

Research article

Atypicality and the two fundamental dimensions: Applying the negativity effect on warmth to group perception

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Abstract

The person perception literature has shown that negative information on warmth influences impression formation more than other kinds of information. In the present paper, we argue for the usefulness of using the knowledge accumulated on the negativity effect on warmth when studying how members of a group who are disconfirming the group stereotype are perceived. We show that negative divergent information on warmth is perceived as more surprising because it appears to be more discrepant than positive divergent information on warmth or than competence information. We also show how stereotype holders protect their stereotype by rating the surprising incoherent information as atypical. Results are discussed in terms of the necessity to apply our knowledge of the two fundamental dimensions of social perception and their properties to typicality ratings and, beyond them, to stereotype change research. Copyright © 2009 John Wiley & Sons, Ltd.

Trait ascription is a key feature of impression formation. How do people infer personality traits from the behaviors that they observe? Research on person perception revealed that impressions are disproportionately influenced by certain kinds of information. As a case in point, it has been shown repeatedly that negative information on the warmth¹ dimension exerts a major influence on people's impressions (Kanouse & Hanson, 1971; Czapinski, 1988; Peeters & Czapinski, 1990; Reeder & Brewer, 1979; Reeder, Messick, & Van Avermaet, 1977; Reeder & Spores, 1983; Skowronski & Carlston, 1987, 1989). This effect has been referred to as the negativity effect on warmth. As Skowronski and Carlston (1989) noted, "In essence, a good person must act good most of the time to retain the categorization, whereas a bad person needs to act bad only some of the time" (p. 137).

Interestingly enough, the available research on the negativity effect would seem to be restricted to person perception (Czapinski, 1988; Kanouse & Hanson, 1971; Peeters & Czapinski, 1990; Skowronski & Carlston, 1987, 1989; Wojciszke, Brycz, & Borkenau, 1993). Apparently, and in spite of the wealth of efforts devoted to studying the formation, maintenance, and change of group perception, no research has explicitly addressed the negativity effect in this context. This is all the more surprising given the fact that the dimensions underlying person perception would seem to be the same as those at the heart of group perception (Fiske et al., 2007; Judd et al., 2005; Yzerbyt, Kervyn, & Judd, 2008). As

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¹Next to the warmth dimension, some authors have referred to the morality dimension. In line with Judd, James-Hawkins, Yzerbyt, and Kashima (2005) and Fiske, Cuddy, and Glick (2007), the present work assumes these two labels cover essentially the same dimension (Abele & Wojciszke, 2007).

perceived typicality has been proven to be one of the key determinants in stereotype maintenance and change (e.g., Johnston & Hewstone, 1992; Kunda & Oleson, 1997; Rothbart & John, 1985), our present goal is to take a first step in this direction and test whether the negativity effect on warmth has also an impact as far as typicality ratings are concerned. In other words, when people hold stereotypic expectations of high warmth, do they prove particularly sensitive to negative warmth information and is such information more likely to lead to the perception of a group member as atypical than other kinds of divergent information? Although the available research on the negativity effect remains mute as far as typicality ratings are concerned, our analysis of the findings lead us to expect that a negative divergence on warmth would have more of an effect on atypicality perception than a positive divergence on warmth or, for that matter, than a divergence on competence.

The category diagnosticity approach was proposed by Skowronski and Carlston (1989) in order to account for the negativity effect on warmth and rests on the assumption that people find certain kinds of behavioral information more revealing than others. The category diagnosticity of behaviors refers to its utility in discriminating between alternative categories like, for example, between moral and immoral (Skowronski & Carlston, 1989). The more useful a behavioral cue seems to be in this differentiation process, the more it influences the impression formation process. It has been shown that negative information is perceived to be more informative than positive information. The category diagnosticity approach also suggests that for the competence dimension a reverse effect is observed. That is, people generally take success as a signature of competence but perceive failure as a more ambiguous cue (Heider, 1958). Individuals at the high end of the competence dimension should sometimes fail due to motivational or situational influences but people with little competence should hardly achieve at levels above their capability. Skowronski and Carlston (1987) showed that when presenting pairs of behaviors about a target, the immoral behaviors had more influence on the impression formed than the moral behaviors whereas the competent behaviors had more influence than the incompetent behaviors (see also, Wojciszke et al., 1993). However, other research (Czapinski, 1988; Kanouse & Hanson, 1971; Peeters & Czapinski, 1990) suggests that the negativity effect on warmth is much more robust than the positivity effect on competence (Wojciszke et al., 1993).

In the present research, our goal is to examine the extent to which negative information on warmth proves more likely than positive information on warmth to be perceived as atypical. To do so, we present an exemplar that disconfirms the group stereotypic perception and then measure whether this exemplar is rated as atypical. For example, to the extent that librarians are generally considered to be introverted, a fun-loving, outdoorsy librarian will likely be perceived as an atypical member of his/her group. Building on the negativity effect observed in the impression formation literature, we hypothesized that divergent negative information on the warmth dimension should be more unexpected and therefore more surprising to the social perceiver than divergent positive information on warmth and divergent negative information on competence. Applying the conclusions of Skowronski and Carlston (1987, 1989) to group perception, in the case of a group perceived as high in warmth it ought to not include members that behave negatively on warmth. Because the negativity effect on warmth has been found to be more robust than the positivity effect on competence (Wojciszke et al., 1993), we also expected that divergent negative information on warmth would be more surprising than divergent positive information on competence.

Not only do we predict that negative information on warmth should be more surprising than the three other kinds of information but also that it should lead perceivers to discount this information. We thus predicted that the exemplar would be perceived as less typical a member of the group. Finally, we conjectured that rating the exemplar who diverges negatively on warmth as being atypical may not be the only way to react. For instance, social perceivers may choose to distrust the information given about the exemplar. This alternative strategy would also allow explaining away the inconsistency. However, in light of the existing literature on the negativity effect in person perception, this strategy of denial of the information was deemed highly unlikely. In contrast, we suspected that negative information on warmth would be taken even more seriously than other kinds of divergent information.

OVERVIEW OF THE EXPERIMENT

In the present experiment, participants were confronted with a group by means of (positive or negative) competence and (positive or negative) warmth behaviors that had allegedly been observed from group members (Kervyn, Yzerbyt, Judd, & Nunes, 2009; Yzerbyt et al., 2008). They were then presented with one group exemplar by means of results that he/she allegedly achieved on competence and warmth performance tests. The group was always a mixed-stereotype group, that is,

the target group was either a high competence low warmth group (HCLW) or a high warmth low competence group (HWLC). As for the exemplar, it was either a high competence high warmth exemplar (high exemplar) or a low competence low warmth exemplar (low exemplar). So, crossing these two groups with these two exemplars allowed creating four conditions. In each condition, the exemplar was divergent on one of the two dimensions. In the HCLW high exemplar condition, there was a positive warmth inconsistency. In the HCLW low exemplar condition, there was a negative competence inconsistency. In the HWLC high exemplar condition, there was a positive competence inconsistency. Finally, in the HWLC low exemplar condition, there was a negative warmth inconsistency. Clearly, it is in this last condition that we expected the exemplar to lead to more surprise as well as more subtyping or less trust about the test results.

Method

Participants and Design

Ninety-eight students at the Catholic University of Louvain at Louvain-la-Neuve participated in this experiment in exchange for partial credit toward a course requirement. Participants were run individually or up to three at a time in parallel individual sessions. The experiment used a 2 (group: HCLW vs. HWLC) \times 2 (exemplar: Low vs. high) between-participants design.

Procedure

The manipulation involved two parts: A stereotype formation part and an exemplar presentation part. In the *stereotype formation* part, participants were made familiar with one group (group green) through a set of 12 behaviors presented as having been performed by different group members. In the HCLW group conditions, participants read six positive competence behaviors and six negative warmth behaviors. In the HWLC group conditions, there were six positive warmth behaviors and six negative competence behaviors.² For example, “X gave up his/her seat on the crowded bus when an elderly woman got on” is a high warmth behavior and “X said that coming home for Christmas holidays wouldn’t happen this year” is a low warmth behavior. All 12 behaviors were presented twice in a random order. The behaviors had been pretested (Kervyn et al., 2009; Yzerbyt et al., 2008) to be valenced on one dimension and neutral on the other. So, a positive warmth behavior had been pretested to be positive on warmth and neutral on competence. After the presentation, participants were asked to write a description of the group in order to strengthen the stereotype and check for the success of the manipulation. These open descriptions are not dependent variables and will not be analyzed in the results section.

In the *exemplar presentation* part, participants were told that a number of members of the green group had been tested with a battery of competence and warmth tests. Ostensibly, the experimenter had randomly picked one member and participants would learn about the test results of this member. They were provided with the test results on competence and warmth abilities. The results were displayed on 0–100-point graphs. Depending on conditions, results were either moderately high on both dimensions (above 70) or moderately low on both dimensions (below 30). Once they had read this information, participants completed a series of measures pertaining to their experience of surprise, the perceived typicality of the exemplar, and their trust in the test results presenting the exemplar.

The order of presentation and measure of the competence or the warmth information and variables was counterbalanced between participants. Surprise was always measured first. The order in which we measured typicality and test trust was counterbalanced between participants.

Dependent Variables

We measured surprise by means of 4 items (e.g., How surprised are you by the results of this green group member?). Typicality was measured with four items (e.g., Do you think that this person is a typical green group member?). And

²Reanalyses of the pretest data (Kervyn et al., 2009; Yzerbyt et al., 2008) showed that the two groups presented were similar in the extremity of the positive or of the negative information given. In other words, the HCLW group was as low in warmth as the HWLC group was low in competence and the reverse was true for the positive side (both $p > .1$).

test trust was measured using two items (e.g., generally, do you think that personality tests are a good means to predict a person's behavior?). Participants indicated their answers on rating scales ranging from 1 (=not at all) to 9 (=absolutely).

RESULTS

We averaged the four items measuring surprise after we had reversed the second item (measuring lack of surprise) ($\alpha = .93$). We created one index for exemplars typicality after the second item (measuring lack of typicality) had been recoded ($\alpha = .87$). We also averaged the two items measuring trust in validity of the tests ($\alpha = .79$).

First, we analyzed the surprise score by means of a 2 (group: HCLW vs. HWLC) by 2 (exemplar: High vs. low) factorial ANOVA. Results showed a main effect of exemplar, $F(1,94) = 4.28, p < .05$. The low exemplar caused more surprise ($M = 5.65$) than the high exemplar ($M = 4.86$). This main effect was qualified by a group by exemplar interaction, $F(1,94) = 5.37, p < .05$. We analyzed the typicality scores with the same ANOVA. Results showed a marginal group by exemplar interaction, $F(1,94) = 3.33, p = .071$. Finally, we used the same ANOVA to analyze the test trust score. Results showed a main effect of exemplar, $F(1,94) = 6.56, p < .05$. The critical group by exemplar interaction did not reach a conventional significance level, $F(1,94) = 2.45, p = .12$.

In order to further test our hypotheses, we specified a set of contrasts based on our theoretical assumptions. Specifically, we created three orthogonal contrasts to capture the three degrees of freedom. The first contrast (C1) tested negative deviance on warmth against all the other conditions, "negativity effect on warmth" (1 1 1 -3). The second contrast (C2) tested positive deviance on competence against the two remaining conditions, "positivity effect on competence" (-2 1 1 0). The third contrast (C3) compared positive deviance on warmth and negative deviance on competence (0 -1 1 0). We used the same three contrasts to analyze each of the three scores.

For the surprise score, there was a significant effect for C1, $F(1,94) = 7.03, p < .01$. Exemplars deviating negatively on warmth were perceived as more surprising than all other exemplars (see Table 1). The other two contrasts failed to reach significance (both $p > .1$). Concerning the typicality score, C1 was again significant, $F(1,94) = 6.55, p < .02$. In other words, negative deviance on warmth was perceived as less typical than all other combinations (see Table 1). Again, C2 and C3 were not significant (both $p > .5$). Finally, for test trust, C1 also came out significant, $F(1,94) = 9.17, p < .005$, confirming that negative deviance on warmth led to more trust in the test results than all other combinations (see Table 1). And again, C2 and C3 were not significant (both $p > .4$).

Finally, we also calculated the correlations between our three dependent variables. Surprise and typicality were highly negatively correlated ($r = -0.54, p < .001$). Test trust was not significantly correlated to either one of the other scores (both $p > .1$).

Table 1. Mean ratings of surprise, typicality and test trust scores from the four experimental conditions

Exemplar	Group			
	HCLW		HWLC	
	High	Low	High	Low
Dependent variable				
Surprise	5.26 (2.05)	5.17 (1.77)	4.48 (1.69)	6.13 (1.9)
Typicality	4.47 (1.76)	4.77 (1.74)	4.52 (1.67)	3.55 (1.7)
Test trust	4.54 (1.57)	4.88 (1.8)	4.42 (1.7)	5.8 (1.48)

Mean (standard deviation).

DISCUSSION

These results fully support our hypothesis of a negativity effect on warmth in typicality perception. Inconsistent negative information on warmth was perceived as more surprising than the three other kinds of inconsistent information. We also examined two possible ways by which social perceivers may use the information in order to explain away the inconsistency, namely by perceiving the exemplar as atypical and by distrusting the test results. Results unambiguously show that participants in the negative warmth inconsistency condition chose to consider the surprising exemplar as being more atypical than participants in the other conditions. Further evidence of this process is provided by the fact that there was an important negative correlation between surprise and typicality. The more surprise our participants expressed, the less typical they perceived the exemplar to be.

Interestingly, participants did not distrust the test results more in the negative inconsistency on warmth condition. In sharp contrast, they trusted them even more. Our results on test trust proved to be fully in line with the findings in the person perception research namely that negative warmth information is taken very seriously (Czapinski, 1988; Kanouse & Hanson, 1971; Peeters & Czapinski, 1990; Reeder & Spores, 1983; Skowronski & Carlston, 1987, 1989; Wojciszke et al., 1993). In other words, our participants trusted very much the information of negative warmth that we gave but considered that it emanated from an atypical member of the group.

One direction that would be extremely interesting to take in further research is to go beyond typicality ratings and look at how the negativity effect on warmth affects stereotype change (Weber & Crocker, 1983; Hewstone, 1989). The present research certainly argues for the interest of such a development. But it is a mixed-message that our data provide. On the one hand, the fact that negative divergence on warmth leads to more trust in the test results would lead us to expect that such a divergence would cause more stereotype change than in the other conditions. On the other hand, the lower typicality ratings could also mean that, instead of more stereotype change, negative divergence on warmth may lead to stronger subtyping of the exemplar (Yzerbyt, Coull, & Rocher, 1999) which would then prevent the stereotype from being changed. Previous research has shown that perceived typicality is a good indicator of subtyping (Park, Wolsko, & Judd, 2001) and that the more atypical an exemplar is seen, the less stereotype change occurs (Johnston & Hewstone, 1992). To our knowledge, the specific nature of the dimensions underlying social stereotypes have not been considered so far when studying stereotype change. Arguably, the present experiment did not assess whether the stereotype about the group presented was changed or not. Still, our data provide strong and consistent evidence that the two dimensions of social perception and their specific properties should be taken into account when studying stereotype change. At the very least, the present efforts, modest as they may seem, underscore the necessity for future research to address the stereotype change process more completely by examining the potentially detrimental consequences of the negativity effect on the perpetuation of positive stereotypic expectations.

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