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Which Social Comparisons Influence Happiness With Unequal Pay?

Eleanor Putnam-Farr
Rice University

Carey K. Morewedge
Boston University

We examine which social comparisons most affect happiness with pay that is unequally distributed (e.g., salaries and bonuses). We find that *ensemble representation*—attention to statistical properties of distributions such as their range and mean—makes the proximal extreme (i.e., the maximum or minimum) and distribution mean salient social comparison standards. Happiness with a salary or bonus is more affected by how it compares to the distribution mean and proximal extreme than by exemplar-based properties of the payment, like its comparison to the nearest payment or its distribution rank. This holds for randomly assigned and performance-based payments. Process studies demonstrate that ensemble representations lead people to spontaneously select these statistical properties of pay distributions as comparison standards. Exogenously increasing the salience of less extreme exemplars moderates the influence of the maximum on happiness with pay, but exogenously increasing the salience of the distribution maximum does not. As with other social comparison standards, top-down information moderates their selection. Happiness with a bonus payment is influenced by the largest payment made to others who solve the same math problems, for instance, but not by the largest payment made to others who solve different verbal problems. Our findings yield theoretical and practical insights about which members of groups are selected as social comparison standards, effects of relative income on happiness, and the attentional processes involved in ensemble representation.

Keywords: social comparison, ensemble representation, attention, happiness, equality

Imagine you begin a new job at an organization where all salaries are transparent, such as in government or at a public university. How your salary compares to the salaries of your colleagues will influence your satisfaction with your own salary (Clark & Oswald, 1996; Hsee, Yang, Li, & Shen, 2009; Morewedge, Zhu, & Buechel, 2019; Mussweiler, 2003; Perez-Truglia, 2020), but among all those alternatives, which will have the greatest influence? We propose that the ensemble representation of groups (e.g., Ariely, 2001; Brady & Alvarez, 2011) makes useful predictions for determining the most influential comparison standards under these circumstances. Ensemble representation of groups makes extreme members of a set the most salient members. Depending on whether your pay is above or below average, it suggests that the highest or lowest paid member of a group, respectively, will be the most salient standard to which you compare your own pay.

Ensemble representation refers to the phenomenon that recall for a set of similar objects is often reduced to a few statistical properties of the group, such its set mean and range (e.g., Ariely, 2001; Brady & Alvarez, 2011; Chong & Treisman, 2003; Marchant, Simons, & de Fockert, 2013). After seeing lines of varying length, people forget most exemplars in the set, but remember the average line length, and the length of the largest and smallest lines. This pattern of representation extends to social categories (de Fockert & Wolfenstein, 2009), such as the emotional expressiveness of a set of faces (e.g., Haberman & Whitney, 2007). We suggest that ensemble representation influences which social comparisons are most salient when people compare themselves to other members of a group (Davidai & Deri, 2019), and thus ensemble representation impacts happiness with their relative position (Kluegel & Smith, 1986).

Our theory is distinctive in predicting that social comparisons within groups are not automatically made to the most proximal relevant member—the person whose status is most similar to their own (Festinger, 1954; Suls, Martin, & Wheeler, 2002). People instead should compare themselves to the mean and most salient values in the group, typically the value of the endpoint on their side of the range (i.e., the distribution maximum or minimum; Ariely, 2001). A person making an above average salary would then compare her salary to the group mean and highest salary, for instance, whereas a person making a below average salary would compare his salary to the group mean and lowest salary. A second point of distinction is that our ensemble representation account implies that people should be insensitive to other properties of

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Eleanor Putnam-Farr, Department of Marketing, Jones Graduate School of Business, Rice University; Carey K. Morewedge, Department of Marketing, Questrom School of Business, Boston University.

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Correspondence concerning this article should be addressed to Eleanor Putnam-Farr, Department of Marketing, Jones Graduate School of Business, Rice University, Janice and Robert McNair Hall, 6100 Main Street, MS 531, Houston, TX 77005. E-mail: elpf@rice.edu

groups, particularly information that would require representing the group at an exemplar level (i.e., attending to all individual members), such as their relative rank in the group (e.g., Stewart, Chater, & Brown, 2006), or information that relies on the perceived inequity of the distribution (e.g., Gini coefficient; Starmans, Sheskin, & Bloom, 2017).

Our theory is useful for predicting and understanding how comparative judgments are modulated by the composition and values of sets. In particularly, we identify influential statistical properties of relevant and salient social groups (e.g., colleagues and neighbors; Clark & Oswald, 1996; Cullen & Perez-Truglia, 2018; Luttmer, 2005; Morse & Gergen, 1970; Tesser & Collins, 1988). We test our theory in the context of pay, given the importance of social comparisons involving money and the precision with which money can be quantified (Putnam-Farr & Morewedge, 2019). We specifically measure happiness with pay as a measure of its contextual utility (Kahneman & Krueger, 2006; Krueger & Schkade, 2008), and manipulate its set of potential comparison standards within a given domain (i.e., the distribution of other payments for similar work). Our experiments elucidate which statistical information is influential when people compare themselves to social groups, why it is influential, and contribute experimental evidence to a literature that often relies on survey data to study similar relationships between income, social comparison, and well-being (Diener & Seligman, 2004; Dolan, Peasgood, & White, 2008).

We manipulated pay in a variety of different group settings, including salaries, performance-based bonuses, and randomly assigned bonuses, to test the robustness and generalizability of the effects and process. In all experiments, we modulated the distribution maximum or minimum—or both (i.e., the highest or lowest payment, respectively), and measured satisfaction with the pay that participants received. As additional robustness checks, we tested the relative effect of the distribution maximum or minimum across different means (Experiment 5) and payments received (Experiment 4). We also orthogonally manipulated distribution maximums and relative rank in Experiment 3, and controlled for the inequity of the distribution in Experiment 1. For process tests, we exogenously manipulated the salience of the distribution maximum and other values to test whether the maximum was already endogenously salient but other values were not (Experiment 6), and manipulated the relevance of values to be included in the distribution (Experiment 7). Exogenously increasing the salience of the distribution maximum had no effect, but exogenously increasing the salience of other (lower) values modulated the influence of the distribution maximum on satisfaction with pay received, as did manipulating its perceived relevance. Together, our theory and findings yield new insight into the ways people compare themselves to groups, effects of relative income on happiness, and the influence of ensemble representations on self and social judgment.

General Method

Participants

All participants (N = 4,191) were recruited via Amazon's Mechanical Turk through TurkPrime, and were residents of the United States with a 95% or higher approval rating. No participant was allowed to participate in more than one experiment. In all experiments in which participants received a real bonus payment (Experiments 2–7), participants received an advertised base wage plus an unadvertised additional bonus payment. Sample size was set in advance to the largest number that was financially practical for each experiment, with a minimum of 60 participants per cell, and a mode of 100 participants per cell.

Stimuli and Procedure

Payments received. In Experiments 1a and 1b, participants were asked about the salary associated with a hypothetical job offer. In Experiments 2–7, participants reported their reactions to the receipt of a real bonus payment. In Experiment 2, participants first completed a short task and then received a bonus payment. In Experiment 7, participants were only eligible for the bonus upon successful completion of a task. In Experiments 3, 4, 5, and 6, participants were given a randomly assigned bonus payment with no additional task.

In Experiments 1a and 1b, participants were shown 10 salaries paid for the same job in their company, displayed in random order, one at a time, each presented for 3 s. In Experiments 2–6, participants were shown 10 other bonus payments ostensibly paid to the last 10 participants, displayed in random order, one at a time, each presented for 3 s. In Experiment 7, participants saw all other bonuses simultaneously, and then received their own bonus payment. Aside from Experiment 4, where bonuses were manipulated by condition, all participants within each experiment were paid the same bonus.

Payment distributions. Fictional bonus payments to other participants were varied to create specific distributions. In all experiments, the distribution maximum was varied between conditions, but the means and distribution minimums were held constant, with two exceptions. In Experiment 1b, the distribution minimum was varied between conditions. In Experiment 5, the distribution means were manipulated across conditions. All distributions addressed rank as an alternative driver of satisfaction; they were designed so that relative rank would have predicted equal or greater satisfaction with the bonus payment received in conditions where the maximum was larger. In Experiment 3, relative rank was explicitly manipulated. Maximums, minimums, means, and bonus payments for each experiment are included in Table 1. All distributions (including means, ranks, and Gini coefficients) are included in Table 2.

Dependent variables. Immediately after receiving their bonus payment, participants reported their happiness with the bonus they received[1] on a 7-point scale with endpoints, *Not at all Happy* (1) and *Extremely Happy* (7). In Experiments 2, 5, and 6, participants were also asked how well they were paid relative to other participants on a 7-point scale with endpoints, *Not at all Well* (1) and *Very Well* (7). Finally, in a response box (open-ended) or slider format, participants recalled the distribution maximum, min-

[1] In Experiment 5, we also asked participants how disappointed they were with their bonus. This measure was strongly (negatively) correlated with happiness with the bonus ($\rho = -.63$) so it was not used in any other experiments due to its minimal incremental value. It is reported in the Appendix.

Table 1
Ns, Distribution Minimums, Means, Maximums and Amounts Paid to Participants by Experiment

Experiment	*N*	Minimum	*M*	Maximum	Amount(s) paid
1A	205	\$28k	\$40k	\$50k/\$60k	\$45k
1B	401	\$25k/\$30k	\$40k	\$50/\$60k	\$32k
2	239	1¢	20¢	40¢/60¢	32¢
3	598	1¢	26¢	40¢/60¢	29¢
4	1,219	1¢	26¢	40¢/60¢	27¢/32¢/36¢
5	377	1¢	20¢/30¢	40¢/60¢	32¢
6	600	5¢	25¢	35¢/45¢	32¢
7	551/330	1¢	26¢	41¢/61¢	29¢

imum, and mean of the 10 bonuses paid to other participants, as a manipulation check.

Reporting

Participant exclusions. No participants who completed the experiments were excluded from any analyses. Regression results for all dependent variables are reported in the Appendix. We focus our discussion in the results sections on how happy participants were with the bonus that they received.

Recall accuracy. Overall, participants exhibited accurate recall, with an average absolute difference between recalled and actual amounts across all experiments of 6–11¢ for the mean bonus (SD = .09–.13), and maximum bonus (SD = .11–.14), and 3–9¢ for the minimum (SD = .09–.18). All recall data is reported in Table 3, as a manipulation check. Note that distribution maximums did appear to influence recollection of the mean. Participants recalled the distribution mean to have been directionally (Experiments 5 and 6) or significantly higher (Experiments 2, 3, 4, and 7) in conditions in which the distribution maximum was higher. We do not exclude participants whose estimates diverged significantly from the actual maximum, minimum, or mean bonus; excluding these cases would increase the significance of most results.

Experiments 1A and 1B: Maximum and Minimum Salaries

In Experiments 1A and 1B, we manipulated the distribution maximum in both experiments and the distribution minimum in Experiment 1B to examine their impact on above and below average salaries (Experiments 1A and 1B, respectively). Our ensemble theory predicts that happiness with a salary should be influenced by its comparison to the most proximal distribution extreme—the distribution maximum in Experiment 1A and the distribution minimum in Experiment 1B. In Experiment 1A, we structured the distributions so that they also tested alternative

Table 2
Payment Distributions, Payment Ranks, and Gini Coefficients by Experiment

Experiment	Condition	Amounts paid to others (\$)	Amount paid (\$)	Rank	Gini coeff
Experiment 1a	high max	28, 31, 35, 37, 38, 38, 42, 45, 46, 60	45	Third*	0.12
(in thousands)	low max	28, 33, 35, 37, 38, 41, 42, 45, 49, 50	45	Third*	0.10
Experiment 1b	high max, low min	25, 31, 35, 37, 38, 40, 42, 45, 46, 60	32	Ninth	0.12
(in thousands)	high max, high min	30, 31, 35, 37, 38, 39, 42, 45, 46, 60	32	Ninth	0.11
	low max, low min	25, 30, 36, 37, 39, 41, 43, 45, 49, 50	32	Ninth	0.11
	low max, high min	30, 31, 35, 37, 38, 41, 42, 45, 49, 50	32	Ninth	0.09
Experiment 2	high max	.01, .03, .09, .12, .13, .15, .21, .28, .42, .60	0.32	Third	0.46
	low max	.01, .04, .12, .15, .16, .21, .25, .33, .37, .40	0.32	Fourth	0.25
Experiment 3	high max, low rank	.01, .04, .08, .11, .30, .31, .32, .37, .49, .60	0.29	Seventh	0.40
	high max, high rank	.01, .04, .12, .14, .21, .22, .28, .41, .53, .60	0.29	Fourth	0.42
	low max, low rank	.01, .13, .16, .23, .30, .31, .32, .35, .36, .40	0.29	Seventh	0.25
	low max, high rank	.01, .15, .19, .23, .25, .27, .28, .38, .39, .40	0.29	Fourth	0.25
Experiment 4	high max	.01, .04, .12, .14, .21, .23, .31, .44, .54, .60	.27, .33, .39	Fifth, fourth, fourth	0.41
	low max	.01, .15, .19, .21, .23, .32, .36, .37, .39, .40	.27, .33, .39	Sixth, fifth, second*	0.25
Experiment 5	high max, high mean	.01, .04, .18, .25, .27, .28, .32, .46, .54, .60	0.32	Fourth*	0.35
	high max, low mean	.01, .03, .09, .12, .13, .15, .21, .28, .42, .60	0.32	Third	0.45
	low max, high mean	.01, .25, .27, .29, .29, .32, .36, .37, .39, .40	0.32	Fifth*	0.17
	low max, low mean	.01, .04, .12, .15, .16, .21, .25, .33, .37, .40	0.32	Fourth	0.35
Experiment 6	high max	.05, .16, .17, .19, .20, .21, .28, .36, .39, .45	0.32	Fourth	0.26
	low max	.05, .16, .17, .21, .25, .28, .31, .33, .34, .35	0.32	Fourth	0.21
Experiment 7	high max math	.01, .04, .11, .15, .21, .23, .31, .44, .52, .61	0.29	Fifth	0.42
	low max math	.01, .15, .19, .21, .24, .32, .35, .37, .39, .41	0.29	Sixth	0.25
	high max verbal	.01, .04, .12, .14, .20, .24, .32, .43, .54, .60	0.29	Fifth	0.42

Note. Underlined values denote the amount paid to others that was emphasized in the "other salient" condition. Gini calculated using: http://shlegeris.com/gini
[*] Denotes tie for that rank.

Table 3
Recall of Minimum, Mean, Maximum by Experiment and Condition

	Experiment 2 (paid $0.29)			Experiment 3 (paid $0.32)		
Bonus to others	Condition	Low max	High max	Condition	Low max	High max
Actual bonuses						
Low		$0.01	$0.01		$0.01	$0.01
Mean		$0.26	$0.26		$0.20	$0.20
High		$0.40	$0.60		$0.40	$0.60
Estimated bonuses						
Low	ranked 4	$0.09*	$0.10*	performance	$0.03*	$0.05*
Mean		$0.27	$0.31*		$0.23*	$0.26*
High		$0.46*	$0.60		$0.45*	$0.60
Low	ranked 7	$0.06*	$0.06*	random	$0.05*	$0.04*
Mean		$0.28*	$0.31*		$0.25*	$0.30*
High		$0.42*	$0.60		$0.01	$0.01
	Experiment 4			Experiment 5 (paid $0.32)		
Bonuses to others	Condition	Low max	High max	Condition	Low max	High max
Actual bonuses						
Low		$0.01	$0.01		$0.01	$0.01
Mean		$0.26	$0.26		$0.20/.30	$0.20/.30
High		$0.40	$0.60		$0.40	$0.60
Estimated bonuses						
Low	bonus $0.27	$0.10*	$0.11*	mean $0.20	$0.05*	$0.06*
Mean		$0.28*	$0.30*		$0.24*	$0.26*
High		$0.45*	$0.59		$0.45*	$0.59
Low	bonus $0.33	$0.08*	$0.10*	mean $0.30	$0.09*	$0.04*
Mean		$0.27*	$0.32*		$0.30	$0.30
High		$0.44*	$0.59		$0.44*	$0.60
Low	bonus $0.39	$0.09*	$0.08*			
Mean		$0.29*	$0.32*			
High		$0.47*	$0.60			
	Experiment 6 (paid $0.32)			Experiment 7 (paid $0.29)		
Bonuses to others	Condition	Low max	High max	Condition	Low max	High max
Actual bonuses						
Low		$0.05	$0.05		$0.01	$0.01
Mean		$0.25	$0.25		$0.26	$0.26
High		$0.35	$0.45		$0.41	$0.61/0.60
Estimated						
Low	control	$0.09*	$0.09*	math only	$0.10*	$0.10*
Mean		$0.24	$0.26		$0.28	$0.32*
High		$0.38*	$0.46		$0.46*	$0.57
Low	max salient	$0.08*	$0.07*	saw verbal	$0.09*	
Mean		$0.25	$0.27		$0.28	
High		$0.40	$0.48*		$0.44*	
Low	$0.21 salient	$0.08*	$0.09*	verbal estimate		$0.11*
Mean		$0.25	$0.25			$0.30*
High		$0.39	$0.47			$0.47*

* Indicates significant difference from actual.

account suggested by Festinger (1954), that the most proximal salary in terms of absolute distance should be the most influential comparison standard.

Method

Participants. For Experiment 1A, we set sample size in advance to 200 participants, which we requested from Amazon Mechanical Turk; 205 participants completed the experiment for a base payment of 25¢ (43% women; M_{age} = 35.9, *SD* = 11.9). For Experiment 1B, we requested 400 participants from Amazon Mechanical Turk; 401 completed the experiment for a base payment of 25¢ (45% women; M_{age} = 35.7, *SD* = 10.6).

Procedure. In both experiments, participants considered a hypothetical salary offer for a new job. Through connections, they learned the salaries of 10 other people in the same position at that company. These 10 salaries were displayed on the pages that followed. Each of the 10 salaries was displayed on a separate page for 3 seconds, in a random order.

In Experiment 1A, all participants were randomly assigned, between subjects, to one of two distribution conditions in which the distribution maximum was $50,000 or $60,000. In both distributions, the average salary was $40,000 and the minimum salary was $28,000. Both distributions were similarly unequal as measured by their Gini coefficients (see Table 2), and the salary offered to participants had the same rank in both distributions. The distributions in Experiment 1A were also structured to discern which payment was more salient—the most proximal distribution extreme (the maximum) or the most proximal salary in terms of absolute distance. Our theory suggests that the distribution maximum should be a more salient comparison standard, so participants should be more satisfied when the maximum was $50,000 than when it was $60,000. By contrast, an absolute proximity account (Festinger, 1954) would suggest that participants should be more satisfied in the condition where the distribution maximum was $60,000, because in that distribution the most proximal salary was only $1,000 more than the amount paid to participants, whereas the most proximal salary was $4,000 more than the amount paid to participants in the distribution with a maximum of $50,000.

In Experiment 1B, all participants were randomly assigned, between subjects, to one of four distribution conditions in which the maximum salary was $50,000 or $60,000, and the minimum salary was $25,000 or $30,000. In all four distributions, the average salary was $40,000.

In both experiments, after seeing the 10 other salaries at that position, participants saw their salary offer. In Experiment 1A, it was $45,000, which was above the mean. In Experiment 1B, it was $32,000, which was below the mean. Participants then reported their happiness with that salary on a 7-point scale with endpoints, *Not at all Happy* (1) and *Extremely Happy* (7).

Results and Discussion

We examined happiness with the high salary (above the mean) in Experiment 1A with a one-factor between-subjects ANOVA, which revealed a significant effect of the distribution maximum ($50,000 vs. $60,000), $F(1, 203) = 7.14$, $p = .008$, $\eta^2 = .03$. Supporting our ensemble theory of comparison, rather than an absolute proximity account (Festinger, 1954) or a ranking account (Stewart et al., 2006), participants were happier with their own salary when the distribution maximum was $50,000 ($M = 5.86$, $SD = 1.00$) than when the distribution maximum was $60,000 ($M = 5.45$, $SD = 1.23$, $t(203) = 2.67$, $p = .008$, $d = .37$). Holding constant the properties of mean, minimum, rank, and Gini coefficient of a distribution of salaries paid to coworkers, then, the salary paid to the highest earner was influential in determining participants' satisfaction with the wage they received. See Figure 1.

For Experiment 1B, we analyzed the happiness measure for the low salary in a 2 (Maximum Salary: $60,000, $50,000) × 2 (Minimum Salary: $25,000, $30,000) between-subjects ANOVA, which yielded a significant main effect of the minimum salary, $F(1, 397) = 7.17$, $p = .008$, $\eta_p^2 = .02$, but no significant effect of the maximum salary, $F(1, 397) = 2.75$, $p = .098$. Participants were happier receiving a below average salary when the distribution minimum was $25,000 ($M = 3.29$, $SD = 1.68$) than when the distribution minimum was $30,000 ($M = 2.84$, $SD = 1.61$, $t(399) = 2.77$, $p = .006$, $d = .28$). Happiness with receiving a below average salary did not significantly differ whether the distribution maximum was $50,000 ($M = 3.23$, $SD = 1.70$) or $60,000 ($M = 2.94$, $SD = 1.61$, $t(399) = 1.78$, $p = .08$, $d = .18$), although the trend was generally consistent with the direction found in Experiment 1A. There was no significant Maximum Salary × Minimum Salary interaction, $F(1, 397) = .02$, $p > .25$.

Together, the results provide initial support that ensemble representation influences which social comparisons are endogenously

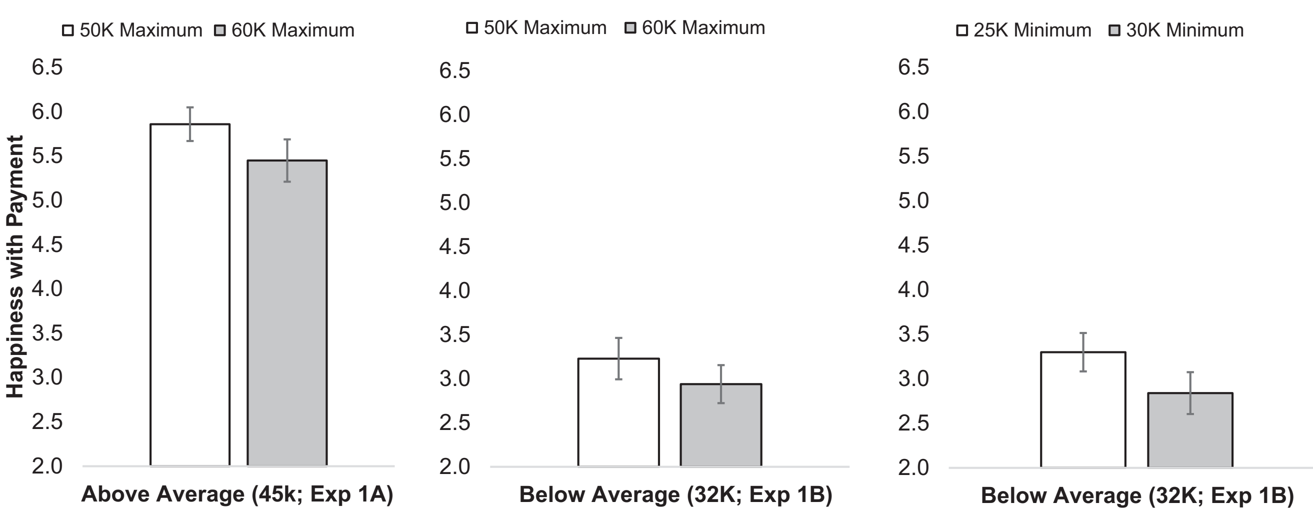

Figure 1. Reported happiness with above- and below-average salaries by distribution maximum in Experiments 1A and 1B (left and center panel, respectively), and with a below-average salary by distribution minimum in Experiment 1B (right panel). (Bars represent 95% CI.)

salient in a distribution. Satisfaction with a salary was influenced by the most proximal extreme value in the salary distribution from which it was drawn—the maximum in Experiment 1A and the minimum in Experiment 1B. Comparisons to proximal extremes were more influential than comparisons to the most proximal values in Experiment 1A, and were influential in both experiments despite holding constant the inequality of salary distributions and the relative rank of the salary that participants received. In the experiments that follow, we tested whether ensemble representation influences the selection of social comparison standards in the context of real pay.

Experiment 2: Performance-Based Versus Random Payments

Reactions to unequal pay are certainly influenced by the reasons for pay inequality (for a review, see Williams, McDaniel, & Nguyen, 2006). In Experiment 2, we examined whether sensitivity to proximal distribution extremes is due to ensemble representations, or to inferences they might evoke about the reasons for inequitable pay. In an incentive-compatible design, we manipulated whether compensation was (ostensibly) performance-based or randomly determined. As ensemble representation is driven by attention to statistical properties of the set, not the reasons for which the set is constructed, we predict that in this context, satisfaction with pay should be driven by distribution maximums, not by the reason that pay was unequally distributed (e.g., Starmans et al., 2017).

Method

Participants. We set sample size in advance to 240 participants, which we requested from Amazon Mechanical Turk; 240 participants completed the experiment for a base payment of $1 (41% women; $M_{\text{age}} = 34.1$, $SD = 9.9$). One participant who completed survey items but did not work on the focal Boggle task (i.e., found no words) was excluded from the results.

Procedure. In a between-subjects design, participants were randomly assigned to one of two bonus distributions with a distribution maximum of 40¢ or 60¢, and to one of two bonus assignment methods: participants were either told that bonuses were performance-based or randomly determined.

Before receiving information about bonuses, all participants worked on a Boggle-like task in which they were given up to 5 min to try to find as many words as possible. Participants were required to spend at least 2 min on the task before moving to the next page. After completing the task, participants in the random bonus condition were told "Congratulations—you have earned a randomly assigned bonus for participating today." Participants in the performance-based bonus condition were told, "Congratulations—based on your performance today, you have earned a bonus."

All participants were then told that they would see the bonuses paid to the last 10 participants. The bonuses shown were actually from one of the two predetermined distributions, with a distribution maximum of 40¢ or 60¢. Each bonus shown for 3 seconds, and bonuses were displayed in a random order. The distribution mean in both distributions was 20¢ and the distribution minimum was 1¢.

Participants in the performance condition were told that their "performance-weighted" bonus was 32¢, whereas participants in the random condition were told that their "randomly assigned" bonus was 32¢. All participants were then asked "How happy are you with your bonus?" and "How well do you feel you were paid compared to others in this task?" They then estimated the average bonus and recalled the distribution maximum and minimum using sliding scales with endpoints of 0 and $1.00.

Results and Discussion

We analyzed reported happiness in a 2 (Maximum Bonus: 40¢, 60¢) × 2 (Bonus Assignment: performance-based, random) between-subjects ANOVA, which yielded a significant main effect of the maximum bonus, $F(1, 235) = 4.08$, $p = .04$, $\eta_p^2 = .02$ no significant effect of performance condition $F(1, 235) = .81$, $p > .25$, and no significant Maximum Bonus × Bonus Assignment interaction, $F(1, 235) = .67$, $p > .25$. Participants were happier when the maximum bonus was 40¢ ($M = 5.76$, $SD = 1.12$) than when it was 60¢ ($M = 5.49$, $SD = 1.10$, $t(237) = 1.92$, $p = .055$, $d = .25$). Happiness did not differ whether the bonus assignment was performance-based ($M = 5.57$, $SD = 1.20$) or randomly assigned ($M = 5.68$, $SD = 1.00$, $t(237) = .76$, $p > .25$). See Figure 2.

Assessments of relative value of the bonus payment (i.e., how well participants thought they were paid relative to others) exhibited a similar pattern. The analysis yielded a significant main effect of the maximum bonus, $F(1, 235) = 7.28$, $p = .01$, $\eta_p^2 = .03$; participants in the low maximum condition reporting being better paid ($M = 5.48$, $SD = 1.01$) than did participants in the high maximum condition ($M = 5.11$, $SD = 1.05$). There was no main effect of bonus assignment, $F(1, 235) = .42$, $p > .25$, and no significant interaction, $F(1, 235) = 1.19$, $p > .25$.

Whether the bonus was linked to performance or randomly assigned, satisfaction with an above average bonus was influenced to a greater degree by the maximum bonus in a distribution than by the reason for bonus assignments. In other words, participants appeared to be averse to inequality in payments regardless of the process by which those payments were determined. Even in the performance-based distribution, where differences in bonuses were ostensibly related to differences in performance, satisfaction with bonuses received was contingent on their comparison to the distribution maximum. We speculate that no differences were observed between random and performance-based distributions in

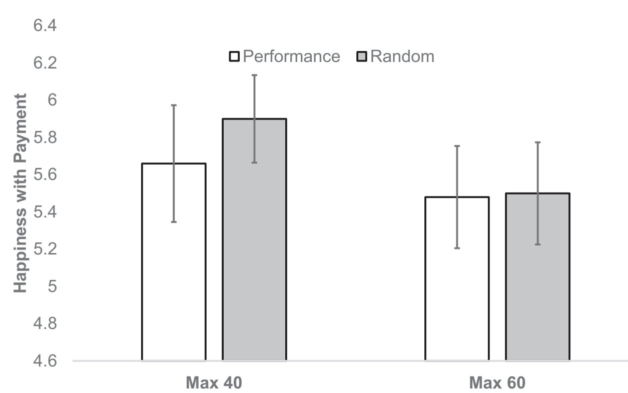

Figure 2. Happiness with bonus pay by the reason for bonus assignments and the distribution maximum in Experiment 2 (bars represent 95% CI).

this context, because the reasons for unequal pay in the latter distribution were inevaluable. There was no salient comparison standard by which to evaluate their performance (Morewedge, Kassam, Hsee, & Caruso, 2009). Participants might assume that others performed better or worse, but had no information on which to determine whether the performance-based distribution was fair or unfairly determined. In the experiments that follow, we eliminate the performance component, and focus on the properties of the payments and distributions themselves to further test our ensemble representation account.

Experiment 3: Distribution Maximums Versus Relative Ranks

Method

Experiment 3 extended our inquiry by orthogonally manipulating the distribution maximum of the bonuses paid to others, and the relative rank of the bonus that participants received. Our ensemble representation theory predicts that distribution maximums should influence satisfaction with the bonus received, but that participants should be insensitive to the relative rank of the bonus that they received. By contrast, a rank-based account would predict that relative rank in the distribution should be the primary determinant of satisfaction with the bonus received (e.g., Stewart et al., 2006).

Participants. We set sample size in advance to 600 participants, which we requested from Amazon Mechanical Turk via TurkPrime; 598 participants (49% women; M_{age} = 35.9, SD = 11.2) completed the experiment for a base payment of 25¢.

Procedure. All participants in Experiment 3 received a real bonus, and were told that it was randomly assigned. Before seeing their own bonus, participants were shown 10 bonuses (ostensibly) paid to a sample of 10 other participants. In a between-subjects design, participants were randomly assigned to one of four bonus distributions, which varied both the distribution maximum (a maximum bonus of either 40¢ or 60¢), and the relative rank in the distribution of the bonus that participants received (4th place or 7th place). In all four distributions, the distribution mean was 26¢ and the distribution minimum was 1¢. After seeing their bonus payment of 29¢, participants reported how happy they were with their payment and then estimated the maximum, minimum, and average bonus payments.

Results and Discussion

We analyzed reported happiness with bonuses in a 2 (Distribution Maximum: 40¢, 60¢) × 2 (Distribution Rank: 4th, 7th) between-subjects ANOVA, which yielded a significant main effect of the distribution maximum, $F(1, 594) = 9.02$, $p = .003$, $\eta_p^2 = .01$, but no significant effect of distribution rank, $F(1, 594) = 0.89$, $p > .25$, or a Distribution Maximum × Distribution Rank interaction, $F(1, 594) = .61$, $p > .25$. As predicted by our ensemble representation theory, participants were sensitive to the distribution maximum, but not to the order of individual exemplars. Participants were happier when the distribution maximum was 40¢ ($M = 5.52$, $SD = 1.07$) than when it was 60¢ ($M = 5.25$, $SD = 1.17$, $t(596) = 2.98$, $p = .003$, $d = .24$), but were not sensitive to whether the bonus that they received was ranked fourth ($M = 5.42$, $SD = 1.14$) or ranked seventh ($M = 5.34$, $SD = 1.12$, $t(596) = .91$, $p > .25$). See Figure 3.

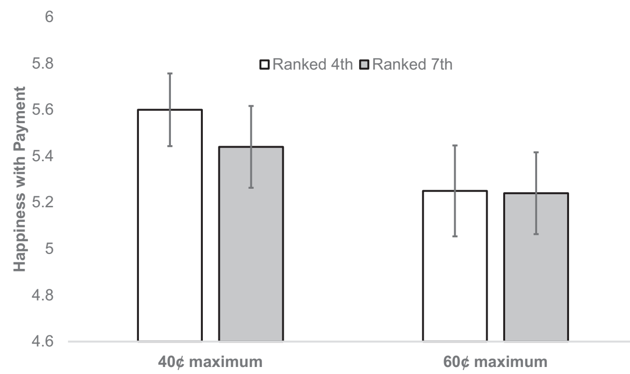

Figure 3. Happiness with bonus paid by rank and distribution maximum in Experiment 3 (bars represent 95% CI).

Experiment 4: Varying Bonuses Paid

In Experiment 4, we further examined the robustness of the influence of ensemble representations on comparative judgments by testing its influence on three different bonuses in one experiment, all above the mean. We also compared the relative effect of these different bonuses paid to participants to differences in the maximum bonus paid to others.

Method

Participants. We set sample size in advance to 1,200 participants, which we requested from Amazon Mechanical Turk; 1,219 participants (49% women; M_{age} = 36.4, SD = 12.1) completed the experiment for a base payment of 40¢.

Procedure. All participants in Experiment 4 received a real bonus, and were told that it was randomly assigned. Before seeing their own bonus, participants were shown 10 bonuses (ostensibly) paid to the last 10 participants. In a between-subjects design, participants were assigned to a bonus distribution with a maximum of either 40¢ or 60¢, and were paid one of three different bonus amounts (i.e., 27¢, 33¢, or 39¢). In both distributions, the mean bonus was 26¢ and the minimum bonus was 1¢. After seeing their bonus payment, participants reported how happy they were with their payment and then completed the same recall questions, as in Experiments 2 and 3.

Results

We examined happiness reports in a 2 (Maximum Bonus: 40¢, 60¢) × 3 (Bonus Paid: 27¢, 33¢, 39¢) ANOVA, which revealed significant main effects of maximum bonus and bonus paid, $F(1, 1213) = 42.57$, $p < .001$, $\eta_p^2 = .03$ and $F(2, 1213) = 44.66$, $p < .001$, $\eta_p^2 = .07$, respectively. There was no significant interaction, $F(2, 1213) = 1.43$, $p = .24$. Participants were happier with their bonus when the maximum bonus was 40¢ ($M = 5.75$, $SD = 1.16$) than when it was 60¢ ($M = 5.32$, $SD = 1.27$, $t(1217) = 6.14$, $p < .001$, $d = .35$). Participants were also happier when paid higher bonuses; they were least happy when paid 27¢ ($M = 5.14$, $SD =$

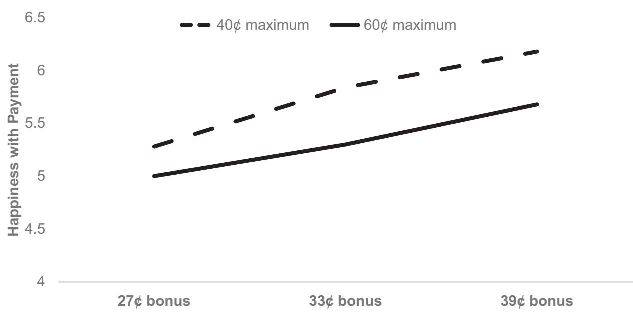

Figure 4. Happiness by bonus pay and the distribution maximum in Experiment 4 (40¢ maximum in dashed line; 60¢ maximum in solid line).

1.35), happier when paid 33¢ (M = 5.59, SD = 1.14), and happiest when paid 39¢ (M = 5.91, SD = 1.07; see Figure 4). Indeed, a linear contrast effect also shows a significant negative effect of the higher maximum bonus at each level of bonus paid ($F(3, 1213) = 15.10$, $p < .001$, all contrasts $\leq -.28$, all 95% CIs $\leq -.51$). (Basic linear regression effects are reported in the Appendix.)

Further decomposition of the effects on happiness suggests that in Experiment 4, relative comparison to the distribution maximum was no less influential than the absolute size of the bonus payment. A Wald test for equality of coefficients showed no difference between the linear effect of the bonus amount (using a continuous measure for the bonus since amounts are equidistant, $B = .39$, $SE = .04$) and the effect of the maximum bonus ($B = .44$, $SE = .07$), $F(1, 1216) = .36$. The similar magnitude of these effects suggests that, under the right conditions, the relative comparison between pay and the distribution maximum can be as influential as the absolute amount of pay received.

Experiments 5: Varying the Mean

Experiment 5 extended testing of our ensemble representation account by examining sensitivity to two statistical properties of distributions, the maximum and the mean. We again paid participants real bonuses and varied distribution maximums in the opposite directions of relative rank, but this time also varied the distribution mean across conditions. We expected both the distribution mean and maximum to modulate satisfaction with a real bonus earned in the experiment.

Method

Participants. We set sample size in advance to 400 participants, which we requested from Amazon Mechanical Turk; 377[2] participants (39% women; $M_{age} = 34.1$, $SD = 11.8$) completed the experiment for a base payment of 50¢.

Procedure. As in Experiments 2 and 4, all participants were told they would receive a randomly assigned bonus payment and were then shown the bonuses paid to the last 10 other participants before being told their own bonus amount. Participants were randomly assigned to one of four different bonus distributions in a between-subjects design, with a distribution mean of either 20¢ or 30¢, and a distribution maximum of either 40¢ or 60¢. The distribution minimum was always 1¢. All participants received a wage bonus of 32¢ (above the mean) and were asked how happy they were with their own bonus payment, how well they felt it compared to others, and then answered the same recall questions asked in previous experiments.

Results and Discussion

Analysis of happiness ratings in a 2 (Distribution Mean: 20¢, 30¢) × 2 (Distribution Maximum: 40¢, 60¢) between-subjects ANOVA revealed significant main effects of mean and maximum bonus, $F(1, 373) = 8.47$, $p = .004$, $\eta_p^2 = .02$ and $F(1, 373) = 6.48$, $p = .011$, $\eta_p^2 = .02$, respectively. There was no significant interaction, $F(1, 373) = 0.90$, $p > .25$. Participants were happier with their bonus when the mean was 20¢ ($M = 5.77$, $SD = 1.05$) than when the mean was 30¢ ($M = 5.44$, $SD = 1.19$, $t(375) = 2.88$, $p < .01$, $d = .30$). Despite the distribution maximum being inversely related to bonus rank, participants were also happier with their bonus when the maximum bonus paid was 40¢ ($M = 5.75$, $SD = 1.09$) than when it was 60¢ ($M = 5.46$, $SD = 1.16$, $t(375) = 2.51$, $p = .01$, $d = .26$). See Figure 5.

The influence of distribution maximums and means, despite their inverse relationship with bonus ranking, provides further evidence that reward distributions are represented as ensembles. Their influence is similar on the reports of comparative satisfaction with rewards. A 2 (Distribution Mean: 20¢, 30¢) × 2 (Distribution Maximum: 40¢, 60¢) between-subjects ANOVA, revealed significant main effects of distribution mean and maximum on comparative satisfaction, $F(1, 373) = 39.52$, $p < .001$, $\eta_p^2 = .10$, and $F(1, 373) = 4.67$, $p = .03$, $\eta_p^2 = .01$, respectively, and no significant interaction, $F(1, 373) = .68$, $p = .41$. Participants felt they were paid better when the mean was 20¢ ($M = 5.26$, $SD = 0.95$) than when the mean was 30¢ ($M = 4.65$, $SD = 0.94$), and participants felt they were paid better when the maximum was 40¢ ($M = 5.05$, $SD = 1.01$) than when it was 60¢ ($M = 4.85$, $SD = .96$).

Experiment 6: Process Test

Experiment 6 tested the attentional underpinnings of our process. In a control condition, participants received a bonus payment and saw a pay distribution as before. In two salience conditions, we manipulated low-level features of one payment in the distribution to make it salient: the distribution maximum or another lower value. Our theory suggests that the distribution maximum should already be endogenously salient in the control condition and used as a comparison standard. Thus, exogenously making it salient should not increase its impact on happiness with the bonus received. By contrast, exogenously making a lower value salient should increase the likelihood that it would be used as a comparison standard, and its lower value should then reduce the impact of the distribution maximum on happiness.

Method

Participants. We set sample size in advance to 600 participants, which we requested from Amazon Mechanical Turk; 600

[2] 400 were recruited, but an incorrectly formatted question meant that the first 26 participants did not see some of the questions. This was corrected, but the total recruited was not adjusted.

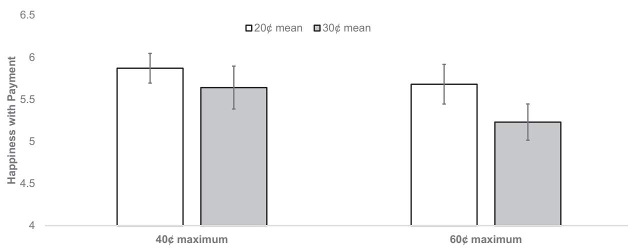

Figure 5. Happiness with bonus pay by distribution mean and distribution maximum in Experiment 5 (bars represent 95% CI).

participants (45% women; M_{age} = 33.8, SD = 10.6) completed the experiment for a base payment of 50¢.

Procedure. As in the previous experiments, participants first saw bonuses paid to the last 10 participants and then saw and responded to the bonus they received. They were randomly assigned to one of six different conditions in a 2 (Distribution Maximum: 35¢, 45¢) × 3 (Salience: control, distribution maximum, 21¢ bonus) between-subjects design. Participants in the control condition first saw the 10 other bonus amounts, in a random order (as in previous experiments). Participants in the distribution maximum salient condition saw nine bonus amounts in a random order, followed by the distribution maximum, which was presented last in a larger, bolded font. Participants in the 21¢ salient condition saw nine bonus amounts in a random order, followed by 21¢, which was presented last in a larger, bolded font (both distributions included 21¢).

The mean bonus for all distributions was 25¢ and the minimum was 5¢. All participants received 32¢ and were asked the same satisfaction, comparison, and recall questions as in previous experiments.

Results

We examined happiness reports in a 2 (Distribution Maximum: 35¢, 45¢) × 3 (Salience: control, distribution maximum, 21¢) between-subjects ANOVA, which revealed a significant main effect of the distribution maximum, $F(1, 594) = 12.62$, $p < .001$, $\eta_p^2 = .02$. There was no main effect of salience condition, $F(2, 594)$, = .68, $p > .25$. Most important, it revealed the predicted Distribution Maximum × Salience interaction, $F(2, 594) = 5.18$, $p = .006$, $\eta_p^2 = .02$.

We used simple effect tests to decompose the interaction, which revealed that it was driven by the condition in which 21¢ was made salient. Whereas the effect of the distribution maximum was significant in both the maximum salient and control conditions, it was not in the 21¢ salient condition. In that condition, participants were similarly happy with their bonus, whether the maximum was 35¢ ($M = 6.01$, $SD = 1.05$) or 45¢ ($M = 6.08$, $SD = .95$; $t(197) = .50$, $p > .25$,). By contrast, when the distribution maximum was made salient, participants were happier when the distribution maximum was 35¢ ($M = 6.16$, $SD = .87$) than when it was 45¢ ($M = 5.77$, $SD = 1.02$, $t(197) = 2.91$, $p = .004$, $d = .41$), as in the control condition, where participants were happier when the maximum was 35¢ ($M = 6.34$, $SD = .75$) than when it was 45¢ ($M = 5.81$, $SD = 1.19$, $t(200) = 3.82$, $p < .001$, $d = .54$). See Figure 6.

Together, the results provide process evidence that ensemble representation influences the selection of comparison standards from a distribution. Making distribution maximums salient did not change their impact on happiness with the bonus payment relative to control conditions. Presumably, distribution maximums were already endogenously salient and used as comparison standards. By contrast, making a smaller payment salient mitigated the importance of the distribution maximums, providing further evidence that ensemble representation determine the standards selected for comparative judgments. Further evidence of the endogenous salience of the statistical properties of the distribution is provided by a lack of an effect of the salience manipulations or bonus manipulations on the accuracy of recall. Supporting our prediction that the maximum, average, and minimum bonus should already be endogenously salient in all conditions (see Table 3), recall of these values was similarly accurate across all three conditions.

Experiment 7: Distribution Relevance

Experiment 7 tested whether top-down factors that bound social comparisons are similarly influential in determining which stimuli are included in the ensemble representation to which rewards are compared. We provided participants with the distribution of bonuses paid for the task they performed, or bonuses paid for both the math task they performed and an additional verbal task that they did not perform. Social comparisons are typically bounded by the relevance of the comparison standards and the target (e.g., Georgellis, Garcia, Gregoriou, & Ozbilgin, 2019; Morse & Gergen, 1970; Tesser & Collins, 1988). Thus, we expected that participants would be sensitive to the distribution of bonuses paid for the math task they performed, but would not pay attention to the distribution of bonuses paid for the unrelated (verbal) task.

Method

Participants. Unlike previous experiments, participants in Experiment 7 were only eligible for the bonus if they had demonstrated sufficient effort and attention to the task by answering at least four out of five question correctly. We recruited 560 participants from Amazon Mechanical Turk, with the goal of having a sample size of at least 100 per cell (300 total); 551 participated for a base payment of 50¢, of which 330 (42% women; M_{age} = 37.4,

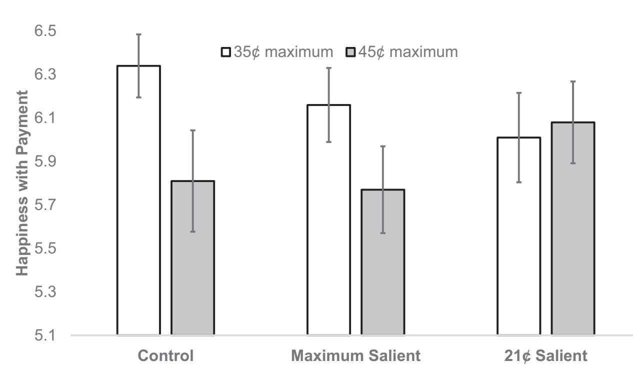

Figure 6. Happiness with bonus paid by salient bonus and distribution maximum in Experiment 6 (bars represent 95% CI).

SD = 11.2) correctly completed the questions to be eligible for a bonus.

Procedure. All participants were recruited for an unnamed task and were told that they would be assigned to one of two different types of tasks: either a math task or a word-search (i.e., verbal) task. They were then told that all participants who answered at least four questions correctly would receive a randomly assigned bonus. All participants were assigned to the math task, where they were shown five multiple-choice questions (M_{correct} = 3.66, *SD* = 1.32). After completing the questions, they were shown how many they had answered correctly.

Participants who had answered at least four problems correctly were then randomly assigned to see one of three different bonus schemes. In two math-only conditions, participants saw a sample of 10 bonuses paid to other participants who completed the math task (displayed simultaneously on one screen), with either a 61¢ or 41¢ distribution maximum. The third condition displayed the 10 bonuses for the math task for the 41¢ distribution maximum distribution, alongside 10 bonuses ostensibly paid to participants who completed the verbal task, with a maximum of 60¢ (also all on one screen). All participants were then told that their own bonus was 29¢ and asked the same satisfaction question as in previous experiments. Participants who saw only the math bonuses were asked recall questions about the math bonuses, while participants who saw both bonus groups were asked to recall information about both math and verbal distributions.

Results

Happiness with bonus was analyzed with a one-factor, three-level, between-subjects ANOVA (math only, 41¢ math distribution maximum; math only, 61¢ math distribution maximum; math and verbal, 41¢ math distribution maximum), which yielded a significant main effect, $F(2, 327) = 11.12$, $p = .01$, $\eta_p^2 = .03$. Simple effects tests revealed that participants were happier in the math only conditions when the distribution maximum was 41¢ ($M = 5.00$, $SD = 1.59$) than when the distribution maximum was 61¢, ($M = 4.52$, $SD = 1.67$, $t(219) = 2.19$, $p = .03$). By contrast, participants who saw the 41¢ math distribution with the 60¢ verbal distribution ($M = 5.11$, $SD = 1.50$, $t(218) = .57$, $p > .25$) were no different from those who saw only the 41¢ math distribution. Overall, this suggests that each distribution was processed as its own ensemble representation, with information from the other (irrelevant) distribution not included in the comparison. See Figure 7.

Further support for the selective incorporation of relevant information comes from an examination of the recall information.

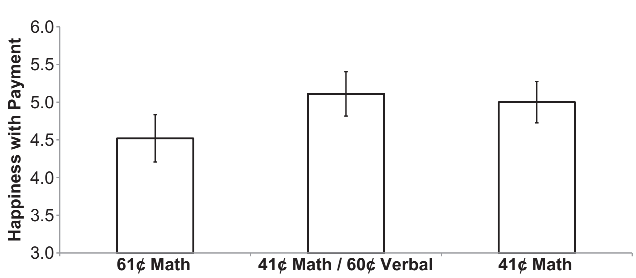

Figure 7. Happiness with bonus pay by distribution maximums in Experiment 7 (bars represent 95% CI).

Participants were generally accurate in recalling the high for the math distribution, estimating an average of $0.45 if they had seen a maximum of 41¢, and $0.57 if they had seen a maximum of 61¢. However, when asked about the verbal distribution, participants were much less accurate, with an average estimate of $0.47 for the maximum ($SD = .18$), despite the actual maximum being $.60 (one-sided $t(108) = 7.45$, $p < .001$). Indeed, the absolute difference between the verbal distribution maximum and their estimates ($M = .16$, $SD = .14$) was significantly larger than the absolute difference between the math distribution maximum and their estimates ($M = .09$, $SD = .09$, $t(108) = 5.17$, $p < .001$). An exploratory analysis among those few who recalled the verbal maximum more accurately (28 participants who estimated $0.55 to $0.65 as the maximum out of 109 who saw the verbal distribution) revealed that they were significantly less satisfied with the bonus that they were paid ($M = 4.43$, $SD = 1.64$) than participants who saw the verbal distribution and did not estimate correctly ($M = 5.36$, $SD = 1.38$, $t(107) = 2.92$, $p = .004$). Together, this suggests that payments in the verbal task were not endogenously salient for most participants, but for the subsample of participants who did attend to payments in the verbal task, its distribution extreme also influenced happiness with their payment.

Together, the results suggest that top-down factors can determine which stimuli are included in the ensemble to which pay is compared. Most participants selectively compared their pay to the payment distribution for the relevant math task, and better recalled the statistical properties of the payment distribution for the math task than of the payment distribution for the verbal task. These findings show that stimulus relevance moderates which distributions influence comparative judgments in social contexts, and provide important additional evidence of selective attention in the construction of ensemble representations (Brady & Alvarez, 2011).

General Discussion

Ensemble representations predict which social comparison standards are selected in groups, and, in turn, how people evaluate their position in unequal pay distributions. The results provide insights for literatures on social comparisons and positional goods. They illustrate which properties and members of a group are influential comparison standards, and explain why. Ensemble representation makes means and distribution extremes influential properties of relevant and salient social groups, particularly the most proximal extreme. While the well-off may be less concerned about falling to the lowest rung of the income ladder than the less fortunate (Kuziemko, Buell, Reich, & Norton, 2014), for instance, the highest rung is salient and influential in determining satisfaction with their pay.

Ensemble representation may help to explain why maximums are such salient and memorable comparison standards—the wealthiest, the luckiest, the most successful, the most traveled (Davidai & Deri, 2019; Morewedge & Todorov, 2012; Perez-Truglia, 2020), and can be so deleterious for satisfaction and performance (Medvec, Madey, & Gilovich, 1995; Morewedge et al., 2019; Rogers & Feller, 2016), even when position in a distribution is inferred from minimal signals (Kraus, Park, & Tan, 2017). While motivation may direct attention to downward comparisons to enhance satisfaction with rewards (Taylor & Lobel, 1989; Wills, 1981), or toward upward comparison standards to motivate progress (Huguet, Galvaing, Monteil, & Dumas, 1999; Seta, 1982), extreme exemplars appear to be salient due to the statistical properties of the group that they represent. Beyond the influence of extremes on comparative evaluations of rewards, exploratory analyses reveal that distribution extremes also bias perceptions of the affluence of a group. Across all of our experiments, estimates of the mean were consistently, and in some cases significantly, higher when the distribution maximum was higher (see Table 3), consistent with a constructive representation of the ensemble (Brady & Alvarez, 2011).

The results of Experiments 6 and 7 suggest bottom-up and top-down ways to moderate the influence of these statistical properties of groups on comparative judgment. Increasing the salience of an alternative comparison standard within the relevant distribution, by increasing its size, contrast, and recency, reduced the impact of the distribution maximum on satisfaction in Experiment 6. Manipulating the perceived relevance of comparison standards moderated their influence on satisfaction with a reward in Experiment 7. Participants were insensitive to the distribution of bonuses paid to other participants for completion of a different verbal task than the math task that they performed, which was otherwise similar in font and size and formatting (Experiment 7). Together, these results points toward the involvement of selective attention at multiple levels in the construction of ensemble representations, and its influence on comparative judgment to groups.

Social comparison research tends to examine the influence of a single or given comparison standard on self and social judgment (Putnam-Farr & Morewedge, 2019; Smith & Zarate, 1992; Wheeler & Miyake, 1992; Wills, 1981). Our findings contribute to this literature by identifying comparison standards that are likely to be spontaneously selected from a group, and that ensemble representation is what makes these distribution extremes and means potent comparison standards. While we could not simultaneously control for every statistical feature of distributions or completely control for inequality, across the entire set of experiments we demonstrate a consistent attention to salient extremes as an important feature of comparative distributions. The groups we created were anonymous and arbitrary, but ensemble representations, and thus extremes and means, may be even more potent when groups are cohesive and entitative or considered more abstractly and distantly (Maglio, Trope, & Liberman, 2013; Morewedge, Chandler, Smith, Schwarz, & Schooler, 2013), as people often think of their countrymen, colleagues, and neighbors.

Context of the Research

This work originated from discussions about which information about groups is noticed and processed in the context of social comparison. The authors noted, anecdotally, that people tend to use extreme members of a group (e.g., a CEO or the lowest paid workers) as comparison standards rather than more proximal group members, much as people tend to recall extreme events from categories of past experiences, whether making affective forecasts (Morewedge, Gilbert, & Wilson, 2005), temporal comparisons (Morewedge, 2013), or behavioral predictions (Morewedge & Todorov, 2012). We then examined the role of ensemble representation on social comparison with monetary payments due to the precision with which they can be quantified. We expect similar effects of ensemble representations on social comparisons involving other attributes of groups that can be easily reduced to statistical properties including warmth, competence, performance, status, wealth, health, and beauty. Future work might examine the effects of these comparisons on downstream behavior, such as whether comparison to a distribution maximum is demotivating or if its effect is modulated by proximity to that extreme. Other contributions could include further exploring the processes involved in selecting which exemplars are included in a comparison set.

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(*Appendix follows*)

Appendix

Regression Coefficients for All Dependent Variables

Regression coefficients	Secondary DVs	Primary DV	
	Pay compared	Happy pay	Standardized beta
Study 1a			
Constant		5.87	
High max		$-.42^{***}$ [$-.72$, $-.11$]	-0.18
Study 1b			
Constant		2.98	
High max		-0.27 [$-.59$, .05]	-0.08
Low min		$.44^{**}$ [.12, .77]	0.13
Study 2			
Constant	5.54	5.83	
High max	-0.38^{**} [$-.64$, $-.11$]	-0.28^{*} [$-.56$, .00]	-0.13
Performance	-0.10 [$-.36$, .17]	-0.12 [$-.41$, .16]	-0.06
Study 3			
Constant		5.51	
High max		-0.23^{*} [$-.47$, .00]	-0.09
High rank		0.12 [$-.12$, .35]	0.05
Study 4			
Constant		5.36	
High max		-0.44^{***} [$-.57$, $-.31$]	-0.18
Bonus level 2		0.44^{***} [.28, .59]	0.17
Bonus level 3		0.78^{***} [.62, .95]	0.29

Regression coefficients	Secondary DVs		Primary DV	
	Disappointed pay	Pay compared	Happy pay	Standardized beta
Study 5				
Constant	1.73	5.37	5.92	
High max	0.18 [$-.07$, .43]	-0.21^{*} [$-.41$, $-.02$]	-0.29^{*} [$-.52$, $-.07$]	-0.13
High mean	$.41^{***}$ [.16, .66]	-0.61^{***} [$-.80$, $-.42$]	-0.34^{**} [$-.56$, $-.11$]	-0.15
Study 6	—		—	—
Constant		5.67	6.22	
High max		$-.27^{***}$ [$-.42$, $-.12$]	$-.29^{***}$ [$-.44$, $-.13$]	-0.14
Maximum salient		0.02 [$-.16$, .20]	-0.11 [$-.30$, .08]	-0.05
Other salient		-0.08 [$-.26$, .11]	-0.03 [$-.23$, .16]	-0.02
	—	—	—	—
Study 7	—		—	—
Constant			5.00	
High max			-0.48^{*} [$-.90$, $-.06$]	-0.14
High other			0.12 [$-.30$, .54]	0.03
If high other accurate (does not change high max)			-0.57 [-1.25, .11]	-0.11

Note. DV = dependent variable.
$^{*}p \le .05$. $^{**}p \le .01$. $^{***}p \le .001$.

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