Affective Boundaries of Scope Insensitivity

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People can be surprisingly insensitive to quantities in valuation judgments—a phenomenon called scope insensitivity, which is generally attributed to the operation of affective processes in judgment. Building on research showing that affect is inherently a decision-making system of the present, we propose that scope insensitivity is more likely to be observed in decisions that are psychologically proximate to the immediate self. Consistent with this proposition, results from seven experiments (and two replications) show that scope insensitivity is more prevalent in decisions that are temporally proximate, both prospectively (near future vs. distant future) and retrospectively (recent past vs. distant past), and in decisions that are psychologically proximate in terms of social or physical distance. In addition to clarifying the boundaries of the scope-insensitivity phenomenon, these findings help refine our understanding of the affective system of judgment. Specifically, the findings suggest that the affective system of judgment and decision making is not just a system of the present, it is more generally a system of the immediate self. Any form of distance from the immediate self (in time, social relation, or physical space) tends to attenuate the engagement of the overall affective system.

Keywords: affect, scope insensitivity, judgment, self, psychological proximity

While consumer decision making has historically been studied from a cognitive perspective (Bettman, Luce, and Payne 1998), there is mounting evidence that consumers often rely on their emotional feelings to make judgments and decisions (Adaval 2001; Darke, Chattopadhyay, and Ashworth 2006; Pham 1998, 2004; Ratner and Herbst 2005; Schwarz and Clore 2007). This reliance on feelings in judgments and decisions seems to tap into a separate system of judgment with its own characteristics (Epstein and Pacini 1999; Strack and Deutsch 2004). It has been theorized that a major characteristic of the affective system of judgment is an inherent anchoring on the present: the overall affective system of judgment becomes more engaged whenever decisions involve targets or outcomes that are temporally close (Chang and Pham 2013). In support of this theoretical proposition, Chang and Pham (2013) review various bodies of findings consistent with the notion that the affective system is present-oriented and report empirical evidence that, everything else being equal, momentary feelings are relied upon more (weighted more heavily) in decisions wherein targets or outcomes are temporally closer.

In this research, we propose that the present orientation of the affective system reflects a broader principle: an anchoring of this system on the immediate self in the "here and now." Any form of proximity to the immediate self encourages reliance on the affective system, and any major source of psychological distance—whether temporal

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distance, social distance, or physical distance—tends to reduce the engagement of the affective system. A major theoretical implication of this general principle is that judgment biases that are typically attributed to affect should be more pronounced in decisions that are psychologically proximate to the immediate self than in decisions that are psychologically more distant. This research tests this prediction in the context of a well-known bias generally attributed to affect: the scope-insensitivity phenomenon (Desvousges et al. 1993; Hsee and Rottenstreich 2004; Kahneman and Knetsch 1992). Scope insensitivity is the phenomenon whereby valuation judgments exhibit strong insensitivity to the magnitude or scope of the object(s) being valuated. For example, a consumer might not be willing to pay more for a set of 10 second-hand Madonna CDs than for a set of five (Hsee and Rottenstreich 2004). According to a popular explanation, this phenomenon arises because certain valuation judgments trigger a reliance on affect, which in turn prompts an insensitivity to quantitative information (Hsee and Rottenstreich 2004; Kahneman, Ritov, and Schkade 1999). However, although the phenomenon has been observed in a large number of studies in the domain of contingent valuations, the evidence has been inconsistent, leaving some to question the empirical reality of the phenomenon (Carson 1997). By investigating this phenomenon through the lens of an anchoring of the affective system to the immediate self, the present research provides a parsimonious account of the likely boundaries of scope insensitivity. Specifically, we argue that scope insensitivity is more likely to be observed in decisions that are psychologically proximate to the self, whereas sensitivity to scope is more likely found in decisions that are psychologically more distant, whether in time, space, or social relation.

Consistent with this proposition, we report seven studies (six experiments and one field study, plus two replications), involving more than 2,120 participants, showing that the scope-insensitivity phenomenon is more likely to be observed in judgments and decisions that are psychologically proximate to the immediate self. This result was observed across temporal, social, and spatial dimensions of proximity, including (a) when the decision involves a near future versus a more distant future; (b) when the judgment evokes a recent past versus a more distant past; (c) when the decision involves a close friend versus a more distant acquaintance; and (d) when the decision involves someone who lives nearby versus someone who lives farther away. Additional results indicate that various dimensions of psychological proximity (temporal, social, and physical) moderate the scope-insensitivity phenomenon only when the decision task is conducive to a reliance on affect, such as when the decision object is affect-rich or when the decision maker has experiential motives. When the decision is not conducive to a reliance on affect—such as when the decision object is affect-poor or when the decision maker has instrumental motives—scope insensitivity tends to dissipate, regardless of psychological proximity.

The findings therefore clarify the boundaries of the scope-insensitivity phenomenon. Equally important (if not more), the findings help refine our understanding of the overall affective system of judgment. First, our findings suggest that the differential engagement of the affective system across time perspectives is not limited just to the intensity with which affect is experienced (Loewenstein 1996; Metcalfe and Mischel 1999), nor to the degree to which people rely on their affective experience in judgment (Chang and Pham 2013), but likely extends to the various judgment biases that affect is known to produce. Second, whereas Chang and Pham (2013) hypothesized that affect is inherently a decision-making system of the present, our findings suggest that it is more precisely a decision-making system of the immediate self. Any form of distance from the immediate self (in time, social relation, or physical space) tends to attenuate the engagement of the affective system. Third, our findings identify an important and previously unrecognized boundary condition of the scope-insensitivity phenomenon, helping explain why it is sometimes observed and sometimes not observed in previous studies. Fourth, our findings generalize scope for contingent value of environmental amenities (which typically do not have clear market prices) to consumer-based products or services. Finally, our findings suggest a straightforward method to attenuate the problem of scope insensitivity in policy-oriented contingent-valuation surveys—a method that is easier to implement than common remedies proposed to date.

SCOPE INSENSITIVITY, AFFECT, AND PSYCHOLOGICAL PROXIMITY

Scope Insensitivity in Valuation

How much would a passenger be willing to pay for helping offset the 2.85 tons of carbon emissions generated by her flight from Singapore to Los Angeles? How much would a consumer be willing to pay for a day pass at an amusement park with 12 major attractions? How much would one be willing to donate to a program that improves the lives of 10,000 children every year? Each of these decisions involves a subjective valuation judgment that should logically reflect the magnitude or scope of the target object. Everything else being equal, one should be willing to pay more to offset a larger carbon footprint than to offset a smaller carbon footprint, for a day pass to an amusement park with more attractions than for a day pass to a park with fewer attractions, and for a charitable cause that improves more lives than for one that improves fewer lives. Yet when making such valuation judgments, people can sometimes be surprisingly insensitive to the magnitude or scope of the target object (Kahneman 1986; Kahneman and

Knetsch 1992), a finding that came to be known as scope insensitivity. For example, in a well-known study conducted in 1991 (Desvousges et al. 1993), different groups of participants were asked how much they would be willing to pay (WTP) to save 2,000, 20,000, or 200,000 migrating birds from drowning in uncovered oil ponds caused by an environmental crisis in 1989. Despite the vastly different numbers of birds involved, participants' WTP was found to be quite comparable across groups, suggesting that the number of birds at risk was not adequately taken into account in these valuation judgments.

This phenomenon has been replicated in a large number of studies (see Carson 1997; Frederick and Fischhoff 1998 for reviews). Although most replications have been in the domain of contingent valuations—that is, the valuation of goods that do not have clear market prices (e.g., willingness to donate to charitable causes, damage awards in jury trials, willingness to accept environmental risks, compensations for workplace hazards)—similar results have been observed in judgments that are more typical of consumption decisions, such as willingness to pay for a collection of music CDs (Hsee and Rottenstreich 2004) and choice of lottery tickets (Urminsky and Kivetz 2011). However, along with many demonstrations of the phenomenon, there have also been many failures to replicate it. For example, a classic demonstration of scope insensitivity is the Desvousges et al. (1993) "migrating birds" study mentioned earlier. On the other hand, a well-known study showing ample sensitivity to scope is the so-called "Long Beach Harbor study." In this study, respondents were asked their willingness to pay for a program that would accelerate the recovery of fish species by either 45 years (from 50 years to 5 years) or 10 years (from 15 years to 5 years). Results indicated that respondents were willing to donate more to the former program than the latter program. Such mixed empirical demonstration of scope (in)sensitivity has led some to question the authenticity of the phenomenon (Carson 1997).

Table 1 summarizes a selection of previous studies that have yielded mixed findings with respect to scope insensitivity.[1] As we will explain, the reason why scope insensitivity was observed in some of these studies and not in others becomes clear once one recognizes (a) the role of affect in the basic phenomenon and (b) the architecture of the affective system of judgment.

An Affect-Based Explanation of Scope Insensitivity

A prominent explanation for the scope-insensitivity phenomenon is that valuation judgments are often based on the person's affective responses to a prototypical mental representation of the target (Kahneman et al. 1999), a proposition consistent with the broader notion of a pervasive affect heuristic of evaluation (Pham 2004; Schwarz and Clore 2007; Slovic et al. 2002). According to Kahneman and colleagues (1999), when asked to perform various valuation judgments, people may construct a mental image of prototypical exemplars of the objects to be valuated. For example, in Desvouges and colleagues' (1993) migrating birds study, participants may have mentally pictured "an exhausted bird, its feathers soaked in black oil, unable to escape" (Kahneman et al. 1999, 212). Because they involve prototypical exemplars, these mental representations tend to exclude quantitative information. As a result, valuation judgments based on affect tend to be more scope-insensitive.

In a series of studies, Hsee and Rottenstreich (2004) provide evidence that the scope-insensitivity phenomenon may indeed be due to a reliance on affect. In one study, participants were asked how much money they would be willing to donate to rescue either one or four pandas that were recently discovered in a remote area. The researchers manipulated participants' likelihood of reliance on affect by representing the pandas in either an affect-rich fashion, showing a cute picture of each panda, or an affect-poor manner, representing each panda by a simple dot. When the pandas were represented in an affect-rich manner, participants were willing to donate a comparable amount of money to save one panda or to save four pandas, indicating scope insensitivity. However, when the pandas were represented in an affect-poor manner, participants were willing to donate significantly more to save four pandas than to save one panda, indicating appropriate sensitivity to scope.

Affect as a Decision-Making System of the Present

Several prominent affect and emotion theorists conceptualize affect as reflecting the operation of a separate system of judgment (Cacioppo, Gardner, and Berntson 1999; Damasio 1994; Plutchik 1980; Zajonc 1980). This system is generally believed to be more basic and primary, and evolutionarily older, than the system that supports the more cognitive or computational form of judgment (Epstein 1990; Plutchik 1980; Zajonc 1980). Compared to cognitive evaluations, affective evaluations have genuinely distinct characteristics (see Pham 2007 for a review). Chang and Pham (2013) advanced the general thesis that the affective system of judgment is inherently anchored in the present. They reviewed a broad range of findings from various literatures showing that (a) affect is experienced more intensely in relation to outcomes that are close to the present; (b) certain emotional areas of the brain are engaged only in decisions involving immediate outcomes; and (c) affect tends to promote impatience. According to

1 These studies were selected because their designs and method descriptions provided sufficient information for interpretation along our theoretical propositions.

TABLE 1

SELECT FINDINGS ON SCOPE-(IN)SENSITIVITY

References	Study	DV	Object of manipulation of scope	Findings	Self-proximity	Explanation of self-proximity estimate	Consistent with our proposed hypothesis
Ahlheim et al. (2014)	Main study	WTP for protection policy	Comparison between general rainforest versus Eaglewood plant in Yunnan, China.	Insensitivity	Low	Large physical distance between participants and the evaluative target	N
Arrow et al. (1993)	Long Beach Harbor Study	WTP for recovering fish species	Comparison between two scenarios of fish species recovery: The "small injury" scenario promised to accelerate the recovery of two fish species (kelp bass and white croaker) by 10 years (from 15 years to five years). The "large injury" scenario promised to accelerate the recovery of these two fish species and two bird species (bald eagles and peregrine falcons) by 45 years (from 50 years to five years).	Sensitivity	Low	Recovery programs with outcomes in the distant future	Y
Banzhaf et al. (2006)	Main study	WTP for environmental improvements	Comparison between two programs to protect the ecosystem in the Adirondack Park in the state of New York: 600 lakes versus 900 lakes.	Insensitivity	High	Small physical distance between participants and the evaluative target	Y
Banzhaf et al. (2016)	Main study	WTP for Southern Appalachian Mountains ecosystem services	Comparison between a set of improvements to streams, forests, and bird populations that could be achieved by 2020, given the proposed program of ecosystem services implemented in 2010.	Sensitivity	Low	Recovery programs with outcomes in the distant future	Y
Berrens, Ganderton, and Silva (1996)	Main study	WTP for protection program	Protection of minimum instream flows in New Mexico: one versus 11 threatened species.	Sensitivity	High	New Mexico residents surveyed about New Mexico streams	N
Bowker and Didychuk (1994)	Main study	WTP for farmland preservation in Canada	Comparison among farmland of four different sizes: 23,750 acres, 47,500 acres, 71,250 acres, and 95,000 acres.	Sensitivity	High	Small physical distance between participants and the evaluative target	N
Boxall et al. (2012)	Main study	WTP for marine mammal species in St. Lawrence Estuary	Comparison among several programs of marine mammal recovery.	Sensitivity	Low	Programs with outcomes framed in the distant future	Y
Boyle et al. (1994)	Main study	WTP for differing scales of environmental improvements	Variation in the number of migratory waterfowl saved from oiled ponds.	Insensitivity	Low	Large physical distance between participants and the evaluative target	N

TABLE 1 (*CONTINUED*)

References	Study	DV	Object of manipulation of scope	Findings	Self-proximity	Explanation of self-proximity estimate	Consistent with our proposed hypothesis
Carson and Mitchell (1995)	Survey with general sample in Australia	WTP to prevent mining operations in zone around Kakadu park	The degree of risk to off-site environmental damage between a major mining impact scenario and a minor mining scenario in Australia's Kakadu Conservation Zone.	Sensitivity	Low	Large physical distance between participants and the evaluative target	Y
Carson, Hanemann, et al. (1994)	Main study	WTP to save select animal species	Comparison between two programs: (1) saving two fish species over a period of 15 years of natural recovery and (2) saving two bird and two fish species for 50 years of natural recovery.	Sensitivity	Low	Recovery programs with outcomes in the distant future	Y
Carson, Mitchell, and Ruud (1990)	Main study	WTP for air-quality improvements	Comparison of two air-quality improvement scenarios in hypothetical future: (1) health and visibility improvements versus (2) visibility improvement only.	Sensitivity	Low	Changes in air quality and visibility from the present to a hypothetical future	Y
Carson, Wilks, and Imber (1994)	Survey with general sample in Australia	WTP to replace lost government revenue and park management costs in Kakadu Conservation Zone	Comparison of two different environmental-impact scenarios: (1) large impact versus (2) small impact (possible off-site environmental damage) for Australia's Kakadu Conservation Zone, which is located in Northern Territories of Australia.	Sensitivity	Low	Large physical distance between participants and the evaluative target	Y
Carson, Wilks, and Imber (1994)	Survey with Northern Territories sample in Australia	WTP to replace lost government revenue and park management costs in Kakadu Conservation Zone	Comparison of two different environmental-impact scenarios: (1) large impact versus (2) small impact (possible off-site environmental damage) for Australia's Kakadu Conservation Zone, which is located in Northern Territories of Australia.	Insensitivity	High	Small physical distance between participants and the evaluative target	Y
Chapman et al. (2009)	Main study	WTP for a program to put alum on the water to reduce the algae	Programs with different impact of the state's current actions and the alum program.	Insensitivity	Low	Program refers to distant-past situations (1960) and distant-future outcomes (in 20 years)	N
Desvousges et al. (1993)	Main study	WTP to protect migratory waterfowl	Save 2,000, 20,000, or 200,000 migrating waterfowl from drowning in uncovered oil ponds caused by an environmental crisis in 1989.	Insensitivity	High	Event occurring in the recent past	Y

TABLE 1 (*CONTINUED*)

References	Study	DV	Object of manipulation of scope	Findings	Self-proximity	Explanation of self-proximity estimate	Consistent with our proposed hypothesis
Desvousges, Mathews, and Train (2015)	Main study	WTP for accelerating the restoration of lake and/or river	Alum treatments to prevent algae growth in Oklahoma for the lake and the river versus smaller increment of the river or lake.	Insensitivity (mixed)	Low	Treatment with outcomes realized in the distant future	N
Diamond et al. (1993)	Main study	WTP estimates to avoid a 1% commercial timber harvest per year	Prevention of timber harvest every year in three alternative nested conditions: (1) the Selway Bitterroot Wilderness only, (2) the Selway Bitterroot and two other wilderness areas, and (3) all 57 wilderness areas.	Insensitivity	High	Physical proximity of participants and the evaluative target	Y
Diamond et al. (1993)	Main study	WTP estimates to avoid a 1% commercial timber harvest per year	Programs involving different wilderness areas: Selway Bitterroot (1.3 million acres), Bob Marshall (1.0 million acres), and Washakie (.7 million acres).	Insensitivity	High	Physical proximity of participants and the evaluative target	Y
Fischhoff et al. (1993)	Main study	WTP for river cleanup in Pittsburgh area	Comparison of two river clean-up programs: 30-mile versus 1,000-mile cleanups.	Insensitivity	High	Small physical distance between participants and the evaluative target	Y
Gerrans (1994)	Main study	WTP to preserve wetlands	Preservation of the Jandakot wetlands or the wetlands in general in Perth.	Insensitivity	High	Small physical distance between participants and the evaluative target	Y
Giraud, Loomis, and Johnson (1999)	Main study	WTP for endangered species	Comparison between saving Mexican spotted owl versus 62 regional threatened and endangered species.	Sensitivity	Low	Large physical distance between participants and the evaluative target	Y
Hoevenagel (1996)	Main study	WTP for environmental goods	Comparison among select packages of environmental goods: (1) six environmental goods, (2) greenhouse effect + acid rain, (3) greenhouse effect, (4) acid rain.	Sensitivity	Low	Recovery programs with outcomes achieved in the distant future	Y
Huang, Haab, and Whitehead (1997)	Main study	WTP for improvement of recreation areas back to 1981 levels	Quality improvement of Pamlico Sound versus Pamlico and Albemarle Sounds.	Sensitivity	Low	Program references distant-past situations	Y
Kahneman (1986)	Main study	WTP $50 to maintain fish populations in select provinces	Fish populations in either (1) a small area (Muskoka) of the province of Ontario, (2) a larger area of the province of Ontario that included the area asked of the first group, or (3) the entire province of Ontario.	Insensitivity	High	Small physical distance between participants and the evaluative target	Y

TABLE 1 (*CONTINUED*)

References	Study	DV	Object of manipulation of scope	Findings	Self-proximity	Explanation of self-proximity estimate	Consistent with our proposed hypothesis
Kahneman and Knetsch (1992)	Main study	WTP for environmental preparedness	Three environmental-preparedness programs: (1) environmental services (most inclusive), (2) improve disaster preparedness, and (3) improve rescue equipment, personnel (least inclusive).	Insensitivity	High	Small physical and temporal distance between participants and the evaluative target	Y
Loomis and Ekstrand (1997)	Main study	WTP for endangered species	Comparison between saving Mexican spotted owl versus 62 regional threatened and endangered species.	Sensitivity	Low	Large physical distance between participants and the evaluative target	Y
McDaniels et al. (2003)	Main study	WTP each year, for the next 20 years, in the form of an annual increase in household electric bill to achieve stated benefits	Benefits of fisheries enhancement on rivers in British Columbia: one river versus 10 rivers.	Sensitivity	Low	Event occurring into the distant future	Y
Metcalfe (2012)	Main study	WTP for improvements in eight years versus 20 years from the survey date	Improvement of water quality in local area versus national area (England and Wales).	Sensitivity	Low	Improvement programs with outcome achieved in the distant future	Y
Pattison, Boxall, and Adamowicz (2011)	Main study	WTP for improvements in wetland area	Retention or restoration to level of wetland program improvement (relative to 1968 level) in Manitoba.	Sensitivity	Low	Program references distant-past situations	Y
Rathnayake (2016)	Main study	WTP for ecotourism scheme	Comparison between ecotourism schemes in Kawdulla National Park, Sri Lanka.	Sensitivity	High	Physical proximity between visitors and evaluative target	N
Ressurreição et al. (2011)	Main study	WTP to avoid loss of marine species	Marine taxa programs to avoid 25% or 10% loss of marine species.	Insensitivity	High	Physical proximity between participants (visitors and residents) and evaluative target	Y
Rowe, Shaw, and Schulze (1992)	Main study	WTP to prevent oil spills	Oil spill clean-up and prevention programs to prevent spills of various severity.	Sensitivity	Low	Physical distance between participants and evaluative targets	Y
Schkade and Payne (1994) as reanalyzed (see Carson 1997)	Main study	WTP to protect migratory waterfowl	Save different number of migrating waterfowl from drowning in uncovered oil ponds.	Sensitivity	Low	Large physical distance made salient between participants and the evaluative target	Y

TABLE 1 (*CONTINUED*)

References	Study	DV	Object of manipulation of scope	Findings	Self-proximity	Explanation of self-proximity estimate	Consistent with our proposed hypothesis
Stevens, DeCoteau, and Willis (1997)	Main study	WTP for restoration of Atlantic salmon	Comparison between two restoration programs: (1) a more inclusive program that would restore salmon throughout an entire river system, and (2) a less inclusive program that would restore salmon to the lower portion of the river only.	Sensitivity	Low	Temporal payment schedule for program over a five-year period	Y
Stevens, DeCoteau, and Willis (1997)	Main study	WTP for movie passes	Movie passes that can be used in just one theater versus in five theaters.	Sensitivity	Low	Payment schedule for movies over a two-month period	Y
Tolley et al. (1986)	Main study	WTP for improved atmospheric visibility	10 or 180 days of improved atmospheric visibility.	Insensitivity	High	Improvement with outcome achieved in the near future	Y
Vo and Huynh (2017)	Main study	WTP for groundwater protection	Comparison between methods of environmental service in removing toxics in groundwater.	Insensitivity	High	Small physical distance between participants and the evaluative target	Y
Whitehead and Finney (2003)	Main study	WTP for shipwreck park	Preservation and protection of 50 versus 100 shipwrecks.	Insensitivity	High	Small physical distance between participants and the evaluative target	Y
Whitehead, Groothuis, and Southwick (2007)	Main study	WTP for coastal marshes	Purchasing and managing additional acres of coastal marshes (of various sizes) in Saginaw Bay.	Insensitivity	High	Decision to be made in the near future	Y
Whitehead et al. (2009)	Main study	WTP for coastal marshes	Managing additional acres of coastal marshes of various scales in Saginaw Bay.	Insensitivity	High	Decision to be made in the near future	Y

Chang and Pham (2013), these various findings reflect a fundamental characteristic of the architecture of the affective system of judgment: the entire system is more engaged whenever decisions involve targets or outcomes that are close to the present. As additional support for this general thesis, these authors report a series of studies showing that affective feelings are relied upon more and perceived to be more informative in judgments and decisions wherein targets or outcomes are temporally proximate than in judgments and decisions wherein targets or outcomes are temporally more distant.

Is Scope Insensitivity Specific to the Here and Now?

We propose that the present orientation of the affective system reflects a broader theoretical principle: an anchoring of this system on the immediate self in the here and now. Various prominent theorists and extant empirical findings point to an intimate link between affect and the immediate self. For example, Damasio (1994, 1999) proposes that feelings and emotions play a critical role in decision making, especially those that relate directly to the self and immediate environment (see also de Sousa 1991). The feelings experienced in the present are often used as self-referential interpretations about the outside world (Solomon 1993). Accordingly, affective judgments tend to describe "not so much what is in the object. . .but something that is in ourselves" (Zajonc 1980, 157). Empirical studies have found that momentary feelings are relied on more in judgments and decisions related to the self than in those related to objects or others (Forgas 1991; Gorn, Pham, and Sin 2001; Raghunathan and Pham 1999). In addition, drawing one's attention to the self leads to intensified affective reactions (Mor and Winquist 2002; Scheier 1976). While these studies show that a focus on the self enhances the influence of affect, other studies show that, conversely, the experience of affect directs attention to the self (Salovey 1992; Silvia et al. 2006). Taken together, these theoretical conceptualizations and empirical studies support the notion of a powerful, bidirectional link between affect and the immediate self.

We therefore propose that the affective system of judgment inherently anchors on the immediate self. Because people can directly experience only the here and now, the immediate self serves as an egocentric reference point. Different forms of departure from this egocentric reference point—that is, different forms of psychological distance, whether in time, space, or social relation (Trope and Liberman 2010)—should mitigate the overall engagement of the affective system in judgment.

A major theoretical implication of this general principle is that judgment biases that are typically attributed to affect should be more pronounced in decisions that are psychologically proximate to the immediate self than in decisions that are psychologically more distant. If the scope-insensitivity phenomenon is indeed driven by a reliance on affect in valuation, then the phenomenon should be more likely in valuations of targets that are psychologically proximate than in valuations of targets that are psychologically more distant. Returning to the various studies listed in table 1, which have yielded mixed demonstrations of scope insensitivity, we conjecture that the findings that support scope insensitivity were mostly obtained under conditions that favor a reliance on affect due to a high proximity to the immediate self. For example, Desvousges et al.'s (1993) migrating birds study mentioned earlier involved a short time horizon. In another study (Kahneman and Knetsch 1992), participants were asked their WTP for three environmental-preparedness programs that varied in coverage. Participants' WTP was again largely insensitive to the scope of these programs, which were both physically and temporally proximate. In contrast, findings that failed to support scope insensitivity (indicated sensitivity to scope) were mostly obtained largely under conditions that discouraged a reliance on affect due to a greater distance from the immediate self. For example, the Long Beach Harbor study discussed earlier involved a much longer time horizon. Similarly, in a well-known study, Carson and colleagues (1994) found substantial sensitivity to scope in participants' WTP for natural-resource programs with outcomes expected to materialize in the distant future. Table 1 provides suggested coding of these previous studies in terms of self-proximity. Although these codings should be interpreted with caution given that they were performed retroactively with knowledge of the studies' results, it is noteworthy that proximity to the self is a strong predictor—or rather "postdictor"—of whether or not scope insensitivity was observed. As indicated in the last column of the table, of the 40 tests provided by these studies, 33 (82.5%) yielded results that are consistent with our proposed hypothesis, suggesting a strong association between proximity and scope insensitivity ($\phi = .65$).

The purpose of the present research is therefore to provide stronger and more direct evidence that because the reliance on affect is contingent on a proximity to the immediate self, the scope-insensitivity phenomenon is equally dependent on such a proximity. Through this demonstration we intend to make five contributions. First, the findings would clarify the boundaries of the scope-insensitivity phenomenon, thereby explaining inconsistent observations of scope insensitivity in some of the previous studies. Second, the findings would refine our understanding of the overall affective system of judgment by showing that the differential engagement of the affective system likely extends to the various judgment biases that affect is known to produce. Third, the findings would suggest that affect is not only a decision-making system of the present but also more generally a decision-making system of the immediate self. Any form of proximity to the immediate

self, not just temporal, would promote engagement of the affective system. Fourth, the findings would generalize the scope-insensitivity phenomenon, which is typically observed in contingent valuation of environmental amenities, to valuation of consumer-based products or services. Finally, the findings would identify a more direct and cost-effective method to mitigate the problem of scope insensitivity in designing contingent-valuation surveys, compared to common remedies used in practice.

We tested our predictions in seven studies (and two replications) involving several decision domains, revisiting classic scope-insensitivity problems and testing new consumption episodes under different conditions of psychological proximity, including temporal, social, and spatial proximity. The first two experiments test for scope insensitivity when the target is associated with a near future versus a more distant future. Experiments 3A and 3B test for scope insensitivity when the target evokes a recent past versus a more distant past. Experiment 4A examines the phenomenon when the decision involves a friend who lives nearby versus a friend who lives farther away, and experiment 4B tests the phenomenon when the decision involves a close colleague versus a more distant colleague. The final experiment tests for scope insensitivity as a function of both social proximity and likely reliance on affect in the decision.

EXPERIMENT 1: SCOPE (IN)SENSITIVITY, AFFECT RICHNESS, AND NEAR- VERSUS DISTANT-FUTURE OUTCOMES

This experiment revisits the classic Hsee and Rottenstreich (2004) panda study. In the original study, participants were asked how much they would be willing to donate (WTD) to save either one or four pandas that had been discovered recently in a remote area. The pandas were represented either in an affect-rich manner (with pictures) or in an affect-poor manner (with simple dots). Hsee and Rottenstreich (2004) found that participants' WTD was scope-insensitive only in the affect-rich condition; in the affect-poor condition, participants' WTD was sensitive to the number of pandas at risk—a finding that the researchers attributed to a disengagement of affective processes of evaluation when the pandas were represented in an abstract manner (see Metcalfe and Mischel 1999 about the "cooling" effect of symbolic representations).

In this experiment, we investigate whether Hsee and Rottenstreich's (2004) findings depend on temporal proximity. Whereas the original study assumed a single time frame, our study included two time-frame conditions. In one condition a threat to the pandas' habitat was to occur in the near future, whereas in the other condition the threat was to occur in the more distant future. We predicted that in the near-future condition, participants' donations would be scope-insensitive if the pandas were represented in an affect-rich manner but not if the pandas were represented in an affect-poor manner, thus replicating Hsee and Rottenstreich's (2004) results. In contrast, we predicted that in the distant-future condition, participants' donations would be sensitive to the number of pandas, regardless of how the pandas were represented; that is, even if the pandas were represented in an affect-rich manner, participants' donations would be sensitive to the scope.

Method

Overview. A total of 636 Amazon Mechanical Turk (MTurk) participants (47% women; average age = 33) were randomly assigned to one of eight conditions of a 2 (representation: affect-rich vs. affect-poor) × 2 (scope: 1 panda vs. 4 pandas) × 2 (temporal proximity: near future vs. distant future) between-subjects design.

Procedure and Measures. The study was modeled after Hsee and Rottenstreich's (2004) study 3. Participants were asked to imagine that a team of student volunteers from a local university had recently discovered either one or four panda(s) in a remote Asian region. All participants were informed that the pandas' survival was threatened by impending construction in the forest area where the pandas were discovered. In the near-future condition, the construction projects were set to begin "next month," whereas in the distant-future condition, the construction projects were set to begin "in two years." Participants received either an affect-rich representation of the panda(s) (one or four pictures) or an affect-poor representation of the panda(s) (one or four simple dots).

As the main dependent measure, participants were asked to indicate how much they would be willing to donate (WTD) to save the panda(s) by selecting a number between \$0 and \$25 (in \$5 increments in US dollars). To test for potential confounds, participants' mood was measured on six seven-point items (e.g., "bad/good," "unpleasant/pleasant"; $\alpha = .92$), and their task involvement was assessed on two seven-point items (e.g., "I found the task of deciding how much money to donate to be very interesting"; $r = .37$). As a demand check, participants were asked to guess the purpose of the study. As a check for the temporal-proximity manipulation, participants were asked to rate how temporally proximate or distant was the risk that the pandas would lose their habitat on a scale of 1 (next month) to 7 (two years from next month). Finally, participants were asked to report their gender, age, and general liking of pandas (1 = not at all; 7 = very much).

Results

Preliminary Analyses. Ten participants were removed from the analyses because it was evident from their

response times that they did not read the materials properly; another 10 participants were removed because they indicated they do not like pandas at all, thus leaving 616 usable observations. An ANOVA of the perceived temporal proximity of the risk to the pandas revealed a main effect of temporal proximity ($F(1, 608) = 432.34$, $p < .0001$), indicating that the risk was perceived to be temporally closer in the near-future condition ($M = 1.71$) than in the distant-future condition ($M = 4.51$). A marginally significant main effect of scope ($F(1, 608) = 3.42$, $p < .07$) indicated that the risk was perceived to be slightly closer in the four-panda condition ($M = 2.98$) than in the one-panda condition ($M = 3.26$). An ANOVA of participants' mood showed no differences across conditions ($ps > .11$). Participants' reported task involvement exhibited a representation × scope interaction ($F(1, 608) = 4.43$, $p < .04$); participants in the affect-poor condition were slightly more involved when four pandas were at stake ($M = 5.56$) than when only one was at stake ($M = 5.17$), whereas participants in the affect-rich condition were equally involved whether one ($M = 5.34$) or four pandas were at stake ($M = 5.24$). Additional analyses show that these differences do not account for the main results.

WTD. As shown in figure 1, in the near-future conditions, participants' WTD was sensitive to the scope of the target when it was represented in an affect-poor manner ($M_1 = \$8.75$ vs. $M_4 = \$12.59$; $F(1, 608) = 7.22$, $p = .007$, $\eta_p^2 = .012$), but *in*sensitive to the scope of the target when it was represented in an affect-rich manner ($M_1 = \$11.75$ vs. $M_4 = \$11.47$; $F < 1$). This simple two-way interaction ($F(1, 608) = 4.14$, $p = .042$, $\eta_p^2 = .007$) replicates Hsee and Rottenstreich's (2004) findings. However, in the distant-future conditions, there was no such interaction between scope and affect richness ($F < 1$). Instead, there was only a simple main effect of scope ($F(1, 608) = 9.60$, $p = .002$, $\eta_p^2 = .016$), showing that participants' WTD was sensitive to the scope of the target *both* when it was represented in an affect-poor manner ($M_1 = \$9.54$ vs. $M_4 = \$13.40$; $F(1, 608) = 7.41$, $p = .007$, $\eta_p^2 = .012$) *and* when it was represented in an affect-rich manner ($M_1 = \$10.71$ vs. $M_4 = 13.11$; $F(1, 608) = 2.79$, $p = .095$, $\eta_p^2 = .005$). Therefore, consistent with our predictions, under a greater temporal distance, scope insensitivity dissipates *regardless* of the affect richness of the target.

Although this pattern of results would seem to imply an overall three-way interaction, this interaction was not significant ($F(1, 608) = .87$, $p = .35$). This is because enormous statistical power would be required to detect an overall interaction with the predicted pattern of results.[2] Therefore, to obtain a more focused and powerful statistical test of our predictions, we performed a series of interaction contrasts (Keppel and Wickens 2004). One set of contrasts showed that the simple effect of scope was significant ($F(1, 608) = 16.66$, $p < .0001$, $\eta_p^2 = .027$) and comparable ($F(2, 608) < 1$) in the following three conditions: (a) affect-rich/distant-future, (b) affect-poor/near-future, and (c) affect-poor/distant-future. In a final interaction contrast, we pooled the simple effects of scope in these three conditions and compared the pooled effect to the simple effect of scope in the affect-rich/near-future condition. The contrast was significant ($F(1, 608) = 4.77$, $p = .029$, $\eta_p^2 = .008$), confirming stronger scope insensitivity in the affect-rich/near-future condition than in the other three conditions.

Discussion

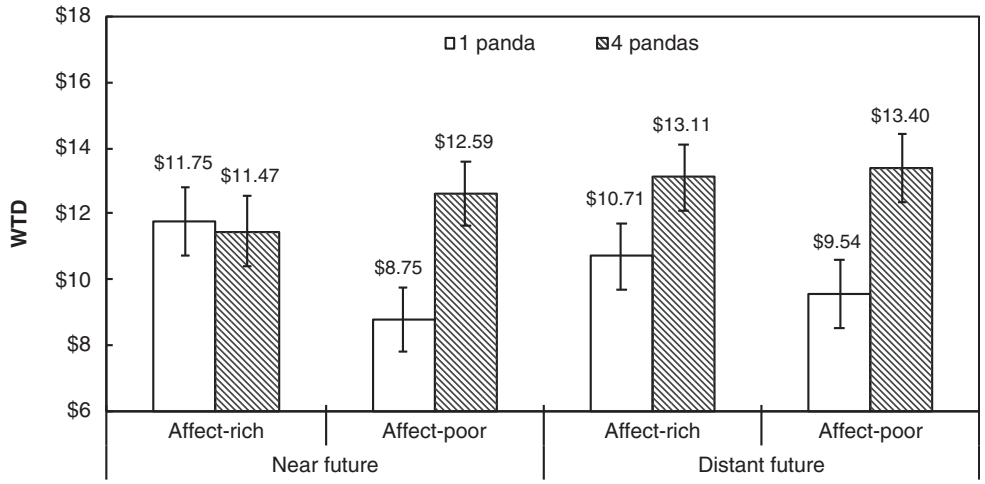
The results provide initial evidence that the scope-insensitivity phenomenon is more likely to occur in decisions wherein target or outcome is temporally proximate than in decisions wherein target or outcome is temporally more distant. As in Hsee and Rottenstreich's (2004) study, in the near-future condition participants' donations exhibited scope insensitivity under affect-rich representations of the target but not under affect-poor representations. These results confirm the proposition that scope insensitivity is partly the result of affective processes in valuation. However, in the distant-future condition, participants' donations exhibited sensitivity to scope under *both* affect-rich and affect-poor representations of the target. That is, even when targets are represented in an affect-rich manner, people would not be scope-insensitive if the decision seems temporally distant. This overall pattern of results is consistent with the notion that for scope insensitivity to arise, affect must be present (as Hsee and Rottenstreich had suggested), but for affect to trigger scope insensitivity, there is another necessary condition: the decision frame needs to be temporally proximal. This study's key findings were replicated in a lab experiment, described in the web appendix.

One could argue that the observed scope insensitivity under a near-future/affect-rich condition may have been driven not by a differential engagement of the affective system across temporal proximity but by some unintended correlates of the temporal-proximity manipulation. The greater proximity of the threat in the near-future condition may have triggered a greater sense of urgency, thus prompting participants to donate regardless of the number of pandas. Alternatively, people may have felt more constrained about their budget in the near-future condition, thus donating somewhat less regardless of the number of pandas. However, both explanations seem unlikely given that participants' donations did exhibit sensitivity to scope in the near-future/affect-poor condition. Thus, overall, the findings support the notion that the moderating role of temporal proximity on scope insensitivity is linked to a

2 More than 4,900 participants, about 615 per condition, would be required to achieve a statistical power of .70 for the predicted pattern of results.

FIGURE 1

EFFECT OF TEMPORAL PROXIMITY, SCOPE, AND AFFECT RICHNESS ON WILLINGNESS TO DONATE (EXPERIMENT 1)



NOTE.—Error bars represent +/–1 standard error.

differential engagement of affective processes for proximate versus distant targets or outcomes.

EXPERIMENT 2: SCOPE (IN)SENSITIVITY, CONSUMPTION MOTIVE, AND NEAR- VERSUS DISTANT-FUTURE OUTCOMES

The purpose of this experiment was to provide further evidence that if temporal proximity moderates the scope-insensitivity phenomenon, it is because of a differential reliance on affect when outcomes or targets are temporally proximate versus distant. In order to obtain such evidence, in this experiment we manipulated participants' likelihood of reliance on affect in addition to manipulating scope and temporal proximity. Given that a reliance on affect is greater when consumers have experiential motives than when they have instrumental motives (Pham 1998), we encouraged half of the participants to make their valuation judgments assuming an experiential motive, and the other half to make their valuation judgments assuming an instrumental motive. We predicted that participants who had an experiential motive, and were therefore more inclined to rely on their feelings to make judgments, would exhibit scope-insensitive valuations under temporally proximate conditions but not under temporally distant conditions, thus replicating the pattern of results in the affect-rich conditions of experiment 1. In contrast, participants who had an instrumental motive, and were therefore less inclined to rely on their feelings to begin with, would not exhibit scope insensitivity regardless of temporal proximity, thus replicating the pattern of results in the affect-poor conditions of experiment 1.

Method

Overview. A total of 382 students at Singapore Management University (56.7% women; average age = 21) were randomly assigned to one of eight conditions of a 2 (consumption motive: experiential vs. instrumental) × 2 (scope: 6 vs. 12 attractions) × 2 (temporal proximity: near future vs. distant future) between-subjects design. They were asked to evaluate and report their WTP for a day pass to an amusement park.

Procedure and Measures. Participants were asked to imagine traveling to a foreign city where they would have an opportunity to visit amusement parks. In the near-future condition, the trip was to take place in "just a week." In the distant-future condition, the trip was to take place "next year." In the experiential-motive condition, the trip was described as a fun-filled vacation that included a potential visit to a theme park. In the instrumental-motive condition, the trip was described as a business case competition, sponsored by a theme park company, that involved an informational visit to a theme park as a means to research the case. All participants were asked to evaluate a day pass to a theme park, giving them access to select attractions for a fixed fee. Depending on scope conditions, the pass included admission to either six or 12 attractions, each

described by a short paragraph with a picture, presented in a counterbalanced fashion.

As the main dependent measure, participants were asked to state the maximum price that they would be willing to pay for the one-day pass, by selecting a number between \$0 and \$150 (presented in \$10 increments in Singapore dollars). As a demand check, participants were asked to guess the purpose of the study. As a manipulation check of scope, participants were asked to indicate "how many attractions were included." Finally, participants were asked to report their gender, age, and general interest in amusement parks and rides (1 = not at all interested; 7 = very interested).

Results

Preliminary Analyses. Although none of the participants guessed the purpose of the study correctly, 11 were removed from the analyses because they did not complete the main dependent measures, four were removed for having taken the study previously, and another eight were removed because they indicated being "not at all interested" in amusement parks and rides, leaving 359 usable observations. Participants were quite accurate in their estimates of the number of attractions included in the pass ($M_6 = 6.43$ vs. $M_{12} = 10.18$; $F(1, 351) = 319.07$, $p < .0001$).

WTP. As shown in figure 2, participants' WTP (in Singapore dollars) for the one-day pass was scope-insensitive under only one condition: when they had an experiential motive and a near-future perspective ($M_6 = \$67.30$ vs. $M_{12} = \$65.00$; $F < 1$). They were sensitive to the scope of the target in the remaining three combinations of motive and temporal proximity: (a) instrumental-motive/near-future ($M_6 = \$62.28$ vs. $M_{12} = \$70.00$; $F(1, 351) = 2.67$, $p = .10$, $\eta_p^2 = .008$); (b) experiential-motive/distant-future ($M_6 = \$66.00$ vs. $M_{12} = \$75.53$; $F(1, 351) = 4.14$, $p = .043$, $\eta_p^2 = .012$); and (c) instrumental-motive/distant-future ($M_6 = \$61.96$ vs. $M_{12} = \$73.95$; $F(1, 351) = 7.07$, $p = .008$, $\eta_p^2 = .020$).

As in experiment 1, we tested our main predictions through a series of interaction contrasts.[3] In one pair of contrasts, we tested whether the simple effect of scope was significant and comparable in (a) the instrumental-motive/near-future condition, (b) the experiential-motive/distant-future condition, and (c) the instrumental-motive/distant-future condition. These contrasts confirmed that across these three conditions, the simple effect of scope was significant ($F(1, 351) = 13.24$, $p < .001$, $\eta_p^2 = .036$) and comparable ($F(2, 351) < 1$). In a third, more critical interaction contrast, we pooled the simple effects of scope in these three conditions and compared it to the simple effect of scope in the experiential-motive/near-future condition. The contrast ($F(1, 351) = 5.40$, $p = .021$, $\eta_p^2 = .015$) confirmed that there was stronger scope insensitivity in the experiential-motive/near-future condition than in the other conditions. These results parallel those of experiment 1 and are consistent with the notion that (1) temporal proximity moderates the scope-insensitivity phenomenon, and (2) does so only under conditions that are conducive to a reliance on affect in judgment. Under conditions that are not conducive to this reliance, the scope-insensitivity phenomenon tends to dissipate altogether, regardless of temporal proximity.

Discussion

The results replicate experiment 1's main finding that scope insensitivity is more likely when the target or outcome is temporally proximate than when it is temporally more distant. In addition, the results provide evidence that the moderating effect of temporal proximity on scope sensitivity is at least partially due to a differential reliance on affect, depending on whether the target or outcome appears temporally close or distant. When participants had instrumental motives and were therefore less likely to rely on affect altogether, there was no scope insensitivity regardless of temporal proximity (participants were sensitive to the scope of the target even in the near-future condition). The results thus replicate the results of experiment 1 with a different manipulation of likely reliance on affect.

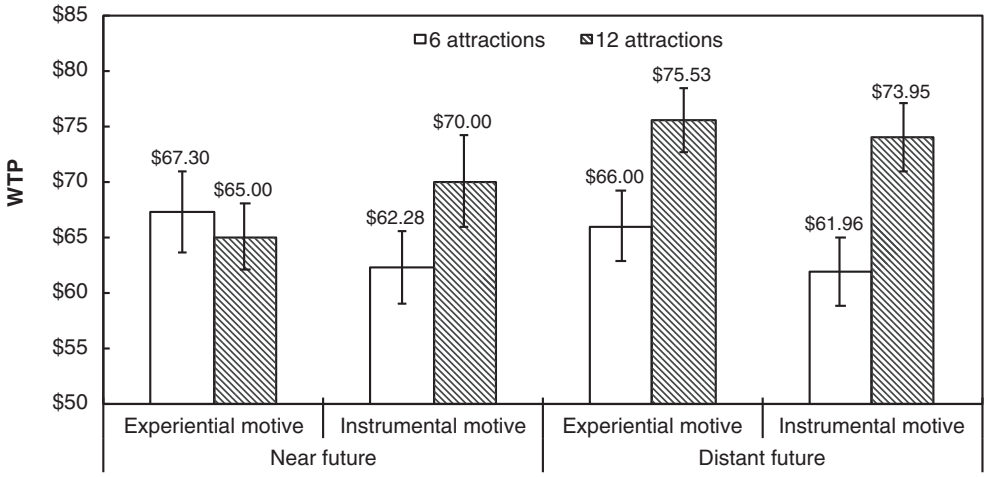
The fact that two different operationalizations of likely reliance on affect—the affective richness of the stimuli and the consumption motives of the decision maker—produced similar results strongly supports the notion that temporal proximity moderates the scope-insensitivity phenomenon because affect is more likely to be engaged when the target or outcome is temporally proximate than when it is temporally more distant. Therefore, for temporal proximity to matter in moderating the scope-insensitivity phenomenon, the decision task should be conducive to a reliance on affect.

An interesting question, raised by a reviewer, is whether encouraging a reliance on affect by promoting an experiential motive would offset the tendency *not* to rely on affect under conditions of high temporal distance. In other words, are conditions of high motivational relevance of affect, such as having experiential motives, sufficient to foster a reliance on affect and therefore trigger scope insensitivity regardless of temporal proximity? In our studies the findings suggest that the answer is no. These findings are consistent with other studies showing that when multiple drivers of reliance on affect in judgment are manipulated independently, all facilitating conditions have to be met for affect to influence judgments (Pham 1998; Siemer and Reisenzein 1998; White and McFarland 2009). In other words, known drivers of the reliance on affect in judgment typically appear to operate as necessary rather than sufficient conditions, as was observed in these first two studies.

3 The three-way interaction ($F(1, 351) = .66$, $p = .42$) would have required a total sample size of more than 3,500 participants, or 440 per condition, to achieve a statistical power of .70.

FIGURE 2

EFFECT OF TEMPORAL PROXIMITY, SCOPE, AND MOTIVE ON WILLINGNESS TO PAY FOR ONE-DAY AMUSEMENT PARK TICKET (EXPERIMENT 2)



NOTE.—Error bars represent +/–1 standard error.

EXPERIMENTS 3A AND 3B: SCOPE INSENSITIVITY IN THE RECENT PAST VERSUS THE DISTANT PAST

The first two experiments show that conditional on a potential engagement of affective processes, scope insensitivity is stronger under a near future than under a more distant future. The purpose of experiments 3A and 3B was to show that temporal proximity exerts a similar moderating effect on scope insensitivity when comparing a recent past with a distant past. Although decisions are naturally forward-looking, targets or objects associated with the past can prompt memories of the past (Zauberman, Ratner, and Kim 2009). Memories of the recent versus distant past appear to be stored in different parts of the brain (Okuda et al. 2003; Schacter 2008) and involve different ways of thinking (Gilovich and Medvec 1994; Robinson and Swanson 1993). Based on the finding that the affective system is more engaged in relation to a recent past than in relation to a more distant past (Chang and Pham 2013), one would predict that scope insensitivity should be more likely when participants are prompted to think of a recent past than when they are prompted to think of a more distant past.

In experiments 3A and 3B, participants whose retrospective temporal proximity was manipulated were asked about their WTP for a small or larger bundle of products. In experiment 3A, we varied temporal proximity by associating the targets with a recent past or a more distant past; in experiment 3B, we varied it by priming memories of a recent or more distant past event. In both experiments, we predicted that participants would be more scope-insensitive to the number of products in the bundle in the recent-past condition than in the distant-past condition.

Experiment 3A Method

A total of 150 students at a large university in Hong Kong (57% women; average age = 20) were randomly assigned to one of four conditions of a 2 (scope: small vs. large) × 2 (temporal proximity: recent past vs. distant past) between-subjects design. Participants were asked to review the descriptions of one or three video games. In the large-scope condition, participants were shown the games *Pong*, *Combat*, and *Duck Hunt*, whereas in the small-scope condition, participants were shown only one of these games, selected at random. As in Chang and Pham (2013, study 3), we manipulated temporal proximity by varying the description of each game and its accompanying screenshot. In the recent-past condition, participants were told that the games had been created recently, and were shown screenshots of contemporary versions of the games. In the distant-past condition, participants were told that the games had been created in the early 1980s, and were shown screenshots of original versions of the games.

Participants were asked to indicate on a $0 to $30 scale (presented in $5 increments in Hong Kong dollars) how much they would be willing to pay for the game(s), taking into account the video game standards of the time. They were then asked to guess the purpose of the experiment. As a manipulation check for temporal proximity, participants rated whether they thought of the

game as being temporally close or distant on three seven-point items (e.g., "very recent past/very distant past"; $\alpha = .80$). They also reported their task involvement on two seven-point items (e.g., "I read through the video game description very carefully"; $r = .48$). Finally, they reported basic background information such as gender and age.

Experiment 3A Results

Although none of the participants correctly guessed the purpose of the study, data from four participants were removed from the analyses (one participant for suspecting that the study was about people's feelings toward the games and another three participants for skipping instructions), leaving 146 usable responses. Analysis of participants' perception of temporal proximity revealed only a main effect of temporal proximity ($F(1, 142) = 8.96$, $p < .01$): the games were perceived to be closer in the recent-past condition ($M = 4.21$) than in the distant-past condition ($M = 4.80$). There were no differences in reported task involvement across conditions ($ps > .20$).

Not surprisingly, participants' WTP exhibited a main effect of scope ($F(1, 142) = 10.65$, $p = .001$, $\eta_p^2 = .070$) such that WTP was higher in the large-scope condition ($M = \$9.79$) than in the small-scope condition ($M = \$6.08$). There was also a main effect of temporal proximity ($F(1, 142) = 6.86$, $p = .01$, $\eta_p^2 = .046$), with participants willing to pay more for the games in the distant-past condition ($M = \$9.38$) than in the recent-past condition ($M = \$6.44$). This could be due to the fact that participants were encouraged to use video game standards of the time and may have been more lenient toward the older games. More importantly, a scope × temporal proximity interaction ($F(1, 142) = 4.60$, $p = .034$, $\eta_p^2 = .031$) showed that participants' WTP (in Hong Kong dollars) was more sensitive to scope in the distant-past condition ($M_{small} = \$6.35$ vs. $M_{large} = \$12.50$; $F(1, 142) = 14.62$, $p < .001$, $\eta_p^2 = .093$) than in the recent-past condition ($M_{small} = \$7.08$ vs. $M_{large} = \$5.81$; $F < 1$). This is consistent with our prediction that even temporal proximity of the past moderates the scope-insensitivity phenomenon, and does it in a way similar to how it moderates the reliance on affect in judgment (Chang and Pham 2013).

Experiment 3B Method

The study was conducted in a field setting over a six-week period. A total of 121 attendees of various graduation ceremonies in New York City (students and their families and friends; 51% women; age range 17–75) were recruited as they exited the ceremonies, and were randomly assigned to one of four conditions of a 2 (scope: small vs. large) × 2 (temporal proximity: recent past vs. distant past) between-subjects design. The study employed a subtler priming manipulation of temporal proximity and was administered as two ostensibly unrelated studies. In the "first study," which was designed to prime different temporal mindsets, participants were asked to recall and write about a graduation ceremony that they had attended. In the recent-past condition, the ceremony was one that they had attended "this week," with all but one participant describing the ceremony that they had just attended. In the distant-past condition, the ceremony to be described was one that they had attended "in the past," with all participants describing ceremonies that they had attended at least one year earlier (average = 6.6 years). After describing the graduation ceremony, participants indicated when the particular graduation had occurred.

In the "second study," participants were asked to imagine that a friend had to leave the country for family reasons. This friend, who was a Beatles fan, owned a number of Beatles CDs and wanted to sell them as a set. The set consisted of either five or 10 Beatles CDs, which served as a manipulation of scope. Participants were asked to indicate their maximum WTP (in US dollars) for the CD set, and to report their gender and age. Select participants were probed about their perception of the studies' purpose.

Experiment 3B Results

Seven participants were removed from the analyses—five for failing to complete the key dependent measures, one for taking a long break between the two parts of the study, and one for reporting an extreme WTP of over $1,000 reportedly to help his friend—leaving 114 usable observations.

A main effect of scope indicated that participants' WTP was marginally higher for the larger CD set ($M = \$46.79$) than for the smaller set ($M = \$30.32$; $F(1, 110) = 3.10$, $p = .081$, $\eta_p^2 = .027$). Central to our predictions, there was a scope × temporal proximity interaction ($F(1, 110) = 4.19$, $p = .043$, $\eta_p^2 = .037$). Whereas in the recent-past condition participants' WTP was scope-insensitive ($M_{small} = \$36.66$ vs. $M_{large} = \$34.00$; $F < 1$), in the distant-past condition, participants' WTP was sensitive to scope ($M_{small} = \$23.75$ vs. $M_{large} = \$59.14$; $F(1, 110) = 7.26$, $p = .008$, $\eta_p^2 = .062$). This is again consistent with our prediction that even temporal proximity of the past moderates the scope-insensitivity phenomenon, and does it in the same way it moderates the reliance on affect in judgment.

Discussion

This pair of experiments extends the previous experiments' findings by showing that the moderating effect of temporal proximity on scope insensitivity operates not only prospectively (when comparing a near vs. distant future), but also retrospectively (when comparing a recent vs. distant past). Specifically, in each experiment participants

were significantly more scope-insensitive in their WTP if they were encouraged to mentally represent the decision as related to a more recent past than if they were encouraged to represent the decision as related to a more distant past. In experiment 3A—the results of which were replicated in an earlier experiment conducted in 2009 using the same design and stimuli (see web appendix)—different temporal representations of the decision were triggered by different descriptions of the objects to be evaluated, whereas in experiment 3B different temporal representations were induced through the priming of unrelated memories. The latter study shows that what is critical in determining the engagement of affect (and resulting scope insensitivity) is not the physical attributes of the target object per se (e.g., old vs. recent versions of video games), but rather the degree of psychological distance that is evoked by the person's mental representation of the decision, which is akin to a mindset. For instance, it is not because a target object is described as "old" (e.g., an old gentleman) that it would necessarily evoke spontaneous representations of a remote past and high temporal distance. Given that experiments 3A and 3B produced very similar results with such different operationalizations of temporal proximity, different manipulations of scope, and different valuation tasks provides compelling evidence in support of the notion of a greater engagement of the overall affective system in judgments that involve targets that are temporally proximate, even retrospectively.

EXPERIMENTS 4A AND 4B: SCOPE INSENSITIVITY AND SOCIAL AND SPATIAL PROXIMITY

The purpose of experiments 4A and 4B was to extend our findings by investigating the effects of other dimensions of psychological proximity on scope insensitivity. If what determines the engagement of the affective system really is a proximity to the immediate self, as opposed to temporal proximity per se, one would expect the scope-insensitivity phenomenon to be similarly contingent on social and spatial proximity as was observed with temporal proximity in the previous studies.

Experiments 4A and 4B followed a similar procedure. Participants were first asked to think about a person who was either (a) physically or socially close to them or (b) physically or socially distant from them. They were then asked to assess their WTP for a small or larger quantity of goods for the person's benefit. In both experiments, we predicted that participants' WTP would exhibit scope insensitivity under conditions of high social or physical proximity but not under conditions of higher social or physical distance. Such a finding would indicate that the differential engagement of the affective system is not just a function of temporal proximity, but also a function of proximity to the immediate self.

Experiment 4A Method

It is well known that people who live closer to one another also tend to be socially closer (Festinger, Schachter, and Back 1950). In this experiment, we capitalize on this correlation to manipulate psychological proximity, independently of temporal proximity, through perceptions of physical proximity.

A total of 160 MTurk participants (47% women; average age = 31) were randomly assigned to one of four conditions of a 2 (scope: small vs. large) × 2 (proximity: close vs. distant) between-subjects design. Participants were asked to think about a friend who either "lives in the same town as [they] do" (close-proximity condition) or "lives in a town at least 500 miles away" (distant-proximity condition; Baskin et al. 2014). As a check of the proximity manipulation, they then reported (a) how often they spoke to their friend on a 1 (very rarely) to 7 (very frequently) scale, and (b) the approximate number of times they meet this friend every year. Participants also reported their friend's gender.

Next, participants were asked to imagine that this particular friend was moving away. This friend has a small DVD collection of a popular TV show and wants to sell it as a box set containing either one season (six DVDs) or four seasons (24 DVDs) of the show, which served as the scope manipulation. As the main dependent measure, participants were asked to assess their maximum WTP (in US dollars) for the DVD set (assuming no shipping cost). Next, they were asked to guess the purpose of the experiment and to report their task involvement on four seven-point items (e.g., "I read through the hypothetical scenario of my friend moving away and selling his/her belongings very carefully"; $\alpha = .71$). As manipulation checks for scope, they were asked to indicate the number of seasons and the total number of DVDs included in the set. Finally, they reported their gender and age.

Experiment 4A Results

While none of the participants correctly guessed the purpose of the study, two participants were removed because their response times indicated they did not read the materials properly, leaving 158 usable observations. The scope manipulation was successful, revealing only a main effect of scope on the reported numbers of seasons and DVDs. Participants in the small-scope condition reported an average of 1.86 seasons and 9.58 DVDs, and those in the large-scope condition reported an average of 4.50 seasons ($F(1, 154) = 44.63$, $p < .0001$) and 16.73 DVDs ($F(1, 154) = 9.88$, $p = .002$). The proximity manipulation was also successful. Participants indicated speaking to their

friend more often in the close-proximity condition ($M = 5.61$) than in the distant-proximity condition ($M = 4.53$; $F(1, 154) = 15.97$, $p < .0001$), and estimated seeing their friend more often in the close-proximity condition ($M = 108.35$) than in the distant-proximity condition ($M = 19.59$; $F(1, 154) = 34.57$, $p < .0001$). There were no differences in reported task involvement (Fs < 1).

A 2×2 ANOVA of participants' WTP (in US dollars) showed a higher WTP in the large-scope condition ($M = \$39.00$) than in the small-scope condition ($M = \$22.48$; $F(1, 154) = 11.59$, $p < .001$, $\eta_p^2 = .070$). More importantly, this effect was qualified by a significant scope $\times$ proximity interaction ($F(1, 154) = 4.04$, $p < .05$, $\eta_p^2 = .026$). Whereas participants in the close-proximity condition tended to be scope-insensitive in their WTP ($M_{small} = \$24.80$ vs. $M_{large} = \$31.33$; $F < 1$), those in the distant-proximity condition were significantly sensitive to the scope of the DVD set ($M_{small} = \$19.92$ vs. $M_{large} = \$45.27$; $F(1, 154) = 15.02$, $p < .001$, $\eta_p^2 = .089$). The findings support the notion that scope insensitivity is more likely to be observed not just under conditions of temporal proximity (as shown in experiments 1–3B), but more generally under conditions of increased proximity to the immediate self.

Experiment 4B Method

Whereas experiment 4A manipulated perceived proximity to the immediate self through the physical proximity of friends, experiment 4B manipulated perceived self-proximity through the social proximity of professional colleagues. The study was conducted among MTurk participants who were prescreened to ensure that they were employed full-time and had worked at their current workplace for at least three months. This prescreening was designed to ensure that the decision scenario would be relevant to participants. A total of 167 MTurk participants (43% women; age range: 19–63) who qualified were randomly assigned to one of four conditions of a 2 (scope: small vs. large) $\times$ 2 (proximity: close vs. distant) between-subjects design.

Under the guise of an "Employee Relationship Study," participants were asked to think about a specific colleague at their workplace. In the close-colleague condition, they were asked to think about a colleague whom they see as a close friend and know fairly well; in the distant-colleague condition, they were asked to think about a colleague whom they see as just an acquaintance and know only slightly. To reinforce the proximity manipulation, all participants were asked to indicate the person's first name and describe how they initially met this person. Participants then reported (a) the length of time they have known this colleague (1 = for a long time; 7 = just met; reverse-coded), (b) how often they talk to each other (1 = very rarely; 7 = very frequently), and (c) how close or distant they feel toward this colleague on two seven-point scales (e.g., "not at all close/extremely close"; $r = .92$). Participants also reported this colleague's gender.

Next, participants were asked to imagine that the colleague they had identified is leaving the company. As a farewell present to the colleague, participants were asked to consider a box of chocolate truffles containing either four or six pieces, which was the scope manipulation. As the main dependent measure, participants were asked to state their WTP (in US dollars) for the box of chocolate truffles. They were then asked to guess the purpose of the experiment and to report their mood on five seven-point items (e.g., "bad/good," "unpleasant/ pleasant"; $\alpha = .96$) and task involvement on three seven-point items (e.g., "I read through the hypothetical scenario of my coworker leaving the company and giving this person a farewell present very carefully"; $\alpha = .71$). As a check for the scope manipulation, they indicated the number of chocolate truffles in the scenario. Finally, they reported basic information such as gender and age, and how likely they would be to give any colleague who is moving away a farewell present (1 = not at all likely; 7 = very likely).

Experiment 4B Results

None of the participants correctly guessed the purpose of the study. However, two participants were removed from the analyses because they indicated that they would not give anyone who is moving away a farewell present, thus leaving 165 usable observations. Participants' estimate of the number of chocolates revealed only a main effect of scope, with an average of 4.11 pieces in the small-scope condition and an average of 6.27 pieces in the large-scope condition ($F(1, 161) = 156.54$, $p < .0001$). Analyses of the perceived employee proximity revealed only a main effect of proximity. Compared to those in the distant-proximity condition, participants in the close-proximity condition reported (a) feeling closer to this colleague ($M_{close} = 4.91$, $M_{distant} = 2.70$; $F(1, 161) = 103.52$, $p < .0001$), (b) having known this colleague for a longer period of time ($M_{close} = 4.98$, $M_{distant} = 4.21$; $F(1, 161) = 10.49$, $p < .002$), and (c) having spoken to this colleague more often outside of work ($M_{close} = 4.84$, $M_{distant} = 3.21$; $F(1, 161) = 43.72$, $p < .0001$). These results confirm the effectiveness of the employee-proximity manipulation. There were no differences in reported task involvement (ps $> .27$) or participants' mood (Fs < 1) across conditions.

A 2×2 ANOVA of participants' WTP (in US dollars) revealed a main effect of scope showing that participants were willing to pay more in the large-scope condition ($M = \$12.35$) than in the small-scope condition ($M = \$9.88$; $F(1, 161) = 4.61$, $p = .033$, $\eta_p^2 = .028$). A main effect of proximity indicated that participants were willing to pay more for a close colleague ($M = \$12.28$) than for a distant

colleague ($M = \$9.86$; $F(1, 161) = 3.94$, $p < .05$, $\eta_p^2 = .024$), which is not surprising. More central to our predictions, there was again a scope × proximity interaction ($F(1, 161) = 4.56$, $p = .034$, $\eta_p^2 = .028$). As predicted, participants in the close-proximity condition exhibited scope insensitivity ($M_{small} = \$12.27$ vs. $M_{large} = \$12.28$; $F < 1$), whereas those in the distant condition exhibited significant sensitivity to scope ($M_{small} = \$7.86$ vs. $M_{large} = \$12.44$; $F(1, 161) = 8.88$, $p = .003$, $\eta_p^2 = .052$).

Discussion

The results of this pair of experiments help refine the notion of proximity both as a moderator of the scope-insensitivity phenomenon and as a determinant of the engagement of the overall affective system in judgments. Specifically, the results converge in showing that scope insensitivity is more likely when the target is psychologically proximate than when it is psychologically more distant. Both physical proximity, holding relationship type constant (nearby vs. far-away friend in experiment 4A), and social proximity, holding physical distance constant (close vs. distant company colleague in experiment 4B), have the same effect on scope insensitivity as temporal proximity does.[4] This is consistent with the idea that the boundaries of engagement of the affective system are defined not just by a proximity to the present, as previously suggested by Chang and Pham (2013), but more generally by a proximity to the immediate self.

EXPERIMENT 5: SCOPE (IN)SENSITIVITY, CONSUMPTION MOTIVE, AND CLOSE VERSUS DISTANT SOCIAL RELATIONSHIP

This final experiment was designed to provide further evidence that the moderating effect of social proximity on scope insensitivity, observed in experiments 4A and 4B, is due to a differential reliance on affect, depending on whether the decision involves close versus distant others. In addition to manipulating scope and social proximity, we manipulated participants' likelihood of reliance on affect through consumption motives, as in experiment 2. Half of the participants were encouraged to make their valuation judgments under an experiential motive; the remaining half was encouraged to make their valuation judgments under an instrumental motive. We predicted that participants who assumed an experiential motive would be more likely to exhibit scope-insensitive valuations under socially proximate conditions but not under socially distant conditions. In contrast, participants who assumed an instrumental motive would exhibit scope-sensitive valuations regardless of conditions of social proximity.

Method

Overview. A total of 340 undergraduate students at Singapore Management University (56% women; average age = 21) were randomly assigned to one of eight conditions of a 2 (consumption motive: experiential vs. instrumental) × 2 (scope: 1 movie vs. 3 movies) × 2 (social proximity: close friend vs. distant friend) between-subjects design.

Procedure and Measures. Under the pretense of a study about college students' friendship with their peers, participants were asked to think about a specific student who was in the same class or extracurricular activity as the participant. In the close-friend condition, they were asked to think about a peer who is "a close friend. . .who you know fairly well"; in the distant-friend condition, they were asked to think about a peer who is "just an acquaintance. . .who you know just slightly." To reinforce this manipulation of social proximity, participants were asked to indicate the first and last name of this person, his or her gender, and how they met. The same manipulation checks for social proximity as those in experiment 4B were collected ($r = .94$).

Participants then received the consumption-motive manipulation (Chang and Pham 2013, study 5; Pham 1998). In the experiential-motive condition, they were told that they "deserve some leisure time over the weekend," whereas in the instrumental-motive condition, they were told about an extra course-credit opportunity that involved writing a short paper about an independent film. All participants were told to imagine that the specific peer they had identified earlier invited them to attend an independent film festival. A festival pass was described that included either one movie or three movies, depending on the scope condition. We described the movies using the materials of an actual film festival that was about to take place in Singapore.

Participants were asked to indicate their WTP for the movie pass (in Singapore dollars), which was the main dependent measure. They were then asked to guess the purpose of the study and report their task involvement on four seven-point items (e.g., "I read through the hypothetical scenario of going to a film festival very carefully"; $\alpha = .82$). As a check for scope, they were asked to indicate

4 With respect to experiment 4A, one could argue that the lack of scope sensitivity in the close-friend condition may have been due to norms of communal relationship (e.g., "close friends should always help each other") that deactivated participants' calculative mindsets. However, one additional result in that study seems to speak against a strict communal-norm interpretation. If participants' WTPs were mostly driven by the activation of communal norms in the close-friend condition, one would expect the mean WTP to be higher in the communal ("you should help your close friends") condition than in the less-communal ("distant friends matter less") condition. There was no such main effect of closeness in that study.

the number of movies included in the pass. Finally, they reported basic background information (e.g., gender, age).

Results

Preliminary Analyses. None of the participants correctly guessed the purpose of the study. Analyses were based on all 340 observations. A $2 \times 2 \times 2$ ANOVA of perceived social closeness yielded only a main effect of social proximity ($F(1, 332) = 224.91$, $p < .0001$). As expected, participants felt much closer to their peer in the close-friend condition ($M = 5.33$) than in the distant-friend condition ($M = 2.93$). Participants in the close-friend condition also stated that they have known their peer for a longer period of time ($M_{close} = 4.72$, $M_{distant} = 3.38$; $F(1, 332) = 60.88$, $p < .0001$) and spoke to their peer more often ($M_{close} = 5.27$, $M_{distant} = 2.80$; $F(1, 332) = 182.42$, $p < .0001$). Participants also appreciated the difference in scope of the target: they estimated that the movie pass included 1.66 movies in the one-movie condition and 3.02 movies in the three-movies condition ($F(1, 332) = 130.34$, $p < .0001$). There was an unexpected but marginally significant main effect of consumption motive on scope ($M_{experiential} = 2.17$, $M_{instrumental} = 2.54$; $F(1, 332) = 3.26$, $p > .07$). Other effects did not reach significance ($ps > .23$). There was no difference in task involvement across conditions ($ps > .14$).

WTP. As shown in figure 3, participants' WTP (in Singapore dollars) for the movie pass was scope-insensitive in only one of the four combinations of motive and social proximity: (a) when the decision involved a close friend and they had an experiential motive ($M_1 = \$11.74$ vs. $M_3 = \$11.76$; $F < 1$). In contrast, participants appeared to be significantly sensitive to the scope of the target object in the remaining three conditions: (b) a close friend and an instrumental motive ($M_1 = \$9.51$ vs. $M_3 = \$13.74$; $F(1, 332) = 13.90$, $p < .001$, $\eta_p^2 = .040$); (c) a distant friend and an experiential motive ($M_1 = \$9.46$ vs. $M_3 = \$12.52$; $F(1, 332) = 8.02$, $p = .005$, $\eta_p^2 = .024$); and (d) a distant friend and an instrumental motive ($M_1 = \$8.38$ vs. $M_3 = \$12.38$; $F(1, 332) = 12.27$, $p < .001$, $\eta_p^2 = .036$). This pattern of results closely parallels the results of experiments 1 and 2 and is consistent with the notion that social proximity moderates the scope-insensitivity phenomenon under conditions that are conducive to reliance on affect in judgment. The moderating effect of social proximity dissipates when reliance on affect is unlikely.

As in experiments 1 and 2, we tested our main predictions through a series of interaction contrasts.[5] In the first two contrasts, we tested whether the simple effect of scope was significant and comparable in (b) the instrumental-motive/close-friend condition, (c) the experiential-motive/distant-friend condition, and (d) the instrumental-motive/distant-friend condition. The simple effect of scope was significant ($F(1, 332) = 33.90$, $p < .0001$, $\eta_p^2 = .093$) and comparable ($F(2, 332) = 1.18$, $p > .27$) across the three conditions. In the third interaction contrast, we pooled the simple effects of scope in these three conditions and compared it to the simple effect of scope in (a) the experiential-motive/close-friend condition. The interaction contrast was significant ($F(1, 332) = 8.08$, $p < .005$, $\eta_p^2 = .024$), supporting our prediction of a more pronounced scope insensitivity in the experiential-motive/close-friend condition compared to the other conditions.

Discussion

The results replicate the findings of experiments 4A and 4B that the scope-insensitivity phenomenon is more likely to be observed under conditions of high social proximity to the immediate self. The results also parallel experiments 1 and 2's findings in showing that the moderating effect of social proximity on scope insensitivity can be at least partially attributed to a differential reliance on affect under high versus low proximity. When participants had experiential motives and were therefore expected to rely on their feelings, their WTP was scope-insensitive when the consumption episode involved a peer who was socially close, but not when it involved a peer who was socially distant. In contrast, when participants had instrumental motives and were therefore unlikely to rely on their feelings, their WTP exhibited sensitivity to scope irrespective of social proximity.

GENERAL DISCUSSION

The Boundaries of Scope Insensitivity

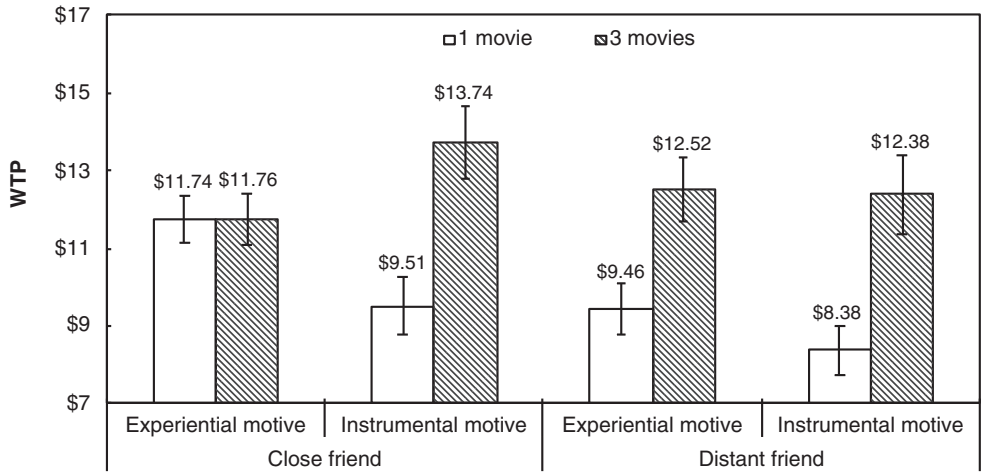
There has been considerable debate about the robustness, and even authenticity, of the scope-insensitivity phenomenon (Carson 1997; Carson, Flores, and Meade 2001; Hanley, Schläpfer, and Spurgeon 2003) and its possible underlying explanation (Frederick and Fischhoff 1998). Our research moves this debate forward by clarifying the boundaries of this phenomenon and reaffirming its grounding in affective processes.

We concur with Hsee and Rottenstreich (2004) and Kahneman and colleagues (1999) that scope insensitivity is substantially driven by affective processes of evaluation. Indeed, our studies provide consistent evidence of greater scope insensitivity when affective engagement is more likely, whether because of affect-rich stimuli (experiment 1) or because of experiential decision motives (experiments 2 and 5). More importantly, this research helps clarify the architecture of the affective system and thereby the boundaries of the scope-insensitivity phenomenon. Building on recent work suggesting that the affective

5 The three-way interaction ($F(1, 332) = 2.09$, $p = .15$) would have required a total sample size of more than 1,000 participants to achieve a statistical power of .70.

FIGURE 3

EFFECT OF SOCIAL PROXIMITY, SCOPE, AND MOTIVE ON WILLINGNESS TO PAY FOR ONE-DAY MOVIE PASS (EXPERIMENT 5)



NOTE.—Error bars represent +/–1 standard error.

system of judgment and decision making is inherently a system of the present (Chang and Pham 2013), we advance the notion that affect is more broadly a system of the *immediate self*. That is, affect is not only anchored on the "now" as compared to a more distant future or past, as Chang and Pham (2013) previously showed, it is also anchored on the "me" rather than more distant others, and on the "here" rather than more distant settings. As a result, scope insensitivity is more likely to occur in valuation judgments with outcomes and targets that are psychologically close than in valuation judgments with outcomes and targets that are psychologically more distant. As illustrated in table 1, discussed earlier in the article, considerable variability in whether or not scope insensitivity was observed in past studies seems to be attributable to the degree of psychological proximity or distance conveyed by each study's decision scenario. Our studies provide more direct tests of our theoretical proposition.

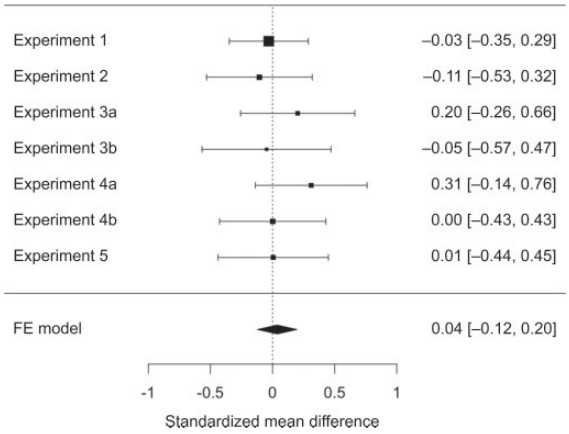
Consistent with our general proposition, results from seven experiments (and two replications) supported four important conclusions. First, valuation judgments are more scope-insensitive if the temporal horizon is proximate than if the temporal horizon is more distant (experiments 1, 2, 3A, and 3B). Second, the moderating effect of temporal proximity on scope insensitivity can be observed both prospectively, when comparing a near future with a more distant future (as in experiments 1 and 2), and retrospectively, when comparing a recent past with a more distant past (as in experiments 3A and 3B). Third, the moderating effects of psychological proximity extend beyond temporal proximity. Specifically, valuations are more scope-insensitive in decisions involving a spatially close other than in decisions involving a spatially distant other (experiment 4A), and in decisions involving a socially close other than in decisions involving a socially distant other (experiments 4B and 5). Finally, temporal or social proximity moderates scope insensitivity only when a reliance on affect is likely; when a reliance on affect is unlikely, valuations appear to regain a sensitivity to scope regardless of psychological proximity (experiments 1, 2, and 5). Together these findings support the ideas that (a) the scope-insensitivity phenomenon is indeed driven in large part by the reliance on affect in judgment; (b) as a result, the phenomenon is more likely under conditions of psychological proximity; and (c) the affective system of judgment is a system anchored on the immediate self.

As a rough quantitative assessment of the overall predictive power of our theorizing in accounting for the scope insensitivity phenomenon, we conducted an internal meta-analysis of the size of the scope effect on participants' monetary valuations (WTD or WTP) across conditions in our experiments that were designed to promote affective engagement independent of self-proximity (i.e., conditions that should lead to scope insensitivity according to prior research). As shown in figure 4, the size of this effect, measured as Cohen's *d*, varied considerably depending on whether the conditions entailed high or low self-proximity. When self-proximity was high, the average size of the scope effect was .04 (95% CI: –.12–.20), consistent with the notion of scope insensitivity. However, when self-proximity was low (psychological distance was high), the

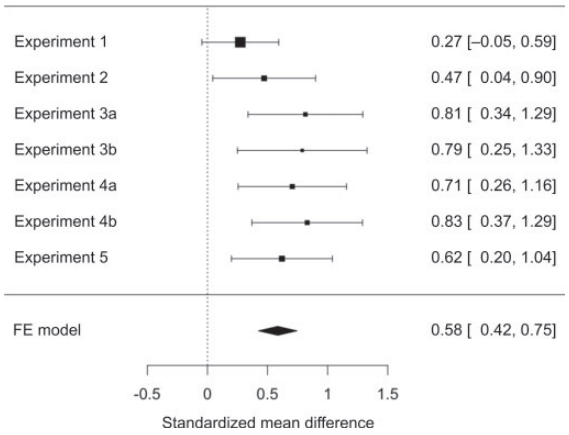
FIGURE 4

INTERNAL META-ANALYSIS OF EFFECT OF SCOPE UNDER CONDITIONS FAVORING RELIANCE ON AFFECT

(A) HIGH SELF-PROXIMITY



(B) LOW SELF-PROXIMITY



average size of this effect was .58 (95% CI: .42–.75), indicating substantial sensitivity to scope.

Contributions to the Judgment and Decision-Making Literature

These results contribute to the judgment and decision-making literature in multiple ways. With respect to the literature on scope insensitivity, our research makes five important contributions. First, our findings reaffirm the material reality of the scope-insensitivity phenomenon by providing another seven independent empirical demonstrations of the phenomenon (plus two replications). Second, our findings give additional credence to the proposition that the scope-insensitivity phenomenon is largely driven by affective processes (Hsee and Rottenstreich 2004; Kahneman et al. 1999). Third, and more importantly, our research identifies a previously unrecognized moderator of the scope-insensitivity phenomenon: psychological proximity or distance. This moderator has substantial explanatory power, both as an a posteriori interpretation of previous results (see table 1) and as an a priori predictor in our seven new studies (see figure 4). If we combine the prior studies' results (summarized in table 1) with our own results (summarized in figure 4), there is an across-studies correlation of $\phi. = 74$ between the level of self-proximity inherent to the study and whether the valuation judgments were found to be scope-sensitive or -insensitive. Fourth, whereas scope insensitivity has been mostly studied in the domain of contingent valuations, our studies provide

further evidence that this phenomenon also has implications for consumers' WTP for more traditional goods and services that have market prices. Finally, to the extent that scope insensitivity is logically irrational and generally undesirable substantively (e.g., when one is soliciting donations for environmental causes, when one is estimating WTP for various goods), our findings suggest a simple and practical way to reduce scope insensitivity: increase the psychological distance of the target or outcome in question.

In addition to contributing to the literature on scope insensitivity, our research adds to the broader judgment and decision-making literature by refining our understanding of the affective system of judgment. Our findings suggest that the differential engagement of the affective system across time horizons is not limited to the intensity of affective experiences (Loewenstein 1996; Metcalfe and Mischel 1999), nor to people's reliance on affective experience in judgment (Chang and Pham 2013). Instead, it likely extends to any judgment biases in which affect plays a central role. In the present studies, this principle was demonstrated with the scope-insensitivity phenomenon. However, other judgmental biases typically attributed to affect—such as belief distortion, polarization, and reference dependence (see Pham 2007 for a review)—can similarly be expected to be moderated by the notion of psychological proximity. Moreover, our findings suggest that affect is not only a decision-making system of the present, it is more generally a decision-making system of the immediate self. Any form of distance from the self in the here and now—whether in time, social relation, or physical space—tends to disengage the overall affective system of judgment and decision making.

Limitations and Avenues for Future Research

One obvious limitation of this research is that while the overall pattern of results is generally consistent with our theoretical propositions, our studies do not provide clear process evidence of the proposed explanation. This is a limitation that is characteristic of most behavioral decision research, and needs to be acknowledged. Another limitation is that all our studies involved hypothetical decision scenarios for which participants did not have an actual monetary incentive to reveal their "true" valuations. It is therefore possible that incentive-compatible studies might yield different results. Addressing these limitations would provide fruitful avenues for future research.

Another potential avenue would be to examine whether affect may drive insensitivity to other cognitive characteristics of the target option besides its scope, such as its price or the payment vehicle used. For example, it is possible that affect might be driving an insensitivity to monetary differences, resulting in comparable WTP when affect is evoked. Indirect evidence from studies examining purchase situations wherein affect plays a central role, such as impulsive purchases (Vohs and Faber 2007) and hedonic consumptions (Wakefield and Inman 2003), supports the idea that affect might lead to less price sensitivity. To the extent that in our studies the dependent variable always involved a monetary form of valuation (WTD or WTP), it is difficult to ascertain whether our effects were driven by a genuine insensitivity to the scope of the to-be-valuated objects (as we hypothesized), or instead by an insensitivity to money as an expression of one's private valuation. However, three sets of considerations seem to favor a standard scope-insensitivity interpretation over a monetary-insensitivity interpretation for our findings. First, while monetary insensitivity could be a correlate of scope insensitivity, to the best of our knowledge there is little direct empirical evidence of price insensitivity in the contingent-valuation literature in which scope insensitivity is typically observed (Carson 1997). Second, affect-based scope insensitivity has been observed when the dependent variable is nonmonetary (Hsee and Rottenstreich 2004, study 4). Finally, an explanation based on affect-driven insensitivity to monetary value would likely predict a main effect of affect richness. This was examined in our studies where affect richness was manipulated independently of the target; in none of these studies was there a significant main effect of affect richness. To disentangle scope insensitivity and monetary insensitivity, future research can orthogonally vary the scope and the price attached to the target in question.

In three of our experiments, we designed decision tasks to be more or less conducive to a reliance on affect. We considered two potential moderators of likely reliance on affect in judgment: the affective richness of the target stimuli (experiment 1) and the consumption motive underlying the decision (experiments 2 and 5). The first moderator varies the accessibility of feelings toward the evaluation target, whereas the second moderator varies the relevance of feelings toward the target. We believe that both conditions—the accessibility and relevance of feelings—are necessary for psychological proximity to matter. However, two related theoretical questions arise. First, in our studies, is affect moderating the effect of proximity on scope insensitivity, or is proximity moderating the effect of affect on the phenomenon? Our studies indicate that both proximity and affect are necessary for scope insensitivity to emerge. However, our experiments do not tease these two plausible causal paths apart. Second, must affect emanate from the evaluative target for scope insensitivity to transpire, or would the phenomenon still occur if affect is in fact incidental to the target? This is an empirical question that remains to be investigated. We suspect that, for the phenomenon to emerge, affect needs to originate from the target itself (i.e., the target needs to be emotion-laden). This is because, in line with Kahneman et al. (1999), we speculate that scope insensitivity arises from how affect from a

concrete, prototypical mental image of the target is experienced.

Our theoretical framework suggests additional predictions beyond the ones tested in the present research. Specifically, if the affective system of judgment is indeed a system of the immediate self, theoretically *any* judgment and decision-making phenomenon (besides scope insensitivity) that is linked to this system should be more pronounced when outcomes and targets are psychologically close than when they are psychologically more distant. For example, a well-known phenomenon that is usually attributed to the affective system is the so-called "ratio bias" (Denes-Raj and Epstein 1994), whereby people given a choice to draw from one of two bowls of jelly beans—a larger bowl containing a greater number but lower proportion of target-color beans (e.g., seven out of 100) and a smaller bowl containing a smaller number but higher proportion of target-color beans (e.g., one out of 10)—would choose to draw from the larger bowl despite the lower statistical probability of obtaining a target-color bean. According to Epstein and Pacini (1999), this phenomenon reflects the operation of an experiential system of judgment that relies on affect and feelings rather than logic and rules. If the ratio bias is indeed driven by the affective system, one would predict that this bias would be magnified under increased psychological proximity and attenuated under increased psychological distance. Similar predictions could be made about other decision phenomena commonly attributed to affect, such as the tendency to reject positive but unfair offers in the ultimatum game (Sanfey et al. 2003). Testing such predictions would be productive avenues for future research.

DATA COLLECTION INFORMATION

The first author conducted experiment 1 on Amazon's Mechanical Turk (MTurk) panel in the summers of 2014 and 2016 (and its replication, which is reported in the web appendix, in person at the behavioral lab at Columbia University during winter of the 2006–2007 academic year). The first author supervised the collection of data for experiments 2 and 5 by research assistants at Singapore Management University in the autumns of 2013 and 2015, respectively. The first author supervised the collection of data for experiment 3A by research assistants at HKUST in the autumn of 2013 (and for its replication, in the spring of 2009, also at HKUST). For experiment 3B, the first author conducted the in-person fieldwork at various graduation ceremonies in New York City from mid-May 2007 to late June 2007. The first author collected data for experiments 4A and 4B on MTurk panel in the summers of 2014 and 2015, respectively. Analyses were performed by the first author, while the second author supervised the data analyses and suggested data analysis methods for experiments 1, 2, and 5.

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