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FlashReports

Counterfactual structure and learning from experience in negotiations

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ABSTRACT

Reflecting on the past is often a critical ingredient for successful learning. The current research investigated how counterfactual thinking, reflecting on how prior experiences might have been different, motivates effective learning from these previous experiences. Specifically, we explored how the structure of counterfactual reflection – their additive (“If only I had”) versus subtractive (“If only I had not”) nature – influences performance in dyadic-level strategic interactions. Building on the functionalist account of counterfactuals, we found across two experiments that generating additive counterfactuals about a previous negotiation produced an advantage for negotiators over their previous performance compared to subtractive counterfactuals, both in terms of obtaining value for oneself and conceiving creative agreements. Additive counterfactuals enabled negotiators to more effectively extract lessons from past experiences to improve their current negotiation performance.

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Learning from experience often involves determining the causes of performance shortcomings to identify lessons to improve performance. A useful tool for establishing causal links between antecedents and outcomes is counterfactual thinking, or considerations of “what might have been” (Kahneman & Miller, 1986; Kray, Galinsky, & Wong, 2006; Markman & McMullen, 2003; Wells & Gavanski, 1989). Counterfactual thinking has proven to be a fundamental part of improving subsequent performance (Markman, Gavanski, Sherman, & McMullen, 1993). Whether it is students aiming to improve their scores on academic exams (Roese, 1994) or pilots learning from disasters barely averted (Morris & Moore, 2000), the generation of counterfactuals improves performance by helping to specify the necessary conditions to avoid repeating previous errors.

One aspect of counterfactuals that determines their impact is the direction of the counterfactual, or whether a better versus worse possible world is imagined. Comparisons to worse possible worlds (downward counterfactuals) can help people feel better; whereas comparisons to better possible worlds (*upward counterfactuals*) can help to improve future performance (though at a temporary cost to affect). Although previous research has established that the generation of upward counterfactual thoughts about a past negotiation increases time devoted to preparing for subsequent negotiations (Galinsky, Seiden, Kim, & Medvec, 2002), surprisingly little attention has been paid to the effect of counter-

factual thought on actual learning (i.e. performance gains) from past strategic interactions.

The current research holds constant the direction of counterfactuals and examines how counterfactual structure (additive versus subtractive) impacts the learning process in strategic interactions. Whereas *additive counterfactuals* introduce new antecedent elements in constructing an alternate reality (e.g., “If only I had studied X topic, I would have gotten a better grade”), *subtractive counterfactuals* remove antecedent elements (e.g., “If only I had not studied this obscure topic, I would have gotten a better grade”) (Roese, Hur, & Pennington, 1999; Roese & Olson, 1993). In Roese (1994) influential research on the functions of counterfactuals, counterfactual direction and structure orthogonally impacted learning; both upward and additive counterfactuals improved performance on subsequent anagram tasks.

We hypothesize that the generation of additive counterfactuals produces an advantage in mixed-motive interactions. By identifying alternative actions that would have resulted in success, additive counterfactuals provide a specific script for future action (Johnson & Sherman, 1990; Roese, 1994; Roese & Olson, 1993). In contrast, subtractive counterfactuals simply remove an option from consideration, thereby leaving negotiators with a more poorly specified roadmap for future action. Additive counterfactuals are also more creative than subtractive counterfactuals (Markman, Lindberg, Kray, & Galinsky, 2007; Roese, 1994). Whereas subtractive counterfactuals simply remove one response option from consideration, additive counterfactuals necessitate going beyond the original premise set to generate novel options not previously considered. Because negotiating effectively often involves a creative

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exploration of solutions (Lax & Sebenius, 1986; Thompson, 2008), we expected the inherent creativity of additive counterfactuals to facilitate performance at the bargaining table. Consistent with this conceptualization is the observation that additive counterfactuals foster a promotion regulatory focus (Higgins, 1998; Roese et al., 1999), which has proven to enhance creativity (Friedman & Forster, 2001) and improve outcomes in negotiations (Galinsky, Leonardielli, Okhuysen, & Mussweiler, 2005).

The current research demonstrates for the first time a link between counterfactual structure and learning from past experiences in strategic interactions. We conducted two experiments exploring how counterfactual structure impacts value creating (maximizing the available resources for both parties by designing creative agreements) and value claiming (securing more of the available resources for oneself). Experiment 1 examined how the structure of counterfactual thought impacts value claiming and Experiment 2 examined how counterfactual structure impacts value creation. We held constant both the *type* (counterfactual) and the *direction* (upward) of reflection and simply varied counterfactual structure—whether negotiators considered additive versus subtractive mutations of their most recent negotiation. In terms of both competitive and cooperative outcomes, we provide evidence that identifying regretted past inactions facilitates learning from experience to a larger extent than identifying regretted past actions. That is, pondering what *might have been*, rather than what *might not have been*, facilitates the learning process.

Experiment 1

The first experiment examined whether constructing additive counterfactuals facilitates learning compared to subtractive counterfactuals. To test this hypothesis, we manipulated the structure of counterfactual thought within each negotiating dyad (one negotiator generated additive counterfactuals; the other negotiator generated subtractive counterfactuals) prior to completing a multi-issue employment contract negotiation (Neale, 1997). Negotiation performance served as a gauge of learning from past negotiations.

Method

Participants and design

Participants were 184 Masters of Business Administration students enrolled in a semester-long negotiations course. The experimental design included two within-dyad counterfactual conditions (additive, subtractive). Participants were randomly assigned to condition and we counterbalanced role assignment (recruiter, candidate).

Procedure

The experiment took place as part of a classroom simulation. Participants prepared for the negotiation as a homework assignment by reading their private role information. Upon arriving to class, all participants reflected on their previous negotiation performance in the course by completing a worksheet directing them to generate upward counterfactuals as follows:

“At this point in the course, students often have thoughts like “if only . . .” after negotiations, in that they can see how things might have turned out better. For example, a buyer whose first offer is immediately accepted might say . . .”

We then provided an example of one behavior (i.e., initiating the negotiation by making the first offer to one's counterpart), varying whether it was framed in additive versus subtractive terms. Because students had already learned that making the first offer, regardless of whether in the position of buyer or seller, is

advantageous when it provides a psychological anchor from which subsequent discussions follow but disadvantageous when a negotiator lacks credible information about their counterpart's bargaining position (Galinsky & Mussweiler, 2001), this example was expected to be equally plausible in its additive and subtractive forms.

Participants in the additive condition read, “If only I had made the first offer, I would have ended up with a better price. Often, we wish we had done something to avoid a negative outcome.” Participants in the *subtractive condition* read, “If only I had not made the first offer, I would have ended up with a better price. Often, we wish we had not done something that led to a negative outcome.” Both additive and subtractive participants were then instructed to list three specific actions that in retrospect they could have either taken or avoided to improve their past performance. The additive (subtractive) condition stated, “Each thought you list must start with the phrase “If only I HAD (NOT) . . .”

After completing the counterfactual exercise individually, dyads were given 60 min to complete a multi-issue employment negotiation (see Kray, Thompson, & Galinsky, 2001). Eight issues (worth up to 13,200 points) were negotiated. Two issues were distributive, meaning the parties' preferences were in complete opposition to each other. Two issues were compatible, meaning that the parties' preferences were identical. Finally, the remaining four issues were integrative, meaning negotiators had different low and high priority issues; for example, bonus was worth 4000 points for the candidate, but only 1600 for the recruiter; in contrast, vacation time was worth 4000 for the recruiter and only 1600 for the candidate (see [Supplementary data](#) for more details).

Because each dyad had the identical counterfactual composition (one subtractive negotiator, one additive negotiator), individual gain was our sole performance measure. However, we also coded participants' counterfactual worksheets to determine whether our manipulation of counterfactual structure was successful. To do so, we had two coders who were blind to condition and hypothesis assess the degree to which statements focused on regretted actions versus inactions on a 5-point scale (1 = regretted action; 5 = regretted inaction). Because reliability was high ($\alpha = .86$), we combined their ratings. We also averaged the ratings of negotiators' three counterfactual statements.

Results and discussion

Manipulation check

We examined whether the instructions to generate additive versus subtractive counterfactual thoughts was successful with a *t*-test. As expected, participants in the additive counterfactual condition were significantly more likely to generate additive counterfactuals ($M = 4.25$, $SD = .65$) than participants in the subtractive counterfactual condition ($M = 2.09$, $SD = .75$), $F(1, 85) = 3.49$, $p < .001$.

Negotiation performance

Consistent with our hypothesis, a repeated-measures ANOVA of points earned revealed that negotiators in the additive counterfactual condition ($M = 6254.35$, $SD = 1411.91$) performed significantly better than their counterparts who had generated subtractive counterfactuals ($M = 5608.70$, $SD = 1,544.03$), $F(1, 91) = 5.57$, $p = .02$. By providing a script for future action, the generation of additive counterfactuals enabled negotiators to gain a competitive advantage over their counterpart. Specifically, identifying regretted inactions from previous negotiations led negotiators to claim approximately 5% more of the bargaining pie than did identifying regretted actions from the past.

To assess whether this effect was driven by both additive and subtractive counterfactuals, we gathered data from a non-contem-

poraneous sample collected in a similar MBA classroom ($N = 108$). Adding this baseline condition to the above analysis yielded a significant omnibus effect, $F(2, 227) = 3.11, p = .047$. Planned comparisons revealed that the baseline point total ($M = 5816.67, SD = 1761.77$) was significantly less than the additive counterfactual condition ($t(227) = 2.11, p = .036$) but did not differ from the subtractive counterfactual condition, $t(227) = .47, p = .64$.

Finally, we examined learning over time by comparing individual negotiators' performance in the current negotiation to their performance on the previous negotiation (with a different counterpart) that they had reflected upon in the counterfactual reflection exercise. To do so, we created standardized Z-scores for each negotiation and then conducted a repeated-measures ANOVA, with counterfactual structure as a between-subject factor. Consistent with our hypothesis, a significant Time X Counterfactual Structure interaction emerged, $F(1, 100) = 5.78, p = .018$ (see Fig. 1). Whereas performance on the previous negotiation was comparable across conditions, negotiators who subsequently reflected upon regretted inactions experienced a dramatic performance gain over negotiators who had instead pondered regretted actions.

Experiment 2

The first experiment established that additive counterfactuals produce a competitive advantage at the bargaining table by crystallizing lessons learned from the past. The current experiment was designed to test whether counterfactual structure also impacts value creation by helping negotiators discover integrative solutions that address their underlying interests. A classic example of overcoming the fixed nature of positions to construct an agreement that integrates compatible interests concerns the Egypt–Israel conflict over the Sinai Peninsula in 1978. Egypt's position was that they wanted control over the area and Israel's position was that they wanted control over the area. But Fisher, Ury, and Patton (1991), p. 41 noted that: "Looking to their interests instead of their positions made it possible to develop a solution. Israel's interest lay in security; they did not want Egyptian tanks poised on their border ready to roll across at any time. Egypt's interest lay in sovereignty; the Sinai had been part of Egypt since the time of the Pharaohs." A focus on interests led to a unique solution: Egypt was granted full sovereignty over the Sinai, protecting their interest of self-determination, but the area was demilitarized, which gave Israel the sense of security that they coveted.

We hypothesized that generating additive counterfactual would produce more integrative solutions compared to generating sub-

tractive counterfactuals. Consistent with this hypothesis, Markman et al. (2007) determined that additive counterfactuals facilitate individual-level creativity. To test this hypothesis in dyadic-level strategic interactions, we manipulated counterfactual structure between negotiating dyads (both negotiators were given the same structure manipulation) and then examined the construction of agreements that met negotiators' underlying interests.

Method

Participants and design

Participants were 158 Masters of Business Administration students enrolled in a semester-long course in negotiations. The experimental design included two between-dyad counterfactual conditions (additive, subtractive). Both negotiators within each dyad were assigned the same counterfactual structure. Dyads were randomly assigned to condition. Role assignment (buyer, seller) was counterbalanced within dyads.

Procedure

We followed the procedure described in Experiment 1, except that we used the Texoil negotiation (Goldberg, 2000). To reach agreement, negotiators needed to overcome a negative bargaining zone (the maximum price the buyer was willing to pay was lower than the minimum price the seller would accept) and discover an alternative solution that included terms addressing negotiators' underlying interests. Because the seller's reservation price was determined in part by a desire to pay for an extended trip around the world and the buyer needed to hire competent workers over their 5-year expansion period, negotiators could construct a deal that met their joint interests by agreeing to a price below the seller's reservation price but guaranteeing the seller a managerial job upon returning from traveling.

Performance was measured by a dichotomous variable (deal including additional terms versus no deal or a deal based solely on price that violated one of the negotiator's reservation prices) that was coded at the dyadic level (cf. Galinsky, Maddux, Gilin, & White, 2008; Kray & Haselhuhn, 2007; Maddux & Galinsky, 2009). Deals based solely on price were coded as impasses because they violated negotiators' instructions in that the least the seller was told to accept was \$580,000 and the most the buyer was authorized to pay was \$500,000.

Results and discussion

Consistent with our hypothesis, a chi-squared analysis revealed that dyads in the additive counterfactual condition ($M = 48.8\%$) were more likely to construct an integrative agreement than dyads in the subtractive counterfactual condition ($M = 26.3\%$), $\chi^2 (n = 79, df = 1) = 4.23, p = .04$. The generation of additive counterfactuals, compared to the generation of subtractive counterfactuals, increased the probability that negotiators would construct an agreement that met both negotiators' underlying interests.

We also gathered baseline data from a non-contemporaneous sample in a similar MBA classroom ($N = 76$) and observed 36.8% of dyads reached an integrative agreement. Neither additive nor subtractive counterfactual conditions significantly differed from the control condition, perhaps due to the low statistical power inherent in tests of proportions.

General discussion

Two experiments examined the impact of counterfactual structure on learning from experience in strategic interactions. Applying lessons from previous negotiations has proven to be a formidable challenge even with experienced negotiators (Loewenstein &

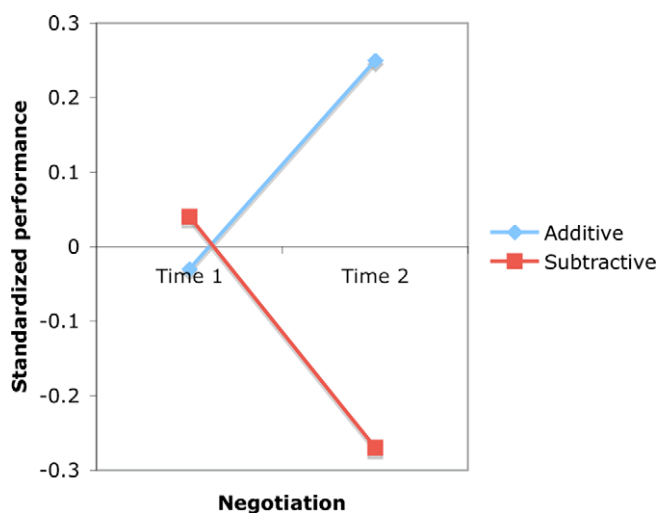


Fig. 1. Standardized negotiation performance across time.

Thompson, 2000; Thompson, Loewenstein, & Gentner, 2000). The current research, however, suggests one tool for overcoming these obstacles. Identifying regretted inactions from a past negotiation facilitated negotiation performance compared to identifying regretted actions.

In the first experiment, we found that negotiators who generated additive counterfactuals concerning their prior negotiation gained a competitive advantage over their counterparts who had generated subtractive counterfactuals. Identifying regretted inactions from the past facilitated learning, as evidenced by performance gains over their previous performance. In the second experiment, additive counterfactuals facilitated the reconciliation of conflicting positions by crafting an agreement that met and integrated underlying compatible interests of both negotiators. Taken together, these findings suggest that how we structure considerations of “what might have been” has a pronounced effect on how much benefit we derive from reflecting upon past experiences.

In considering the reasons why additive counterfactuals prove advantageous over subtractive counterfactuals in the pursuit of lessons learned, we reasoned that additive counterfactuals provide both a more specific set of actions to enact in a subsequent negotiation and a more creative problem solving orientation than subtractive counterfactuals (Markman et al., 2007; Roese, 1994). In addition, additive counterfactuals activate a promotion regulatory focus (Roese et al., 1999), which has been shown to aid negotiation success (Galinsky et al., 2005). Future research should more clearly identify the processes through which additive counterfactuals promote success. Specifically, behavioral coding that examines the extent to which regretted inactions are enacted in subsequent negotiations would be beneficial for understanding better the link between counterfactual structure and learning. Also, following the lead of Galinsky and colleagues in their examination of regulatory focus in negotiations, future research might specifically ask participants to report the extent to which they were focused on avoiding negative outcomes versus obtaining positive outcomes at the bargaining table. In combination, these two approaches would help to link the behaviors and goals activated by additive versus subtractive counterfactuals with performance.

A growing body of literature makes clear that counterfactuals exert significant effects on motivation and performance (e.g., Epstude & Roese, 2008; Markman, McMullen, & Elizaga, 2008; Parks, Sanna, & Posey, 2003; Roese & Oslon, 1995). For the first time, this research shows that the effects of counterfactuals extend to the mixed-motive negotiation domain. Although previous research has shown that upward counterfactuals increase negotiators' investment in preparing for future negotiations (Galinsky et al., 2002), the current research offers a finer-grained picture of the link between counterfactuals and reflecting on the past. The key to learning resides in identifying helpful actions that had not been taken rather than in musing about actual actions taken that might have been undone. Particularly effective negotiators learn from experience by mentally adding to rather than subtracting from reality.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.jesp.2009.03.008.

References

Epstude, K., & Roese, N. J. (2008). The functional theory of counterfactual thinking. *Personality and Social Psychology Review, 12*, 168–192.

- Fisher, R., Ury, W., & Patton, B. (1991). *Getting to yes*. Penguin.
- Friedman, R. S., & Forster, J. (2001). The effects of promotion and prevention cues on creativity. *Journal of Personality and Social Psychology, 81*, 1001–1013.
- Galinsky, A. D., Leonardelli, G. J., Okhuysen, G. A., & Mussweiler, T. (2005). Regulatory focus at the bargaining table: promoting distributive and integrative success. *Personality and Social Psychology Bulletin, 31*, 1087–1098.
- Galinsky, A. D., Maddux, W. W., Gilin, D., & White, J. B. (2008). Why it pays to get inside the head of your opponent: the differential effects of perspective-taking and empathy in negotiations. *Psychological Science, 19*, 378–384.
- Galinsky, A. D., & Mussweiler, T. (2001). First offers as anchors: the role of perspective-taking and negotiator focus. *Journal of Personality and Social Psychology, 81*, 657–669.
- Galinsky, A. D., Seiden, V. L., Kim, P. H., & Medvec, V. H. (2002). The dissatisfaction of having your first offer accepted: the role of counterfactual thinking in negotiations. *Personality and Social Psychology Bulletin, 28*, 271–283.
- Goldberg, S. B. (2000). *Texoil. Dispute resolution research center exercises*, Northwestern University.
- Higgins, E. T. (1998). Promotion and prevention: regulatory focus as a motivational principle. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 30, pp. 1–46). San Diego, CA: Academic Press.
- Johnson, M. K., & Sherman, S. J. (1990). Constructing and reconstructing the past and the future in the present. In E. T. Higgins & R. M. Sorrention (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 482–526). New York: Guilford Press.
- Kahneman, D., & Miller, D. T. (1986). Norm theory: comparing reality to its alternatives. *Psychological Review, 93*, 136–153.
- Kray, L. J., Galinsky, A. D., & Wong, E. (2006). Thinking inside the box: the relational processing style elicited by counterfactual mind-sets. *Journal of Personality and Social Psychology, 91*, 33–48.
- Kray, L. J., & Haselhuhn, M. (2007). Implicit negotiation beliefs and performance: longitudinal and experimental evidence. *Journal of Personality and Social Psychology, 93*, 49–64.
- Kray, L. J., Thompson, L., & Galinsky, A. (2001). Battle of the sexes: Gender stereotype confirmation and reactance in negotiations. *Journal of Personality and Social Psychology, 80*, 942–958.
- Lax, D., & Sebenius, J. (1986). *The manager as negotiator: Bargaining for cooperation and competitive gain*. New York, NY: Free Press.
- Loewenstein, J., & Thompson, L. (2000). The challenge of learning. *Negotiation Journal, 16*, 399–408.
- Maddux, W. W., & Galinsky, A. D. (2009). Cultural borders and mental barriers: the relationship between living abroad and creativity. *Journal of Personality and Social Psychology*.
- Markman, K. D., Gavanski, I., Sherman, S. J., & McMullen, M. N. (1993). The mental simulation of better and worse possible worlds. *Journal of Experimental Social Psychology, 29*, 87–109.
- Markman, K. D., Lindberg, M. J., Kray, L. J., & Galinsky, A. D. (2007). Implications of counterfactual structure for creative generation and analytical problem solving. *Personality and Social Psychology Bulletin, 33*, 312–324.
- Markman, K. D., & McMullen, M. N. (2003). A reflection and evaluation model of comparative thinking. *Personality and Social Psychology Review, 7*, 244–267.
- Markman, K. D., McMullen, M. N., & Elizaga, R. A. (2008). Counterfactual thinking, persistence, and performance: a test of the reflection and evaluation model. *Journal of Experimental Social Psychology, 44*, 421–428.
- Morris, M. W., & Moore, P. C. (2000). The lessons we (don't) learn: counterfactual thinking and organizational accountability after a close call. *Administrative Science Quarterly, 45*, 737–765.
- Neale, M. A. (1997). *New recruit. Dispute resolution research center exercises*, Northwestern University.
- Parks, C. D., Sanna, L. J., & Posey, D. C. (2003). Retrospection in social dilemmas: how thinking about the past affects future cooperation. *Journal of Personality and Social Psychology, 84*, 988–996.
- Roese, N. J. (1994). The functional basis of counterfactual thinking. *Journal of Personality and Social Psychology, 66*, 805–818.
- Roese, N. J., Hur, T., & Pennington, G. L. (1999). Counterfactual thinking and regulatory focus: implications for action versus inaction and sufficiency versus necessity. *Journal of Personality and Social Psychology, 77*, 1109–1120.
- Roese, N. J., & Olson, J. M. (1993). The structure of counterfactual thought. *Personality and Social Psychology Bulletin, 19*, 312–319.
- Roese, N. J., & Olson, J. M. (1995). Functions of counterfactual thinking. In N. J. Roese & J. M. Olson (Eds.), *The social psychology of counterfactual thinking*. Hillsdale, NJ: Lawrence Erlbaum Associates Inc.
- Thompson, L. (2008). *The mind and heart of the negotiator* (4th ed.). Upper Saddle River, NJ: Prentice Hall.
- Thompson, L., Loewenstein, J., & Gentner, D. (2000). Avoiding missed opportunities in managerial life: analogical training more powerful than individual case training. *Organization Behavior and Human Decision Processes, 82*, 60–75.
- Wells, G. L., & Gavanski, I. (1989). Mental simulation of causality. *Journal of Personality and Social Psychology, 56*, 161–169.