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Dampening Affect Via Expectations: The Case of Ambivalence

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People often form attitudes based on a mixture of positive and negative information. This can result in mixed evaluative reactions that are associated with feeling conflicted and undecided (i.e., felt *ambivalence*). In the present research, we examined whether expectations of receiving mixed information could dampen felt ambivalence compared to situations where the mixed information was instead unexpected. In six experiments, expectancies of receiving mixed information—either explicitly provided or implied via patterns of behavior—led people to feel less ambivalent about a target person who had engaged in mixed social behaviors. Expectations of mixed information reduced felt ambivalence to receipt of such information in comparison to having no explicit expectancies (Studies 1–3, 5–6), negative expectancies (Study 2), positive expectancies (Study 3), and compared with expectancies formed merely on the basis of behavioral patterns (Study 4). The extent to which people felt that their expectancies of mixed information regarding the target were confirmed (vs. *disconfirmed*) significantly accounted for the reductions in felt ambivalence. Finally, lower felt ambivalence via manipulated expectations accounted for reduced decision time in a workplace simulation about recommending promotion or termination of an employee (Study 6). Overall, these findings bridge the extensive literatures in attitudes, social judgment, and expectations, showing that expecting mixed information can lead to reductions in felt ambivalence that have consequences for behavior.

Keywords: attitudes, ambivalence, social judgment, expectation, conflict

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The world is full of people, objects, and ideas that possess a mixture of positive and negative qualities. For example, deciding whether or not to promote an employee can entail a cost-benefit analysis of his or

her actions that are laudable versus those that are frustrating. Shopping for a car often prompts people to notice some negative aspects in addition to some package of attractive features. Pursuing a course of medical treatment requires understanding its life-saving potential as well as its potentially detrimental side effects.

In each of these scenarios, a person must evaluate an individual, an object, or a choice that can elicit both positive and negative reactions. Situations such as these in which objectively mixed evaluative information is considered typically result in ambivalent attitudes that are associated with affective reactions like feeling conflicted and undecided (Hass et al., 1992; Kaplan, 1972; Katz & Hass, 1988; Newby-Clark et al., 2002; Priester & Petty, 1996; van Harreveld, van der Pligt, et al., 2009). Furthermore, as detailed shortly, ambivalent attitudes are associated with a number of important consequences compared to those which are not. These consequences stem from the fact that holding ambivalent attitudes is generally an unpleasant and undesirable state compared to relative univalence or consistency (Abelson et al., 1968; Festinger, 1957; van Harreveld et al., 2009).¹

¹ This is not to suggest that ambivalence can *never* be desirable. For example, a person expressing ambivalence (versus univalence) about a topic can be judged as being more competent when the topic is controversial (Pillaud et al., 2018). Nonetheless, in the typical case, people prefer not to be ambivalent.

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Because ambivalence is unpleasant and consequential, researchers have been interested in factors that influence this feeling. In the current research, we address the question of whether people experience *less* ambivalence when the same mixed information is *expected* than when it is not. Before articulating our rationale for this prediction, we briefly review the distinction between two aspects of ambivalence—structural and felt—explaining how they differ and are both related to important consequences. We also explain why holding mixed reactions should lead to felt conflict in the first place. Then, we review relevant findings in the expectations literature that address the questions of when, why, and to what extent expectations which are relatively confirmed (vs. disconfirmed) can influence the extent to which people feel ambivalent.

Felt Ambivalence Versus Structural Ambivalence and Their Consequences

Based on the idea that holding mixed (positive *and* negative) reactions to an object should produce feelings of conflict, researchers have used two methods to assess the extent of this ambivalence. The first method, introduced in a now classic article by Kaplan (1972), proposed splitting the traditional bipolar evaluative continuum into two separate unipolar measures of relative positivity and negativity toward the attitude object. What researchers have labeled structural ambivalence (Refling et al., 2013), objective ambivalence (Priester & Petty, 1996), and potential ambivalence (Newby-Clark et al., 2002) can be computed as a function of the extent to which participants report values on each of the unipolar measures that are both similar and extreme (e.g., the average of positive and negative reaction responses, minus their absolute difference; e.g., Snyder & Tormala, 2017; Thompson et al., 1995). Several specific mathematical formulae exist for computing ambivalence as a function of positive and negative reactions, and these equations have been thoroughly examined in past work showing that each is correlated with the others at about $r = .9$, making them largely empirically interchangeable, though conceptually distinct (Breckler, 1994; Priester & Petty, 1996).

The second approach has focused on capturing the extent to which people experience and report *feeling* ambivalent or conflicted about the attitude object. This approach is referred to as assessing felt ambivalence or subjective ambivalence. A focus on this felt ambivalence has characterized much of the literature on ambivalence to date (cf. Schneider & Schwarz, 2017), and felt ambivalence is the focus of the current work because as explained shortly, it is often the most consequential indicator of ambivalence.

Tourangeau et al. (1989) were among the first to examine the extent to which people reported feeling more or less mixed about their political attitudes in public opinion polls. Subsequently, Priester and Petty (1996) developed a measure to capture the extent to which people felt ambivalent by asking them how mixed, conflicted, and undecided they were about a number of attitude objects. This three-item measure of felt ambivalence has been widely used in a variety of subsequent studies (e.g., Durso et al., 2016; Nordgren et al., 2006; Refling et al., 2013; Sawicki et al., 2013; Snyder & Tormala, 2017; van Harreveld et al., 2014), and is also used here (for conceptually similar but slightly different approaches to measuring felt ambivalence, see Bell & Esses, 2002; Newby-Clark et al., 2002; Priester et al., 2007). For the

remainder of this article, we refer to the computation of ambivalence via separate unipolar measures of positive and negative reactions as *structural ambivalence*, whereas we refer to individuals' reported feelings of ambivalence (e.g., being conflicted) as *felt ambivalence*.

It is noteworthy that although there are some consequences that are more closely tied to structural ambivalence (e.g., attitude stability; see Luttrell et al., 2016), it is felt ambivalence that has tended to play a more prominent role in a wide array of outcomes (see Schneider & Schwarz, 2017; van Harreveld et al., 2015). For example, increasing levels of felt ambivalence diminish attitude confidence (Jonas et al., 1997), negatively affect physical health when the ambivalence is felt toward a romantic partner (Holt-Lunstad et al., 2007; Uchino et al., 2012, 2014), decrease resistance to persuasion (Visser & Mirabile, 2004), and weaken overall attitude-behavior correspondence (see e.g., Kehler et al., 2008; O'Neill et al., 2012). It is thus not surprising that people are motivated to reduce their feelings of ambivalence by seeking more information to resolve the conflict (DeMarree et al., 2014), often doing so in a biased manner (e.g., Clark et al., 2008; Sawicki et al., 2013), or by delaying or avoiding any decisions about the object altogether (Durso et al., 2016; van Harreveld, Rutjens, et al., 2009; cf. Anderson, 2003). The relation between felt ambivalence and these many outcomes is robust even when controlling for structural measures of ambivalence (e.g., DeMarree et al., 2014). Thus, researchers are interested in the determinants of felt ambivalence.

Variation in Felt Ambivalence

Although it is clear that structural ambivalence is associated with felt ambivalence, the two different measures are only modestly related to each other with correlations between .2 and .5 (Priester & Petty, 1996; Riketta, 2004 as cited in Gebauer et al., 2013; Thompson et al., 1995; Visser et al., 2006). This finding has generated many investigations into when and why people might *feel* more or less ambivalent about objects independent of structural ambivalence. One well-documented explanation is that feelings of ambivalence toward an attitude object can stem from factors other than holding positive and negative reactions about the object itself such as recognizing that one disagrees with the opinions of others (Priester & Petty, 2001), or wanting an attitude different from the one held (DeMarree et al., 2014; see also Gebauer et al., 2013; Newby-Clark et al., 2002).

As just mentioned, a finding from past research is that a number of variables that go beyond a person's own positive and negative reactions seem capable of inducing people to feel *more* ambivalent than those mixed reactions alone would indicate. But, prior research has tended *not* to address: (a) factors that affect the amount of felt ambivalence experienced directly and solely from one's own personal positive and negative reactions, and (b) factors that result in *reduced* feelings of ambivalence compared to that which comes from the person's own positive and negative reactions. The core hypothesis to be tested in the current research is that expecting to receive mixed information will reduce the amount of felt ambivalence compared to not being forewarned. We next explain the rationale for this hypothesis but first consider the plausibility of the opposite result.

Expecting Mixed Information: Magnifying or Dampening Felt Ambivalence?

Based on prior research and theory, what is the likely impact on felt ambivalence of expecting to receive mixed information? It might seem plausible that such an expectancy could either increase or decrease feelings of conflict compared to no expectation. There are at least three possible rationales for the prediction that expecting mixed information would *increase* feelings of ambivalence.

First, making both the positive and negative features of an object more simultaneously accessible or salient tends to increase ambivalent feelings (Newby-Clark et al., 2002; van Harreveld, Rutjens, et al., 2009). It is therefore possible that forewarning people of upcoming mixed information would make that information more salient when it is presented and thereby magnify its impact on felt ambivalence. Second, it is possible that providing a mixed expectation could itself serve as further evidence of ambivalence, thus *adding* to any subsequent mixed behavioral information. This additive notion is consistent with research on the effect of increasing amounts of structurally mixed positive *and* negative information on felt ambivalence (Breckler, 1994; Priester & Petty, 1996; Thompson et al., 1995; van Harreveld, van der Pligt, et al., 2009).

Finally, it is also possible that mixed behavioral information that follows a similarly mixed expectancy could be assimilated to the expectation (e.g., Geers & Lassiter, 2005; Klaaren et al., 1994), which could thereby enhance felt ambivalence. Notably, the classic perspective from social judgment theory (SJT; Sherif & Hovland, 1961; Sherif et al., 1965) on assimilation and contrast effects would treat the expectation as an anchor. Then, if what is received is close to the expectation (i.e., in one's latitude of acceptance) it would be assimilated to that expectation. But, if what is received is far from the expectation (i.e., not very mixed so in one's latitude of rejection), it would be contrasted from the expectation. Thus, if people expect to get mixed information and they indeed get mixed information, the predicted assimilation to the expectation would cause them to feel more ambivalent than if they had no expectation. If people expect to get mixed information and the information they get is *not* mixed, contrast from the expectation would cause them to feel less ambivalent than if they had no expectation. In the case where people get exactly what they expected, according to SJT, there would be no distortion—neither assimilation nor contrast. In any case, SJT would predict that expecting to receive mixed information and getting it would either produce no distortion (if obtaining exactly what is expected) or assimilation (if obtaining something reasonably close to what was expected).

As just outlined, there are some rationales for the hypothesis that a forewarning of upcoming mixed information could magnify the experience of felt ambivalence. However, as detailed next, the available literature provides even more research and theory that supports the opposite possibility. First, some prior work on the psychology of expectancies indirectly supports this prediction. Expectancy formation and the subsequent testing of these expectations with reality is a central feature of social cognition (Darley & Gross, 1983; Olson et al., 1996; Roese & Sherman, 2007). When individuals form expectations that are seemingly confirmed by an observation or event, these events are less surprising and people feel like the event was explained (Crocker et al., 1983; Feather & Saville, 1967; Gerten & Topolinski, 2019; Hastie, 1984; Hastie &

Kumar, 1979; Hashtroudi et al., 1984; Pyszczynski & Greenberg, 1981; Wong & Weiner, 1981). The availability of this explanation could plausibly reduce felt ambivalence.

Second, and more directly relevant to the current work, prior research has shown that expectancies of univalent events—be they entirely positive *or* negative—can *dampen* subsequent emotional reactions to those events when they are experienced. For example, some research has shown that when people experience a series of positive events, they show adaptation to the pattern by coming to expect them, which diminishes the affective impact of future positive events by reducing their novelty (Lyubomirsky, 2011; Mellers et al., 1997; Sheldon & Lyubomirsky, 2012). Likewise, the voluminous literature on pain expectations has demonstrated that specific expectations of future painful stimuli can meaningfully reduce the reported intensity of experienced pain, with the largest reductions in negative affect being directly related to conditions where expectations were most accurate and thus relatively more confirmed (e.g., Crombez et al., 1994; Miller, 1981; Pavlov, 1927; Ploghaus et al., 2003; Rescorla & Wagner, 1972; Rhudy & Meagher, 2000). Similarly, research on “stealing thunder” in the courtroom (Dolnik et al., 2003; Williams et al., 1993) has corroborated the dampening idea, showing that expecting to learn negative information about a defendant later in a trial diminishes the impact of this information on jurors' evaluations and judgments of the target when it is finally revealed.

Much of the research on expectancies dampening affect just reviewed fits nicely within decision affect theory (DAT; Larsen et al., 2004; Mellers & McGraw, 2001; Mellers et al., 1997, 1999), as well as research on affective forecasting (Wilson et al., 1989; Wilson et al., 2005; Wilson & Gilbert, 2005). That is, studies guided by these frameworks have shown that the more expected a positive *or* negative outcome is (i.e., the more that it confirms expectations, or the less surprising it is), the less impactful that outcome is on individuals' feelings about it (cf. Wilson & Klaaren, 1992; Mellers & McGraw, 2004). For example, getting an A on a test when it was expected makes one feel less happy than when it was unexpected (Shepperd & McNulty, 2002; see Kuppens et al., 2012 for a review of valence and arousal dimensions in emotional experiences). The person with an accurate expectation will appear to have a “dampened” emotional judgment of the experience compared to the person with no expectation. Alternatively, a person with an inaccurate expectation will have a “magnified” emotional judgment of the experience compared to the person with no expectation. Past work on expectation effects on judgments of affect have traditionally summarized this notion by stating, “Successes and failures are more pleasurable and painful, respectively, when they are unexpected” (Mellers & McGraw, 2004, p. 36; see also Mellers & Ritov, 2010; Mellers et al., 1999; Ortony et al., 1988; Wilson et al., 2005; Wilson et al., 1989).

The current studies are unique in assessing reactions to *ambivalent* situations as a function of expectations. That is, although there is much prior work on the role of expectations on affective judgments, all of it has examined clearly positive *or* clearly negative stimuli (e.g., Klaaren et al., 1994; Shepperd & McNulty, 2002), and has never examined the effect of expecting clearly *mixed* stimuli (i.e., stimuli that are *both* positive and negative). As reviewed here, given that much of social life involves interacting with and learning about persons, ideas, and objects that elicit a mixture of both positive and negative reactions (e.g., Pillaud et al., 2013), this

highlights a critical blind spot in the literature. In sum, the prior theory and research just reviewed suggests that a forewarning of mixed information could either increase or decrease the ambivalent feelings that stem from receiving this information, compared with no forewarning, although the latter possibility, in our view, has more supporting evidence.

Overview of the Present Research

In the current studies, we expand on two research traditions. First, we extend the literature on expectations which has only studied entirely positive or negative experiences and information into the domain of expectations of *mixed* information. Second, we expand the literature on attitudinal ambivalence by examining a novel reason why felt ambivalence can vary independently of individuals' objectively mixed positive and negative reactions. As reviewed, numerous variables have been uncovered that lead people to feel more conflicted than would be predicted by their mixed positive and negative reactions (e.g., Newby-Clark et al., 2002; Priester et al., 2007; van Harreveld, Rutjens, et al., 2009). Unlike this past work, we focus on an antecedent of felt ambivalence—individuals' expectancies for future information—that has the potential to lead people to feel *less* ambivalent than their structurally mixed positive and negative reactions would otherwise predict.

Across a pilot study and six experiments, we examined the impact of expecting mixed information on the extent to which people felt ambivalent, while holding constant the amount of mixed information actually presented. The pilot study was designed to examine the efficacy of the operations and to determine the direction of the effect (if any). The basic experimental design in each of the subsequent studies was adapted from procedures used in the attitude formation and person perception literatures (Asch, 1946; Hastie & Kumar, 1979; Petty et al., 2006; Rydell et al., 2008; Srull & Wyer, 1989; Stangor & McMillan, 1992).

In all studies, participants were provided with a series of behaviors in which a target person engaged. We focused on judgments of target people rather than physical objects because of the importance of person perception in real life and social psychology in particular. In the pilot study and Studies 1–3, participants also received a summary statement that was ostensibly written by someone who knew the target well. This summary statement served to provide an expectation when it preceded the behavioral information or as a closing summary when it followed (Wilson & Gilbert, 2005). In Study 4, only the pattern in which the behaviors were presented was manipulated, without the use of any explicitly provided expectation, allowing participants to generate their own expectations based on the early information provided. In Study 5, features of the prior studies were incorporated to instantiate expectations using a very minimal expectation. Finally, in Study 6, we adapted the minimal expectations from Study 5 into a workplace scenario in order to examine whether a canonical consequence of felt ambivalence—delayed decision making—would be affected by expecting versus not expecting mixed information.

In each experiment, the behavioral information consisted of a set of actions that the target was described as performing. After exposure to the information, the core measures were taken including participants' attitudes toward Bob and assessments of both structural and felt ambivalence. In addition, perceptions of expectancy

confirmation versus disconfirmation were assessed. In all studies there were no exclusions (except as noted with missing data and in studies which used Internet-based samples), no omissions of relevant statistical analyses (e.g., “checking for significance” before planned participant recruitment had terminated), and all measures relevant to the central hypotheses are reported in their entirety.

Pilot Study: Determining the Direction of Effect

Our first small pilot study ($N = 38$) examined the viability of our key manipulations and assessed the direction of effect—that is, whether expectations of receiving mixed information would magnify or dampen felt ambivalence given that prior literature and theory suggested that each possibility was plausible. All participants received behavioral information about a target person, Bob, that was mixed (equal numbers of positive and negative behavioral items), as well as a summary judgment of Bob that described him as having both positive and negative qualities (see Study 1 Method below for full details). The critical manipulation was whether this summary preceded or followed the behavioral information in order to vary whether participants would form an expectation that Bob would have mixed qualities (when the summary *preceded* the behaviors) or would have no explicit expectation in advance (when the summary *followed* the behaviors). This methodological feature has the advantage of keeping constant the amount and nature of information to which all participants were exposed while subtly manipulating whether the mixed behavioral information was expected or not. Although participants may have formed an “expected attitude” following receipt of the summary information in the expectations condition, their final attitude would necessarily await the behavioral information presented.²

Submitting felt ambivalence ratings across the two groups to an independent samples *t* test yielded a nonsignificant result, $t(36) = 1.68$, $p = .102$, $d = .56$. Nonetheless, the direction of effect suggested a dampening effect in which participants who received the mixed summary before the behaviors tended to report feeling less ambivalent about Bob ($M = 6.72$, $SD = 2.56$) than did participants who received the mixed summary after the behaviors ($M = 8.00$, $SD = 2.13$).

Study 1: Expectations Dampen Felt Ambivalence

The pilot study, just described, provided directional evidence that expecting mixed information leads people to experience *dampened* ambivalence—rather than *magnified* ambivalence—compared with when that same information is not expected. Thus, we conducted a more complete examination of this notion in Study 1. The basic procedure was the same with the inclusion of an additional measure. We predicted that we would replicate and strengthen the results of the pilot study with a larger sample. Furthermore, we predicted that the reduction in felt ambivalence would be mediated by relative differences in the extent to which participants reported that their expectations toward Bob had been

² Participants might also have formed an expected attitude in the summary condition because in the absence of contrary information, people tend to expect other people to be relatively positive (the *positivity offset*; Cacioppo & Berntson, 1994). Critically, in one case the expected attitude would be confirmed and in the other, disconfirmed.

confirmed, and that differences in expectancy confirmation would not influence structural ambivalence since the mixed information was held constant across conditions.

Method

Overview

Participants were invited to sign up for a study on their opinions about a variety of issues and people. Up to 10 completed the study on laboratory computers using Medialab software (Jarvis, 2012). The participants were scheduled in 30-min blocks. The cover story was that the study was being conducted in collaboration with the clinical psychology program. This was to provide a plausible rationale for providing information about social expectations and observed behaviors. Participants were led to believe that they were reading summary impressions about an unidentified person—named “Bob” to retain the anonymity of the target person in accordance with the cover story—that were written by actual people, and that the behaviors that Bob “actually did” were in fact true observations. After reading the materials, participants reported their attitudes toward Bob, and then responded to the other dependent measures in a randomly determined order for each participant. Once participants completed the final measure, they were debriefed and thanked for their time and effort. All experimental materials were identical to those used in the pilot study, except for the addition of a measure of relative expectancy confirmation versus disconfirmation.

Participants and Materials

One-hundred and 68 undergraduates from a large public university in the Midwestern United States were randomly assigned to learn about a novel target—Bob—by reading a mixed summary and an even mixture of five positive and five negative behaviors that Bob performed. To ensure an appropriately powered test of the hypothesis (near 80% or greater), we aimed to recruit at least 50 participants per condition in this two cell design in accord with cell size recommendations for medium-sized effects (Cohen, 1962; Simmons et al., 2013). Data collection continued until the semester was over which ultimately resulted in more than 80 participants per cell across the two conditions, thus being approximately 80% powered to detect a small-to medium-sized effect on felt ambivalence ($d = .30$).

All participants were randomly assigned to read the following summary paragraph about Bob either immediately before or after being presented with the behaviors. The summary served as an expectation of mixed information when presented before the behaviors or a summary of (and potential explanation for) the behaviors when presented after:

Bob is an interesting guy, to say the least. He is known for some pretty antisocial behaviors, but he is also known to be extremely nice to many people. At any given moment, Bob may be incredibly rude or say something offensive. But, you know with Bob that he is very capable of being kind and helpful. I think he may have some kind of mood disorder. All in all, it can be difficult to get along with Bob.

All participants received the 10 behaviors listed in Table 1 that “Bob had been directly observed doing over the past year,” each presented on-screen for 5 s before automatically moving on to the next behavior. Following the presentation of both types of information (i.e., the summary and behaviors, presented in varying order accordingly with the independent variable), participants were then asked to provide their responses to the dependent measures.

Independent Variable: Presentation Order

The order in which participants read a summary paragraph about Bob was manipulated to precede or follow receiving information about his specific mixed behaviors. As described, this manipulation was designed to vary whether participants were able to form an explicit expectation for Bob to engage in mixed behaviors (summary preceding behaviors) or not be able to do so (summary following behaviors). In all other respects, participants received precisely the same content and amount of mixed information about Bob.

Dependent Variables

Expectancy Confirmation. Participants were asked to indicate the extent they agreed that Bob acted in a manner that confirmed how they had expected him to behave on two items. Participants indicated their agreement on a 7-point Likert scale (i.e., 1 = *strongly disagree*, 7 = *strongly agree*) to the item, “Given what I initially learned about Bob, the way he behaved matched my expectations” and also, “Overall, Bob behaved in a way that was completely different from what I was expecting” (reverse-scored). For participants in the

Table 1
Materials Used in Studies 1–3 and 5 for Behavioral Information

Positive behaviors
Bob likes to end each workweek by buying a round of drinks for his coworkers.
Bob uses a zoom lens to shoot photos of birds that land on his backyard birdfeeder.
Bob is exceedingly polite to waitresses at restaurants and he tips them generously.
Bob stopped his car to help out a commuter who fell off his bike during rush hour.
Bob decided to help his neighbor look for her dog that had gone missing.
Negative behaviors
Bob stole a pair of knitted gloves for himself at a summer arts and crafts festival.
Bob decided to ruin a surprise party for his friend by telling him about it.
Bob destroyed a bookshelf that was a housewarming gift from his neighbor.
Bob pretends to be homeless at a nearby soup kitchen to get a free meal every Sunday night.
Bob found a lost wallet, kept the \$76 in cash that was inside, and threw away everything else.

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condition where the summary followed the behaviors, their expectations would presumably be set by the first few behaviors they read. These two items were sufficiently reliable ($\alpha = .60$) that they were averaged to form an index of the extent to which participants felt that their expectations about Bob had been relatively confirmed or disconfirmed.

Attitudes. Participants' attitudes toward Bob were assessed using the same three semantic differential bipolar scales (*good-bad*, *positive-negative*, *favorable-unfavorable*) as used in the pilot study. The measures were sufficiently reliable ($\alpha = .76$) that they were averaged to create an index of participants' attitudes.

Structural Ambivalence. Participants provided their reactions to Bob on two unipolar scales assessing the extent to which they had exclusively positive or exclusively negative reactions toward Bob, while ignoring any opposing reactions at the moment (0 = *no negativity [positivity] at all*, 10 = *maximum negativity [positivity]*; Cacioppo & Berntson, 1994; Kaplan, 1972; Priester & Petty, 1996; Reffing et al., 2013). Then, an index of participants' overall structural ambivalence toward Bob was computed with the most commonly used formula (the Griffin similarity-intensity model [SIM]; Thompson et al., 1995), which is calculated as the average of the two unipolar measures minus the absolute value of the difference between the two unipolar measures:

$$\text{Structural Ambivalence} = \left(\frac{P + N}{2} \right) - |P - N|$$

In this formula, P = unipolar positive reactions and N = unipolar negative reactions. Values could therefore theoretically range from -5.0 to $+10.0$.

Felt Ambivalence. Participants' feelings of ambivalence toward Bob were assessed using the three items from past work on felt ambivalence (Priester & Petty, 1996) that have also been used in many subsequent studies (e.g., Gebauer et al., 2013; Nohlen et al., 2014; Reffing et al., 2013; Sawicki et al., 2013; Snyder & Tormala, 2017; Sparks, 2020; van Harreveld et al., 2015). Specifically, participants were asked to indicate the extent to which they (a) had mixed reactions toward Bob, (b) felt conflicted about Bob, and (c) were undecided about Bob, each on 11-point scales (1 = *I have completely one-sided reactions, feel no conflict at all, feel no indecision at all*; 11 = *I have completely mixed reactions, feel maximum conflict, feel maximum indecision*). These items were sufficiently reliable ($\alpha = .84$) that they were averaged to form an index of individuals' overall felt ambivalence toward Bob.

Results

Expectancy Confirmation

The expectancy confirmation measure was submitted to an independent samples t test. Participants' reports varied as a function of the order manipulation, $t(166) = 8.68$, $p < .001$, $d = 1.35$. Those who received the summary of Bob before exposure to his mixed behaviors felt that their expectations were better confirmed ($M = 4.74$, $SD = 1.20$) than those who received the summary after exposure to his behaviors ($M = 3.26$, $SD = 1.01$).

Attitudes and Structural Ambivalence

Participants' attitudes and structural ambivalence toward Bob were submitted to the same two-group comparison. Attitudes were not significantly influenced by order of the summary, though there was a tendency for those who received the summary first to have less favorable attitudes ($M = 5.28$, $SD = 1.23$) than those who received the summary second ($M = 5.56$, $SD = .82$), $t(137.3) = 1.72$, $p = .088$, $d = .29$. The order induction did not influence structural ambivalence, $t(166) = 1.15$, $p = .253$, $d = .18$.

Felt Ambivalence

Participants' feelings of ambivalence were submitted to the same analysis, which yielded a significant result, $t(166) = 2.15$, $p = .033$, $d = .33$. In accord with the pilot study, when participants received the summary of Bob first, they felt significantly less ambivalent ($M = 7.47$, $SD = 1.68$) than when the summary was presented second ($M = 8.05$, $SD = 1.82$).

Mediation Analysis

We tested whether expectancy confirmation served as a plausible mediator of the effect of the experimental manipulation on participants' felt ambivalence given that this relation was of primary theoretical interest to the current research. First, measured expectancy confirmation and felt ambivalence were significantly negatively correlated, as predicted by the dampening hypothesis (the b-path of the proposed mediation model; $r = -.19$, $p = .012$). Using the conditional processing modeling macro ("PROCESS") for SPSS developed by Hayes (2013), we submitted participants' scores on felt ambivalence to mediation analysis, with the independent variable as predictor and participants' scores on the expectancy confirmation index entered as mediator (model 4). The overall mediation model was significant, $F(2, 165) = 3.60$, $p = .030$, $R^2 = .04$. Bootstrapping analyses ($N = 1,000$) revealed a significant indirect effect of the contrast variable on felt ambivalence through its effect on expectancy confirmation, $b = -.15$, 95% CI $[-.3176, -.0073]$. Thus, the more that receiving the summary before the behaviors led participants to report that Bob behaved as they expected, the less ambivalent they felt toward him.

Discussion

Our results showed that when participants had no explicit a priori expectation about Bob's mixture of positive and negative behaviors, they felt quite ambivalent, as shown in much previous research (Priester & Petty, 1996; Thompson et al., 1995). However, when people learned the same mixed behaviors following the creation of an expectation that mixed information was upcoming, they reported feeling significantly less ambivalent in their attitudes toward Bob compared with when the same summary was instead presented *after* the mixed behaviors. In the latter case, the summary could not have afforded an expectation for the behaviors. Furthermore, participants reported that Bob better confirmed their expectations when the summary preceded the behaviors compared to when it followed his behaviors and participant's expectations mediated the impact of presentation order on their felt ambivalence.

Thus, Study 1 bolstered the suggestive results of the pilot study in a more highly powered design and expanded on past work on

expectations of univalent outcomes. While holding the actual information presented and structural ambivalence constant, levels of felt ambivalence toward a target were susceptible to a manipulation of the expectations that participants formed before receiving the relevant behavioral information. Essentially, when people expected Bob to be a wildcard, their felt ambivalence toward him was *dampened* when he indeed acted in a mixed manner.

Studies 2 and 3: Comparisons to Univalent Expectations

The next two studies, using conceptually similar designs, were conducted to address three limitations of Study 1. First, given that this is an entirely new finding, we wanted to replicate once again that expecting to receive mixed information would dampen felt ambivalence compared to not having this expectancy. Relatedly, the second goal was to compare the expectancy induction with a different control condition in which people received no explicit expectation before the behavioral information. Given that people tend to desire consistency (Abelson et al., 1968; Festinger, 1957) and often expect what they prefer (McGuire, 1983), in situations where they are not given an explicit expectancy, they may naturally expect univalence and consistency and would therefore be somewhat surprised by a person displaying mixed behavior. Including this no expectancy control condition would also help address more precisely the direction of the effect. That is, it is possible that receiving a summary after receiving the mixed behavioral information might serve to metacognitively validate the positive and negative thoughts that participants generated while learning about Bob, leading to *more* felt ambivalence than would otherwise be experienced (Clark et al., 2009, Petty et al., 2002). In other words, it may not have been that receiving an expectation reduced conflict compared with not receiving an expectation, but that receiving a summary *after* the mixed information *increased* felt ambivalence compared with not receiving any summary. Having a no expectancy control as a comparison allows this to be examined.

Finally, we also wanted to compare the effect of accurate expectations with having only a *partially* accurate expectation. This is to rule out the possibility that *any* expectation might lead to reduced felt ambivalence compared with no expectation. To instantiate this, some participants received an explicit *univalent* expectation. A univalent expectation could presumably work to reduce felt ambivalence by reducing the surprise elicited by at least *some* of the behavioral information that participants then learn regarding Bob. If so, having an accurate expectation of receiving mixed information would not be required.

To examine these issues, all participants were exposed to the same mixed behaviors as in Study 1. Participants were randomly assigned to one of three conditions. One third received an accurate (mixed) summary about Bob before exposure to his mixed behaviors. Another third received a partially accurate *univalent* summary. The last third received no summary at all, serving as a no expectancy control condition. If the results of Study 1 were due solely to a summary following mixed information increasing feelings of ambivalence—rather than a mixed expectation reducing it—then the expectation of mixed information group would not differ from the no expectations control group. Furthermore, if *any* expectation is sufficient to reduce feelings of ambivalence

about mixed information, then those forming expectations of mixed information would not differ from those that formed univalent expectations. Our hypothesis was that participants assigned to receive mixed behavioral information about Bob in either the univalent or no expectations conditions would report feeling more ambivalent in their attitudes than participants assigned to receive the summary inducing an expectation of mixed information, and that this effect would again be mediated by the extent to which people reported that their expectations had been confirmed.

Method

Study Design

Ninety undergraduates from a large public university in the Midwestern United States were recruited to participate in Study 2, and 98 undergraduates were recruited for Study 3, all in exchange for course credit in their introductory psychology courses. In accord with suggested approaches to analyzing the data of multiple, conceptually similar studies (Schimmack, 2012), we combined the two studies, as (a) they were conceptually identical in their independent and dependent variables, and (b) together they met our sample size goal (i.e., at least 50 participants per cell; Cohen, 1962), but not when treated individually (see the supplemental analyses for individual study analyses).

All participants learned about and expressed their attitudes toward Bob, being presented with the same 10 mixed behaviors used in Study 1. Participants in the experimental conditions first read a summary (mixed or univalent) which served as the expectation manipulation, and participants in the control condition read no such summary. Following this, they received the mixed behaviors in a randomly determined order for each participant. Thus, participants were randomly assigned to one of three conditions: no summary (control), univalent summary (negative in Study 2, positive in Study 3), or mixed summary (both negative *and* positive).

Procedure

The experimental materials used in Studies 2 and 3 were essentially identical to those used in Study 1, with the exceptions described next.

Independent Variable: Content of Summary/Expectation Information

The content of the summary information that preceded the presentation of the behaviors and provided the expectation was manipulated between participants. As in Study 1, the summaries were framed as coming from someone who knew Bob well, written as a brief paragraph. In the no summary (control) condition, participants were not presented with any summary information and were exposed to the behaviors immediately following the introduction to the study. In the univalent summary condition, participants received either an entirely negative summary (Study 2) or an entirely positive summary (Study 3). The univalent expectations (negative and positive) were as below: (negative summary information *italicized*, and positive summary information **bolded**):

Bob is an interesting guy, to say the least. He is known for some pretty *antisocial behaviors*/**prosocial behaviors**, and he is also known to

never be *nice/mean* to anyone, ever. *At any given moment, Bob may be incredibly rude or say something offensive/On any given day you can expect that Bob will be incredibly generous, or perhaps say something extremely flattering.* Basically, you know with Bob that he is not at all capable of being *kind/unkind* and helpful/*rude*. *I think he may have some kind of mood disorder.* All in all, it can be *difficult to get along with/difficult to understand* Bob.

In the mixed expectation condition, participants in Study 2 received the same summary of Bob that was presented in Study 1, whereas participants in Study 3 read a slightly revised summary to parallel the structure of the univalent positive summary in order to minimize differences between the two conditions (negative information in *italics*, positive information **bolded**):

Bob is an interesting guy, to say the least. He is known for some **pretty prosocial** behaviors, but he is also known to be *very mean* to many people. On any given day, you can expect that Bob will be **incredibly generous**, or perhaps say something **extremely flattering**, even to a stranger. But, you know with Bob that he is very capable of being *unkind or rude* at any time. All in all, I think Bob is a difficult person to understand.

Dependent Variables

Participants provided their responses to the same measures from Study 1, first indicating the extent to which Bob confirmed or disconfirmed their expectations ($\alpha = .73$). Then in a random order for each participant, they completed measures of their attitudes ($\alpha = .80$), their structural ambivalence, and their felt ambivalence toward Bob ($\alpha = .74$).

Results

With the three common conditions across Studies 2 and 3, our analysis strategy was to conduct two orthogonal planned comparisons. First, we expected the contrast of the no summary (-1) to the univalent ($+1$) summary condition to be nonsignificant for all of the dependent measures, though it was possible that an inaccurate summary could produce an even greater violation of expectations than no summary, and thereby enhance felt ambivalence. Then, if this first contrast proved nonsignificant, we tested whether expectations of receiving mixed information would lead to less felt ambivalence compared to having either incorrect (univalent) or no expectations. To test this second comparison, we computed a contrast variable coding the mixed summary condition as $+2$, and each of the other two conditions as -1 . Finally, if these analyses proved significant, we then conducted a test of whether the impact of expectancy on felt ambivalence was mediated by perceptions of expectancy confirmation.

Expectancy Confirmation

The first contrast indicated that there were no differences in expectancy confirmation between the univalent ($M = 3.32$, $SD = 1.23$) and no summary ($M = 3.04$, $SD = .95$) conditions, $t(123) = 1.41$, $p = .161$, $d = .25$, suggesting that participants receiving no explicit expectation did not anticipate receiving mixed information any more than those given a one-sided expectation. However, as predicted, the second contrast of the mixed summary condition

compared with the other two combined yielded a significant result $t(186) = 8.63$, $p < .001$, $d = 1.27$. That is, participants in the mixed summary condition reported greater expectancy confirmation ($M = 4.69$, $SD = 1.19$) than those in the other two conditions ($M = 3.18$, $SD = 1.10$).

Attitudes and Structural Ambivalence

Participants' attitudes and structural ambivalence were submitted to the same analyses as above. No contrasts on either measure yielded a significant result, $ps > .25$. Additionally, and unsurprisingly, when entering study as sole predictor, attitudes varied across studies, $t(186) = 2.31$, $p = .022$, $d = .34$. Participants in Study 2, which included a univalent negative summary condition, reported more negative attitudes toward Bob ($M = 5.29$, $SD = 1.10$) than did participants in Study 3 ($M = 5.64$, $SD = 1.01$), which included a univalent positive summary condition. The same analysis applied to structural ambivalence scores yielded a nonsignificant result, $t(186) = .85$, $p = .396$, $d = .12$.

Felt Ambivalence

The first contrast indicated no differences in felt ambivalence between the univalent ($M = 7.43$, $SD = 1.56$) and no summary ($M = 7.30$, $SD = 1.60$) conditions, $t(123) = .47$, $p = .639$, $d = .08$, as predicted. However, the second contrast showed that participants in the critical mixed summary condition reported less felt ambivalence ($M = 6.65$, $SD = 1.82$) than participants in either of the other two conditions combined ($M = 7.37$, $SD = 1.57$), $t(186) = 2.79$, $p = .006$, $d = .41$.

Mediation Analyses

Finally, as in Study 1, we tested whether the effect of condition on expectancy confirmation accounted for the effect of condition on participants' felt ambivalence. Again, expectancy confirmation and felt ambivalence were significantly negatively correlated (the b-path of the proposed mediation model), as predicted by the dampening hypothesis, $r = -.25$, $p = .001$. Using the conditional processing modeling macro ("PROCESS") for SPSS (Hayes, 2013), we submitted participants' scores on felt ambivalence to mediation analysis, with the contrast-coded variable (mixed summary = $+2$, other conditions = -1) as predictor, and participants' scores on the expectancy confirmation index as mediator (Model 4). The overall mediation model was significant, $F(2, 185) = 6.72$, $p = .0015$; $R^2 = .07$. Bootstrapping analyses ($N = 1,000$) yielded a significant indirect effect of the contrast on felt ambivalence through its effect on expectancy confirmation, $b = -.13$, 95% CI $[-.2547, -.0263]$.

Discussion

Studies 2 and 3 replicated and expanded on Study 1 in several ways. First, participants who formed an expectation that a target would behave in a mixed way from the summary they received once again reported *dampened* ambivalence in their attitudes about him after exposure to his mixed behaviors, compared with individuals who were not similarly forewarned. In Studies 2 and 3, however, the expectation of mixed information condition was compared with participants who expected the target to act in a univalent way—negative (Study 2) or positive (Study 3)—and also

compared with those who had no explicit expectation provided.³ These observations provide clear evidence for the conclusion that having an expectation of receiving mixed information can dampen feelings of ambivalence below that which would ordinarily occur (no expectation condition) or which comes from an inaccurate expectation (univalent summary condition). Although it may also be possible that a mixed summary that follows mixed information could enhance felt ambivalence compared with no summary (see Study 1), the results of Study 2 clearly show that having a mixed summary precede mixed information reduces felt ambivalence over having no summary. Furthermore, Studies 2 and 3 provided additional evidence that the extent to which participants felt ambivalent can be explained by how much these participants reported that their expectations about the target were relatively confirmed versus violated.

Study 4: Naturally Inferred Expectations

As clear as the results of the prior studies may appear, some lingering issues remain. First, the operationalization of expectancy-granting information, though effective, was relatively blatant. Although it is quite possible in everyday life for others to provide explicit expectations about another person, there are times in which expectancies are more spontaneously formed. For instance, people often form expectations “online” during the course of person perception. Would the same effects occur when expectations are not explicitly manipulated? If not, the effects we report would still be useful in understanding the determinants of felt ambivalence, but may be limited in their operation. To examine this issue, we investigated a more natural situation in which people would form expectations on their own.

In addition, in the prior studies, participants in the expectancy confirmation conditions received information that might help to explain the mixed behavior—notably that Bob had a “mood disorder.” Importantly, one of the mechanisms by which people can reduce their emotional reaction to a surprising event is to attribute or otherwise explain its cause (Wilson & Gilbert, 2008), which a “mood disorder” might do. Arguing against this alternative explanation is the fact that in Study 1, all participants received this potentially explanatory information, only the order varied. And yet, conflict was reduced only when this information preceded the behavioral information even though the information could still explain the behavior when it followed. In addition, this information was not provided in the mixed summary of Study 3 and the same results were obtained. Nonetheless, in Study 4, we provided no verbal expectancy information at all. Rather, participants’ expectations were formed spontaneously only from the order in which the information was presented.

Recall that in each of the prior studies, the mixed positive and negative behaviors were always presented in a random order. In contrast, in Study 4, the pattern of behaviors was manipulated. The summary information was discarded, and further behavioral information was added in order to more meaningfully establish a *pattern* of mixed social behaviors during the course of impression formation. We predicted that patterns which better established the mixed nature of Bob earlier during impression formation—patterns in which mixed behaviors were relatively more interspersed, either in a random or alternating fashion—would better afford the formation of expectations that Bob would

(continue to) behave in a mixed manner than would behavioral patterns that grouped all of his positive or negative behaviors at the beginning only to reveal the other, opposing set of behaviors later. As a consequence, learning mixed information earlier was predicted to translate into an expectation of continuing mixed behavior, thus reducing feelings of ambivalence toward the target compared with when the mixed information was relatively unexpected. The pattern in which the information was presented was not predicted to influence attitudes or structural ambivalence because as in the prior studies, the information was the same across conditions.

Method

Study Design

One-hundred and 75 undergraduates at a large public university in the Midwestern United States participated in this study in exchange for credit in their introductory psychology courses. The goal was to attain at least 50 participants per condition and data collection terminated at the end of the week in which at least 50 people were enrolled in each cell of the design. All participants learned about and expressed their judgments regarding Bob. Each participant was randomly assigned to one of three experimental conditions, which differed in the pattern by which the 20 mixed behaviors that Bob engaged in were presented: alternating, random, or grouped. The valence of the first behavior was randomly varied between participants.

Procedure

Participants were invited to sign up for a study on their opinions about a variety of issues and people. Between one and 11 participants at a time completed the study on laboratory computers employing Medialab software (Jarvis, 2012). Participants were scheduled in 30-min blocks. As in the prior experiments, participants were told as a cover story that the study was being conducted in order to learn how certain types of information can be used when forming impressions of individuals. Thus, as before, participants were provided with credible reasons to believe that they were learning about behaviors acted out by an unidentified person (referred to as “Bob”) that were in fact true observations.

In this study, due to the nature of the manipulation, we expanded the set of behaviors from the 10 mixed behaviors used in the previous experiments to a set of 20 (10 positive and 10 negative; see Table 2). After being exposed to the 20 behaviors (each presented on screen for 5 s each), participants reported the degree to which Bob confirmed or disconfirmed their expectations, their attitudes toward Bob, and then responded to the remaining dependent measures in an order that was randomly determined for each participant. Once participants completed the last of these measures, they were debriefed and thanked for their time and effort.

³ A comparison between the ambivalence felt in the mixed expectations condition and the no expectation condition was significant, $t(123) = 2.12$, $p = .036$, $d = 0.38$, as was a comparison between the mixed and univalent expectations conditions, $t(124) = 2.59$, $p = .011$, $d = 0.46$.

Table 2
Materials Used in Study 4 for Behavioral Information

Positive behaviors
Bob likes to end each workweek by buying a round of drinks for his coworkers.
Bob uses a zoom lens to shoot photos of birds that land on his backyard birdfeeder.
Bob is exceedingly polite to waitresses at restaurants and he tips them generously.
Bob stopped his car to help out a commuter who fell off his bike during rush hour.
Bob decided to help his neighbor look for her dog that had gone missing.
Bob bought plane tickets for his parents on their 25th anniversary for a trip to Hawaii.
Bob fought against a discriminatory law that made renting difficult for minorities.
Bob helped his friend plant a large vegetable garden in the backyard.
Bob spent some of his salary on groceries for a disadvantaged family.
Bob stopped to assist a motorist whose car had stalled during a snow storm.
Negative behaviors
Bob stole a pair of knitted gloves for himself at a summer arts and crafts festival.
Bob decided to ruin a surprise party for his friend by telling him about it.
Bob destroyed a bookshelf that was a housewarming gift from his neighbor.
Bob pretends to be homeless at a nearby soup kitchen to get a free meal every Sunday night.
Bob found a lost wallet, kept the \$76 in cash that was inside, and threw away everything else.
Bob stole money and jewelry from relatives he was staying with.
Bob loudly made racist statements to his friends while in a tavern.
Bob scared some small children who were riding their bikes by threatening to run over them.
Bob absentmindedly ran through a red light at an intersection and smashed into another car.
Bob kicked his dog for eating some cheese left near the edge of the table.

Independent Variable: Observed Pattern of Behaviors

The pattern by which the mixed behaviors were presented to participants was manipulated in order to influence the extent to which they were more likely to form an expectation that Bob would exhibit a mixture of positive and negative behaviors in future observations. In the *alternating condition*, participants received the behaviors in a precisely alternating fashion, where each positive behavior was then followed by a negative behavior, and each negative behavior was followed by a positive behavior. In the *random condition*, the behaviors were presented in a randomly determined order for each participant, as in the prior studies (except for the first behavior which was either positive or negative). These two conditions were subsequently labeled as following an “interspersed” pattern. In the *grouped condition*, either all of the positive behaviors were presented first followed by all of the negative behaviors, or vice-versa (depending on counterbalancing).

Dependent Variables

Participants provided their responses to the same measures as in the previous studies: expectancy confirmation ($\alpha = .75$), attitudes ($\alpha = .83$), structural ambivalence, and felt ambivalence ($\alpha = .78$).

Results

With three conditions, our analysis strategy was to first conduct two planned orthogonal comparisons. We expected the first contrast of the alternating (+1) and random (−1) pattern conditions to be nonsignificant for all of the dependent measures, though it was possible that a randomly determined pattern of behavior could produce a greater violation of expectations than a strictly alternating pattern. Then, if the alternating and random conditions did not differ, we tested whether a pattern of grouped behavioral information led to greater felt ambivalence and violation of expectations compared with being presented with an alternating or randomized

(i.e., interspersed) pattern of behaviors. Specifically, we computed a contrast variable coding the grouped behavior condition as −2, and each of the other two conditions as +1, before submitting these variables to a test whether its effect on expectancy confirmation mediated the effect on feelings of ambivalence.

Expectancy Confirmation

The first contrast on expectancy confirmation indicated that there were no differences between the alternating ($M = 2.49$, $SD = 1.33$) and randomized ($M = 2.72$, $SD = 1.37$) pattern conditions, $t(111) = .92$, $p = .360$, $d = .17$. However, as predicted, the second contrast showed that participants in the grouped behaviors condition reported that Bob confirmed their expectations less ($M = 1.97$, $SD = .87$) than did participants in the combination of the two other conditions of interspersed behavior ($M = 2.61$, $SD = 1.35$), $t(173) = 3.39$, $p = .001$, $d = .52$.

Attitudes and Structural Ambivalence

Participants’ attitudes and structural ambivalence were submitted the same two contrasts as above, and no contrasts on either measure yielded a significant result, $ps > .09$.

Felt Ambivalence

The first contrast indicated no differences in felt ambivalence between the alternating ($M = 7.47$, $SD = 2.06$) and randomized ($M = 7.32$, $SD = 2.39$) conditions, $t(111) = .36$, $p = .721$, $d = .07$, as predicted. However, participants in the grouped condition reported greater felt ambivalence ($M = 8.12$, $SD = 2.23$) than did participants in either of the other two interspersed conditions combined ($M = 7.39$, $SD = 2.23$), $t(173) = 2.09$, $p = .038$, $d = .32$.

Mediation Analyses

Finally, noting that expectancy confirmation and felt ambivalence were again significantly negatively correlated, $r = -.26$, $p =$

.001, we tested whether the effect of condition on expectancy confirmation accounted for the effect of condition on participants' feelings of ambivalence, as in the previous three experiments. Using the conditional processing modeling macro ("PROCESS") developed by Hayes (2013), we submitted participants' felt ambivalence to mediation analysis, with pattern of information as predictor variable (-2 = grouped pattern, $+1$ = random or alternating pattern), measured expectancy confirmation as the mediating variable, and feelings of ambivalence as the outcome variable. The overall mediation model was significant, $F(2, 172) = 6.88, p = .0013; R^2 = .07$. Bootstrapping analyses ($N = 1,000$) yielded a significant, negative indirect effect of manipulated pattern of behavioral exposure on felt ambivalence through its positive effect on expectancy confirmation, $b = -.09, 95\% \text{ CI } [-.1985, -.0222]$.

Discussion

Study 4 conceptually replicated the findings from the previous experiments while providing important extensions. First, it was shown that manipulating the order in which people received the same mixed behavioral information about a target can have important consequences for their expectations and ultimately on their feelings of ambivalence. When people had an opportunity to spontaneously form an expectation that the target person was mixed in his positive versus negative attributes, the total collection of mixed attributes induced dampened felt ambivalence compared with when they were less able to form this expectation. This occurred without influencing the attitudes themselves or structural ambivalence as in the prior studies.

In this study the expectations that people formed about Bob were subtly influenced to be meaningfully different merely by manipulating the order in which people processed the exact same information. Thus, expectations need not be formed on the basis of overt or obvious summaries or forewarnings about a target prior to impression formation, but may instead be formed on the basis of observed patterns of learning by extrapolating from such patterns to determine how a target might behave in the future. Such a process of forming expectations during the course of impression formation reflects a natural tendency for people in the real world to form expectations of other people on the basis of ongoing social observation. Furthermore, the fact that spontaneously formed expectancies produced the same effects as the verbal expectancies used in the prior studies provides additional evidence against the view that the verbal expectancy information reduced felt ambivalence by "explaining" the behaviors presented about Bob.

Study 5: Minimal Expectations

The next study aimed to address a few remaining issues. First, some readers may wonder whether our expectancy manipulations reduced feelings of ambivalence toward the target person in particular, or just made people feel more comfortable and less confused about the experiment more generally. To examine this issue, we included measures of discomfort in general and participants' ambivalence regarding the experiment itself.

Second, we aimed to look at one possible reason other than reduced surprise (from decision affect theory) for why expectancy confirmation would lead to reduced feelings of ambivalence. Specifically, prior research shows that disconfirmation

of expectations can influence the allocation of attention toward the focal stimulus and increase information processing about it (e.g., Baker & Petty, 1994; Petty et al., 2001). Increased processing of *mixed* information could lead to greater recall of that information (Craik & Lockhart, 1972) which could enhance perceptions of the *amount* of positive and negative information that exists, thereby magnifying felt ambivalence. To examine whether enhanced thinking plays a role in affecting felt ambivalence, Study 5 included measures of self-reported elaboration as well as recall for the information provided. Based on our earlier experiments, we did not expect recall to be affected, because if our expectancy induction affected memory for the amount of positive and negative information that existed, then the measure of structural ambivalence should have been affected in the prior studies, and yet it was not. However, even if enhanced thinking about the mixed information does not affect memory for the information, it could possibly magnify the feelings of conflict that come from this information because the conflict itself is now more salient. Another novel feature of Study 5 is that it used an online sample of participants residing in the United States. We did this in an attempt to generalize our findings beyond the standard undergraduate student sample employed in our previous studies (Kitayama, 2017; Sears, 1986).

In sum, Study 5 was designed to conceptually replicate the findings of the previous experiments using a very minimal explicit instantiation of expectations and also rule out some alternative explanations (e.g., general confusion). The mixed information was presented in the grouped order used in Study 4 because this ordering produced the highest level of felt ambivalence. Thus, we aimed to show that even minimal expectations can reduce these relatively high levels of felt ambivalence about Bob.

Method

Study Design

We aimed to recruit 200 participants on Amazon's Mechanical Turk (50 per cell to detect approximately medium-sized effects with 80% statistical power on the critical two-group comparison of expectation conditions, regardless of the order manipulation), via the CloudResearch interface (formerly TurkPrime; Litman et al., 2017), based on a 2×2 between-participants design. Our study sample ultimately yielded 194 participants who completed all of the critical dependent measures.

As in the previous studies, participants learned about and expressed their judgments about Bob. Each participant was randomly assigned to one of four experimental conditions following a 2 (expectation: present or absent) $\times 2$ (order of behaviors: positive first or negative first) between-participants design. All participants received the exact same mixed behavioral information about Bob across all conditions in a grouped order (all positive first and then all negative, or vice versa), and the minimal expectation about receiving mixed information was either present or absent before exposure to the behaviors.

Procedure

Participants were recruited on Mechanical Turk to sign up for a 10-min psychology study, programmed in Qualtrics, on how

individuals learn about other people. They received \$.75 (USD) for taking the study. Unlike the prior experiments, in the cover story participants simply were told that the study was about how individuals learn about other people, without invoking any “clinical” aspects as was done in some of the previous studies. Otherwise, the materials were similarly designed to suggest credible reasons to believe that they were learning behaviors acted out by a target person that were in fact true observations.

We returned to the smaller set of 10 behaviors from Studies 1–3. After being exposed to each of the 10 behaviors (presented on screen for 10 s each, longer than the prior studies given the online nature of the experiment), participants responded to several dependent measures. These were assessed in the same manner as in the previous studies except where noted. After all measures had been completed, participants had the opportunity to provide open-ended reactions to the entirety of the study. They were then thanked, debriefed, and were provided a unique completion code to claim their compensation.

Independent Variables

Expectation. All participants were provided a brief introduction to the study across two screens, which broadly outlined that we were “interested in how people learn about individuals.” In the condition producing a minimal expectation of ambivalence, participants read the following sentence on the first screen (with the critical information *italicized*), embedded within the larger introduction:

Specifically, you will read *an equal number of positive and negative behaviors* that Bob has performed based on reports of people who know Bob.

This was followed on the second screen by another sentence stating essentially the same thing, controlled to be on screen for 10 s prior to moving on to the behavioral information:

You will specifically be presented with *equivalent negative and positive* behavioral information about Bob.

Conversely, participants in the control condition were presented with the following sentences, replacing the respective sentences described above (in **bold**):

Specifically, you will read **some behaviors** that Bob has performed based on reports of people who know Bob.

On the next screen, participants in the no expectation control group were presented with the following sentence (information unique to this condition in **bold**):

You will specifically be presented with **some** behavioral information about Bob.

On this second screen, all participants were told that the screen would advance automatically after “a brief amount of time” had passed. Except for the specific differences in approximately 10 words in the introductory sections, all of the verbal information was exactly the same between conditions. That is, people either expected to receive “some” information

about Bob, or they expected to receive equivalent positive and negative information. The first condition was intended to mirror the default in everyday life where people expect to receive some information (e.g., in a letter of recommendation), but are not told explicitly about its nature.

Order of Information. Once participants had completed the introductory section that manipulated expectations, they then went on to learn 10 behaviors that Bob had performed in a grouped order. Depending on condition, participants either received all five positive behaviors followed by all five negative behaviors, or they received the reverse order.

Dependent Variables

Participants first reported their separate positive and negative reactions toward Bob, followed by their overall attitudes ($\alpha = .95$), the extent to which Bob confirmed their expectations of him ($\alpha = .69$), and their felt ambivalence toward him ($\alpha = .94$). These were all the same as in the prior studies. Then, participants completed some new measures, which we describe next.

Extent of Thinking. Participants reported their perceived extent of thinking about Bob on two items (“How much were you thinking critically about Bob while learning about him?” and “How much were you thinking about Bob after learning all of his behaviors?”). These items, adapted from prior research (e.g., Petty et al., 1977) were completed on 11-point scales anchored at 0 = *not thinking critically at all/not thinking much at all* and 10 = *thinking extremely critically about him/thinking a great deal about him* respectively ($\alpha = .63$).

Feelings of Conflict Toward the Experiment. Next, participants’ feelings of conflict or confusion toward the study procedure itself were assessed with two items (“Setting aside Bob for a moment, to what extent were you at all confused by the procedure of this study?” and “Setting aside Bob for a moment, to what extent were you at all conflicted by the study procedure today?”). Each of these was responded to on 11-point scales, anchored at 0 = *not confused at all/not conflicted at all* and 10 = *extremely confused/extremely conflicted*, respectively ($\alpha = .91$).

Negative Arousal. Third, their general levels of negative arousal not explicitly attributed to Bob or to the study procedure itself were assessed using three items from Elliot and Devine (1994; see also Rydell & Durso, 2012) asking about the extent to which participants felt “right now, in the present moment” uneasy, uncomfortable, and bothered. Responses were made on 7-point scales (each anchored at 0 = *not at all*, 3 = *moderately*, and 6 = *extremely*; $\alpha = .94$). Indices were computed by averaging items within each respective construct before submitting them to analyses.

Recall. Finally, after responding to the measures above, participants were prompted to recall as much of the behavioral information that they had learned about Bob in the first stage of the study as they could. Specifically, participants were told, “Finally, in the box here, please write down ANY AND ALL of the behaviors that you can recall that Bob did. Move on to the next screen whenever you are finished.” Two independent coders who were not aware of the hypotheses or the experimental conditions examined each participant’s freely recalled responses and indicated the total number of behaviors that each participant correctly recalled. Interrater reliability was sufficient (Cohen’s $\kappa = .83$, $p < .0005$)

when treating the coded recall data as nominal, and the coders' responses were highly correlated when treating the data as scalar ($r = .97, p < .0005$). A third coder resolved discrepancies resulting in a free recall measure that ranged from 0 to 10.

Results

Expectancy Confirmation

A 2×2 ANOVA on the two-item index of self-reported expectancy confirmation yielded the predicted main effect of expectancy, $F(1, 190) = 4.63, p = .033, \eta_p^2 = .024$. Participants who were informed that they would receive mixed information about Bob reported that Bob confirmed their expectations more ($M = 3.18, SD = 1.23$) than did participants who had no explicit expectancy ($M = 2.88, SD = 1.04$). This analysis also yielded an unpredicted main effect of first behavioral valence, $F(1, 190) = 8.10, p = .005, \eta_p^2 = .041$, where participants who learned the negative behaviors first reported that Bob confirmed their expectations more ($M = 3.25, SD = 1.11$) than did participants who learned the positive behaviors first ($M = 2.82, SD = 1.15$). The interaction was not significant, $F(1, 190) = .70, p = .403, \eta_p^2 = .004$.

Attitudes and Structural Ambivalence

Participants' attitudes and structural ambivalence were submitted to the same 2×2 ANOVA, neither of which yielded any significant results, $ps > .07$ (there was a nonsignificant tendency for structural ambivalence to be lower in the expectation condition than in the control group).

Felt Ambivalence

Participants' feelings of ambivalence toward Bob were submitted to the same 2×2 ANOVA and only the main effect of the expectation manipulation was reliable, $F(1, 190) = 3.99, p = .047, \eta_p^2 = .021$ (all other $ps > .20$). Participants provided with a minimal expectation of receiving mixed information about Bob felt less ambivalent about him ($M = 6.53, SD = 2.74$) than did participants who had no expectation ($M = 7.29, SD = 2.61$).

Mediation Analyses

Once again observing the predicted negative correlation between expectancy confirmation and felt ambivalence, $r = -.22, p = .002$, we tested whether the effect of condition on expectancy confirmation accounted for the effect of condition on participants' felt ambivalence. Using the conditional process modeling macro ("PROCESS;" Hayes, 2013), we submitted participants' felt ambivalence to mediation analysis, with the expectation manipulation as the predictor (present = +1, absent = -1), participant-reported expectancy confirmation as the mediator, and felt ambivalence as the outcome variable. We additionally added the manipulation of order of information as a covariate, given its significant effect on expectancy confirmation in the omnibus 2×2 ANOVA. The overall mediation model was significant, $F(3, 190) = 4.04, p = .0082; R^2 = .06$. Bootstrapping analyses ($N = 1,000$) yielded a significant, negative indirect effect of manipulated minimal expectations on felt ambivalence through its positive effect on expectancy confirmation, $b = -.08, 95\% \text{ CI} [-.2436, -.0085]$.

Analyses of Additional Outcome Variables

We submitted each of the new dependent measures to the same 2×2 ANOVA as the primary measures. These assessments were: (a) the two-item index of participant-reported thinking about Bob, (b) feelings of conflict toward the study procedure itself, (c) general negative arousal not explicitly attributed to Bob or to the study itself, and (d) actual elaboration via a surprise recall measure, computed as a proportion out of 10 possible correct behaviors. The expectation manipulation did not exert a significant main effect on any of these measures, $F_s < 2.2, ps > .14$, nor did the interaction of the expectation and first behavioral valence manipulation attain significance on any of these measures, $F_s < 1, ps > .3$. Thus, we found no evidence that our manipulation of expectations was affecting some other variable. It does not appear that extra elaboration and/or recall as a function of expectancy disconfirmation played a role in our results.

Discussion

In Study 5, the core findings from the prior experiments were replicated once again, this time with a minimal verbal expectation induction. Expecting to receive mixed information led to diminished feelings of ambivalence about Bob compared with when the same mixed information was unexpected. These results, along with our prior studies, suggest that it is not the case that the expectations work to reduce felt ambivalence by providing an explanation for the mixed behaviors. Furthermore, this study showed that the reduced ambivalence from the expectancy confirmation was confined to feelings about the attitude object and did not extend to conflicted feelings about the study or to a general negative arousal. Finally, this study provided evidence against the notion that the expectancy induction reduced felt ambivalence by diminishing processing of the information about Bob, because providing an expectancy neither affected self-reported thinking nor the amount of information about Bob that participants could recall.

Study 6: Felt Ambivalence Is Consequential

The studies thus far have documented a reliable effect of various expectation manipulations on individuals' felt ambivalence toward targets that elicit mixed reactions. Mediation analyses further supported the idea that relatively greater confirmation of expectations led to lower levels of felt ambivalence, and this relation held even though measures of structural ambivalence and attitudes were unaffected. What has *not* been shown so far are any behavioral consequences of reductions in felt ambivalence due to having mixed (vs. any other) expectations. Thus, demonstrating a behavioral consequence is a key goal of our final study. Obtaining a behavioral outcome of reduced feelings of ambivalence would also rule out the possibility that the participants' reports of their felt ambivalence simply represent a change in how they described or rated their feelings without any change in their *actual* feelings of ambivalence (e.g., see Ostrom & Upshaw, 1968). If no actual feelings of ambivalence were affected, one would not expect to observe any behavioral manifestations.

Although many prior studies have shown that felt ambivalence is behaviorally consequential across a wide number of areas, as we have already reviewed (e.g., Durso et al., 2016; Glick & Fiske,

2001; Uchino et al., 2014; van Harreveld et al., 2015), no prior study has tested whether reductions in felt ambivalence occurring via the novel mechanism introduced in the current article—expectancy confirmation—can also exert similar behavioral effects. Thus, we designed Study 6 to examine a canonical consequence of ambivalence, delayed decision making (Durso et al., 2016; van Harreveld, Rutjens, et al., 2009; cf. Anderson, 2003). That is, affecting the felt ambivalence with respect to one's attitudes toward a target via expectations should influence the speed of decision making regarding that target (e.g., during negotiations; Rothman & Northcraft, 2015).

In addition to examining this behavioral consequence, Study 6 had two additional goals. First, the context of evaluating the target, Bob, was shifted away from the informal social scenarios of the previous studies and into a workplace simulation context (Durso et al., 2016). This alteration allowed for a more appropriate setting in which making decisions about another person would be more typical, while generalizing across domains. Second, we incorporated an additional factor, manipulating the degree of behavioral consistency exhibited by the target. Participants were again presented with 10 mixed behaviors, but those behaviors were either *evenly* mixed at 5–5 (as in all previous studies) or were *unevenly* mixed at 7–3. This necessitated the addition of a third factor, whether the “dominant” valence was positive or negative. As explained further shortly, this was addressed via the primacy of information (e.g., Sparks, 2020). The aim of this new “ratio” manipulation was to examine whether manipulations of expectations could generalize beyond situations where the presented information was perfectly even in quantity, as ambivalence is felt even if the information received is not perfectly balanced (cf. Priester & Petty, 1996; Snyder & Tormala, 2017). Indeed, it is perhaps uncommon for mixed individuals to be perfectly even in their positive and negative characteristics, so it is important to show that expectations of being mixed can reduce felt ambivalence even when the target is not perfectly mixed.

Method

Study Design

Given the desire to examine a new condition of ambivalence as well as potentially small behavioral effects (i.e., decision time) in a nonlab setting, we aimed to recruit 800 participants for a $2 \times 2 \times 2$ factorial. This sample size allowed us to detect predicted two-group differences as a function of expectations of conventionally smaller effect sizes ($d = .20$; Cohen, 1992) on response time on the critical decision measure with more than 80% statistical power, while also allowing for a larger-scale replication of the established effects (i.e., on expectancy confirmation and felt ambivalence). Our study recruitment ultimately yielded a sample of 803 participants.

Participants once again learned about a target named Bob. Each participant was randomly assigned to one of eight experimental conditions, following a 2 (Expectation: Present or Absent) \times 2 (order of behaviors: positive first or negative first) \times 2 (behavioral ratio: even: 5–5 or uneven: 7–3) between-participants factorial. Participants received similar behavioral information about Bob, except with requisite variation between groups assigned to learn even versus uneven behavioral ratios, which also varied on

valence. The minimal expectation about receiving mixed information was either present or absent before learning the behaviors.

Procedure

Participants were recruited on Amazon's Mechanical Turk (via CloudResearch/Turkprime; Litman et al., 2017) to sign up for a 9-min psychology study, programmed in Qualtrics, on how individuals learn about other people. They received \$.50 (USD) for taking the study. The materials were otherwise essentially the same as in the prior study, with the exception of introducing variation in the behaviors. Participants first reported a decision about whether Bob should be fired or promoted (depending on condition), and then the other dependent measures were assessed in the same manner as in the previous studies. Participants were then debriefed and provided a compensation code as thanks for their participation.

Independent Variables

Expectation. All participants were provided a brief introduction, and participants who were randomly assigned to the mixed expectation-present condition were given the following information following the introduction:

[Report #: 2017-Ab2-11] We are going to present some information from some managers and colleagues who have interacted with Bob. On the next screen, you will see an overall summary of the comments from the managers working in human resources (HR) management.

Then, participants were provided with the applicant's first name (Bob) with other information (last name, hiring date, department, and report date) “redacted” (i.e., [xxxxxx] was used in place of supposedly redacted information). Most importantly, depending on whichever valence of information came first, they received a matching summary of the report about Bob which served as the mixed expectation-present induction. It stated, “To date, some managers who have interacted with Bob reported positive [negative] experiences. However, others had negative [positive] things to say about Bob. Coworkers echoed these sentiments—Bob has sometimes been a good [poor] colleague, but other times he has been a poor [good] colleague. Overall, people in the office have a mixed impression of Bob.” After this, a second screen instructed them that they would now “be presented with various managers' and colleagues' observations of Bob in the office.” They were told that each screen would include a single observation and be presented for a controlled amount of time.

In the mixed expectation-absent condition, participants were instead presented with this information: “We are going to present some information from some managers and colleagues who have interacted with Bob. On the following screens, you will be presented with various managers' and colleagues' observations of Bob in the office. Each screen will include a single observation, and each screen will be presented to you for a controlled amount of time. After this brief amount of time has passed, the next screen will be presented automatically. Thus, you will not have to ‘click to continue’ on any given screen, until the instructions indicate that this phase of the experiment has passed.” This condition provided no clear expectancy-

granting information regarding whether information about Bob would be positive, negative, or mixed.

Order of Behaviors. The behavioral information either began with the positive or with the negative behaviors, depending on assignment to condition, as in the prior study, and always in a “grouped” fashion as in Studies 4 and 5.

Ratio of Behaviors. Participants received either the same (5–5) number of positive and negative behaviors, or they received behaviors in which there was a preponderance of one valence and a minority of the opposing valence (7–3). This meant, for instance, that participants assigned to the positive-first condition initially received five positive behaviors and were then presented with five negative behaviors in the even-ratio condition, whereas participants initially received seven positive behaviors and then three negative behaviors in the *uneven*-ratio condition. Naturally, in the negative-first condition, this meant participants initially received five negative behaviors followed by five positive behaviors in the even-ratio condition, or initially received seven negative behaviors followed by three positive behaviors in the uneven-ratio condition (see Table 3).

Dependent Variables

Decision Time. Participants first indicated their recommended decision about Bob, where the relevant decision was matched to the relevant behavioral context. Specifically, after receiving the behavioral information, in the positive-first groups, this was a promote-or-not decision, whereas in the negative-first conditions this was a fire-or-not decision. We were not interested in the actual decision, but instead in the *amount of time* participants took to render their response (Anderson, 2003; Diederich, 2003; Durso et al., 2016; Janis & Mann, 1977; Luce, 1998).⁴ Three participants who took longer than 120 s to render a decision on this measure were excluded from subsequent analyses (i.e., more than 4 *SDs* above the mean).

Expectancy Confirmation, Attitudes, Structural Ambivalence, and Felt Ambivalence. Then, using the same measures as the prior studies, participants indicated the extent to which Bob confirmed their expectations of him ($\alpha = .61$), their attitudes ($\alpha = .98$), their structural ambivalence, and their felt ambivalence ($\alpha = .93$).

Results

Expectancy Confirmation

A 2 (expectation: present or absent) \times 2 (order of behavior: positive-first or negative-first) \times 2 (ratio of behavior: even or uneven) between-groups ANOVA on the two-item index of self-reported expectancy confirmation yielded the predicted main effect of the expectations manipulation, $F(1, 792) = 61.97, p < .001, \eta_p^2 = .073$. Participants who were informed that they would receive mixed information about Bob reported that he confirmed their expectations more ($M = 3.64$) than did participants who only expected to receive some otherwise unspecified information ($M = 2.95$).

This analysis also yielded an unpredicted main effect of first behavioral valence, $F(1, 792) = 4.33, p = .038, \eta_p^2 = .005$, where participants who learned the negative behaviors first reported that Bob confirmed their expectations more ($M = 3.39$) than did participants who learned the positive behaviors first ($M = 3.24$), a result

also observed in Study 4. When the positive behaviors come second, people may feel more confirmed because their initial expectation for people is positive so they were anticipating some positive information would follow the negative. There was no main effect of behavioral ratio, $F(1, 792) = 1.45, p = .229, \eta_p^2 = .002$. However, there was an unpredicted interaction of the expectation manipulation with behavioral ratio, $F(1, 792) = 6.79, p = .009, \eta_p^2 = .008$. Simple effects analyses showed that when the mixed expectation was present, differences in reported confirmation were greater when the behavioral ratio was even ($M = 3.80$) rather than uneven ($M = 3.47$), $F(1, 397) = 5.13, p = .024, \eta_p^2 = .013$. This makes sense in that a 5–5 ratio produces more confirmation for the mixed expectation than does the 7–3 ratio. When the expectation was absent, there was no significant effect of the behavioral ratio manipulation, $p = .309$ (M s = 3.01 and 2.89, respectively). No other two-way or three-way interactions were significant, $ps > .22$.

Attitudes and Structural Ambivalence

The same 2 \times 2 \times 2 ANOVA failed to yield a significant main effect of the expectations manipulation on participants' attitudes, $F(1, 791) = .07, p = .796, \eta_p^2 < .001$, consistent with the prior studies (one participant had missing data on this measure). Not surprisingly, the manipulation of order of behaviors led to significantly different attitudes, $F(1, 791) = 53.30, p < .001, \eta_p^2 = .063$, which was qualified by its interaction with the manipulated ratio of behaviors, $F(1, 791) = 41.61, p < .001, \eta_p^2 = .050$. The positive-first condition led to more positive attitudes than the negative-first condition, especially when the ratio was uneven (7–3) compared with even (5–5). There was also an interaction between the expectations manipulation and order of behaviors, $F(1, 791) = 8.77, p = .003, \eta_p^2 = .011$, where there was a larger difference in attitudes as a function of order of behaviors when the expectation was present, $F(1, 394) = 52.61, p < .001, \eta_p^2 = .117$, compared to when the expectation was absent, $F(1, 397) = 9.42, p = .002, \eta_p^2 = .023$. No other effects were significant, $ps > .11$.

Likewise, there was no effect of the expectations manipulation on structural ambivalence, $F(1, 788) = 1.43, p = .232, \eta_p^2 = .002$ (four participants had missing data on this measure). Unsurprisingly, a main effect of manipulated ratio of behaviors was observed, $F(1, 788) = 5.45, p = .020, \eta_p^2 = .007$, where the even condition produced higher levels on structural ambivalence ($M = 3.74$) than did the uneven condition ($M = 3.25$). No other main effects or interactions achieved significance, $ps > .22$.

Felt Ambivalence

Using the same 2 \times 2 \times 2 ANOVA on felt ambivalence revealed the predicted main effect of the expectation manipulation, $F(1, 792) = 7.51, p = .006, \eta_p^2 = .009$. Participants expecting to receive mixed information about Bob felt less ambivalent about him ($M = 6.95$) than did participants who

⁴The only effect to emerge from a 2x2x2 ANOVA on participants' actual decisions was a main effect of ratio of behaviors, $F(1,792) = 42.86, p < .001$. On a 1-7 scale, the 7/3 ratio led to more extreme decision recommendations (more promoting when positive came first, more firing when negative came first) than the 5/5 ratio. All other $ps > .20$.

Table 3
Materials Used in Study 6 for Behavioral Information

Even 5–5 ratio (positive first)
Bob found and returned a lost mug to his coworker when it was left in the company kitchen.
Bob delivered an impressive company presentation that was clearly prepared weeks in advance.
Bob once stayed in the office past 3:00 a.m. to help his colleagues finish their project.
Bob has met or beaten all of his earnings goals since he was hired.
Bob complimented one of his coworkers at a welcoming party for new recruits.
Bob often arrives late to work because he is hungover and sleeps too little.
Bob is never patient with lunch caterers and their delivery drivers when they are running late.
Bob leaves the office early each Friday to beat the happy hour crowd at his favorite bar.
Bob frequently makes personal calls at the office, occasionally yelling.
Bob missed an end-of-year report deadline by several days.
Uneven 7–3 ratio (positive first)
Bob found and returned a lost mug to his coworker when it was left in the company kitchen.
Bob complimented one of his coworkers at a welcoming party for new recruits.
Bob delivered an impressive company presentation that was clearly prepared weeks in advance.
Bob once stayed in the office past 3:00 a.m. to help his colleagues finish their project.
Bob has met or beaten all of his earnings goals since he was hired.
Bob is always patient with lunch caterers and their delivery drivers when they are running late.
Bob cleared an end-of-year report deadline several days early.
Bob often arrives late to work because he is hungover and sleeps too little.
Bob leaves the office early each Friday to beat the happy hour crowd at his favorite bar
Bob frequently makes personal calls at the office, occasionally yelling
Uneven 7-3 ratio (negative first)
Bob insulted one of his coworkers at a welcoming party for new recruits.
Bob often arrives late to work because he is hungover and sleeps too little.
Bob is never patient with lunch caterers and their delivery drivers when they are running late.
Bob leaves the office early each Friday to beat the happy hour crowd at his favorite bar.
Bob frequently makes personal calls at the office, occasionally yelling.
Bob missed an end-of-year report deadline by several days.
Bob found and kept for himself a mug that his co-worker left in the company kitchen.
Bob delivered an impressive company presentation that was clearly prepared weeks in advance.
Bob once stayed in the office past 3:00 a.m. to help his colleagues finish their project.
Bob has met or beaten all of his earnings goals since he was hired.

had no such expectation ($M = 7.45$). Although there was no significant main effect of behavioral ratio, $F(1, 792) = 2.83$, $p = .093$, $\eta_p^2 = .004$, the trend was for participants to feel more ambivalent toward Bob when his behaviors were even (5–5; $M = 7.35$) than when his behaviors were uneven (7–3; $M = 7.05$), consistent with traditional notions of relating differences in mixed reactions to variation in felt ambivalence (Priester & Petty, 1996; Snyder & Tormala, 2017). No other main effects or interactions were significant, $ps > .22$.

Decision time

Participants' time to make a decision was observed when making a promote-or-not decision (positive-first) or a fire-or-not decision (negative-first) by recording the amount of time it took them to render a response. The same $2 \times 2 \times 2$ ANOVA revealed the predicted main effect of the expectation manipulation, $F(1, 792) = 4.83$, $p = .028$, $\eta_p^2 = .006$. Participants who were presented with the expectation of mixed behaviors made significantly faster decisions ($M = 7.84$ s) than participants who were not presented with this expectation ($M = 9.15$ s). No other main effects were significant, $ps > .17$, nor were any two-way or three-way interactions, $ps > .48$. These results suggest that the manipulation of mixed expectations influenced participants' decision time regardless of

whether the context was positive (promoting) or negative (firing), and regardless of the other manipulations.

Mediation Analyses

Once again observing the predicted negative correlation between expectancy confirmation and felt ambivalence, $r = -.23$, $p < .001$, we tested whether the effect of condition on expectancy confirmation accounted for the effect of condition on participants' felt ambivalence. Using the conditional process modeling macro ("PROCESS;" Hayes, 2013), we submitted participants' felt ambivalence to mediation analysis, with the expectation manipulation as the predictor (present = +1, absent = -1), participant-reported expectancy confirmation as the mediator, and felt ambivalence as the outcome variable. Bootstrapping analyses ($N = 1,000$) yielded a significant, negative indirect effect of manipulated expectations on felt ambivalence through its positive effect on expectancy confirmation, $b = -.15$, 95% CI $[-.2266, -.0894]$.

Finally, having established the direct effect of the expectation manipulation on decision time, we sought to test whether the effect of condition on expectancy confirmation and felt ambivalence, in serial, accounted for the effect of condition on decision time. We again used the conditional process modeling macro (PROCESS) to test for serial mediation (Model 6; Hayes, 2013), entering the expectation manipulation as predictor (present = +1, absent = -1), degree of expectancy confirmation as first mediator, felt

ambivalence as second mediator (in serial), and finally decision time as the outcome. Bootstrapping analyses ($N = 1,000$) yielded a significant, negative indirect effect of the manipulation on decision time, $b = -.03$, 95% CI $[-.0665, -.0038]$, supporting the serial mediation.

Discussion

The previous studies suggested robust relations between expectancy confirmation and felt ambivalence, and this final study demonstrated that the reduction in ambivalence from expecting it is indeed consequential for relevant behavior, not just self-reports. This replicates prior theories and evidence suggesting that felt ambivalence leads to delayed decision making and further demonstrates that a minimal manipulation of expectations can produce differences in feelings of ambivalence and actual decision time. Observing this behavioral effect is also noteworthy given the subtlety of the manipulation and the constraints of a less controllable laboratory setting via the online procedure.

General Discussion

There is a long tradition within the attitudes literature of examining how and when the presence of objectively mixed information leads to the feeling of ambivalence, and other diverse literatures have likewise been interested in examining antecedents and consequences of felt ambivalence—from emotions to consumer behavior, from stereotyping to relationships, and beyond. There is likewise a long tradition in social cognition examining how people learn about other individuals on the basis of behavioral information. Although people often prefer consistency in others, in reality, others' behaviors can provoke inconsistent and even seemingly contradictory inferences. In all, the studies presented here highlight a new variable that can influence the extent to which mixed information translates into ambivalent feelings about a novel attitude object—whether that mixed information is expected or not. When mixed information about another person was expected, people felt less ambivalent in their attitudes toward that person compared with when that same mixed information was not expected, and this felt ambivalence was consequential in determining the time it took to make a decision.

Understanding how mixed information causes individuals to feel about other people, as well as issues and objects, is important for a multitude of reasons. Receiving mixed information can influence the extent to which new acquaintances feel torn about a potential friend, how patients feel undecided about a new course of medical treatment and thus may fail to comply with a doctor's orders, and whether individual people in a relationship with one another ultimately feel conflicted about the potential prospect of their marriage, to name just a few relevant instances. As noted in the Introduction, prior research shows that felt ambivalence is consequential for behavior, and thus understanding the conditions under which receipt of objectively mixed information translates into *feelings* of ambivalence is important. Indeed, even when two people hold attitudes that are the same in valence (e.g., both +3), and are the same in their underlying structural ambivalence, if one person *feels* more ambivalent about the attitude object than the other, that person's attitude is less likely to predict behavior

toward the attitude object (DeMarree et al., 2014; Durso et al., 2016; van Harreveld, van der Pligt, et al., 2009).

In the current research, the evidence was consistent with the view that the dampened feelings of ambivalence from a forewarning resulted from the information confirming one's expectations. It did not seem to matter whether those expectations of mixed information were explicitly provided (Studies 1–3, 5–6) or formed spontaneously during the course of impression formation (Study 4), though the effects of expectations based on minimal information on felt ambivalence were noticeably smaller than the lengthier verbal expectations. However, when combining studies and analyzing the influence of manipulated expectations on felt ambivalence, a robust effect emerges despite idiosyncracies across studies, and despite controlling for such idiosyncracies' influences on structural ambivalence and overall attitudes (see the online supplement for a combined study analysis). Importantly, this reduction in felt ambivalence as a function of expectations was also observable in actual behavior (Study 6).

In addition to contributing to the literature on the factors that can influence *felt* ambivalence in the absence of any differences in structural ambivalence, the current work adds to the substantial literature on expectations. As noted earlier, prior studies have only focused on situations in which people had univalent expectations—either entirely positive or entirely negative—and showed that a forewarning of what is to come *dampened* the impact of subsequent positive and negative experiences. That is, expecting positivity leads experienced good events to seem less pleasant (e.g., Klaaren et al., 1994; Lyubomirsky, 2011) and expecting negativity leads experienced negative events to seem less unpleasant (e.g., Shepperd & McNulty, 2002; Williams et al., 1993). Although there are many such published studies examining univalent expectancies, the current research provides the first evidence that expecting mixed positive and negative information can lead people to *feel less ambivalent* than when the same information was unexpected. Furthermore, these studies uncovered this effect by examining expectancy formation processes that reflect both explicit (forewarning) and implicit (inferences from observed patterns) instantiations, as they might naturally occur in the real world (cf. Schwarz et al., 2016).

This dampening of felt ambivalence as a function of it being expected is very consistent with decision affect theory (DAT, e.g., Mellers et al., 1997) which argues that a violation of expectations magnifies emotional impact, whereas when an outcome is expected the emotional impact is attenuated. The current work therefore extends DAT beyond the univalent domains in which it has previously been applied. Importantly, this dampening effect is not compatible with other conceptual frameworks such as social judgment theory (Sherif et al., 1965) which would have predicted that an outcome close to what is expected should be assimilated to the expectation (i.e., and feel more ambivalent). Because a close expectancy led to reduced feelings of ambivalence, the results also do not fit other discrepancy-based theories of assimilation and contrast. Rather, the results fit the DAT approach well which might be expected because felt ambivalence is more of an affective than a cognitive judgment. It remains to be seen what would emerge for less affective judgments. Our results are also broadly compatible with past research on affective forecasting (e.g., Wilson & Gilbert, 2008), which like DAT studies have not examined expectations of mixed information. Likewise, our research is consistent with other

investigations showing disconfirmation produces surprise (e.g., Gerten & Tropolinski, 2019), and we suggest that the extent of surprise might be larger or more impactful when people are especially concerned about the validity of their expectations. A general metacognitive perspective (e.g., Foster & Keane, 2015; Petty et al., 2007; Stavraki et al., 2021) might suggest that surprise can signal that more information is required before rendering an accurate summary evaluation.

Applications and Limitations

In addition to the conceptual contribution, understanding how to reduce feelings of ambivalence that result from receiving mixed information is also of clear practical importance. For example, consider the marriage counselor who tells a client that any romantic partner will necessarily elicit both positive and negative reactions as a natural property of being a normal, flawed human being. The current research suggests that presenting this observation as a summary *after* the client has already experienced the mixed behaviors from their partner will maintain the feelings of conflict that motivated the client to seek marriage counseling in the first place. However, forewarning the client that he or she should expect a mixture of heartwarming and annoying qualities in future interactions with their partner *prior* to the client having those experiences (e.g., as in premarriage counseling) should help to mitigate the conflicted feelings that would typically be elicited by those behaviors.

Of course, although we only studied reactions to people in this research because reactions to people are the primary purview of social psychology, there is no strong reason to expect that these observations would apply only to persons. Consider, for instance, the doctor who must inform a patient of both the potential benefits and detrimental side effects of a proposed remedial treatment. How should this mixed information be presented? Our research suggests that before presenting the positives and negatives of the treatment, a forewarning should be offered that the treatment has mixed qualities. Or, the pluses and minuses should be interspersed, rather than first presenting all of one side then the other. It behooves the doctor to assuage the patient's conflicted feelings about the treatment despite having to communicate its potentially negative effects on the patient's health, and the current research offers some explicit and practical guidance on how to do this.

In everyday life, there are numerous examples where people are confronted with or must present mixed information including hearing others express divergent opinions about controversial topics (Pillaud et al., 2018), when considering purchases that require multiple tradeoffs (e.g., apartment shopping; Payne et al., 2008), and when both good news and bad news must be delivered to friends and colleagues. In such situations, the current research suggests that being warned or providing a warning to others can mitigate the conflict experienced from the mixed information. That is, the current research suggests tactics that could be employed in the real world to reduce felt ambivalence that some may not have considered previously. In accord with Mook (1983), a goal of psychological research is not only to reflect the world as it is, but as it could be.

Of course, in addition to some practical applications, it is important to touch upon some limitations of our studies. As just noted, one possible limitation is in the use of one type of attitude object

(i.e., people). Although this is an important topic, and there is no prior research that suggests that the target of ambivalence matters, it could be that individuals form attitudes toward people using a different set of rules than they would toward ideas, events, and objects, and that the studies presented here only apply to social evaluations. Because prior work on expectations of positive and negative outcomes has shown dampening effects for attitude objects that are clearly nonpersons (e.g., pains and pleasures), we suspect that the current findings are not limited to people. Nonetheless, future research should expand the attitude objects studied beyond individuals.

One aspect of the current research that could be unique to judging individuals is that people tend to expect and prefer that others will be positive. Some nonambivalence work supports the view that attitudes toward individuals are unique in some ways, including work on the Pollyanna principle (Matlin & Stang, 1978) that describes a willful optimism in future interactions with other people. Thus, in the absence of an explicit forewarning, this default might lead a mixed person to be relatively unexpected. By explicitly providing an expectation that this specific person is mixed, however, expectations are more confirmed and felt ambivalence is dampened. However, if there are domains in which an expectation of mixed qualities is the default (e.g., dental exams, going on a diet), then providing an expectation of receiving mixed information may not have as much impact, or it may instead prime associations that are normatively assumed based on category knowledge.

Finally, we noted that related social cognition research might have predicted that an additional mediator in our studies would be the impact of expectancies on memory processes. That is, unexpected information might lead people to process the traits more carefully, leading to increased encoding and/or retrieval of them. If people can remember mixed information better when it is unexpected, this might produce greater feelings of conflict. We tested this notion in Study 5 and did not find any evidence for it in that there were no differences in information recall or reported thinking as a consequence of the expectancies induction. Of course, any null result should be interpreted with caution—it is conceivable that different procedures or measures could have revealed effects that this study did not. However, even if degree of expectancy confirmation can be demonstrated to influence information processing, this variable would simply be an additional mediator in our proposed causal chain—producing dampening of affective judgments—rather than being an alternative explanation for these results. Thus, although it seems unlikely that memory processes during impression formation provide an additional *necessary* link in the causal chain, memory for the traits could be explored in future research.

Future Directions

In addition to the new directions already mentioned, there remain several interesting questions to explore. One sensible next research step might be to examine relevant individual differences. For example, it seems plausible that individuals might meaningfully vary in their more chronic expectations for people, ideas, and other attitude objects to be associated with both positive and negative qualities (e.g., related to the preference for consistency construct; Cialdini et al., 1995; Newby-Clark et al., 2002). Such a measure of individual differences in so called “expectations for

consistency” would presumably be useful for predicting variations in how people form attitudes, engage in persuasion, and seek out and process relevant information.

Indeed, such an index might complement and expand on other scales related to individuals’ preference for consistency (Cialdini et al., 1995), their style of thinking (e.g., differences in dialecticism; Spencer-Rodgers et al., 2009), or their need for cognitive closure (Webster & Kruglanski, 1994). This approach to developing and comparing such an index with other related individual differences might also help to address more directly whether or not people generally expect or prefer univalence versus ambivalence toward people, ideas, and events. Dispositional (or situational) differences in the tendency to contextualize or “group” mixed information into meaningful categories (e.g., “social Bob” is warm and positive, “professional Bob” is incompetent and negative; Brannon et al., 2017; Glick & Fiske, 2001) may be consistent with this idea as well, as would cultural differences based on analytical versus holistic thinking styles (Nisbett & Miyamoto, 2005). Finally, variation in attitudes toward ambivalence itself as a favorable or unfavorable aspect of social evaluation and interpersonal expression would presumably have meaningful effects on the extent to which mixed reactions translate into the negative experience of feeling conflicted or indecisive, affecting whether people are subsequently more or less susceptible to persuasion away from their initial attitudes (Bell & Esses, 2002).

It is likewise worth examining how individuals perceive and react to normatively “ambiguous” versus clearly “ambivalent” pieces of information associated with a stimulus. The deployment of ambiguous stimuli in psychological studies is a cornerstone of the field, due to the drive to understand how irrelevant or incidental inputs can influence more central judgments (e.g., Higgins et al., 1977; Petty et al., 1993). It bears repeating though, that ambiguity—a quality of a stimulus defined as having an unclear interpretation—is distinct from *ambivalence*, which is defined as a stimulus that instead has *very* clear interpretations but which conflict with one another in terms of its overall goodness or badness. This distinction represents a critical area worthy of future investigation as to understand how individuals (and psychological scientists) think about what makes a stimulus ambiguous versus ambivalent, and with what consequences for their thoughts, judgments, and behaviors related to that object.

Lastly, future research could further examine the potential implications of these findings for other phenomena where mixed reactions occur such as persuasion involving one versus two-sided messages (Rucker et al., 2008), mixed emotions and their regulation (Williams & Aaker, 2002), as well as consistency-related phenomena more generally such as research on balance and dissonance theories (Festinger, 1957; Heider, 1958). For example, would dissonance effects be attenuated or disappear if people were forewarned about the negative feelings that can accompany complying with a request to advocate for a counterattitudinal position? In what other ways might forewarnings and expectations be employed to influence persuasive outcomes, interpersonal influence, and social behavior? If individuals were to learn in advance (via an expectation) that an opinion on some topic is characterized by “mixed reactions” (vs. not having any such expectation), then how might their reactions to one-sided versus two-sided messages differ? How might their attributions of source biases differ as a function of having learned that a source is “one-sided” versus

“two-sided” (Wallace et al., 2020)? There is limited work on forewarnings and persuasion other than showing that a forewarning of persuasive intent or anticipating receipt of a counterattitudinal persuasive message reduces persuasion (see Cialdini & Petty, 1981 for a review). Examination of other kinds of forewarnings provide a promising avenue for future work.

Final Thoughts

Wherever and whenever people experience felt ambivalence—when forming impressions, evaluating themselves, making decisions, experiencing emotions, yielding to persuasion, or interacting with groups—the findings presented here on the role of expectations generate interesting new theoretical and practical questions in a wide and diverse array of areas in psychology. Ambivalence is a common experience in everyday life, despite individuals’ default preferences for and expectations of consistency (DeMarree et al., 2014; Zaller & Feldman, 1992). This observation of human nature makes it all the more pressing to examine expectations and ambivalence in future work on evaluative processes and their relevant cognitive, emotional, and behavioral consequences.

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