Therefore, in the cultural conditions, priming Asian faces may elicit distinct stimulus representations and thus lead to contrast in subsequent judgments of a neutral Asian face—even when prime exposure is extremely short. When people are not so instructed and the mind does not look for cultural clues, extremely short prime exposures should activate cognitively unappraised, diffuse information and thus lead to assimilation in subsequent judgments of a neutral Asian face. In these control conditions, moderately short prime exposures should activate cognitively appraised, distinct information and thus lead to contrast in subsequent judgments of a neutral Asian face (see Study 1).

Method

Participants and design

Participants ($n = 120$) were undergraduates who participated in exchange for partial course credit. The participants were randomly assigned to the conditions of a 2 (Prime Exposure: moderately short, extremely short) \times 2 (Prime Valence: positive, negative) \times 2 (Task Instruction: cultural, control) between-participants design.

Procedures, materials, and measures

The procedure was identical to the *unrelated tasks* procedure used in Study 1. The recognition task and the funnel debriefing procedure again indicated that we were successful in presenting our priming stimuli outside of awareness. The same priming stimuli were used as the ones used in Study 1. The target stimulus was the photograph used in the Asian target conditions of Study 1.

Participants in the *Cultural Instruction* conditions were told the priming task was an assessment of “Cultural Differences in Vigilance.” Participants in the *Control Instruction* conditions were told the priming task was an assessment of “Individual Differences in Vigilance.” These instructions were given before the priming task started.

Results and discussion

The effects of the independent variables on target judgments were investigated by performing a Prime Exposure \times Prime Valence \times Task Instruction ANOVA. This analysis revealed the predicted three-way interaction, $F(1, 112) = 9.36, p < .01, \eta^2 = .08$, a Prime Valence \times Task Instruction interaction, $F(1, 112) = 11.93, p < .01, \eta^2 = .10$, a Prime Valence \times Prime Exposure interaction, $F(1, 112) = 4.29, p < .01, \eta^2 = .04$, and a main effect of Prime Valence, $F(1, 112) = 9.36, p < .01, \eta^2 = .08$ (other effects, $F_s < 1$).

As can be seen in Table 2, these effects reflect, as expected, that in cultural instruction conditions, Asian emotion faces evoked a contrast effect, such that happy faces led to less positive target judgments ($M = 3.23, SD = 0.90$) than sad faces ($M = 4.33, SD = 0.88$), $F(1, 112) = 19.57, p < .01, \eta^2 = .14$. In the control instruction conditions, however, Asian emotion faces evoked assimilation when prime exposure was extremely short and contrast when prime exposure was moderately short. Specifically, in the extremely short exposure conditions, happy faces led to more positive target judgments ($M = 4.47, SD = 0.99$) than sad faces ($M = 3.53, SD = 1.06$), $F(1, 112) = 19.57, p < .01, \eta^2 = .14$. Conversely, in the moderately short exposure conditions, happy faces led to less positive target judgments ($M = 3.60, SD = 0.83$) than sad faces ($M = 4.41, SD = 0.91$), $F(1, 112) = 4.61, p < .05, \eta^2 = .04$.

These findings replicate the findings of Study 1. More important, perhaps, is that our findings support the notion that what people think the content of a priming task is may influence what they see, even when this “seeing” occurs without awareness. The contrast effects in the cultural conditions of the present study suggest that subliminally priming an Asian emotion face activates a distinct, cognitively appraised stimulus representation, not only when priming is moderately short but also when it is extremely short. This was not the case when participants’ mind is not set to look for cultural differences. In this situation, we replicated the pattern of results we found earlier: assimilation when exposure time is extremely short and priming activates diffuse stimulus representations, contrast when exposure time is slightly longer and priming activates cognitively appraised, more distinct stimulus representations.

Table 2

Mean (*SD*) sad–happy ratings of a neutral target face as a function of task instruction, prime valence, and prime exposure

Prime valence	Task instruction			
	Cultural		Control	
	Positive	Negative	Positive	Negative
Prime exposure				
Extremely short	3.07 (0.80)	4.28 (0.94)	4.47 (0.99)	3.53 (1.06)
Moderately short	3.40 (0.99)	4.38 (0.90)	3.60 (0.83)	4.41 (0.91)

Note. Scale range is from 1 (“sad”) to 7 (“happy”).

General discussion

Perception can be fast and frugal. Because of this people can detect specific features of stimuli even when these stimuli are processed outside of awareness. Such unconscious perception can have important consequences for people's understanding of their world. As the present studies show, these consequences may be at the same time complex but predictable. Our findings reveal that there are varieties of unaware perception. Both affective and non-affective features of stimuli may be detected automatically (see Bargh, 1997; Fazio, 2001; Stapel, 2003; Stapel et al., 2002; but see Lazarus, 1982; Zajonc, 1980). However, whether the judgmental impact of a stimulus is determined by the activation of *diffuse* affective representations or by *distinct* affective + cognitive representations depends on at least two questions, (a) How long is a stimulus presented? and (b) What are people looking for during the priming task?

To put this conclusion about the judgmental impact of unconsciously perceived information in more concrete terms, a stimulus that possesses non-affective as well as affective features (e.g., "happy Asian face") is most likely to elicit diffuse information when exposure time is short *and* when people's minds are not set specifically on detecting the relevant non-affective cues. Given that this is the case, subliminally primed information may "spill over" onto the perception of neutral target stimuli, resulting in assimilation. When exposure time is slightly longer *or* when people are focused on relevant non-affective cues, both affective and non-affective features may be detected unconsciously, thus activating distinct stimulus representations. Such distinct stimulus representations may be used as a comparison standard and result in contrast, given that there is prime–target similarity. Thus, priming a happy or sad emotion face of a distinctively Asian individual may result in comparison contrast when the target stimulus is an Asian face, but not when it is a White face.

Our analysis of the present assimilation and contrast effects thus explains contrast effects in terms of using primed information as a standard of comparison. In the social judgment literature it has been argued that there are at least two forms such contrast effects could take. One is a comparison involving the subjective representation of the prime (e.g., happy face) and the target stimulus (e.g., neutral face). According to this perspective, comparison contrast is a *perceptual* phenomenon. Just as lukewarm water *feels* cold when one has just had a hot bath, the neutral face is *seen* as less happy compared to a happy face (e.g., Stapel & Blanton, 2004; Stapel et al., 2002). The alternate view is that comparison contrast is an output phenomenon that occurs when individuals attempt to translate a previously formed impression in an overt response (see Biernat, Manis, & Nelson, 1991; Mussweiler, 2003; Mussweiler & Strack, 2000). More

specifically, it is assumed that individuals align the extremes of the available response alternatives with the extreme values of the stimulus they expect to judge. A change in the relation between the objective and subjective ranges would cause a stimulus of a given subjective value to be mapped onto a different objective response category. According to this account, comparison contrast does not result from changes in cognitive representation; instead, it is thought to reflect changes in the way this representation is described (rated).

It was not a goal of the current studies to provide evidence for or against either *perceptual* or *semantic* accounts of comparison contrast (but see Stapel & Blanton, 2004). We believe, however, that a semantic model of comparison contrast could not account parsimoniously for the present results. In the current experiments, all participants were exposed to the same priming and target stimuli and rated these stimuli on the same response scale. Therefore, in those experiments all respondents should have had the same stimulus range and the same response range. Hence, they should have aligned their subjective and objective ranges in the same way across conditions. If so, the semantic model of comparison contrast should have predicted that there would be no differences in judgments. Future research should more specifically delineate what type of comparison contrast is underlying the present pattern of findings (see Stapel & Blanton, 2004).

What you see is (not) what you get

It is important to note that because the present findings were obtained using a subliminal priming (rather than a supraliminal) paradigm, models that explain the impact of affect priming in terms of the extent to which individuals are aware of the primed information cannot easily be applied to explain our findings (e.g., Markman & McMullen, 2003; Mussweiler, 2003). Such models suggest that differences between assimilation and contrast effects arise because assimilation is governed by a relatively *automatic* processing mode, whereas contrast effects are governed by an effortful or conscious processing mode.

We think that the present findings are best explained in terms of our Interpretation Comparison Model (ICM; Stapel & Koomen, 2001). The ICM not only maintains that prime distinctness and prime–target similarity are two important determinants of whether priming results in an assimilation or a contrast effect, but also that both of these effects can occur automatically, that is without awareness. Our findings thus support the notion that the impact of unconsciously perceived information is not unidirectional. The route from unconscious perception to judgment and behavior may be an expressway, as some have claimed (Dijksterhuis & Bargh, 2001), but traffic never flows smoothly, it has its

ebbs and flows. As our data show, there is no unidirectional link between perception and judgment. Whether the impact of unconscious perception “ebbs” (results in contrast) or “flows” (leads to assimilation) is contingent on perceptual (How long is a stimulus presented to the human eye) as well as motivational variables (What type of information do people want or expect to be presented with).

The flexible unconscious

Our research can attest to the claim that, within the realm of unaware information processing, affective features of stimuli are picked up earlier in the processing chain than cognitive features, thus supporting the theory of affective primacy (Zajonc, 1980) and corroborating earlier tests of this theory (see Edwards, 1990; Murphy, Monahan, & Zajonc, 1995; Murphy & Zajonc, 1993; Niedenthal, 1990; Stapel et al., 2002; Winkielman, Zajonc, & Schwarz, 1997). At the same time, however, our findings suggest that this difference in the processing time that is needed to detect affective vs. non-affective stimulus features is contingent upon people’s concerns and expectancies. When people *want* or *expect* to see certain non-affective stimulus features (e.g., a person’s ethnicity, gender or age), then they are likely to detect these features more readily than when their desires or expectancies are different.

The notion that unconscious perception is dependent on one’s goals during information processing as well as how long this information is presented suggests that there are varieties of “unawareness” and that unconscious perception can be flexible.

Coda

The present findings suggest that descriptive information (gender, ethnicity) may be detected extremely quickly, perhaps even as quickly as evaluative (affective) information, *given* that this descriptive information is relevant to one’s current concerns. An important avenue for future research is to find out to what extent the contingent character of unconscious perception implies that there may be affective primacy as well as non-affective primacy; it all depends on what one is looking for. There seem to be at least two possibilities, the *strong affective primacy* and the *contingency view*.

In defense of *affective primacy*, one can argue that quick detection of affective stimulus features is most essential for survival. Whether an environment or stimulus is hostile or hospitable is the first thing one needs to know to avoid becoming a meal, to postpone death. Therefore the processing of affective features occurs quickly and automatically and prior to the processing of their non-affective counterparts.

In defense of *contingency*, one can argue that in our complex and multidimensional world, knowing what something is, is sometimes at least as important (Is this a tiger or my daughter) as knowing whether it is positive or negative (Is she happy or angry?). To function successfully, people need to be flexible in their (automatic) reactions and behavioral adaptations to their environment. Goal-contingent (*This is good for me at this moment*) rather than rigid reflex-like (*This is good*) stimulus-response patterns are necessary to adequately adapt one’s behavior to ever changing external and internal stimuli. Contingency adds specificity to affective processing and specificity is essential to obtain flexibility in processing and variability in responding.

In sum then, it is clear that for the survival of an organism it needs to ward off dangers and make use of opportunities and chances. It is also clear that to be able to quickly notice and attend to opportunities and threats, it is necessary to posit an early stage of processing in which all incoming stimuli are classified as such. It is unclear, however, whether or not this means that in these earliest stages of processing, classification is affect-based or goal-contingent.

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