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An advantage of appearing mean or lazy: Amplified impressions of competence or warmth after mixed descriptions

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HIGHLIGHTS

- Three studies show that compensation effects do not require explicit comparisons.
- Descriptions of mixed valence on warmth/competence lead to more amplified impressions.
- Cold/competent (vs. warm/competent) descriptions lead to more competent impressions.
- Incompetent/warm (vs. competent/warm) descriptions lead to warmer impressions.
- Amplification extends our understanding of innuendo and compensation effects.

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ABSTRACT

Three experiments show that describing a person in mixed rather than consistently positive (or negative) terms on warmth and competence—the two fundamental dimensions of social perception—results in more extreme impressions. Given sparse information on one dimension, amplified (i.e., more extreme) judgments arise when the other dimension is clearly opposite in valence. In Experiment 1, a competent-and-cold target was perceived as more competent than a competent-and-warm target. Experiment 2 extends this amplification effect by manipulating either warmth or competence and adding consistently negative descriptions. Experiment 3 replicates amplification using more naturalistic behavioral descriptions. These findings extend the compensation effect—a negative functional relation between perceived warmth and competence, previously observed only in explicitly comparative contexts—to single-target impression formation. Implications for traditional person-perception models and distributed social cognition are discussed.

Often described as stern and cold, Vladimir Putin is seldom pictured smiling. Nevertheless, this man has been elected president of Russia three times, suggesting that Russians perceive him as a competent leader. How could someone displaying strikingly negative warmth traits succeed in a job for which public opinion is so crucial? Traditional impression-formation models (Anderson, 1965; Asch, 1946; Kelley, 1950; Srull & Wyer, 1989; for a review, see Fiske & Taylor, 2008) cannot explain such outcomes. These trait-averaging models stress valence: Each attribute describing someone's personality is considered consensually either positive or negative (Osgood, Suci, & Tannenbaum, 1957), yielding impressions ranging from extremely negative to positive. Negative inputs about a target should produce more negative impressions. But could Putin's coldness help rather than harm his reputation? In fact, negative warmth characteristics appear not to reduce but rather enhance perceived competence, illustrating a compensation effect (Judd, James-Hawkins, Yzerbyt, & Kashima, 2005; Kervyn, Yzerbyt, Judd, & Nunes, 2009; Yzerbyt, Kervyn, & Judd, 2008; Yzerbyt, Provost, & Corneille, 2005).

Extensive research reveals that person perception relies heavily on the "Big Two" dimensions of warmth/communion and competence/agency (Abele & Wojciszke, 2007; Fiske, Cuddy, & Glick, 2007; Paulhus & Trapnell, 2008; Wojciszke, 1994, 2005; Wojciszke, Bazinska, & Jaworski, 1998). Contexts involving comparisons between two individuals or groups elicit compensatory inferences about relative warmth versus competence: A target presented more favorably on one dimension (e.g., warmer) tends to be perceived less favorably on the other dimension (e.g., less competent), relative to the other target (Judd et al., 2005). This pattern, which Yzerbyt et al. (2005) termed the compensation effect, refers to a structural and functional relation between the two fundamental dimensions of social judgment—warmth and competence—such that a positive judgment on one dimension fosters a negative judgment on the other and vice versa (Yzerbyt et al., 2008).

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Though structurally distinct, reflecting unique latent components of impressions, perceived warmth and competence may represent "psychological (though not semantic) alternatives" (Abele & Wojciszke, 2014, p. 28), pragmatically functioning as opposites in everyday social cognition.

To date, all demonstrations of a compensation effect in person perception employed designs in which participants evaluated two targets in a comparative context rather than a single target individual or group considered alone (for a review, see Kervyn, Yzerbyt, & Judd, 2010). For instance, in several experiments, participants formed impressions of paired targets based on their alleged behaviors (Judd et al., 2005): One target was presented as competent and the other as incompetent. Although both targets displayed ambiguous warmth, participants saw the competent target as colder. Compensation also emerged for inferred competence when warmth was manipulated in a comparative context.

Although early work on compensation asserted that "the process of comparing two targets on these two dimensions" is "necessary" to observe this negative relation between competence and warmth (Judd et al., 2005, p. 907), in the present research we propose—and present supportive data—that compensation does not necessarily require an "explicit" comparison between multiple individuals or groups. Unsurprisingly, social judgment takes place in the larger context of perceivers' normative expectations about others. People generally expect moderately positive information concerning others, so negative information carries special weight in person perception (Fiske, 1980; Yzerbyt & Leyens, 1991). Insofar as perceivers use a general baseline to appraise incoming social information, encountering a target who displays extreme behavior on a specific dimension may trigger an implied comparison with people less extreme on this dimension. For example, meeting someone who aced an intelligence test makes salient the lower intelligence of many others. Insofar as such tacit comparisons arise, compensation may operate more often than previously proposed. The present studies test whether mixed descriptions of targets (in which competence and warmth cues are opposite in valence, hence ambivalent) lead to amplified—more extreme—perceptions, relative to univalent (non-mixed) descriptions. For example, we predict that a mixed target described by several negative warmth traits and one positive competence trait seems more competent than a univalent target with several positive warmth traits and the same positive competence trait. If sparse information on one dimension (e.g., positive competence) remains constant, we expect amplification on this dimension when the information on the other dimension is clearly opposite (e.g., cold) as opposed to matched (e.g., warm) in valence.

Beyond this theoretical grounding, our prediction of a negative relation between average judgments of warmth and competence in single-target impression formation converges with prior research on the innuendo effect (Kervyn, Bergsieker, & Fiske, 2012; for a replication see Koch & Obermaier, 2015) and on subtyping of stereotyped targets (Cuddy, Fiske, & Glick, 2004). Research on innuendo reveals that when communicators provide a very positive description of a target on only one dimension, listeners make negative inferences on the other dimension. Compared with a generally positive target, someone described as "very nice, sociable, and outgoing" seems less competent (relative to other unspecified potential group members) and a "very smart, hard-working, and competent" target appears less warm (Kervyn et al., 2012). This evidence suggests that compensation may be possible for judgments of single targets (when perceivers do not explicitly rate two targets) in relation to unspecified others.

Also relevant to the present work is evidence stemming from the stereotype content model, illustrating that ambivalently stereotyped groups are often subtyped via compensatory perceptions. For such targets, increasing either perceived warmth or competence can intensify negative impressions on the other dimension. Relative to a female professional of unspecified family status, a working mother was rated as warmer but also less competent (Cuddy et al., 2004). Similarly, an elderly person presented as mentally sharp and competent was rated as colder than an elderly person who fulfilled incompetence stereotypes (Cuddy, Norton, & Fiske, 2005). Notably, despite using between-subjects designs, these studies induced participants to rate a specific target against the (implied) background of stereotyped targets. Evidently, perceivers' stereotypic expectations can create a comparison context that shapes judgment.

The current paper advances theorizing about compensation effects, innuendo, and ambivalently stereotyped groups by testing the claim that compensation needs no explicit comparison via judgment of two targets and by minimizing reference to a comparison target. The present studies systematically test compensation in an impression-formation context lacking an explicit comparison between social targets or even an implied comparison with targets from ambivalently stereotyped groups. Even in minimal conditions—in which only general baseline information may be mobilized—we predict that information on one dimension will be perceived more extremely (i.e., amplified) in the context of a mixed rather than a univalent description. For example, we expect targets to seem especially competent when presented as competent and cold, versus competent and warm. We use a seminal impression formation paradigm (Asch, 1946), introducing individual targets via personality traits.

1. Experiment 1

Participants in Experiment 1 formed an impression of a person described by several personality traits, like those used by Asch (1946) and Zanna and Hamilton (1972), which are clearly valenced (Anderson, 1968). Participants read either a mixed description (4 negative warmth traits, 1 positive competence trait) or a univalent description (4 positive warmth traits, 1 positive competence trait). Competence information was held constant and warmth manipulated. We expected a competent/cold target to appear more competent than a competent/warm target. Notably, ratings of specific traits' meaning for competence and warmth typically correlate positively with each other across languages (Abele & Wojciszke, 2014; e.g., $r = .49$ in Suitner & Maass, 2008). Thus, any amplification from mixed descriptions occurs despite—not due to—"spillover" warmth and competence connotations of specific stimuli, which would otherwise lead to the opposite: Positive (not negative) warmth words would increase perceived competence.

1.1. Method

1.1.1. Participants and design

We recruited 80 French-speaking undergraduates (43 female, 4 unreported; $M_{age} = 21$) on campus to fill out a questionnaire and randomly assigned them to read a cold/competent description or warm/competent description, with traits presented in one of two counterbalanced orders. Our dependent variables were perceived warmth and competence. Participant gender and trait order did not influence the results and will not be discussed further.

1.1.2. Procedure and materials

First, participants were asked to form an impression of a target "MD" who would be introduced by means of a list of 5 personality traits (with masculine French adjective endings rendering the target male). Of these traits, 4 were diagnostic of warmth and 1 of competence. The constant competence trait (*industrious*) was always third in the list. All traits related to warmth were positive in the univalent warm/competent condition (*warm*, *good-natured*, *sociable*, *humorous*) versus negative in the mixed cold/competence condition (*cold*, *disagreeable*, *unsociable*, *irritable*). Participants then wrote their impression of the target in a few lines. Consistent with prior research (Zanna & Hamilton, 1972), the written impression did not represent a dependent variable but merely consolidated impressions in participants' minds. On the next page, participants rated the target on warmth traits (*caring*, *tolerant*, *disdainful*,

selfish) and competence traits (*conscientious*, *gifted*, *negligent*, *disorganized*) from 1 (*not at all*) to 9 (*totally*) in a fixed random order.

1.2. Results and discussion

We averaged the trait ratings (reversing negative traits) to create composite ratings for competence ($\alpha = .56$)[1] and warmth ($\alpha = .91$).[2] We then analyzed these composites separately for each dimension, comparing the cold/competent versus warm/competent descriptions. Warmth ratings reflect a manipulation check, whereas competence ratings test for amplification.

The warmth manipulation succeeded: The target seemed warmer in the warm/competent condition ($M = 6.89$, $SD = .98$) than the cold/competent condition ($M = 3.55$, $SD = 1.23$), $t(78) = 13.44$, $p < .001$, Cohen's $d = 3.00$ [95% CI = 2.36, 3.64]. The opposite pattern emerged for competence, demonstrating amplification. The target—always described only as "industrious" with respect to competence—was seen as more competent in the cold/competent condition ($M = 6.70$, $SD = 1.02$) than the warm/competent condition ($M = 6.13$, $SD = .89$), $t(78) = -2.68$, $p = .009$, $d = 0.60$ [95% CI = −1.05, −0.15] (see Fig. 1).[3]

Although the competence information remained constant (and traits' rated warmth and competence typically correlate positively; Suitner & Maass, 2008), participants inferred greater (amplified) competence from a cold/competent than a warm/competent description.

2. Experiment 2

This study replicates and extends Experiment 1 by testing whether amplification occurs across both dimensions (warmth and competence) and directions (positive or negative) of judgment. Specifically, Experiment 2 tests whether mixed descriptions amplify not only positive but also negative inferences. Relative to univalent warm/competent targets, we expected cold/competent targets to seem more competent (replicating Study 1) and warm/incompetent targets to seem warmer. We also tested amplification of negative perceptions based on mixed (vs. univalent) descriptions. In sum, we predicted that across both dimensions and directions of judgment participants would report more extreme ratings for mixed than univalent targets.

2.1. Method

2.1.1. Participants and design

We recruited 145 French-speaking students (94 female, 4 unreported; $M_{age} = 21$) on campus to complete a questionnaire. Experiment 2 tested four forms of amplification—extremity of either positive or negative judgments about either warmth or competence—in a 2 (description type: univalent vs. mixed) × 2 (manipulated dimension: warmth vs. competence) × 2 (valence of constant trait: positive vs. negative) between-subjects design, with 18–19 participants per cell. Collapsing across dimension manipulated, the univalent and mixed conditions each included 36–37 participants for positive amplification and for negative amplification. A priori power analysis using the Experiment 1 amplification effect size ($d = .60$) indicated that *ns* approaching 40 would provide 75% power (G*Power 3.1.9; Faul, Erdfelder, Buchner, & Lang, 2009). The dependent variables were perceived warmth and competence. Participant gender did not impact the results.

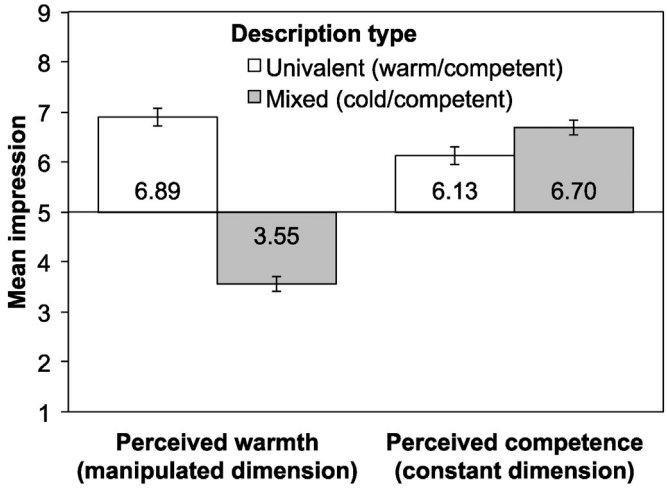

Fig. 1. Mean (±*SE*) ratings of target warmth and competence by description type (Experiment 1).

2.1.2. Procedure and materials

The procedure mimicked Experiment 1, except that more trait combinations were tested. Participants were presented with 5 traits: 4 consistently valenced traits on the manipulated dimension and 1 trait (third in the list) on the constant dimension. Trait valence of the manipulated versus constant dimension matched in the univalent condition (both dimensions positive or both negative), and contrasted in the mixed condition (one positive and one negative dimension), as reported in Table 1. For greater generality, we used the "*competent*" instead of "*industrious*" as the positive competence trait. Perceived warmth and competence were rated from 1 (*not at all*) to 9 (*totally*) using the traits from Experiment 1.

2.2. Results and discussion

We first computed composite ratings for warmth ($\alpha = .89$) and competence ($\alpha = .88$),[4] which we recoded to reflect impressions on the manipulated vs. unmanipulated dimension. We submitted ratings on the manipulated dimension to 2 (description type: univalent vs. mixed) × 2 (manipulated dimension: warmth vs. competence) × 2 (valence of manipulated dimension: positive vs. negative) ANOVA. The manipulation succeeded: Ratings of the manipulated dimension were more favorable when the target was described with 4 positive traits (raw $M = 7.13$, $SD = 1.06$) than 4 negative traits (raw $M = 3.01$, $SD = 1.13$), $F(1, 137) = 521.32$, $p < .001$, $d = 3.81$ [95% CI = 3.27, 4.37].[5] Mean ratings were slightly higher when competence ($M = 5.30$, $SD = 2.38$) rather than warmth ($M = 4.88$, $SD = 2.29$) was manipulated, $F(1, 137) = 6.10$, $p = .015$, $d = 0.41$ [95% CI = 0.084, 0.7419]. Ratings did not differ significantly based on description type, $F(1, 137) < 1$, and no interactions reached significance, all $Fs(1, 137) < 1$.

To test the relative extremity of participants' inferences about the constant dimension—not merely whether they draw positive inferences from positive traits and negative inferences from negative traits, which was true in all conditions—we computed impression *extremity* scores by (a) subtracting the scale midpoint from raw scores and (b) reverse-

[1] If *gifted* is omitted, $\alpha = .66$ and the conditions still differ significantly, $t(78) = 2.51$, $p = .014$.

[2] Perceptions of warmth and competence were not systematically related in either the univalent condition, $r(38) = .10$, $p = .55$, or mixed condition, $r(38) = -.04$, $p = .79$.

[3] A supplemental ANOVA with warmth and competence as repeated measures confirmed that the condition with only positive (versus 80% negative) traits produced more favorable overall ratings, $F(1, 78) = 70.42$, $p < .001$, however this condition effect differed by dimension, $F(1, 78) = 144.42$, $p < .001$, with warmth and competence showing opposite effects, as previously noted.

[4] Controlling for dimension manipulated, warmth and competence perceptions correlated positively for univalent targets, whether the valence of the constant trait was positive, partial $r(34) = .46$, $p = .005$, or negative, partial $r(33) = .44$, $p = .009$. For mixed targets, by contrast, warmth and competence ratings were uncorrelated for the positive or negative constant trait conditions, partial $rs(33) = .01$ and .19, $ps > .25$, respectively.

[5] A supplemental ANOVA with warmth and competence as repeated measures confirmed that the overall favorability of ratings increased as a linear function of the proportion of positive traits included in the target description, $F(1, 141) = 149.50$, $p < .001$. Neither this linear trend nor the overall mean of favorability differed significantly by dimension manipulated, $Fs(1, 141) < 1$.

Table 1
Traits presented and mean absolute ratings and extremity of perceptions of the target on the manipulated and constant dimensions by constant trait valence/dimension and description type (Experiment 2).

	Description		Manipulated dimension	Constant dimension	
Constant trait	Type	Traits presented	Mean (SD)	Mean (SD)	Ext
Positive competence	Univalent	Warm, good-natured, *competent*, sociable, humorous	6.86 (1.18)	6.18 (1.15)	1.18
	Mixed	Cold, disagreeable, *competent*, unsociable, irritable	2.88 (0.88)	6.94 (1.30)	1.94
Positive warmth	Univalent	Competent, industrious, *warm*, motivated, capable	7.39 (1.01)	6.50 (1.29)	1.50
	Mixed	Incompetent, messy, *warm*, lazy, distracted	3.35 (1.30)	6.88 (0.96)	1.88
Negative competence	Univalent	Cold, disagreeable, *incompetent*, unsociable, irritable	2.82 (1.18)	4.04 (1.15)	0.96
	Mixed	Warm, good-natured, *incompetent*, sociable, humorous	6.85 (1.13)	3.71 (1.15)	1.29
Negative warmth	Univalent	Incompetent, messy, *cold*, lazy, distracted	3.00 (1.13)	4.43 (1.37)	0.57
	Mixed	Competent, industrious, *cold*, motivated, capable	7.44 (0.78)	3.96 (0.98)	1.04

Note. Ext = Extremity. Extremity scores can range from −4 to +4: Positive scores indicate inferences congruent with traits' valence, and 0 reflects a trait judgment at the midpoint of the original 9-point scale. More extreme perceptions on the constant dimension in the mixed (vs. univalent) condition indicate amplification. Italic font (not used for participants) reflects the unmanipulated (constant) trait.

coding dimensions described by negative traits (see Table 1). Thus, neutral responses had extremity scores of 0 and scores could range from +4 (extreme valence-congruence) to −4 (extreme valence-incongruence), although all observed means were positive (i.e., valence congruent). These extremity scores were submitted to 2 (description type: univalent vs. mixed) × 2 (manipulated dimension: warmth vs. competence) × 2 (valence of constant dimension: positive vs. negative) ANOVA.[6]

Replicating Experiment 1, ratings on the constant (unmanipulated) dimension were more extreme (i.e., amplified) for participants who had read mixed ($M = 1.54$, $SD = 1.15$) rather than univalent ($M = 1.05$, $SD = 1.41$) descriptions, $F(1137) = 5.38$, $p = .022$, $d = 0.39$ [95% CI = 0.06, 0.72]. An unrelated main effect of trait valence emerged: Ratings were more extreme in the positive ($M = 1.62$, $SD = 1.20$) than the negative condition ($M = 0.97$, $SD = 1.33$), $F(1, 137) = 9.90$, $p = .002$, $d = 0.53$ [95% CI = 0.20, 0.86], averaging across description types. No other effects were significant, all $Fs(1, 137) < 1.11$, all $ps > .29$: Domain or direction (valence) of the constant trait did not qualify the amplification effect, respective interaction $ds = 0.05$ and 0.07.

Although the magnitude of the amplification effect did not differ significantly between the positive- and negative-trait conditions, the means (see Fig. 2) revealed descriptively more amplification when the constant trait was positive rather than negative. Exploratory simple effect analyses tested the constant trait valence conditions separately. Mixed (vs. univalent) descriptions led to more extreme impressions when the constant trait was positive, $F(1, 69) = 4.22$, $p = .044$, $d = 0.49$ [95% CI = 0.02, 0.95], replicating Experiment 1, and to slightly (non-significantly) more extreme impressions when this trait was negative, $F(1, 68) = 1.64$, $p = .205$, $d = 0.30$ [95% CI = 0.16, 0.77].[7] In sum, Experiment 2 suggests that amplification effects based on mixed descriptions are not limited to positive inferences—the amplification effect is robust overall and not moderated by constant trait valence—but amplification appears descriptively stronger for positive (vs. negative) inferences.

Experiment 2 extends the amplification effect of Experiment 1 across both fundamental dimensions of social perception, finding no significant difference in magnitude for positive versus negative inferences, although this study lacked sufficient power to reliably detect small effects and evidence for positive amplification appears descriptively stronger. Relative to targets with univalent descriptions, targets characterized by mixed descriptions (cold/competent or warm/incompetent) tended to elicit more extreme ratings on the dimension held constant.

3. Experiment 3

In Experiment 3 we sought to replicate and generalize the positive amplification effects of Experiments 1 and 2 by using behaviors instead of traits as the basis of impression formation. In daily encounters, impression formation involves observing behaviors (Jones & Davis, 1965), as observers automatically infer traits from behavior (Uleman, Newman, & Moskowitz, 1996). Using behavioral stimuli thus increases the ecological validity of our findings.

As in Experiments 1 and 2, we described a target with clearly positive or negative information on one (manipulated) dimension and less conclusive information on the other (constant) dimension, where amplification effects were expected. Rather than present sparse information on the constant dimension (like the 1 constant trait in Experiments 1 & 2), we used a *moderately* positive set of behaviors, as in past compensation research (e.g., Judd et al., 2005).

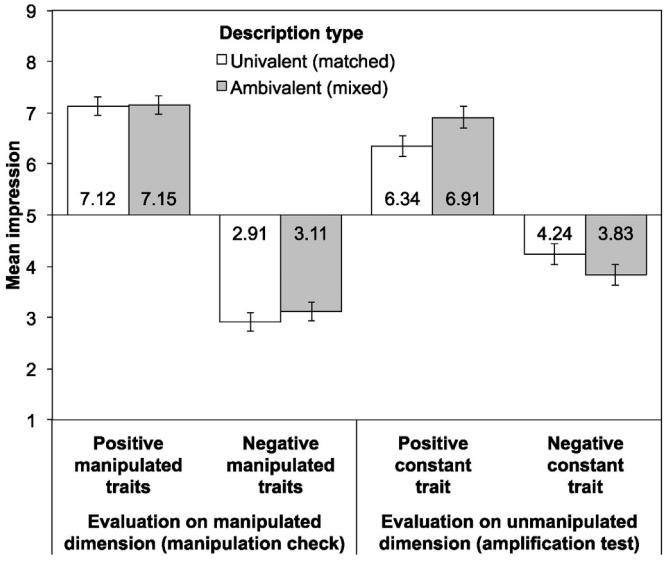

Fig. 2. Raw mean (±*SE*) ratings of target on manipulated and constant dimension by description type and valence of corresponding trait(s) (Experiment 2).

[6] These extremity scores used linear (e.g., not absolute value) transformations, so analyzing extremity scores in Experiments 1 and 3 (in which the unmanipulated dimension was always positive) would involve subtracting 5 from all scores, yielding the same pattern of results.

[7] Ratings tended to be more variable for negative ($SD = 1.33$) than positive ($SD = 1.20$) traits. As Levene's test of homogeneity of variance was not significant, $p = .172$, tests using the pooled error term revealed amplification in the positive condition, $F(1, 137) = 3.72$, $p = .056$, and an amplification trend in the negative condition, $F(1, 137) = 1.83$, $p = .178$.

3.1. Method

3.1.1. Participants and design

We recruited 75 French-speaking undergraduates (43 female, 4 unreported; $M_{age} = 21$) on campus to complete a questionnaire, in a 2 (description type: univalent vs. mixed) × 2 (manipulated dimension: warmth vs. competence) between-subjects design, with 17–21 participants per cell (approximately 36 per condition, collapsing across dimension manipulated). As noted previously, these *n*s provide close to 75% power. Behaviors were presented in one of two orders. (Order and participant gender did not affect the results.) The dependent variables were perceived warmth and competence.

3.2. Procedure and materials

First, participants were instructed to form an impression of a target who would be introduced through 8 behaviors ostensibly performed by this individual, such as "MD is often the first to offer a drink" (high warmth) or "MD is often late to pay the bills" (low competence). (These behaviors did not linguistically signal target gender.) Pretesting confirmed that each behavior was positive or negative on one dimension and neutral on the other (Kervyn et al., 2009; Yzerbyt et al., 2008). The behaviors diagnostic of the constant dimension were always moderately positive, including 1 negative and 3 positive behaviors. The 4 behaviors diagnostic of the manipulated dimension were either all positive (univalent condition) or all negative (mixed condition). Participants wrote their impression, then on the next page rated the target on warmth traits (*agreeable*, *sociable*, *disdainful*, *cold*) and competence traits (*industrious*, *competent*, *lazy*, *disorganized*) from 1 (*not at all*) to 9 (*totally*) in a fixed random order.

3.3. Results and discussion

Composite ratings for warmth ($\alpha = .74$) and competence ($\alpha = .78$)[8]—recoded to reflect perceptions on the manipulated versus unmanipulated dimension—were submitted separately to a 2 (manipulated dimension: warmth vs. competence) × 2 (description type: univalent vs. mixed) ANOVA. The manipulation proved effective: Ratings of the manipulated dimension were more favorable when the target was described with 4 positive behaviors ($M = 7.56$, $SD = 0.86$) than 4 negative behaviors ($M = 4.51$, $SD = 1.09$), $F(1, 71) = 179.46$, $p < .001$, $\eta_p^2 = .72$. Ratings were marginally higher when competence ($M = 6.27$, $SD = 1.95$) rather than warmth ($M = 5.68$, $SD = 1.67$) was manipulated, $F(1, 71) = 3.00$, $p = .087$, $\eta_p^2 = .04$, but dimension manipulated did not interact with description type, $F(1, 71) < 1$ (see Table 2).

Ratings on the constant (unmanipulated) dimension replicated the amplification effects found in Experiments 1 and 2. Ratings were more extreme (i.e., amplified) for participants who had read mixed ($M = 7.22$, $SD = 1.06$) rather than univalent ($M = 6.33$, $SD = 1.20$) descriptions, $F(1,71) = 10.934$, $p = .001$, $\eta_p^2 = .13$ (Fig. 3). As was true for ratings on the manipulated dimension, ratings on the constant dimension were marginally higher for perceived competence ($M = 7.05$, $SD = 0.96$) than perceived warmth ($M = 6.53$, $SD = 1.39$), $F(1, 71) = 3.20$, $p = .078$, $\eta_p^2 = .04$, but dimension manipulated again did not moderate the effect of description type, $F(1, 71) < 1$.[9]

Experiment 3 replicated amplification effects using more naturalistic behavioral stimuli. Targets who displayed mixed behaviors—negative on one dimension and positive on the other—elicited more favorable (amplified) ratings on the latter constant dimension than warm/competent targets. As in Experiment 2, amplification emerged across warmth and competence perceptions.

4. General discussion

Taken together, these three experiments show evidence of an amplification effect in which perceivers draw more extreme inferences from ambivalent descriptions of targets than from univalent descriptions. Competent targets seem more competent when described as cold rather than warm (Experiments 1–3) and warm targets look warmer when described as incompetent rather than competent (Experiments 2 & 3). Experiment 2 provides promising evidence that negative amplification may also occur, such that more extreme negative inferences tend to arise from ambivalent than univalent descriptions. Increasing ecological relevance, amplification also emerged when target behaviors were presented (Experiment 3). Amplification effects replicated (a) across modes of target presentation (trait vs. behavioral information), (b) without relying upon pre-existing stereotypes of specific societal groups, and (c) without invoking any explicit comparison to another target.

4.1. Covariation of perceived warmth and competence

That compensation would emerge is not obvious. Alternate predictions could readily be derived from prior work suggesting that warmth and competence judgments typically converge, as they share a common evaluative component. Whether judging sets of persons (e.g.Rosenberg, Nelson, & Vivekananthan, 1968, Thorndike, 1920, Yzerbyt et al., 2005) or behaviors (e.g.Judd et al., 2005, Kervyn et al., 2009), warmth and competence assessments often show a modest positive correlation or "halo" effect (Thorndike, 1920). Likewise, ratings of traits' meaning for competence and warmth are positively correlated with valence (Kervyn, Fiske, & Yzerbyt, 2013) and with each other (Abele & Wojciszke, 2014), but are inversely related when valence is controlled (Suitner & Maass, 2008).

We do not claim that judgments of perceived warmth and competence must always be negatively related for single targets. Indeed, in the present studies individual perceivers' ratings of warmth and competence were uncorrelated for mixed targets across all three studies. This null relation is unsurprising because our studies did not control for any participant-level variables—such as social desirability bias and personal standards for judgeability (Leyens, Yzerbyt, & Schadron, 1992)—affecting response valence or extremity, and our single-target design precluded controlling for individual variation by testing differences in ratings of multiple targets (cf. Judd et al., 2005). Testing for individual-level moderators of these amplification effects that emerged in aggregate thus represents a promising avenue for future research.

4.2. Integration with prior findings

Compensation studies have almost always used two targets judged in a comparative context (see Kervyn et al., 2010). As a notable exception, one experiment presented a single group described behaviorally as low (vs. high) in competence (Judd et al., 2005; Study 4) and failed to find evidence of amplified warmth perceptions. Amplification effects in single-target impression formation could be stronger for individual than group targets, but given evidence that compensation functions similarly across target types (Judd et al., 2005; Study 3; see also Kervyn, Yzerbyt, & Judd, 2011), procedural differences provide a more plausible explanation for these contrasting results. Critically, the prior null effect (Judd et al., 2005; Study 4) did not arise from a mixed description: Participants received sparse and inconclusive warmth information balanced in valence (2 positive & 2 negative behaviors), interspersed with 8 competence behaviors (6 positive, 2 negative, or vice versa), plus 4 filler behaviors. In contrast, the mixed descriptions used in the present experiments contained warmth and competence information clearly opposite in valence. We refined the stimuli by

[8] Controlling for dimension manipulated, warmth and competence did not significantly correlate in the univalent, partial $r(33) = .29$, $p = .094$, or mixed conditions, partial $r(36) = .22$, $p = .185$.

[9] A supplemental ANOVA with warmth and competence as repeated measures confirmed that the condition with 7 (vs. 3) positive behaviors produced more favorable ratings, $F(1, 71) = 32.95$, $p < .001$, and this overall valence effect did not differ by dimension manipulated, $F(1, 71) < 1$.

Table 2
Traits presented and mean (*SD*) perceptions of target on the manipulated and constant dimensions by dimension manipulated and description type (Experiment 3).

Dimension manipulated	Description type	Manipulated behaviors	Constant behaviors	Rating on manipulated dimension	Rating on constant dimension
Warmth	Univalent	4 W+	3 C+, 1 C−	7.26 (0.74)	6.66 (1.11)
	Mixed	4 W−	3 C+, 1 C−	4.40 (0.92)	7.36 (0.69)
Competence	Univalent	4 C+	3 W+, 1 W−	7.83 (0.90)	6.04 (1.23)
	Mixed	4 C−	3 W+, 1 W−	4.63 (1.27)	7.06 (1.38)

Note. W = warmth, C = competence, + = positive behavior, − = negative behavior. More positive perceptions on the constant dimension in the mixed (vs. univalent) condition indicate an amplification effect.

removing filler items for greater concision, manipulating one dimension unambiguously via uniformly valenced traits or behaviors, and using a non-neutral baseline on the constant dimension.

Methodological considerations also distinguish the present studies from research demonstrating that (a) embedding *warm* or *cold* among 4 high-competence traits shifts perceptions of target warmth but not competence and (b) embedding *industrious* or *lazy* among 4 high-warmth traits shifts perceptions of competence but not warmth (Zanna & Hamilton, 1972). When 80% of information about a target clearly signals excellence on a given dimension, adding a single trait on the other dimension does not trigger amplification on the initial dimension. In contrast, the present experiments use strong, unambiguous manipulations of either warmth or competence, showing consistent evidence of amplification occurring for the other—more sparsely or ambiguously presented—dimension. Amplification thus appears more likely for mixed descriptions under conditions of uncertainty, namely, when information on the constant dimension is limited or lacks clarity, as is typical in early stages of impression formation. At a theoretical level, these methodological variations in the balance and intensity (or certainty) of information presented highlight intriguing directions for future research on moderators or inflection points influencing when amplification effects are least or most likely to occur.

In addition, the present studies make several critical advances over prior work on ambivalently subtyped targets and on innuendo. First, they avoid stereotyped targets, which may provide perceivers with obvious comparison information, even in between-subjects designs. Second, Kervyn et al. (2012) tested innuendo in an explicitly comparative context: Participants imagined hearing others describe a potential new group member, then rated the target's relative likeability and capability *compared with* other prospective members. Third, innuendo emerged when communicator cues—the speakers paused and hedged, "Well…"—led participants to read between the lines. In contrast, the present studies examined a single target without implied comparisons or hints not to take descriptions at face value.

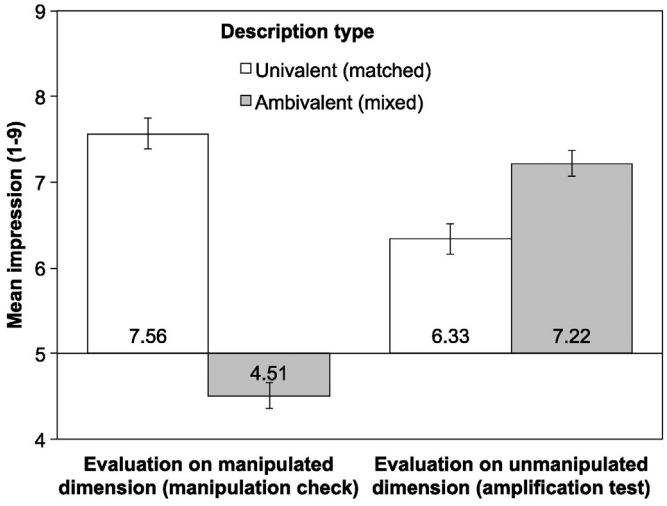

Fig. 3. Mean (±*SE*) ratings of target on manipulated and constant dimension by description type (Experiment 3).

Finally and most notably, prior innuendo work (Kervyn et al., 2012) investigated compensatory inferences in only one direction—drawing negative inferences from positive descriptions—based on communicators' preference to emphasize positivity and omit negativity when describing others (Bergsieker, Leslie, Constantine, & Fiske, 2012). The innuendo results could thus stem from considering subtexts of communicators' statements (e.g., inferring that a "punctual and polite" student is incompetent; Harris, Corner, & Hahn, 2013; or a date with "a great personality" is unattractive) rather than basic social perception processes. In contrast, the present experiments tested amplification in the opposite direction (drawing positive inferences from negative information), a pattern not readily explained by communicators' omission biases. In fact, expressing positive information is not discouraged but normative (Lewicka, Czapinski, & Peeters, 1992). Positive words are used more often than negative words in all languages sampled (Boucher & Osgood, 1969), particularly when describing people (Sears, 1983).

Nevertheless, strong evidence of amplification on a positive constant dimension emerges when participants receive mixed (as opposed to univalent) target descriptions. Meta-analyzing positive amplification effect sizes from Experiments 1–3 yielded a weighted average effect size (see Schmidt & Hunter, 2003) of $d = .62$, a moderate-to-large effect. Only Experiment 2 tested negative amplification, revealing a trending simple effect and smaller effect size of $d = .30$. Additional higher-powered studies of negative amplification are needed to test its robustness and address this limitation of the current research. Notably, the emergence of amplification across different dimensions and across valence does not mean that these effects are necessarily equal: Future research with more powerful designs is needed to specify their relative magnitude. This strong evidence of positive amplification (not directly attributable to mere negativity omission) highlights a need to extend our account of how innuendo shapes distributed social cognition as people interactively form impressions of others.

4.3. The subtle role of communication cues

Even in the absence of clear communicator cues, communication rules and processes involved in distributed social cognition may contribute to amplification effects for mixed targets. In natural settings, impression formation often occurs via third parties' communications (Ames, Bianchi, & Magee, 2010; Ames & Welch, 2011), which are shaped by accuracy and politeness norms (Brown & Levinson, 1987; Grice, 1975). When describing targets who display warmth and competence behaviors of opposite valence, communicators strongly prefer conveying exclusively positive information—not mixed or negative information—especially when addressing unfamiliar audiences or experiencing self-presentation concerns (Bergsieker et al., 2012), suggesting that negativity omission is strategic. Listeners detect strategic omission and draw negative inferences if a dimension is omitted by communicators, concluding that "smart, hard-working, and competent" targets are probably cold and "nice, sociable, and outgoing" targets are incompetent (Kervyn et al., 2012). Awareness of strategic negativity omission may beget skepticism of uniformly positive descriptions of others. Conversely, descriptions that uniformly derogate targets could connote communicator animosity more so than accuracy. Mixed descriptions, in contrast, may appear to be particularly candid

representations of targets. Highlighting the importance of apparently strategic presentation of information, preliminary experimental evidence (Bergsieker, Oakes, & Thakur, in preparation) indicates that compensatory inferences are attenuated when the Judd et al. (2005) paradigm is modified to present the same behaviors ostensibly sampled at random from a larger array of target behaviors (i.e., not strategically selected by the experimenter to shape participants' impressions). Thus, although no features of the current experimental procedure signaled strategic suppression of target traits or behaviors, habitual tendencies to trust mixed (vs. univalent) descriptions as truthful may have lead participants to draw more extreme, amplified inferences.

4.4. Implications

The present findings imply that compensation can shape basic impression-formation processes without an explicitly comparative context. When encountering a mixed description that embodies this negative relation, perceivers on average polarize their judgments on the constant dimension relative to when considering univalent profiles. Returning to Putin's popularity despite displaying coldness, Putin's chilly demeanor may enhance his appeal by amplifying perceptions of his competence. Conversely, the affability of George Bush and Joe Biden may undercut their apparent competence (Hayes, 2005). Amplification underscores the potential potency of impression management via strategically downplaying one's warmth to impress others with one's competence, or vice versa (Holoien & Fiske, 2012).

Amplification effects also imply limits on improving impressions of targets. Extolling a target in one domain may improve this dimension, but undermine the other. Recommendation letters extensively praising female applicants' warmth (without strong signals of competence) are linked to lower hireability (Madera, Hebl, & Martin, 2009). Conversely, highly competent women may suffer backlash effects, appearing less warm or hireable (Rudman & Glick, 2001). Insofar as amplification may contribute to these ironic effects, efforts to improve perceptions of ambivalently stereotyped individuals or groups should ensure that targets do not lose on one dimension what they gain on the other.

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