



# LEUPHANA

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**On Solving Puzzles with Numerous Pieces:  
How Complexity and Different Approaches to Manage it Affect Perceptions, Behaviors,  
and Outcomes in Integrative Negotiations**

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## **Index of Publications**

This thesis comprises six chapters. In the first chapter, I explain the general rationale of the thesis, discuss its contributions to theory and practice, and outline potential areas for future research. The second chapter includes a theoretical research article, which has been submitted to the *International Journal of Conflict Management*. The third chapter comprises an empirical research article, which has been submitted to the *Journal of Personality and Social Psychology*. Previous versions of this article have been presented at one international and two national conferences. The fourth chapter includes a meta-analytic review, which is currently in preparation for publication. The fifth chapter comprises another empirical research article, which has been submitted to the *Academy of Management Journal*. Previous versions of this article have been presented at two international conferences. The sixth chapter includes a review article, which has been published in *The In-Mind*, the German part of an international peer reviewed online-journal on psychological topics. In the following, each article and the corresponding co-authors are listed. All manuscripts are presented in the originally published or (to be) submitted versions except for changes in layout and format.

<b>Content</b>	<b>Manuscript</b>
Chapter 2	Zhang, H., <b>Warsitzka, M.</b> , Zhang, K., & Trötschel, R. (2020). A Model of Task-Based and Context-Based Determinants of Complexity in Negotiations. Manuscript submitted for publication.
Chapter 3	<b>Warsitzka, M.</b> , Zhang, H., Loschelder, D. D., Majer, J. M., & Trötschel, R. (2020). Does Expanding the Pie spoil the Cake? How and Why the Number of Issues Affect Behaviors and Outcomes in Integrative Negotiation. Manuscript submitted for publication.
Chapter 4	<b>Warsitzka, M.</b> , Freund, P. A., & Trötschel, R. (2020). A Meta-Analytic Review on the Effect of the Number of Issues on Integrative Negotiation Outcomes and its Moderators. Manuscript in preparation.
Chapter 5	Zhang, H., <b>Warsitzka, M.</b> , Majer, J. M., & Trötschel, R. (2020). Mental Accounting in Negotiations: Solving Negotiators' Cognitive Dilemma in Multi-Issue Negotiations. Manuscript submitted for publication.
Chapter 6	<b>Warsitzka, M.</b> , Ade, V., & Trötschel, R. (2018). Einigungen ohne Einbußen: Kompromiss-los! <i>The In-Mind</i> , 3.

## Chapter 1: General Rationale

### *General Abstract*

For decades, psychologists have been studying integrative bargaining. Already in the early years of that research, scholars began to raise important questions about complexity in negotiations, how it can be managed, and the corresponding effects on the negotiation process and the quality of economic outcomes. Surprisingly, empirical examinations of these research questions are scarce despite their theoretical and practical value. In the present research, I<sup>1</sup> seek to shed theoretical and empirical light on how complexity and different approaches to manage it affect perceptions, behaviors, and outcomes in integrative negotiations on the basis of five original research articles.

As a basis for our empirical research, we developed a theoretical framework on negotiation complexity. In this framework, we distinguished between *task-* and *context-based determinants* of complexity and outlined their impact on the negotiation process and outcomes. Furthermore, based on the existing negotiation literature, we described different approaches to manage complexity (Article 1). In the empirical part of the present thesis, we focused primarily on the number of negotiation issues as one essential task-based determinant of negotiation complexity and on mental accounting as a cognitive approach to deal with that complexity, which has not been considered in the extant negotiation literature. Specifically, in our first empirical research project, we investigated how negotiators cognitively categorize a high versus low number of negotiation issues (i.e., *mental parsing*) and how negotiators' cognitive categorization of issues, in turn, influences trade-off behavior and joint economic outcomes. Across four experiments, we obtained empirical evidence for the proposed detrimental effect of a higher number of issues: A high (vs. low) number of issues raised negotiators' inclination to mentally parse the whole set of issues into separate cognitive categories (i.e., *mental accounts*) and to consider issues within mental accounts separately from issues within other mental accounts to reduce the complexity of the task to a manageable level. A stronger inclination to cognitively categorize issues into separate mental accounts, in turn, increased the risk of scattering the integrative issues between these mental accounts, which impeded negotiators' abilities to identify optimal trade-off opportunities, resulting in inferior integrative outcomes. Furthermore, exploratory results showed that

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<sup>1</sup> The research presented in this thesis is the result of many fruitful discussions and collaborations between myself and several other researchers. Thus, I will use the first person plural when referring explicitly to our research articles. However, I will use the first person singular when I refer to my exclusive work in the form of this general rationale.

negotiators compared outcomes across different mental accounts (i.e., *integrated outcome editing*) to a lesser extent when more issues were under discussion (Article 2). In the following research project, we extended our previous research by examining the overall relation between the number of issues and integrative negotiation outcomes under a mental-accounting perspective. Specifically, we offered meta-analytic evidence for the idea that the detrimental effect of a higher number of issues on negotiation outcomes occurs only when the level of complexity in terms of the number of issues exceeds a critical threshold. Furthermore, we examined the impact of the number of agreement options per issue as another task-based determinant of negotiation complexity and other potential moderators (Article 3). The next part of the present thesis focused in more detail on different ways of cognitively managing a given level of complexity in terms of a constantly high number of issues. Specifically, we empirically investigated the effects of different types of mental accounting in a highly complex multi-issue negotiation on judgment accuracy, trade-off behavior, and negotiation outcomes across five experiments. We found that compared to categorizing all issues into a single mental account (i.e., *comprehensive accounting*) or categorizing each issue into separate mental accounts (i.e., *minimal accounting*), creating mental accounts with subsets of issues (i.e., *topical accounting*) led to a lower judgment accuracy, less integrative trade-offs, and worse joint outcomes if the integrative issues were scattered between accounts. By contrast, topical accounting led to a higher judgment accuracy, more integrative trade-offs, and better joint outcomes if the integrative issues were aggregated within mental accounts. Moreover, we obtained empirical evidence for the prediction that systematically comparing outcomes between different mental accounts (i.e., *integrated outcome editing*) can help negotiators to reduce the detrimental effect of topical accounting when the integrative issues are scattered between accounts (Article 4). The final part of the present research took a broader perspective on integrative strategies in negotiations. We reviewed the negotiation literature not only on *expanding the pie* in terms of increasing the number of issues and *logrolling* in terms of making integrative trade-offs but also on *solving underlying interests* as a third commonly recommended integrative strategy. I will outline how the insights presented in this thesis extend the negotiation literature on the first two strategies. Moreover, I will argue that the third strategy might provide an additional means to overcome the detrimental effects of large numbers of issues on negotiators' mental-accounting processes, their perceptions, behaviors, and integrative negotiation outcomes (Article 5). Overall, the current research helps to better understand the vital roles of

complexity in general and the number of issues in particular as well as different approaches to deal with it in integrative negotiations.

### ***Introduction***

International trade negotiations in the context of the General Agreement on Tariffs and Trades (GATT) and its successor the World Trade Organization (WTO) have become more and more complex over the past decades (Albin & Young, 2012; Tallberg, 2010). One essential aspect of this rising complexity was that the number of negotiation issues was substantially increased. To illustrate this, the ninth session of the WTO trade negotiations, also called Doha round (2001-2015), involved a plethora of issues: In addition to the core issues that had also been negotiated in previous rounds (e.g., tariffs, non-tariff barriers, farm trade restrictions, and aid measures for developing countries), numerous further issues had to be discussed, for instance, service regulations, intellectual property rights, regional integration, foreign direct investments, and environmental issues (Albin & Young, 2012). In contrast to all prior GATT/WTO negotiations, which had ended with an agreement, the Doha round was “declared dead” (“The Doha round finally dies,” 2015) by members of the WTO after years of cumbersome negotiations in 2015. Undoubtedly, the failure of the Doha round had a multitude of reasons. Nevertheless, crucial questions emerge regarding the role of negotiation complexity in the “death scene” (“The Doha round finally dies,” 2015) of the Doha round: Did the high complexity contribute to ending this latest WTO negotiation without an agreement because it prevented negotiators from recognizing a path towards a mutually beneficial solution? And what could the parties involved have done to avoid its failure? More generally speaking: How does complexity and negotiators’ approach to manage it affect the negotiation process and the quality of outcomes?

A situation is complex if it involves “a large number of parts that interact in a nonsimple [sic] way” (Simon, 1969, p. 68). In negotiations, these interacting parts can, for instance, be parties, roles, or issues (Crump, 2015). As early as 1965, Walton and McKersie acknowledged the importance of complexity in their behavioral theory of labor negotiations (see also Crump, 2015; Winham, 1977; Zartmann, 1994). All the more surprising, to this day, scholars have not developed a comprehensive, empirically grounded understanding of negotiation complexity and how it can be managed effectively (e.g., Laubert & Geiger, 2018). Exactly ten years later, in their seminar work on the social psychology of bargaining, Ruben and Brown (1975) raised important questions about the effects of a high number of

issues<sup>2</sup> as a specific determinant of complexity and negotiators' cognitive approach to manage that complexity on negotiations:

Among the more intriguing questions to arise when one considers the effects of the number of issues at stake are those pertaining to how the issues are approached or treated by the bargainers. For example, are multiple issues likely to be treated as singles? Broken into subsets? Considered in their entirety? Furthermore, if issues are differentiated, which are likely to be dealt with first, which postponed and for what reasons? Under what conditions will bargainers tend to adopt one or the other of these approaches? Finally, how is each approach likely to affect bargaining effectiveness? (p. 146)

As for negotiation complexity in general, theoretical and empirical investigations of these and related research questions are scarce despite their supposed “intriguing” nature. Best-selling textbooks (e.g., Fisher & Ury, 1981; Lax & Sebenius, 1986; Thompson, 1998) and theoretical articles (e.g., Albin & Young, 2012; Sebenius, 1983; Watkins, 2003) have, at best, discussed the potential impact of varying the number of issues on negotiation outcomes. Furthermore, the few research articles that have empirically tested this theorizing have reached inconsistent conclusions (Geiger & Hüffmeier, in press; Naquin, 2003; Van der Schalk, Beersma, Van Kleef, & De Dreu, 2010; Wall, 1984). Importantly, none of these articles has investigated how negotiators cognitively deal with the complexity of having multiple issues under discussion and how negotiators' cognitive complexity management, in turn, affects their perceptions, behaviors, and negotiation outcomes. Thus, the important questions raised by Rubin and Brown (1975) remained unanswered by previous research. However, a recently developed framework offers an in-depth theoretical analysis of the crucial role of negotiators' cognitive processes to manage complex multi-issue negotiations (*mental accounting in negotiations*; Trötschel, Majer, Zhang, Warsitzka, & Leitsch, 2020). In this framework, insights from the literature on cognitive processes in complex financial and consumer decision-making situations are transferred to the context of integrative negotiations (*mental accounting*; Thaler, 1985, 1999; *choice bracketing*; Read, Loewenstein, & Rabin, 1999). On that basis, five cognitive principles are described that determine how negotiators cognitively process multiple issues (i.e., creating, regulating, balancing, evaluating, and closing of mental accounts). Of these principles, the creation of mental accounts through the process of subdividing a set of multiple issues into separate subsets (i.e., mental parsing; Thaler, 1999)

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<sup>2</sup> A negotiation issue is a “topic requiring separate (though related) decisions by the bargainers” (Pruitt, 1981; p. 12).

and the evaluation of mental accounts through the process of comparing potential outcomes across these subsets (i.e., outcome editing; Tversky & Kahneman, 1981) are most essential for managing complexity in terms of multiple issues in negotiations (Trötschel et al., 2020). Thus, we build on the framework on mental accounting in negotiations by specifically focusing on mental parsing and outcome editing in addition to our framework on negotiation complexity (Article 1) as a rich theoretical basis for our empirical research.

Two aspects regarding the empirical focus of the present thesis require clarification: First, the current research has to be differentiated from research on agenda setting (e.g., Mannix, Thompson, & Bazerman, 1989; Weingart, Bennett, & Brett, 1993; Yukl, Malone, Hayslip, & Pamin, 1976): Whereas agenda setting pertains to the systematic structuring of multiple issues by determining which issues to discuss in which phase of a negotiation (e.g., following a sequential agenda by negotiating single issues/packages of issues within separate agenda phases), the focus of the present thesis is on how negotiators cognitively manage complexity in terms of high numbers of issues within the same negotiation phase when no agenda is set. Thus, our research lines up with the proposition that negotiators spontaneously organize the issues under discussion by themselves in the absence of an explicit agenda (Mannix et al., 1989). Specifically, we examine negotiators' mental-accounting processes when organizing multiple issues in integrative negotiations and their effects on the negotiation process and the quality of outcomes. Second, the empirical focus of the current thesis is explicitly on how negotiators manage tangible issues (e.g., specific trade-regulations) and excludes intangible ones (e.g., saving face) because intangibles relate more strongly to negotiators' motives and emotions (Rubin & Brown, 1975) and would thus interfere with the cognitive perspective of this research.

Throughout this thesis, I will examine the overall research question from three complementary perspectives: First, I will provide a broad theoretical analysis of aspects that determine negotiation complexity and different approaches of managing it. Second, I will offer an in-depth empirical investigation of the impact of different levels of complexity in terms of varying numbers of issues on negotiators' mental-accounting processes and how these processes, in turn, affect the negotiation process and joint outcomes. Third, I will investigate different types of mental accounting to manage a given level of complexity in terms of a large number of issues and the corresponding effects on negotiators' perceptions, behaviors, and integrative negotiation outcomes. Addressing the overall research question of the current thesis from these complementary perspectives may provide particularly valuable insights into the crucial role of complexity and the effects of different approaches to manage



it on integrative negotiations and may help refine theory and empirical research in this fascinating field.

### ***Aims and Structure of the Thesis***

The overarching research goal of the current thesis is to investigate how complexity and different approaches to deal with it influence negotiators' perceptions, behaviors, and joint economic outcomes in integrative negotiations. In order to achieve this goal, the present thesis is structured as follows: As a first step, I will describe a theoretical framework differentiating between task- and context-related determinants of negotiation complexity and I will outline how these determinants affect negotiations. Moreover, I will delineate how negotiators can manage complexity (1). In a second step, I will concentrate particularly on different levels of complexity in terms of varying numbers of issues and how negotiators cognitively manage that complexity. Specifically, I will empirically examine the effects of negotiating a high versus low number of issues on negotiators' mental-accounting processes and how these processes, in turn, influence trade-off behavior and joint economic outcomes in integrative negotiations (2). After that, I will expand the scope of the analysis by investigating the effects of various numbers of issues on joint outcomes and potential moderators including the number of agreement options per issue. Also, I will offer a theoretical explanation for the proposed effects with respect to mental accounting. (3). As a next step, I will take a closer look at different types of mental accounting and their consequences on the negotiation process and outcomes when the degree of complexity in terms of the number of issues is kept constant. Specifically, I will empirically analyze the impact of different ways of mentally parsing the issues under discussion on negotiators' judgment accuracy, trade-off behaviors, and joint economic outcomes in a highly complex negotiation task involving numerous issues. Furthermore, I will investigate the interplay of mental parsing and outcome editing in regard to negotiators' perceptions, behaviors, and integrative negotiation outcomes (4). Finally, in the last part of the present thesis, I will extend the perspective on negotiation complexity and mental accounting in the context of different integrative strategies by reviewing the negotiation literature not only on expanding the pie and logrolling but also on solving underlying interests. I will analyze how complexity in terms of the number of issues and negotiators' cognitive complexity management relate to each of these strategies with a particular focus on how solving underlying concerns could help negotiators to overcome the detrimental effects arising from high numbers of issues. Thereby, I will lay the groundwork for outlining a future research agenda (5).

In the following, I will explain how each publication contributes to addressing the research questions outlined above and I will discuss theoretical and practical implications of the empirical findings. I will conclude with suggestions for future research.

## (1) Negotiation Complexity

Complexity has been acknowledged as an essential characteristic of negotiations since over half a century (e.g., Crump, 2015; Walton & McKersie, 1965; Zartman, 1994). However, it is still an underresearched topic in the negotiation literature (e.g., Laubert & Geiger, 2018). In this first project of the present thesis, we developed a theoretical framework on negotiation complexity by integrating theory and empirical insights from research on negotiations and complex decision-making. Specifically, we differentiate between *task-based* and *context-based* determinants of negotiation complexity and outline their consequences at the bargaining table. Also, we describe different approaches how to deal with negotiation complexity. By introducing our model of negotiation complexity, we lay the groundwork for our subsequent empirical research projects.

As a negotiation is essentially a decision-making task (e.g., Bazerman, Curhan, Moore, & Valley, 2000), the first part of our model comprises four aspects of the negotiation task that we propose affect the degree of negotiation complexity and consequently the negotiation process and outcomes. 1.) *The number of negotiation issues*: Increasing the number of issues at the bargaining table can be beneficial if it raises the integrative value of the negotiation pie (e.g., Fisher & Ury, 1981; Lax & Sebenius, 1986; Thompson, 1998). However, with more issues, the overall number of settlement options grows substantially, which raises the information-processing demands on negotiators and increases the complexity of the negotiation task (see e.g., Geiger & Hüffmeier, in press; Rubin & Brown, 1975; Van der Schalk et al., 2010; Watkins, 2003). Consequently, higher numbers of issues can reduce negotiators' abilities to recognize opportunities for optimal solutions among all issues. 2.) *The interdependence between issues*: In multi-issue negotiations, settlements on some of the issues can be tied to settlements on other issues to achieve bigger (and better) deals (e.g., Sebenius, 1983). However, interdependencies between issues can transform linear utility functions into nonlinear ones with multiple optima (Fujita, Ito, & Klein, 2014) and they require combined agreements across different issues or issue areas, thus increasing the complexity of the negotiation task. Consequently, due to negotiators' limited information-processing capacities, too many interdependent issues can become an obstacle for a mutually beneficial agreement. 3.) *The configuration of issues*: Negotiation issues can be distributive, integrative, and/or compatible in nature (Gelfand, Fulmer, & Severance, 2011). The more of these types of issues a negotiation involves, the more different strategies negotiators have to apply to reach an optimal agreement (i.e., claiming value vs. creating value vs. identifying

compatible interests; Thompson & Hastie, 1990; Thompson & Hrebec, 1996). Thus, a more diverse configuration of issues raises the complexity of the negotiation task, impeding negotiators' judgment of each other's interests, resulting in inferior negotiation outcomes. 4.) *The number of agreement options*: With respect to a negotiation issue, there can be a minimum of two agreement options (e.g., when discussing how to allocate an indivisible issue like a piano between two parties), or multiple agreement options (e.g., when discussing how to distribute a divisible issue like a certain amount of money between two parties). In line with research on complexity in individual decision-making tasks (e.g., Campbell, 1988; Greifeneder, Scheibehenne, & Kleber, 2010; Timmermanns, 1993), we argue that the more options negotiators' have to consider per issue, the more information they have to process and the more complex a negotiation task becomes. Thus, higher numbers of agreement options should strain negotiators' cognitive capacities, jeopardizing the quality of negotiation outcomes.

Based on the notion that negotiations always take place in specific environments and under specific circumstances (Crump, 2015), the second part of our model comprises four aspects of the negotiation context that we assume are relevant determinants of negotiation complexity. 1.) *The number of negotiating parties*: As the number of negotiating parties—that is the number of individuals or groups at the bargaining table who pursue diverging interests—grows, social interaction and dynamics increase, information load rises, and more interests have to be integrated (e.g., Bazerman et al., 2000; Crump, 2015). Thus, the context in which the negotiation takes place becomes more complex. As a result, parties may increasingly rely on simplifying heuristics or social norms to deal with that complexity, or they may form coalitions and apply decision rules serving the majority's interests at the cost of the overall integrative outcomes. 2.) *The non-monolithic structure*: When members of a negotiation team pursue the same interests, that team is monolithic. Usually, however, interests are not only conflicting between but also within negotiating teams (i.e., negotiation teams are *non-monolithic*; Bazerman & Neale, 1992). This leads to a complex situation in which negotiators simultaneously have to resolve internal conflicts within their teams and external conflicts with other negotiating parties (Putnam, 1988), resulting in more competitive intergroup behavior and lower joint negotiation outcomes (e.g., Keenan & Carnevale, 1988). 3.) *Culture*: Different cultural norms held by negotiators (e.g., with respect to what is considered as appropriate behavior at the bargaining table; Brett & Kopelman, 2004) exacerbate social interactions and can in itself become a source of conflict (e.g., Brett, 2007). Thus, negotiators' cultural backgrounds are an important determinant of negotiation

complexity. Cultural differences can impede information sharing, increase power struggles, and raise distributive behavior, resulting in less integrative outcomes (e.g., Brett & Okumura, 1998). 4.) *The negotiation linkage*: Negotiations are rarely limited to one-shot interactions between the parties directly involved (Menkel-Meadow, 2009). By contrast, oftentimes, negotiations affect future interactions between the parties at the negotiation table (Raiffa, 1982), or they generate linkages to stakeholders beyond the table (e.g., De Dreu, Aaldering, Saygi, 2014). Taking all these effects into consideration substantially increases the amount of information negotiators have to process and thus raises negotiation complexity. In one of the first empirical studies in this context (Zhang, Zhang, Majer, Aaldering, & Trötschel, 2020), negotiators tended to focus on the outcomes at the table, disregarding the integrative potential beyond the table. These results lent empirical support for the notion that the complexity corresponding to negotiation linkages can have detrimental effects on negotiation outcomes.

In the third part of our model, we offered tools for negotiation practitioners to effectively manage negotiation complexity. 1.) *Agenda setting*: Setting an explicit agenda that determines which issues will be negotiated in which negotiation phase limits the amount of information negotiators have to process simultaneously. Thus, it reduces the complexity of the negotiation task particularly in negotiations involving multiple interdependent issues (e.g., Fisher & Ury, 1981; Watkins, 2003). However, to facilitate mutually beneficial agreements, issues negotiated within the same agenda phase have to contain integrative potential (Herbst, Kemmerling, & Neale, 2017; Zhang, Geiger, Majer, & Trötschel, 2019). 2.) *Coalition building*: Forming coalitions can transform a multilateral negotiation into a bilateral one (e.g., Crump & Glendon, 2003; Zartman, 1994), thus simplifying the structure of a complex multi-party negotiation. When applying this tool, parties should form coalitions that aim at maximizing joint gains, otherwise they risk leaving integrative value unexploited on the table (e.g., Beersma & De Dreu, 2002). 3.) *Skill learning and training*: Improving their negotiation skills through learning (e.g., Loewenstein, Thompson, & Gentner, 1999), or training (e.g., Zerres, Hüffmeier, Freund, Backhaus, & Hertel, 2013) enables negotiators to concentrate on the core aspects of a negotiation and analyze them effectively (e.g., Lewicki, Barry, & Saunders, 2011). Thus, well-developed bargaining skills help negotiators to manage various facets of negotiation complexity. 4.) *Interdependence mindset*: Adopting an interdependence mindset that focusses negotiators' cognitive, motivational, and emotional processes on social (e.g., interests of parties at and stakeholders beyond the table), and temporal dependencies (e.g., long-term consequences of a negotiated agreement) may allow them to effectively manage negotiation linkages (Curhan, Neale, Ross, & Rosencranz-

Engelmann, 2008; Gelfand, Major, Raver, Nishii, & O'Brien, 2006). Whereas an interdependence mindset does not reduce negotiation complexity, it should enable negotiators to systematically consider the costs and benefits associated with linkages, thereby promoting comprehensive integrative agreements.

Lastly, we discussed potential interplays between the determinants of negotiation complexity outlined in our framework. We argue that the combination of different numbers of issues and agreement options per issue should distinctly affect the degree of negotiation complexity: When both are high, the total number of settlement options across all issues grows exponentially, tremendously raising the complexity of the negotiation task. By contrast, fewer agreement options per issue should reduce the overall complexity of multiple negotiation issues. Furthermore, multiple issues make a complex configuration of these issues more likely (Raiffa, 1982), thus affecting the degree of complexity in a combined way. Finally, further negotiating parties are likely to add issues to the discussion (e.g., Sebenius, 1983; Watkins, 2003), which increases negotiation complexity in two respects.

## (2) How and Why the Number of Issues Affects Integrative Negotiations

*More's not necessarily better.*

– David Hemenway

In the previous research project, we described a theoretical framework on complexity in negotiations in which we distinguished between task- and context-based determinants of complexity. Thereby, we identified the number of negotiation issues as one essential aspect of the negotiation task that determines its complexity. In the present research project, we narrowed the scope to empirically investigate the effects of different levels of complexity in terms of varying numbers of issues on negotiations and how negotiators use mental accounting to cognitively manage that complexity. Specifically, we examined how a high versus low number of issues influenced the way negotiators cognitively categorized the issues into integrative versus non-integrative subsets (i.e., mental parsing; see Trötschel et al., 2020; see also Thaler, 1999). Furthermore, we analyzed how negotiators' mental-parsing approach affected their trade-off behavior and joint negotiation outcomes. Theoretical considerations in the negotiation literature of the impact of different numbers of issues on integrative negotiations are contradictory: Some scholars argue for a “more-is-better” position (Fisher & Ury, 1981; Lax & Sebenius, 1986; Pruitt, 1981; Raiffa, 1982; Thompson, 1998), accentuating that the increased trade-off opportunities of more issues should help negotiators to improve economic outcome quality. Others take a “fewer-is-better” position (Albin & Young, 2012; Rubin & Brown, 1975; Watkins, 2003; Winham, 1977), stressing that the increased complexity of a higher number of issues might hurt negotiators' abilities to identify optimal trade-off opportunities. Previous empirical research could not help elucidating this contradiction: Whereas some investigations supported the more-is-better position (Naquin 2003; Van der Schalk et al., 2010), other research corroborated the fewer-is-better (Geiger & Hüffmeier, in press), or neither position (Wall, 1984). All the more important for the current thesis, prior research has not provided a comprehensive theoretical explanation as to why the number of issues should affect economic outcome quality.

In the present research, we analyzed the effect of varying numbers of issues on integrative negotiations under a mental-accounting perspective. As a basis for our analysis, we made two important conceptual differentiations: First, on the behavioral level, we distinguished between the *quality* and *quantity* of trade-offs (i.e., their integrativity vs. their number). Furthermore, we differentiated between *relative* and *absolute* economic outcomes (i.e., Pareto efficiency of agreements vs. joint profits; see Geiger & Hüffmeier, in press;

Tripp & Sondak, 1992). With regards to mental accounting, our main focus of investigation was on how a high compared to a lower number of issues would affect negotiators' mental-parsing processes to manage the corresponding levels of complexity and how these mental-parsing processes, in turn, would affect the quality of trade-offs and the Pareto efficiency of agreements. Specifically, we predicted that when facing a higher (vs. lower) number of issues, negotiators will have a stronger inclination to mentally parse the whole set of issues into separate subsets (or mental accounts). Mentally parsing the whole set of issues into more separate mental accounts, in turn, will cause a *scattering effect* of the integrative potential in the negotiation: The more mental accounts are created by negotiators, the more likely it is to scatter the integrative issues between these mental accounts. In line with the model of mental accounting in negotiations (Trötschel et al., 2020) and the literature on cognitive processes in complex decision-making tasks (e.g., Read et al., 1999; Thaler, 1999), we further assumed that issues within mental accounts are considered separately from issues within other mental accounts. Thus, a stronger inclination to mentally parse the integrative issues into separate mental accounts will impede negotiators' abilities to discover optimal trade-off opportunities and thus diminish relative outcomes in terms of the Pareto efficiency of agreements. In addition to these propositions supporting the fewer-is-better position, we made further predictions to reconcile both opposing positions from the negotiation literature. Specifically, we expected that more (vs. fewer) issues will allow negotiators to make more trade-offs (i.e., quantity of trade-offs). More trade-offs will, in turn, increase economic outcomes in terms of absolute joint profits but only if more negotiation issues correspond with substantially higher integrative potential.

We obtained strong empirical support for our predictions in one simulated and three interactive experiments ( $N = 815$ ). Specifically, we investigated the effects of negotiating a high number of 9 versus a lower number of 5 issues on negotiators' mental parsing processes, their trade-off behavior, and negotiation outcomes in a buyer-seller scenario. With 9 (vs. 5) issues on the table, negotiators categorized the issues into more separate mental accounts, which resulted in the predicted scattering effect of the integrative potential. With most of the integrative issues being scattered between (rather than aggregated within) accounts, negotiators were less able to realize optimal integrative trade-offs. Trade-offs of lower integrative quality, in turn, led to diminished integrative negotiation outcomes. More specifically, if the negotiation task involving 9 issues comprised the same integrative potential as the negotiation task involving 5 issues, more issues reduced joint profits *and* the Pareto efficiency of agreements. However, if 9 issues comprised substantially more



integrative potential than 5 issues, only the Pareto efficiency of agreements was reduced. Moreover, we obtained empirical support for the proposition that having more issues at the negotiation table is not entirely negative for integrative negotiations: As predicted, an increased number of issues allowed negotiators to make more trade-offs. Thus, if 9 issues comprised more integrative potential than 5 issues, this higher number of trade-offs allowed negotiators to reach higher joint profits. Additional exploratory results also showed that negotiators compared potential outcomes between mental accounts (i.e., integrated outcome editing; Trötschel et al., 2020; see also Thaler, 1999) to a lesser extent with more issues on the negotiation table, further corroborating our mental-accounting perspective on the detrimental effect of the number of issues on the negotiation process and the quality of outcomes.

Our research sheds important empirical light on the effects of different levels of complexity in terms of varying numbers of issues on negotiators' mental-accounting processes and how these processes affect perceptions, behaviors, and negotiation outcomes. Therefore, the present research provides important empirical evidence for the relevance of complexity arising from multiple issues at the bargaining table and the validity of the model of mental accounting in negotiations. Furthermore, we made a considerable contribution to reconciling the two opposing positions in the negotiation literature regarding the effect of increasing the number of issues on integrative negotiations by demonstrating that both positions offer some truth.

From an applied perspective, our research also offers important implications: We show that more is not necessarily better with respect to the number of issues in negotiations. Specifically, negotiation practitioners must be aware that increasing the number of issues can help them to improve their absolute economic outcomes but only if the additional issues raise the integrative potential of the negotiation task. However, this comes with costs: The increased complexity of a higher number of issues affects how negotiators' cognitively process the issues on the negotiation table and thus prevents them from exploiting the full integrative value of the negotiation.

### **(3) A Meta-Analytic Review on the Effect of the Number of Issues on Integrative Negotiation Outcomes**

The previous research project investigated how different levels of negotiation complexity in terms of a high compared to a lower number of issues affected negotiators' mental-accounting processes and how these processes, in turn, impacted their behavior and joint economic outcomes. In the current project, we extended this line of research in important ways: First, we included multiple levels of complexity in terms of various numbers of issues into the analysis. Thus, we tested the overall relation between the number of issues and integrative negotiation outcomes. Second, we investigated if the detrimental number-of-issues effect on integrative outcome quality is affected by the number of agreement options per issue as another task-based determinant of negotiation complexity, person-based (i.e., epistemic motivation, negotiation experience), and situation-based (i.e., the number of negotiators per party) factors. Additionally, we also examined the effects of these factors on the quality of outcomes independent of the number of issues.

First and foremost, we investigated the relation between the number of issues and integrative negotiation outcomes. Therefore, we derived competing predictions: Generalizing insights from our previous empirical research, we proposed that the higher the level of complexity in terms of the number of issues, the stronger will be negotiators' inclination to mentally parse the whole set of issues into smaller subsets (respectively mental accounts), which will diminish trade-off quality and integrative negotiation outcomes. Based on this reasoning, we predicted a continuously linear relation between the number of issues and negotiation outcomes. Alternatively, we proposed that negotiators' mental-parsing approach will differ between low to moderate and higher numbers of issues, thus exerting distinct effects on integrative negotiation outcomes. Specifically, based on the notion that mental parsing mainly serves the function of effectively dealing with complexity (Trötschel et al., 2020; see also Kahneman & Tversky, 1984; Read et al., 1999; Thaler, 1985, 1999; Tversky & Kahneman, 1981), we reasoned that as long as the level of complexity corresponding to a certain number of issues is manageable, negotiators will tend to consider all issues simultaneously within a single mental account (i.e., comprehensive accounting) instead of parsing them into separate accounts. This reasoning resonates with Rubin and Brown's (1975) early theorizing about how negotiators deal with multiple issues in negotiations who state that "as the number of issues in a dispute grows, the pressures toward differentiating among them are likely to increase", however, "the point at which differentiation pressures

begin to operate—whether at 5, 10, 20, or more issues—is by no means clear” (p. 147). Thus, within the range of a low to moderate number of issues there should be no difference in integrative outcomes when more versus fewer issues are discussed. Based on this theoretical reasoning, we alternatively predicted that the relation between the number of issues and integrative negotiation outcomes will be segmented into two parts: Within the range of a low to moderate number of issues, negotiating more versus fewer issues will not affect economic outcome quality. However, after a threshold of a moderate to high number of issues is exceeded, discussing more versus fewer issues will unfold its detrimental effect on integrative outcomes. Moreover, we made propositions about how other important factors in negotiations might affect bargainers’ mental-parsing processes and thereby negotiation outcomes when different numbers of issues are on the table. This includes the number of agreement options per issue, epistemic motivation, negotiation experience, and the number of negotiators per party. Specifically, we investigated if these factors mitigate the detrimental number-of-issues effect on integrative negotiation outcomes. Furthermore, we also examined the main effect of the number of agreement options per issue as another task-based determinant of negotiation complexity on the quality of outcomes. Finally, we expected to replicate the beneficial effects of epistemic motivation, negotiation experience, and the number of negotiators per party on integrative negotiation outcomes.

We tested our predictions in a meta-analytic review based on 172 research articles in which various negotiation paradigms with different numbers of issues were used (e.g., *Market Simulation task* with 3 issues; Bazerman, Magliozzi, & Neale, 1985; *Waste-Management task* with 5 issues; Sondak, Neale, & Pinkley, 1995; *New Car task* with 8 issues; Nadler, Thompson, & Morris, 2004). Overall, our analysis included 22,194 simulated negotiations ( $N = 22,194$ ) and various samples (e.g., undergraduates, MBA students, practitioners). Results supported the idea that negotiators’ mental-parsing approach depends on the level of complexity in terms of the number of issues they face: Within the range of a low to moderate number of issues, the number of issues did not affect economic outcome quality. By contrast, when the number of issues exceeded a critical threshold, discussing a higher compared to a lower number of issues resulted in diminished integrative outcomes. Interestingly, results did not support the idea that other factors influence negotiators’ mental-parsing processes when varying numbers of issues are to be discussed, thus attenuating the detrimental effect of a higher number of issues on integrative negotiation outcomes. This emphasizes the robustness of the effect. However, we found that more agreement options per issue reduced the quality of outcomes when the number of issues was controlled for, lending

support for our reasoning that the number of agreement options per issue also determines negotiation complexity. By contrast, in line with previous research, negotiation experience (e.g., Thompson, 1990) and more negotiators per party (e.g., Hüffmeier et al., 2018) were beneficial for negotiation outcomes. Results for epistemic motivation were inconclusive.

The present research project expands our perspective on complexity and negotiators' cognitive complexity management in important ways: First, it suggests that how negotiators cognitively deal with the issues under discussion depends highly on their specific number and the corresponding level of complexity. Second, it implies that the way negotiators cognitively manage different levels of complexity in terms of varying numbers of issues is largely unaffected by other factors in a negotiation. Third, it confirms our reasoning that the number of agreement options per issue also affects the degree of negotiation complexity. Furthermore, our results contribute to finalizing the reconciliation of the two opposing positions in the literature regarding the effect of increasing the number of issues on negotiations by demonstrating that the detrimental effect of a higher number of issues only occurs when a critical threshold is exceeded.

From an applied perspective, implications of our findings are twofold: On the one hand, they are encouraging since they show that negotiators can unconditionally benefit from adding issues to the negotiation table if the resulting complexity remains on a cognitively manageable level. On the other hand, they are discouraging because they imply that if the resulting complexity is too high, losses in outcome-efficiency can hardly be prevented.

#### (4) Mental Accounting as a Means to Solve the Puzzle of Multi-Issue Negotiations

*The right amount of complexity is what creates the optimal simplicity.*

– David Allen

Both previous empirical research projects focused on how varying levels of negotiation complexity in terms of higher versus lower numbers of issues affect negotiators' mental-accounting processes and the resulting consequences at the negotiation table. In the present research project, we changed the perspective by investigating how different types of mental accounting when dealing with a given level of complexity in terms of a constantly high number of issues influence the negotiation process and integrative outcomes. Specifically, we examined how negotiators' judgment accuracy, trade-off behavior, and integrative negotiation outcomes in a highly complex negotiation involving 8 issues are affected by a.) comprehensive accounting (i.e., processing all issues within one comprehensive mental account), b.) topical accounting (i.e., processing subsets of issues within separate topical mental accounts), and c.) minimal accounting (i.e., processing each issue within a separate mental account). Based on the literature on mental accounting (e.g., Tversky & Kahneman, 1981; Thaler, 1999) and the model of mental accounting in negotiations (Trötschel et al., 2020), we proposed that negotiators will show a strong inclination to mentally parse an entire set of numerous issues into separate mental accounts containing subsets of issues (i.e., perform topical accounting; see Article 2) to reduce the corresponding complexity to a manageable level instead of processing all issues within one or each issue within a separate mental account. We further argued that this mental-parsing approach is a double edged sword with regard to integrative negotiation outcomes: On the one hand, reducing the complexity of the negotiation task to a manageable level prevents negotiators from getting lost in the "combinatorial explosion" (Read et al., 1999; p. 187) of innumerable agreement options across various issues. Thus, topical accounting should increase negotiators' abilities to explore each other's interests and find opportunities for integrative trade-offs *within* mental accounts. On the other hand, the more mental accounts are created, the more likely it is that the integrative potential is scattered between (vs. aggregated within) these accounts (see Articles 2 & 3). Thus, topical accounting entails the risk of missing important information necessary to discover integrative trade-off opportunities *between* mental accounts. Consequently, it should primarily depend on the location of the integrative issues how topical accounting affects integrative outcomes in comparison to other types of mental-parsing.

In addition to comparing the effects of different types of mental parsing in highly complex multi-issue negotiations, we systematically investigated the interplay of different types of outcome editing and mental parsing. Specifically, we examined if systematically comparing potential outcomes across mental accounts (i.e., integrated outcome editing) can reduce the detrimental effect of scattering the integrative issues between mental accounts on the quality of economic outcomes.

One simulated and four interactive experiments ( $N = 1,275$ ) yielded powerful empirical support for our propositions. We investigated negotiators' preferences regarding the different types of mental parsing and their effects on trade-off behavior and joint economic outcomes in a complex negotiation task involving 8 issues. In line with predictions, negotiators expressed strong preferences to mentally parse the whole set of issues into topical subsets (i.e., topical accounting) instead of processing all issues within a comprehensive mental account (i.e., comprehensive accounting) or each issue within a separate mental account (i.e., minimal accounting). Moreover, if mental accounts contained subsets of integrative issues (i.e., the integrative potential was aggregated within mental accounts), topical accounting enabled negotiators to explore each other's interests more effectively, resulting in a higher judgment accuracy. A more effective exploration of each other's interests, in turn, led to more integrative trade-offs and larger joint outcomes than both other types of mental parsing. However, if mental accounts contained non-integrative issue subsets (i.e., the integrative potential was scattered between mental accounts), topical accounting led to a lower judgment accuracy, less integrative trade-offs, and lower joint outcomes than comprehensive accounting. Importantly, this negative effect could be reduced by performing integrated outcome editing.

The findings of this research project offer important insights into negotiators' mental-accounting processes in highly complex multi-issue negotiations. Furthermore, they elucidate the relative effectiveness of different ways of cognitively managing multiple issues with regard to integrative negotiation outcomes. Thus, they provide further evidence for the relevance of mental-accounting processes at the bargaining table. Overall, they underscore that different cognitive approaches to manage negotiation complexity in terms of numerous issues exert distinct effects on negotiators' perceptions, behaviors, and the quality of outcomes.

From a practical point of view, our findings suggest that reducing the complexity of multi-issue negotiations by subdividing an entire set of multiple issues into subsets *can* create the optimal simplicity but only if logrolling issues are paired within these subsets. Thus,

negotiators should carefully explore if issues within subsets allow for integrative trade-offs or if reassigning issues into different subsets might be necessary to maximize joint economic outcomes. Also, we encourage practitioners to make use of the powerful tool of comparing outcomes between subsets of issues in order to increase the chances of discovering possibilities for integrative agreements.

## **(5) Complexity and Mental Accounting in the Context of Different Integrative Strategies**

*In a negotiation, we must find a solution that pleases everyone, because no one accepts that they must lose and that the other must win... Both must win!*

– Nabil N. Jamal

The previous empirical research projects focused on complexity and mental accounting in the context of two specific integrative strategies (i.e. *expanding the pie* in terms of increasing the number of issues and *logrolling* in terms of making integrative trade-offs). In this final research project, we took a broader perspective by reviewing the negotiation literature on expanding the pie, logrolling, and solving underlying concerns as three commonly recommended integrative strategies. In the following, I will summarize the main insights from the negotiation literature regarding each of these strategies and I will delineate how the previous research projects described in this thesis contribute to extending the negotiation literature regarding the strategies of expanding the pie and logrolling. Furthermore, I will explain how solving underlying concerns, which is not in the focus of the empirical research projects presented in this thesis, could potentially provide a means to overcome the detrimental effects arising from high levels of complexity in terms of numerous issues in integrative negotiations. Thereby, I will lay pave the way for a future-research agenda.

One focal integrative strategy of this review article was to add differently prioritized issues to a negotiation, thus creating or increasing (the) integrative potential (expand the pie; e.g., Sebenius, 1992). This integrative strategy is recommended in numerous negotiation textbooks (e.g., Fisher & Ury, 1981; Lax & Sebenius, 1986; Thompson, 1998) and practical guides (e.g., Lewicki et al., 2007; Malhotra & Bazerman, 2007). For logical reasons, the benefits of expanding the pie on joint economic outcomes by adding integrative issues to a distributive negotiation cannot be doubted. However, the question of how and why adding further integrative issues to an integrative negotiation affects the negotiation process and joint outcomes has not been sufficiently answered by previous empirical research. Based on the research presented in this thesis, it can be concluded that expanding the pie by increasing the number of integrative issues and the integrative potential is beneficial in terms of absolute negotiation outcomes but detrimental in terms of relative negotiation outcomes due to the corresponding complexity and its effects on negotiators' mental-accounting processes if a critical number of issues is exceeded. Thus, the strategy of expanding the pie in terms of



increasing the number of issues has a potential downside if it raises the complexity of the negotiation task beyond a certain level.

A second focal integrative strategy of the present review was trading-off systematic concessions on high- versus low-priority issues to maximize joint outcomes (*logrolling*; Froman & Cohen, 1970). To apply this strategy, it is essential for parties to overcome their initial fixed-pie perceptions and to explore their different priorities concerning the issues under discussion. Exchanging priority-related information helps parties to gain a more accurate judgment of each other's priorities and thus to maximize the quality of economic outcomes in a negotiation by making integrative trade-offs (e.g., Thompson, 1991). The insights of our previous research projects extend this line of research by shedding light on complexity in terms of the number of issues as a threat for parties' judgment accuracy and consequently for effective logrolling. Specifically, when many issues are to be negotiated, the accuracy of parties' judgment of each other's priorities and the effectiveness of their logrolling behavior depends on how parties deal with this complexity in terms of their mental-accounting approach: Creating topical subsets of integrative issues facilitates the exploration of each other's priorities and thus enables parties to logroll more effectively than considering all issues simultaneously or each issue separately. By contrast, creating topical subsets of non-integrative issues reduces judgment accuracy and thus exacerbates effective logrolling. This detrimental effect of creating topical subsets of non-integrative issues can, in turn, be reduced by performing integrated outcome editing. Thus, when there are numerous issues on the negotiation table, negotiators' judgment accuracy and the effectiveness of their logrolling behavior depend on how they cognitively manage this complexity.

A third integrative strategy is to solve each other's underlying interests instead of focusing on each other's positions. This strategy is particularly valuable when parties' interests allow for an integrative agreement, whereas their positions are diametrically opposed (Pruitt & Carnevale, 1993). There are several ways in which negotiators can take the other party's interests into consideration, for instance, by asking interest-related questions (Hüffmeier, et al., 2018) or by putting themselves into their counterpart's shoes (*perspective taking*; Trötschel, Hüffmeier, Loschelder, Schwartz, & Gollwitzer, 2011). Relevant to the present thesis, focusing on each other's underlying interests could potentially help parties to overcome the detrimental effects arising from high levels of complexity in terms of overwhelming numbers of issues in negotiations if there are substantially fewer underlying interests to be integrated than issues to be discussed. First empirical support for this reasoning stems from a series of studies by Trötschel and colleagues (2011). In these studies, parties

had to negotiate a highly complex task involving multiple integrative and distributive issues. However, parties also had a small number of interests underlying their positions regarding each issue. Results showed that focusing on the integration of the smaller number of interests by perspective taking improved the quality of negotiation outcomes. These results provide first tentative support for the reasoning that focusing on solving a small number of underlying interests might help parties to overcome the detrimental effect of a high level of complexity in terms of a large number of issues. I will further elaborate on this aspect in the general discussion.

We conclude from this review article that there are several integrative strategies that allow both parties in a negotiation to win. Furthermore, all three strategies relate to complexity and negotiators' mental-accounting processes in different ways. Solving underlying interests could potentially be a means to compensate the detrimental effect of high levels of complexity in terms of multiple issues on integrative negotiations. However, this proposition has yet to be empirically investigated.

### ***Discussion***

The present research offers important insights into the impact of complexity and its determinants as well as different approaches to manage it on negotiators' perceptions, behaviors, and joint outcomes at the bargaining table. In summary, our research demonstrates that it is particularly the interplay of the level of complexity and how negotiators attempt to deal with it that shapes the negotiation process and the quality of outcomes.

We conceptualize complexity as being determined by specific aspects of the negotiation task and its context. We argue that the number of issues, their interdependence and configuration, and the number of agreement options per issue affect the degree of complexity of a negotiation task. Moreover, we propose that the number of negotiating parties, their structure, their cultural backgrounds, and the linkages a negotiation generates determine its contextual complexity. However, how these determinants affect negotiations depends on the way negotiators deal with them: By setting an agenda negotiators can effectively manage the complexity arising from all aspects of the negotiation task. Forming a coalition can help negotiators to structure complex multi-party negotiations. Developing negotiation skills allows them to effectively deal with various determinants of complexity. Finally, adopting an interdependence mindset can help negotiators to take relevant benefits and costs associated with negotiation linkages into consideration and thus may allow them to reach comprehensive integrative agreements.

We provide first empirical insights into the effects of different levels of complexity in terms of varying numbers of issues on negotiators' cognitive approach to deal with this complexity and the corresponding effects on their behavior and the quality of outcomes. When task complexity is higher, negotiators have a stronger tendency to mentally parse the whole set of issues into separate mental accounts to reduce this complexity to a manageable level. Thereby, a scattering effect of the integrative potential occurs: The more mental accounts are created, the more of the integrative potential is scattered between these accounts. This scattering effect impedes negotiators' abilities to discover optimal integrative trade-off opportunities, resulting in diminished joint outcomes. Furthermore, negotiators compare outcomes between different mental accounts to a lesser extent with more issues at the table, exacerbating its detrimental effect on the negotiation process and the quality of outcomes.

The detrimental effect of an increased complexity on integrative negotiations generalizes to other comparisons of a higher versus lower number of issues than the one investigated in the previous research project but only to some extent. It occurs when the number of issues exceeds a certain threshold but not if it is below that threshold. These

findings can theoretically be explained in terms of the way negotiators' cognitively process the issues on the negotiation table: As mental parsing mainly serves the function of complexity-reduction, it is theoretically plausible to assume that negotiators consider all issues simultaneously within one comprehensive mental account as long as the corresponding complexity does not overstrain their cognitive capabilities. Comprehensive accounting excludes the possibility of a scattering effect to occur, thus trade-off behavior and negotiation outcomes are unaffected. However, when the resulting complexity renders comprehensive accounting impossible, increasing the number of issues leads to the aforementioned scattering effect, resulting in diminished joint outcomes. Moreover, this detrimental effect is not dependent on boundary conditions: It occurs irrespective of the number of agreement options per issue, negotiators' experience, and the number of negotiators per party. However, increasing the level of negotiation complexity by raising the number of agreement options per issue diminishes integrative negotiation outcomes if the effect of the number of issues is explicitly controlled for.

When negotiation complexity in terms of the number of issues is constantly high, different cognitive approaches to deal with this complexity substantially affect the negotiation process and joint outcomes. Specifically, negotiators benefit from reducing the complexity to a manageable level by assigning issues into topical mental accounts instead of not reducing the complexity at all by processing all issues simultaneously or reducing it to a minimal level by processing each issue separately, however, only if the integrative issues are aggregated within these topical accounts. By contrast, if the integrative issues are scattered between mental accounts, topical accounting leads to lower joint outcomes than considering all issues at the same time. This scattering effect can be compensated to some extent by comparing outcomes of different topical mental accounts in an integrated way, though.

Negotiation complexity and negotiators' cognitive approaches to deal with it distinctly relate to different integrative strategies in negotiations. Expanding the pie in terms of increasing the number of issues in integrative negotiations *affects* the level of complexity, negotiators' mental-accounting processes, and negotiation outcomes. Logrolling, in turn, *is affected* by the complexity of a negotiation task and how negotiators manage it in terms of their mental-accounting approach. Solving underlying interests, which has not been in the empirical focus of the present research, could potentially help negotiators' to overcome the detrimental effects of a high level of negotiation complexity if these interests are fewer in number than the issues.

Across the research presented in this thesis, we have investigated our research questions using different research designs including simulated experiments, interactive face-to-face experiments, and meta-analytic methods. Also, our empirical results are based on data from diverse samples, such as undergraduate, graduate, and MBA students, practitioners, and managers, demonstrating their generalizability. Although the theoretical and empirical insights from the present research contribute in important ways to our understanding of how negotiation complexity and parties' approaches to deal with this complexity affect integrative bargaining, it can only be regarded as a first step into this fascinating field of research. Certainly, more systematic research is required on how negotiators solve complex negotiation puzzles with numerous pieces.

### ***Future Research***

The research presented in this thesis makes important contributions to the negotiation literature by elucidating the effects of complexity and different approaches to manage it on integrative negotiations. However, whereas it addresses many questions in this context, others emerged that also deserve attention. In the following, I will describe three key areas for future research in more detail.

**Reduction of the Detrimental Number-of-Issues Effect.** First and foremost, we demonstrated a detrimental effect arising from higher (vs. lower) levels of negotiation complexity in terms of varying numbers of issues on negotiators' mental-accounting processes and, as a result, their perceptions, behaviors, and the quality of negotiation outcomes. The fact that neither the investigated characteristics of the negotiators nor the situation mitigate this effect underscores how difficult it is for negotiators to manage high levels of complexity efficiently. Although we obtained first empirical evidence how the effect might be cognitively reduced (i.e., by performing integrated outcome editing), the compensatory potential of this approach is limited insofar as a growing number of issues results in a growing number of mental accounts (see Articles 2 & 4; see also Trötschel et al., 2020), which renders integrated outcome editing increasingly difficult. Thus, it could be a valuable direction for future research to consider this issue from a strategic perspective on integrative negotiations to complement the present research. Specifically, focusing on each other's underlying interests could provide a means to overcome the detrimental effect arising from high levels of complexity in terms of numerous negotiation issues. This idea is indirectly supported by previous research on perspective taking (Trötschel et al., 2011). In these studies, negotiators had to discuss many issues (e.g., the distribution of a scooter, book

collection, piano, record collection, television, photo equipment, sofa, old trunk, and tent). Thus, the negotiation task was highly complex in terms of the number of issues. For some of the issues parties had the same priorities, whereas their priorities differed regarding other issues. Furthermore, parties' priorities were rooted in a small number of interests, which also differed in importance between them (e.g., leisure time, financial, and personal interests). Results demonstrated that parties who focused on each other's interests by taking over each other's perspective reached better joint outcomes than parties who viewed the negotiation only from their own perspective. In other words, focusing on the integration of their few underlying interests helped parties to avoid getting lost in the complexity of numerous negotiation issues, resulting in improved joint outcomes. With respect to mental accounting, this effect could be explained insofar as focusing on their underlying interests might have helped parties to effectively create integrative subsets of issues, which facilitated the exploration of the integrative potential. Thus, solving each other's underlying interests could provide an additional means to overcome the detrimental effect of large numbers of issues on integrative negotiations. Future research should systematically test this reasoning. Therefore, it is essential to create a new negotiation paradigm in which the number of issues can be systematically varied and parties' priorities regarding these issues can be differentiated from their underlying interests. The paradigms developed by Trötschel and colleagues (2011) provide a solid basis for this potential line of research as they were explicitly designed to allow parties either to focus on the issues on the negotiation table or the interests in their minds<sup>3</sup>.

**Other Determinants of Negotiation Complexity and Mental Accounting.** The primary focus of the empirical research presented in this thesis is on the number of issues as one integral task-based determinant of negotiation complexity. However, we propose that the degree of negotiation complexity is affected by many other factors as well (see Article 1). Thus, our theoretical considerations on complexity offer rich opportunities for future research. First and foremost, future research should investigate how other task-based determinants of complexity affect negotiators' mental-accounting processes, their behavior, and negotiation outcomes. One of these determinants is the number of agreement options. Results of the research presented in this thesis suggest that the number of agreement options may exert distinct effects on negotiators' mental-parsing processes and consequently their

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<sup>3</sup> By contrast, in most other negotiation paradigms parties' interests are indistinguishable from their priorities as the obtainable value is solely indicated by the profit points attached to the agreement options on each issue (e.g., Bazerman et al., 1985; Pruitt & Lewis, 1975; Thompson, 1991; Weingart et al., 1993).

behavior and integrative negotiation outcomes (Article 3). Specifically, more agreement options per negotiation issue reduce the integrative quality of negotiation outcomes when the number of issues is controlled for. In light of these preliminary insights, I believe that systematically investigating the impact of varying numbers of agreement options on negotiators' mental-accounting processes and, in turn, their behavior, and negotiation outcomes is a valuable topic for future research. The negotiation paradigms developed in this thesis, which allow to vary the number of agreement options per issue while keeping the number of issues constant, offer a methodological basis for exploring this line of research.

Another important task-based determinant of complexity is the issue configuration in terms of the types of issues that are involved in a negotiation (i.e., integrative, distributive, compatible). The empirical focus of the current thesis is mostly on integrative issues. As distributive issues are by definition zero-sum in nature, different mental-accounting approaches to manage a set of purely distributive issues cannot have an impact on the integrative quality of negotiation outcomes<sup>4</sup>. By contrast, agreements on compatible issues *do* affect the overall integrative value of a negotiation. Thus, it is another interesting research question as to how the cognitive processing of compatible issues influences integrative negotiations. Negotiators' failure to detect compatible issues, which leads to lose-lose agreements, is rooted in their fixed-pie perceptions (Thompson & Hrebec, 1996). Results presented in the current thesis suggest that creating topical accounts of integrative issues reduces negotiators' fixed-pie perceptions (i.e., increases their judgment accuracy; Article 4), allowing for highly integrative outcomes. Based on these results it is plausible to assume that creating topical mental accounts might also allow negotiators to revise their fixed-pie perceptions when these topical accounts include only compatible issues and thus prevent them from crafting lose-lose agreements. Thus, future research should investigate if topical accounting might be a way to overcome the lose-lose effect (Thompson & Hrebec, 1996) in negotiations.

**Mental-Accounting Processes in Real-World Negotiations.** The focus of the empirical part of the present thesis was on testing causal relations and theoretical assumptions, thus we mainly employed randomized experimental designs to investigate our research questions (Articles 2 & 4). This approach corroborates the validity of our causal inferences (*internal validity*; e.g., Shadish, Cook, & Campbell, 2002). Furthermore, we used data obtained in laboratory settings to complement our experimental examinations by meta-

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<sup>4</sup> However, for a discussion how specific mental-accounting approaches might allow parties to reach agreements more easily in purely distributive negotiations see Trötschel et al. (2020).

analytic methods (Article 3), which demonstrates the generalizability of parts of our experimental findings across different negotiation tasks and various samples (*external validity*; *ibid.*). However, effects obtained in laboratory experiments in psychology often do not fully replicate in the field. Specifically, as demonstrated in a recent meta-analysis (Mitchell, 2012), laboratory and field effects correlate very highly in the domain of organizational behavior ( $r = .97$ ) whereas this correlation is considerably lower in the subfield of group processes and interpersonal processes ( $r = .58$ ). Furthermore, only 2.8% of effects obtained in Industrial- and Organizational-Psychology laboratories changed signs in field settings but 26.3% of effects from Social-Psychology laboratories did. As negotiation research is located in the overlap area of these research fields, effects observed in experimental negotiation research might also not fully generalize to field and real-world settings. Although I acknowledge that the internal validity is of predominant importance in experimental research (e.g., Sedlmeier & Renkewitz, 2008), I also agree that what makes science particularly interesting is that it helps people to understand everyday life (Mook, 1983). Thus, in accordance with Buelens, Van de Woestyne, Mestdagh, and Bouckenooghe (2008) and Carnevale and De Dreu (2005), I believe in the tremendous benefits of combining laboratory experiments with other methods (e.g., qualitative methods, field studies) to investigate research questions under controlled laboratory conditions and in more natural environments. This approach allows to draw strong causal inferences (Carnevale & De Dreu, 2005) and simultaneously test the generalizability of findings. As an example for such an approach, I will delineate how negotiators' mental-accounting processes could be further investigated in real-world settings in the following.

The experimental results presented in this thesis demonstrate how different cognitive approaches to deal with the corresponding complexity of facing a large set of issues affect negotiators' perceptions, behaviors, and negotiation outcomes. In this context, we confirm that negotiators prefer a topical mental-accounting approach over comprehensive or minimal accounting in such complex negotiations. Replicating and extending these findings, one could conduct qualitative interviews with negotiation practitioners on their way of organizing and categorizing multiple issues in order to reduce the corresponding complexity in real-world negotiations (for a similar methodological approach see Geiger & Hüffmeier, *in press*; Laubert & Geiger, 2018). Insights from such a study could confirm the external validity of the present findings. Moreover, they could provide valuable additional hints on negotiators' mental-accounting processes in more natural settings, which could again be systematically tested in a controlled laboratory experiment.



Furthermore, we discuss the importance of investigating the cognitive principles underlying negotiators' mental-parsing processes (Articles 2 & 4). Specifically, we suggest that future research should examine if these processes are guided by topical (dis)similarity of the issues (e.g., issues are grouped together on the basis of their product categories in industrial negotiations), importance of the issues (e.g., issues are grouped together on the basis of their relative importance), or the nature of the underlying interests regarding the issues (e.g., issues are grouped together on the basis of the respective underlying interests being monetary-related or quality-related). To investigate this research question, one could combine an experimental study and a field study. Specifically, in an experimental study one could systematically elucidate the cognitive principles that guide participants' approach of mentally parsing a large set of issues into topical subsets. Building on these insights, a field study could examine if the behavioral issue-categorization patterns of negotiation practitioners in different contexts of conflicting interests reflect the same principles (e.g., sales managers in business contexts, trade unionists in labor-management contexts). Furthermore, it could be investigated if negotiators in value-driven contexts like political negotiations show the same behavioral patterns or if other principles also play a role (e.g., grouping the issues based on value-relevance; e.g., Kouzakova, Ellemers, Harinck, & Scheepers, 2012; Wade-Benzoni et al., 2002).

### ***Concluding Thoughts***

In summary, our research shows that the specific effects of complexity and negotiators' approaches to manage it at the bargaining table arise from their interplay. It is the combination of the level of complexity on the one hand, and how negotiators attempt to manage it on the other hand that shapes perceptions, behaviors, and the quality of negotiation outcomes. Despite the supposedly manifold reasons of the breakdown of the Doha negotiations in 2015, there were certainly opportunities for mutually beneficial solutions that parties missed. Thus, the failure of the Doha round illustrates how severe the consequences of high levels of negotiation complexity and ineffective complexity management might be. With the present thesis, I hope to offer insights that help scholars and practitioners to better understand the significance of complexity in integrative bargaining and the importance of effectively managing that complexity for successfully solving complex negotiation puzzles with numerous pieces.

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## Chapter 2: A Model of Task-Based and Context-Based Determinants of Complexity in Negotiations

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### **Abstract**

**Purpose** – Although research has long acknowledged that complexity is an essential element of negotiations, few studies have systematically addressed the determinants and consequences of complexity on the negotiation processes and outcomes. This paper aims to develop a conceptual model that systematically identifies determinants that affect the degree of complexity in negotiation, as well as examines the effects of high degrees of complexity on parties' behaviors and outcomes.

**Design/methodology/approach** – The approach was to combine relevant literature from negotiation in general and from negotiation complexity in particular, to develop and support a model of determinants of complexity in real-world negotiations.

**Findings** – A model was developed which proposed that negotiation complexity will significantly affect people's perception, behavior, and outcomes in real-world settings. Eight variables are proposed to be determinants that could result in an increase in complexity. These eight variables are divided into dimensions of negotiation task (the number of issues, the interdependence between issues, the configuration of issues, and the number of agreement options) and negotiation context (the number of negotiating parties, their non-monolithic structure, culture, and the negotiation linkage).

**Originality/value** –The decomposition of the two dimensions in the current model serves as an efficient way to scrutinize factors that affect the degree of complexity in negotiation. Such an approach allows us to incorporate different perspectives and provide one theoretical approach for investigating negotiation complexity.

**Keywords** – Negotiating, Complexity, Task, Context

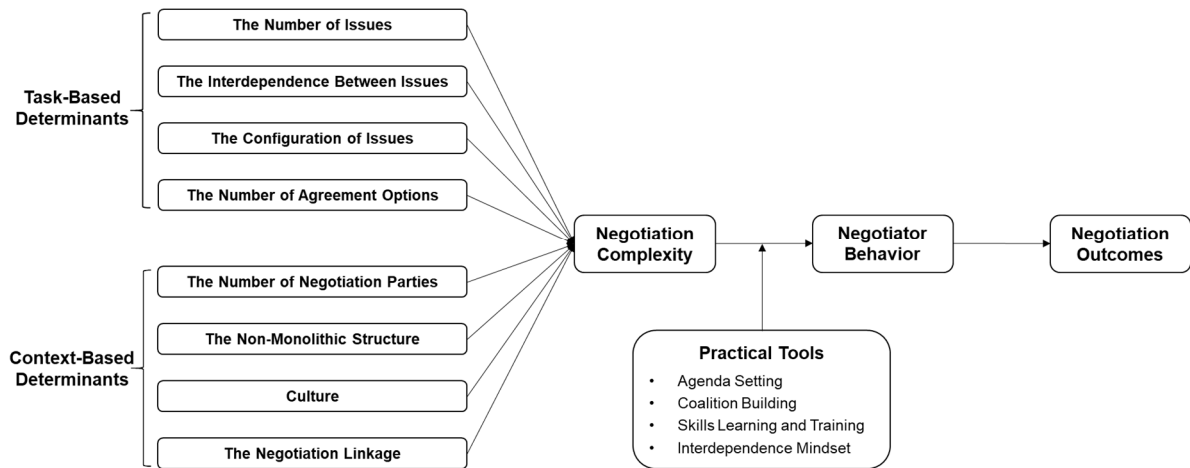
**Paper type** – Conceptual paper

When asked about his success in solving some of the biggest conflicts of the mid-twentieth century, U.S. President Dwight D. Eisenhower said “Whenever I run into a problem I can't solve, I always make it bigger. I can never solve it by trying to make it smaller, but if I make it big enough, I can begin to see the outlines of a solution.” In contrast to Eisenhower’s approach to resolving the conflicts by complicating it, Albert Einstein said, “the leader is one who, out of the clutter, brings simplicity... out of discord, harmony.” Although their opinions differ, these two great men pointed out a critical feature of problem solving in complex social conflicts: It offers both opportunities and challenges.

Social conflict—dispute over resources and interests among parties in an interdependent relationship—is omnipresent. Regardless of what causes the conflict, negotiation can play a crucial role in managing and resolving it (Brett and Gelfand, 2006; De Dreu, 2010; Gelfand et al., 2011). Negotiation can be defined as a discussion between two or more parties aimed at resolving a perceived divergence of interests (Pruitt and Carnevale, 1993). It can take place between individuals, groups, organizations, and nations; it can occur on informal occasions, such as household decision making and interpersonal communications, as well as formal occasions, such as organizational policy making and international disputes (Pruitt and Carnevale, 1993). Many real-world negotiations involve multiple parties, various issues, and linkages to other negotiations (Crump, 2020; Watkins, 2003a; Zartman, 2003), making these decision-making situations abound with complex computations, information processing, and interactions. Even for a seemingly simple situation like the purchase of a car, which involves only two parties (i.e., buyer and seller), a one-shot interaction, and few issues (e.g., price, warranty, delivery time), the reality is often much more complex. For instance, you may have to make a joint decision with your spouse regarding which car model you want to buy (e.g., a minivan that is perfect for the whole family vs. a coupe that is convenient to go to work); you may study the technical features of the model and the list prices of different car dealers; you may have to consider the additional value of extras offered by the car dealer when making your price offers. These are only some of the potential aspects that have to be taken into account when negotiating the deal. Therefore, complexity should be regarded as an inherent and fundamental factor of real-world negotiations (Mermet, 2012; Winham, 1977) and it “is the rule in negotiation, not the exception” (Watkins, 1999, p. 247).

Although research has long acknowledged that complexity is a core feature of negotiations (Crump, 2015; Walton and McKersie, 1965; Weiss, 1993; Winham, 1977; Zartman, 1994), few studies have systematically addressed the determinants and consequences of complexity on the negotiation processes and outcomes (Crump, 2015;

Laubert and Geiger, 2018; Watkins, 1999). Specifically, what are the determinants that affect the degree of complexity in negotiation? Does a high level of complexity create a bargaining advantage for negotiating parties, like what Eisenhower has believed, or does it put parties at a disadvantage as noted by Einstein? What are the tools that can help parties to successfully manage complexity in negotiations? Building on the literature on negotiation complexity in international negotiations (Crump, 2015, 2020; Mermet, 2012; Weiss, 1993; Winham, 1977; Zartman, 1994) and organizational negotiations (Laubert and Geiger, 2018; Kramer, 1991; Walton and McKersie, 1965; Watkins, 1999, 2003a), as well as research on complexity in decision-making tasks (Campbell, 1988; Greifeneder et al., 2010), we will introduce a model of complexity in negotiations in which we propose eight determinants of negotiation complexity, which are categorized into two dimensions—task-based (i.e., the number of issues, the interdependence between issues, the configuration of issues, and the number of agreement options) and context-based complexity (i.e., the negotiating parties, the non-monolithic structure, culture, and the negotiation linkage), as depicted in Figure 1. Illustrative rather than exhaustive, our purpose is to discuss the important factors that determine negotiation complexity and how that complexity consequently influences negotiators' behaviors and outcomes. In what follows, we will first review the existing literature on complexity in negotiations. We then introduce our model and describe the task-based and context-based determinants that affect the degree of negotiation complexity, as well as their influences on negotiators' behavior and outcomes. Thereafter, we propose four practical tools for managing negotiation complexity and conclude with a discussion of a number of future directions in research on complexity in negotiations.



**Figure 1.** Model of task-based and context-based determinants of negotiation complexity.

### ***Negotiation Complexity and Its Effects on Negotiations***

In his analysis of complex international negotiations, Gilbert Winham (1977) follows Simon’s analysis of complexity and defined it as “a large number of parts that interact in a nonsimple way” (p. 350; Simon, 1969, p. 468). Similarly, Zartman (1994) defines negotiation complexity as “the existence of a large number of interacting variables with no dominant pattern or dimensions” (p. 218). Complexity is a matter of degree (Winham, 1977) and it increases when too many variables interact in the negotiation. Such variables involve “too many parties, too many roles, too many issues, too many norms, and/or too many linked negotiations” (Crump, 2015, p. 132).

When negotiations are complex, negotiators confront both opportunities and challenges (Watkins, 1999; 2003b). At first glance, complexity seems to be an obstacle for negotiators to systematically analyze the situation and successfully reach an agreement. However, researchers argue that complexity should not be considered as a culprit of negotiation failure (Mermet, 2012). Instead, it may offer opportunities for parties at the bargaining table. For instance, complexity can foster the achievement of agreements because imprecise information regarding the negotiation makes it difficult for the counterpart to argue effectively against a proposal (Winham, 1977). Negotiators can also tactically use complexity as a bargaining strategy to delay the agreement until a later stage in order to gain a final agreement advantage over the counterpart (Zartman, 1971). Moreover, complexity can strengthen the negotiators’ position when facing the organization or constituents they represent. As Walton and McKersie (1965) noted: “The complexity of issues gives the union leadership tremendous control and flexibility” (p. 334). Although the fog of negotiation contains opportunities under some circumstances, negotiators should be wary of the threats it

brings about (Watkins, 1999). Specifically, even though it sometimes makes sense to increase the degree of complexity of a negotiation—as Eisenhower suggested (e.g., by adding more issues or more parties to the bargaining table to expand the negotiation pie), complexity is more often an obstacle than an aid for efficient negotiation agreement (Watkins, 2003b; Winham, 1977). First and foremost, it impedes the possibility for rational choice and value maximization between parties (Winham, 1977), and may even generate negative linkages that reduce the potential for mutually beneficial agreements (Watkins, 2003b). Because negotiators are submitted to limited rationality (March and Simon, 1958), their cognitive capacities are likely to be overwhelmed by the great information-processing load caused by complexity (Mermet, 2012). In this context, “negotiators restrict the information they deal with in order to permit action in complex situations” (Winham, 1977, p. 356). As a consequence, they risk overlooking important information that is necessary to craft win-win solutions (e.g., Thompson, 1991). Moreover, in complex negotiations, negotiators are less likely to accurately estimate the bargaining range of their counterpart (Iklé and Leites, 1962) and their capacity to learn the counterpart’s strategy is reduced (Druckman, 1973). The complexity of the decision situation boosts the ambiguity of information useful to negotiators, they are thus more susceptible to varying interpretations emerged in the situations (Walton and McKersie, 1965).

The important role of negotiation complexity was firstly identified and further discussed in the study of international multilateral negotiations (Crump and Zartman, 2003; Winham, 1977; Zartman, 1994, 2003). Scholars have developed analytical frameworks to help negotiation analysts and practitioners to analyze complex negotiations such as international trade negotiations (Crump, 2006) and international business negotiations (Weiss, 1993; for a review see Crump, 2020). For instance, Winham (1977) proposes that negotiation complexity affects negotiators’ behavior in three important areas including (1) cognitive structure and simplification of the situation, (2) the importance and degree of concession making in negotiations, and (3) the likelihood of achieving an agreement. Weiss (1993) developed an analytical framework for both international settings and general settings that include three facets of negotiation—parties’ Relationships, parties’ Behaviors, and influencing Conditions (RBC)—as well as their interactions. Assuming that complexity is intrinsic in all negotiations, Watkins (1999) proposed key dimensions in complexity and ways that skilled negotiators can manage it (e.g., bridging differences, strategically using uncertainty and ambiguity, neutralizing and forgoing linkages). Further, he (2003b) developed an analytical approach on seven dimensions—four dimensions for both bilateral and

multilateral settings (i.e., issues, rounds, rules, attitudes) and three dimensions for multilateral settings (i.e., parties, levels, linkages)—to analyze a complex negotiation. To support case development of complex negotiations, Crump (2015) proposed a five-part theoretical framework for retrospectively analyzing complex negotiations that have achieved closure: (1) identification of negotiation architecture, (2) context analysis, (3) process analysis, (4) structural and relational analysis, and (5) decisional analysis. In a recent study, Laubert and Geiger (2018) underscore the importance of a deep understanding of complex content and issues in business negotiations. Based on qualitative interviews with negotiation practitioners in the business-to-business field, they developed eleven issue-based facets of complexity on the object-level (i.e., interdependence and consequences, factual complexity, number of sub-issues, predictability), context-level (i.e., contextual factors), and subject-level (i.e., ambiguity, time, feelings, information non-transparency and volatility, individual orientation, objectives).

#### ***A Model of Task-Based and Context-Based Determinants of Negotiation Complexity***

Although previous work provides a solid basis for negotiation practitioners and analysts to analyze complex negotiation situations, a comprehensive understanding of determinants that increase negotiation complexity, as well as their influences on negotiators' behavior and outcomes, is still lacking (Laubert and Geiger, 2018). Therefore, the current research aims at systematically identifying the determinants that affect the degree of complexity in negotiation, as well as investigating the effects of an increased complexity on parties' behaviors and outcomes. In line with previous negotiation frameworks (e.g., Kramer and Messick, 1995; Neale and Northcraft, 1991<sup>5</sup>; Tung, 1988), we propose that a comprehensive understanding of determinants of negotiation complexity can best be pursued by focusing on two primary dimensions: the task-based characteristics of the negotiation per se, and the contextual-based characteristics of the situation where the negotiation is embedded.

Negotiation is, in essence, a decision-making task between parties (e.g., Bazerman et al., 2000; Thompson et al., 2010; Raiffa et al., 2007). Thus, it seems imperative to begin the analysis with the main features of the negotiation task that determine its basic structure, and

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<sup>5</sup> In the behavioral negotiation model of Neale and Northcraft (1991), they distinguish three levels of a dyadic negotiation: Contextual features of the negotiation, dynamic variables of negotiators, and outcomes of negotiations. The contextual characteristics of negotiations include (1) structural features of the negotiation settings and (2) the non-interaction-based impacts of other parties relevant to the negotiations. The dynamic variables of negotiators pertain to negotiators' cognition and interaction processes. In the current research, we focus on task-based factors (i.e., structural features of the negotiation task per se) and context-based factors (i.e., impacts of other parties relevant to the negotiations) that affect the degree of complexity of the negotiation.



thus providing negotiators with the basis for strategizing, setting goals, and estimating the range of possible agreements (De Dreu et al., 2007). Building on the literature on task complexity in individual decision making (e.g., Campbell, 1988; Timmermans, 1993), complexity in negotiations (Crump, 2020; Laubert and Geiger, 2018; Watkins, 2003b), and negotiation structure (Geiger, 2017; Geiger and Hüffmeier, 2020; Trötschel et al., 2014; Warsitzka et al., 2019), we propose that the number of issues, the interdependence between issues, the configuration of issues, and the number of agreement options are important task-based determinants of negotiation complexity. Further, as “[negotiation] phenomena are .... inevitably embedded” within “social and organizational environments” (Kramer and Messick, 1995, p. ix), it is essential to also consider characteristics of the social and relational context within which negotiations take place (Kramer and Messick, 1995; Olekalns, Kulik, and Chew, 2014). Based on this reasoning and building on previous research, we propose that the number of negotiating parties, their non-monolithic structure, cultures, and negotiation linkages are crucial context-based determinants of negotiation complexity.

The decomposition of the two dimensions serves as an efficient way to scrutinize factors that affect the degree of complexity in negotiation. This approach allows us to incorporate different perspectives from international negotiations (Crump and Zartman, 2003; Watkins, 2003a; Winham, 1977; Zartman, 1994), public disputes (Gray, 1989; Susskind and Crump, 2008; Susskind and Ozawa, 1984), organizational and group negotiations (Kramer, 1991; Laubert and Geiger, 2018; Pruitt, 1994; Walton and McKersie, 1965; Weiss, 1993), and interpersonal contexts (Loewenstein et al., 1989; Rubin and Brown, 1975; Warsitzka et al., 2019). The model thus allows us not to be restrained by a certain perspective, but to focus on the two fundamental dimensions of negotiation complexity. The Model of Task-based and Context-based Determinants of Negotiation Complexity not only integrates a number of existing perspectives, but it also carries a number of unique features, including (1) a theoretically and empirically guided conceptualization of negotiation complexity, (2) a conjoint consideration of negotiators’ behavior and outcomes, (3) a utility orientation that focuses not only on the agreement rate (Crump, 2015, 2020; Mermet, 2012; Weiss, 1993) but also on the quality of the negotiation outcomes (i.e., economic outcomes and subjective outcomes; Geiger and Hüffmeier, 2020; Naquin, 2003; Warsitzka et al., 2019), (4) an intracultural- and intercultural-applicable depiction of complexity determinants for bilateral as well as multilateral negotiations; and (5) empirical-based and practical-based propositions on efficient tools to manage negotiation complexity. These distinct features can effectively advance empirical and practical efforts in negotiations in different contexts (e.g.,

interpersonal, group, and organizational negotiations; intracultural and intercultural negotiations), which are discussed in the final section of the article.

### ***The Task-Based Determinants of Negotiation Complexity and Their Impacts on Negotiators' Behavior and Outcomes***

To begin, we consider determinants pertaining to negotiation tasks that have an effect on the level of negotiation complexity. We focus on four key variables of task-based influences that have received considerable attention from researchers in the negotiation literature: the number of issues, the interdependence between issues, the configuration of issues, and the number of agreement options.

#### **The Number of Issues**

***The Effect on Negotiation Complexity.*** Negotiation situations vary widely in terms of the number of issues under discussion. In some cases, parties focus on negotiating one or few issues, such as the price to be paid for a hand-made carpet in the Grand Bazaar. In other cases, there might be a multiplicity of issues to be negotiated, as in the situation of a merger and acquisition negotiation in which the issues at stake are not merely one or two topics, rather a variety of issues pertaining to the deal. It has long been believed in the negotiation literature that increasing the number of issues at the bargaining table is advantageous because it expands the integrative potential and creates more opportunities for better economic outcomes (Fisher and Ury, 1981; Lax and Sebenius, 1986; Lewicki et al., 2011; Pruitt, 1981). Specifically, when there are more issues under discussion, it becomes less likely that parties diverge on every issue, that they weigh all issues as equally important, and that they perceive the same rank sequence of issue importance (Raiffa, 1982). As Thompson (1998) notes: “The more issues, the better. More issues provide negotiators with more opportunities to construct trade-offs among issues” (p. 9). However, the advantage of increasing the number of issues under discussion does not necessarily offset the accompanying problems: A high number of issues involved in a negotiation significantly increase the complexity of the task, thereby raising the informational, computational, and procedural demands of the bargaining situation (Laubert and Geiger, 2018; Geiger and Hüffmeier, 2020; Van der Schalk et al., 2010;

Warsitzka et al., 2019; Watkins, 2003a, 2003b)<sup>6</sup>. As more issues are brought to a negotiation, the number of possible solutions at the bargaining table grows exponentially. The negotiating parties are likely to have different interests across various issues. Under such a circumstance, simply recognizing these interests, much less identifying ways to integrate them, can turn into an immensely complex task. Supporting this notion, Rubin and Brown (1975) have pointed out in their seminal work on negotiations that “as the number of issues in a dispute grows, the pressures toward differentiating among them are likely to increase, if for no reason other than the accompanying difficulty of dealing with an excessive number of issues simultaneously” (p. 147). In all, negotiations with a high number of issues are complex situations in which a thorough understanding of the task, with its broad scope of potential solutions and outcomes, may be practically impracticable.

***The Effect on Negotiators’ Behavior and Outcomes.*** Increasing the number of issues in the negotiation steps up the information-processing demands on negotiators. What should not be neglected, however, is that human’s cognitive capacity is highly limited (Anderson, 1990; Cowan, 2010; Miller, 1956). The negotiation over various issues presents a challenge to negotiators’ information-processing limits and may overwhelm their capabilities to keep track of the bargaining process. The resulting puzzlement and reactive defensiveness impede advancement toward optimal solutions (Watkins, 2003a). Several studies have empirically examined the impacts of increasing the number of issues in negotiations and have demonstrated that the increased complexity caused by a high number of issues leads to detrimental effects on parties’ behaviors and outcomes. For instance, Van der Schalk and colleagues (2010) found that an increase in the number of issues (i.e., from six to eighteen) stepped up negotiation complexity, which led parties to search for less information and rely on simplifying heuristics. Using a mixed-methods approach, Geiger and Hüffmeier (2020) investigated how the varying number of issues affects negotiation processes and outcomes: A

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<sup>6</sup> In their qualitative interview study, Laubert and Geiger (2018) found that the effect of the number of issues on negotiation complexity seems to follow a U-shaped curve. That is, an increase in the number of issues does not add complexity at the beginning (even decreases the perceived complexity). Only after a certain number has been reached, the number of issues steps up the negotiation complexity. This finding is in line with the theoretical reasoning that adding issues to the bargaining table should not exacerbate complexity as long as the number of issues does not overstrain negotiators’ cognitive capacities. In a recent meta-analytical study, Warsitzka and colleagues (2020) proposed that there should be a breaking point regarding the effects of the number of issues on the quality of the negotiation outcomes. Specifically, under the breaking point (i.e., five issues), bring more issues to the negotiation does not systematically affect the quality of the outcomes; Nevertheless, once the breaking point has been reached, an increase in the number of issues will step up negotiation complexity and lead to a decrease in the negotiation outcomes (Warsitzka et al., 2020). In the current paper, we focus on the general effect of the number of issues on negotiation complexity and consider negotiation complexity vary in terms of degree (Watkins, 2003a; Winham, 1977). Therefore, the specific threshold of the number of issue effect is not further discussed.

qualitative interview study with business negotiation practitioners revealed that although more issues provide more possibilities for concessions, they substantially increase the degree of complexity of the negotiation. A follow-up experimental study showed that fewer issues (i.e., four vs. eight issues) facilitate more accurate information processing, resulting in relatively more integrative agreement. From a different perspective, Warsitzka and colleagues (2019) found that when negotiating a high number of issues (nine vs. five issues), parties were more likely to cognitively process the various issues in terms of multi-issue subsets with scattered integrative trade-off opportunities between subsets. Such a procedure impeded the thorough discovery of integrative potential across all issues, thus leading to less integrative trade-offs and less Pareto efficient agreements. In addition to the detrimental effects on the economic outcomes, Naquin (2003) found that participants who negotiated more issues (eight issues vs. four issues) achieved worse subjective outcomes in terms of satisfaction on the negotiated agreement because they generated more counterfactual thoughts and believed that the results should have and could have been better.

### **The Interdependence Between Issues**

*The Effect on Negotiation Complexity.* In many real-world negotiations, the multiple issues at the bargaining table are interdependent of each other such that the decision on one issue and its related economic impact depends on or affects the settlement of other issues (Geiger, 2017; Raiffa, 1982; Rubin and Brown, 1975; Trötschel et al., 2011). For instance, in a transaction negotiation over the purchase of a solar thermal power plant, the price of the product depends, to a great extent, on the technical parameters (e.g., the power capacity, power output) that the buyer and seller agree upon. To close the deal, the two parties have to reach an agreement on all issues involved in the negotiation. The existing literature uses different terms to describe the interdependence between issues including “issue linkage” (Haas, 1980; Horstmann et al., 2005; Sebenius, 1983; Tollison and Willett, 1979), “issue bundling” (Herbst et al., 2017; Trötschel et al., 2011, 2014), as well as “issue interdependence” (Fujita et al., 2014; Geiger, 2017; Laubert and Geiger, 2018; Watkins, 2003a). In the current work, we use the word issue interdependence to reflect the interrelation and dependence between issues regarding their settlement and economic impacts. The interdependence between issues are often used as a bargaining strategy in international negotiations, parties use the interdependence “between unrelated or only loosely-related issues in order to gain increased leverage in negotiation” (Wallace, 1976, p. 164; see also Sebenius, 1983) and to facilitate the achievement of a greater number of mutually beneficial

agreements (Tollison and Willett, 1979). In addition to *tactical* manipulation of interdependence, issues can also be *horizontally* interdependent (i.e., issues in different areas are linked) or *substantively* interdependent due to connection on substance (Albin and Young, 2012; Haas, 1980; Wolfe, 2009). Although the interdependence between issues may bring parties bargaining advantages and “force” the achievement of a bigger deal, it “usually exacerbate[s] problems rather than help[s] to resolve them” (Tollison and Willett, 1979, p. 425). When there are interdependencies between issues, negotiating parties’ utility functions are more complex, with nonlinear shapes and multiple optima (Fujita et al., 2014). Irrespective of whether it’s tactical or substantial interdependence, parties have to seek agreements that cut across different issues or issue areas. In this context, the benefits of issue interdependencies will be constrained by the increased complexity of the negotiation (Horstman et al., 2005; Tollison and Willett, 1979). Due to parties’ limited information-processing capability, the number and the types of issues that can be effectively and efficiently linked is highly constrained. Corroborating this theoretical reasoning, Laubert and Geiger (2018) showed that business practitioners consider the interdependencies between issues as an important factor that increases the degree of complexity of a negotiation. The greater interdependencies between issues exist, the more complex the negotiation becomes.

***The Effect on Negotiators’ Behavior and Outcomes.*** The interdependence between issues provides parties with trade-off opportunities such that negotiators can extract concessions from their counterparts on an issue of importance to themselves in exchange for a concession on issues of importance to the counterpart. Such trade-offs can be beneficial even in the situation where the interdependent issues have negative marginal value for the parties when they are evaluated separately (Horstman et al., 2005). Nevertheless, one of the major challenges in this situation is that the interdependent issues might be scattered between different issue areas (also refer to as subsets or modules; Sebenius, 1983; i.e., horizontal interdependence; Albin and Young, 2012), which renders the discovery of the integrative potential a highly complex task due to computational and procedural intractability. Given this, several researchers (e.g., Fujita et al., 2014; Sebenius, 1983) suggested that negotiators should decompose the whole set of issues into separate internally interdependent versus externally independent subsets, and negotiate them in sequence to facilitate the discovery of the integrative potential between interdependent issues and increase the efficiency of negotiation outcomes. Despite its important role in real-world negotiations, there is a lack of research on issue interdependence in experimental negotiation research (Pruitt and Lewis, 1975; Geiger, 2017). Specifically, most experimental negotiation paradigms assume that the issues under

negotiation are interlinked in that the agreement on one issue depends on the agreements on all other issues (e.g., Brett and Okumura, 1998; Neale, 1997). In this context, negotiating parties may either end the negotiation with an overall agreement on all issues or with an impasse regarding the entire negotiation (i.e., total impasse; e.g., Moore et al., 1999; O'Connor and Arnold, 2001). Given this, Trötschel and colleagues (2010; see also Loschelder and Trötschel, 2010; Trötschel et al., 2011) provided first insights into situations in which negotiation issues are not linked to each other (i.e., the agreement on one issue is not dependent on the agreements on the other issues). In these negotiation tasks, participants were explicitly allowed to agree on a part of the issues while disagreeing on the other issues. Specifically, Trötschel and colleagues (2011) demonstrated that systematic exchanges of concessions effectively helped parties to overcome the risk of partial impasses on non-interdependent issues.

### **The Configuration of Issues**

*The Effect on Negotiation Complexity.* In general, the configuration of issues refers to the interplay between resources and their specific characteristics in the negotiation (Trötschel et al., 2014). In the current paper, we focus on the interest-based configuration of issues, that is, the distributive (zero-sum), integrative (variable-sum), or compatible (common-value) nature of the issues (Gelfand et al., 2011). Every negotiation takes place on a spectrum ranging from purely distributive, zero-sum situation to completely integrative, variable-sum problem solving (Watkins, 1999). At the left end of the spectrum, negotiations are fully comprised of distributive issues, leading to a situation that one party's gain comes at the cost of an equivalent loss for the counterpart (Pruitt, 1981, Walton and McKersie, 1965). Whereas at the right end of the spectrum, negotiations are fully comprised of integrative or even compatible issues, providing parties opportunities to maximize their utilities without necessarily harming the interests of the other parties (Pruitt and Lewis, 1975; Thompson, 1998; Walton and McKersie, 1965). However, most real-world negotiations fall into the area between the purely distributive and the purely integrative ends—the mixed-motive negotiations with a mixture of integrative, distributive, and compatible issues (Iklé, 1964; Walton and McKersie, 1965; Watkins, 1999). In mixed-motive negotiations, parties confront situations in which optimal joint profits can only be realized by understanding each other's interests, needs, and priorities (De Dreu et al., 2006; Thompson, 1991; Tutzauer, 1990). However, revealing and sharing information about their interests and priorities may leave negotiators vulnerable to exploitation (Lax and Sebenius, 1986; Walton and McKersie, 1965). Such a mixed-motive

dilemma increases the complexity of the negotiation process because to successfully discover the integrative potential at the bargaining table, negotiators should not only exploit opportunities for their trade-offs but should also make their counterparts believe that exchanging information is indispensable for creating value for both sides. Moreover, when the configuration of issues under discussion is various (e.g., involving all three types of issues), negotiators have to apply several completely different strategies to reach mutually beneficial agreements (i.e., claiming value for distributive issues vs. creating value by trading off integrative issues vs. identifying common value in compatible issues; Thompson, 1990; Thompson and Hrebec, 1996). Because the number of paths towards an optimal solution is considered as an important facet of task complexity (Campbell, 1988), the configuration of various types of issues thus raises the degree of negotiation complexity to a greater level.

***The Effect on Negotiators' Behavior and Outcomes.*** When the configuration of issues is manifold, the resulting complexity is likely to impede an accurate judgment of the interests, needs, and priorities between parties. Among the various cognitive barriers to integrative agreements, there is a general tendency among negotiators to assume that the other party's interests are exactly contrary to their own (Pruitt, 1981; Schelling, 1960), which is also referred to as fix-pie bias (Bazerman and Neale, 1983; Thompson and Hastie, 1990a, 1990b). When there is incomplete information about the counterpart's interests and priorities, which is the case in most real-world negotiations, negotiators are inclined to assume that the other party's gains are absolutely their losses (Bazerman and Neale, 1983; Pruitt and Lewis, 1975). Holding such a fixed-pie perception can prohibit negotiators from recognizing the integrative trade-off opportunities, thus leading to more contentious negotiation behavior and inferior outcomes (Gelfand and Christakopoulou, 1999; Thompson and Hrebec, 1996). Thompson and Hastie (1990b) found that negotiators are able to improve their understanding of the other party's interests and to revise their fixed-pie error as the negotiation proceeds. However, such a debiasing process happens mostly at the beginning of the interaction—if it is not revised at an early stage, negotiators are likely to hold the fixed-pie bias throughout the bargaining process. Thus, if parties start the negotiation by discussing the distributive issues, the conflicting interests that emerge may make them overlook the integrative potential on the other issues. Even if they begin with issues providing integrative potential and manage to reduce their initial fixed-pie bias, issues of common value may easily go unseen since identifying compatible interests differs significantly from realizing integrative trade-offs (Thompson, 1990; Thompson and Hastie, 1990b). Therefore, when the issues at the tables have differing pay-off structures, negotiators' information-processing capacity may easily

reach their limits. Parties can then no longer effectively process all or at least the most important information about their counterpart's interests, thereby leading to a less accurate understanding of the negotiation and impeding the achievement of integrative win-win solutions.

### **The Number of Agreement Options**

***The Effect on Negotiation Complexity.*** In some real-world negotiations, parties face a multitude of options from which they have to jointly to choose with their counterparts, such as a rich series of machine models in a sales negotiation or a variety of holiday destinations in the negotiation with family members. While negotiators may often be attracted by such a variety, an overabundance of options may result in adverse consequences (Laubert and Geiger, 2018). Specifically, research from individual decision-making processes has shown that when there are a high number of options, the resulting greater amount of attribute information increases considerably the complexity of decision making (Greifeneder et al., 2010). In this context, people confront a high degree of choice complexity with an increase of “the number of non-redundant pieces of information that need to be evaluated” (Greifeneder et al., 2010, p. 46). In line with this notion, the literature on individual multi-attribute decision making defines the complexity of a task in terms of the number of options presented (Ford et al., 1989; Timmermans, 1993). The higher the number of options, the greater the complexity of the task. Applying this in the context of negotiations, the more agreement options that negotiators have to evaluate per issue, the greater complexity is associated with the decision. Such task-based complexity is likely to negatively affect the depth of information seeking and lead to a more limited amount of available information searched (Timmermans, 1993). It is important to note that the number of agreement options is a distinct concept from the number of issues: While the number of agreement options describes the number of alternatives that parties can choose from regarding the specific issues, the number of issues represents the number of agenda items or topics of discussion that needs to be resolved to reach an agreement (Bendahan et al., 2005). In the context of negotiations, both factors can affect the degree of complexity in the decision-making process (Laubert and Geiger, 2018).

***The Effect on Negotiators' Behavior and Outcomes.*** Although the number of options has been shown to play a pivotal role in individual decision making (e.g., Bendahan et al., 2005; Greifeneder et al., 2010), negotiation research has not yet systematically examined how it affects parties' perceptions, behaviors, and outcomes. Individual decision-making research suggests that when parties face a high number of agreement options, they are likely to use



simplifying, non-compensatory decision strategies (Olshavsky, 1979; Payne, 1976). In line with this notion, Warsitzka and colleagues (2019) found that with a constant number of negotiation issues (i.e., nine issues), parties achieved more integrative outcomes when there were fewer options per issue (five vs. nine options). This finding is further validated in a recent meta-analysis on the effects of the issue number (Warsitzka et al., 2020), which showed that when the effect of the number of issues is controlled, a higher number of agreement options per issue is associated with lower relative negotiation outcomes.

### ***The Context-Based Determinants of Negotiation Complexity and Their Impacts on Negotiators' Behavior and Outcomes***

“Negotiations always exist in a specific context, and understanding that context is essential to understanding the fundamental nature of that negotiation” (Crump, 2015, p. 139). The negotiation context refers to the set of facts or circumstances that surround a negotiation (Crump, 2011). In this section, we focus on the number of negotiating parties, the non-monolithic structure within parties, their cultures, and the linkage of the negotiation as the essential features of the negotiation context that affect complexity.

#### **The Number of Negotiating Parties**

***The Effect on Negotiation Complexity.*** Negotiations often involve more than two parties, such as in the situation of international negotiations, public disputes, and organizational and group negotiations (Crump, 2003). Such situations are often more complex because the potential number of interacting variables is greater than in bilateral negotiations (Crump and Glendon, 2003). In the negotiation literature, a party is defined as a person or group of people with common interests who acts in accordance with their preferences in a conflict (Thompson,

2014). They can be individuals, groups, organizations, or nations (Rubin et al., 1994)<sup>7</sup>. Specifically, while some parties are easily identified when they are physically present at the bargaining table, there are some parties who are absent from the table, which is also referred to as *hidden table* (Friedman, 1992; Thompson, 2014). In line with this notion, Weiss (1993, p. 277) defines three types of parties in negotiations: Primary parties who have interrelated goals and have become or plan to become engaged in direct talks (i.e., negotiating parties at the table); secondary parties who have an indirect stake in the outcome but do not consider themselves directly involved (i.e., constituents or other external parties); and third parties who are neutrals and work between primary parties toward a mutually satisfactory agreement. In this section, we focus on primary parties who are negotiating at the bargaining table. The secondary and third parties are considered in the facet of linkage in negotiation. In multiparty negotiations, each party represents their own positions and interests and seeks to resolve the perceived divergence of interest (Bazerman et al., 1988; Kramer, 1991; Neale and Bazerman, 1991). When the number of parties involved in the negotiation increases, social interactions between or among parties become more complex, information-processing demands increase enormously, the need for efficient communication grows exponentially, the alternatives become more difficult to identify and analyze, and interaction dynamics become more complex with the formation of coalitions (Bazerman et al., 1988, 2000; Crump, 2015; Crump and Glendon, 2003; Li et al., 2007; Thompson, 2014; Weingart et al., 1993). In all, increasing the number of parties involved in a negotiation dramatically increases the degree of negotiation complexity on the informational and computational level, social level, procedural level, and strategic level (Gray and Clyman, 2003; Kramer, 1991).

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<sup>7</sup> In the literature on international negotiations, researchers define multiparty negotiations as situations with more than two parties, including parties on the same side (e.g., primary parties, representatives, constituents), on antagonistic sides (e.g., primary parties), on neutral sides (e.g., mediators, arbitrators), and on external sides (e.g., alternative negotiating partners; Crump, 2015, 2020; Crump and Glendon, 2003). Based on this definition, a bilateral negotiation with two primary sides can also be referred to as a multiparty negotiation when at least one side has two or more parties (i.e., members). In other words, all multilateral negotiations involve multiple parties, but not all multiparty negotiations are multilateral. In the literature of organizational negotiations (e.g., De Dreu, 2010; Li et al., 2007; Thompson, 2014), the definition of multiparty negotiation shares a common root with that of international negotiation literature. However, their important distinctions should be noted: A multiparty negotiation is referred to as a situation where there are three or more parties each with their own positions and interests, which is considered as a multilateral negotiation in international negotiation literature. By contrast, a bilateral-multiparty negotiation in international negotiation literature is considered as team negotiations in organizational negotiation literature (De Dreu, 2010; Thompson, 2014). The definitions of both lines of research provide structural clarify. In order to systematically examine the effect of the number of primary parties on negotiation complexity, we use the definition of the organizational negotiation that differentiate between parties and members within a party to discuss the effects of parties and the effects of non-monolithic structure within a party on negotiation complexity (see Section The Non-Monolithic Structure).

***The Effect on Negotiators' Behavior and Outcomes.*** When various parties are at the bargaining table, concerns about the distribution of resources loom. Parties are more likely to engage in self-serving behavior and varying definitions of fairness emerge (Thompson, 2014). The increased complexity of the bargaining situation raises the time needed to come to a mutual agreement (Polzer, 1996) and may result in information overload (Bazerman et al., 2000; Morely, 1982), thus increasing the use of cognitive simplification and heuristics. Whereas previous research has compared the performance between individual negotiations and team negotiations in a bilateral context (e.g., Morgan and Tindale, 2002; Polzer, 1996; Thompson et al., 1996), the effects of the number of primary parties on the negotiation processes and outcomes have not yet been examined. Based on the above-mentioned theoretical reasoning, we may expect that the increasing number of parties at the table will bring more difficulties in realizing optimal integrative solutions for all parties because they may form coalitions to enhance their own positions and interests (Beersma and De Dreu, 2002; Kim, 1997; Polzer et al., 1998), they may reply on their group norms or social heuristics in distributing resources such as applying an equality or equity division (Cook and Hegtvedt, 1983; Mannix et al., 1995), or they may advocate a decision rule (e.g., majority vs. unanimity) that is most advantageous for themselves, however, not necessarily efficient for all parties (Mannix et al., 1989; Ten Velden et al., 2007; Thompson et al., 1988).

### **The Non-Monolithic Structure**

***The Effect on Negotiation Complexity.*** Negotiators are usually non-monolithic, with different stakeholders having varying interests and priorities on each side (Bazerman and Neale, 1991). Particularly, when negotiations take place between groups, organizations, or nations, each party may consist of people who are on the same side but with heterogeneous, conflicting interests (Crump, 2015; De Dreu, 2010; Halevy, 2008; Raiffa, 1982; Thompson, 2014; Watkins, 2003b). Even if one side is comprised of only one person, that person might still experience internal conflicts (Raiffa, 1982). Parties' non-monolithic nature is considered as one of the main characteristics of complex negotiations (Crump, 2015; Crump and Glendon, 2003; Watkins, 2003b; see also unity vs. disunity, Crump, 2005). When members within a group are monolithic, "two heads are better than one": Negotiators are less susceptible to cognitive biases and are more likely to efficiently process the available and useful information (De Dreu, 2010). In line with this reasoning, empirical research has found that negotiation teams with a monolithic structure make more accurate judgments and are better at accumulating and analyzing information that emerges during the bargaining process

than individual negotiators (Bottom et al., 2002; Thompson et al., 1996). By contrast, when negotiating parties possess a non-monolithic structure, members within a party are on the same side whereas having varying values, beliefs, and preferences (Thompson, 2014). Thus, the degree of internal conflict increases due to different values, interests, and opinions (Raiffa, 1982). In this context, negotiators confront both internal conflicts within groups and external conflicts with other parties. They step into a complex two-level game (Putnam, 1988) in which negotiators have to deliberate how their intragroup decisions and processes affect the intergroup negotiation and vice versa. Supporting this notion, research has found that such intragroup conflicts significantly increase the level of complexity that negotiators confront in the negotiation and negatively affect the negotiation processes and outcomes (Halevy, 2008).

***The Effect on Negotiators' Behavior and Outcomes.*** Most empirical research on multiparty negotiation focused on situations in which members are monolithic within a group (i.e., negotiators within a group bargain for their unitary interests or, if representing a constituency, they and the constituency members have uniform interests; Raiffa, 1982). Nevertheless, several studies have recognized the importance of intragroup conflicts in negotiations and investigated the effects of non-monolithic structure within parties on negotiators' behaviors and outcomes (e.g., Aaldering and De Dreu, 2012; Halevy, 2008; Keenan and Carnevale, 1989). For instance, Keenan and Carnevale (1989) have found that the non-monolithic, conflicting interests among group members increased groups' competitiveness in intergroup negotiations. Non-monolithic groups made less integrative proposals over the course of the negotiations and proposed more distributive offers at the end of the negotiations compared to monolithic groups. In a laboratory experiment on integrative negotiations between two four-person groups, Halevy (2008) showed that negotiating groups with a non-monolithic structure engaged in less mutually beneficial trade-offs with the other group, thus resulting in less integrative outcomes than those groups with a monolithic structure. Studies on representative negotiations also investigated situations in which representatives have non-monolithic interests with their constituents (interest misalignment, Aaldering et al., 2013; see also Aaldering and De Dreu, 2012; Steinel et al., 2009). In this context, representatives' social value orientation affected how they dealt with the conflicting interests within their group: Pro-social representatives were more willing to self-sacrifice when this served their constituency's interests compared to pro-self representatives, albeit only when such behavior would not indirectly serve the counterpart's interests too (Aaldering et al., 2013).

## Culture

***The Effect on Negotiation Complexity.*** Culture shapes the norms individuals have for resolving disputes and managing conflicts and determines the cognitive representations they have of social conflicts (De Dreu, 2010; Gelfand and Brett, 2004; Tinsley and Brett, 2001). The cultural component in the context of negotiations does not only refer to that of national groups, but also to ethnic and organizational cultures (Schneider, 1988; Weiss, 1993; West et al., 2003). Negotiations between parties of different cultures are characterized by dramatically different dynamics than those between parties from the same culture (Bazerman et al., 2000). Specifically, in intercultural negotiations, parties hold different values and beliefs, and behaviors that are considered normative in one culture often generate controversy in other cultures (Thompson, 2014). Tinsley and colleagues (1999) metaphorically compared such a situation to a dance in which one party does a waltz and the other party does a tango. A lot of studies have demonstrated that differences in culture per se can become a source of conflict in negotiations, thus stepping up the degree of complexity at the bargaining table (Brett, 2007; Gelfand and Brett, 2004). In their book on negotiation and culture, Gelfand and Brett (2004) have thoroughly examined the barriers caused by intercultural conflicts on different facets of negotiations. Specifically, complexity arising from cultural differences can derive from distinct frames of the negotiation situations (Morris and Gelfand, 2004; see also Gelfand and Christakopoulou, 199; Gelfand et al., 2001, 2002), different perceptions and displays of emotions (Kumar, 2004), and differences in perceptions of the social context (Gelfand and Cai, 2004) and of cooperation in social interactions (Brett and Kopelman, 2004). In all, negotiations with parties from different cultures involve a dilemma of differences (Tinsley et al., 1999): On the one hand, intercultural negotiations provide parties with opportunities for creating value. However, on the other hand, cultural differences can also become a barrier toward efficient and successful negotiations.

***The Effect on Negotiators' Behavior and Outcomes.*** Despite the opportunities that they bring to negotiations, intercultural differences frequently lead to inefficient negotiation agreement, thus resulting in money left on the table (Brett, 2007). In a mixed-motive negotiation, Brett and Okumura (1998) found that intercultural dyads (Japanese vs. American) achieved lower joint outcomes than intracultural dyads (Japanese vs. Japanese; American vs. American). Answers to a post-negotiation questionnaire revealed that intercultural differences led to inefficient information sharing, power struggle, and asymmetric focus on self-interest, which consequently resulted in less integrative agreements among intercultural negotiating dyads. Focusing on the effects of cultural differences on negotiation strategies, Lügger and

colleagues (2003) found that Chinese negotiators tended to use more distributive negotiation strategies than German negotiators in intracultural settings. When changing the setting from an intracultural to an intercultural context, German negotiators used significantly more distributive strategies (vs. intracultural setting) whereas their Chinese counterparts did not change their behavior. As a consequence, the quality of negotiation outcomes of intercultural dyads was lower than that of German intracultural dyads but higher than that of Chinese intracultural dyads. Moreover, research has also shown that converging to a common consensus in negotiation is more difficult in intercultural than intracultural negotiation, and such a difference is highly dependent on negotiators' epistemic and social motivations (Liu et al., 2012).

### **The Negotiation Linkage**

*The Effect on Negotiation Complexity.* Negotiations have traditionally been analyzed as self-contained, stand-alone interactions among two or more parties, but such situations are particularly rare in real-world settings (Watkins, 1999, 2003b; Watkins and Passow, 1996). As Menkel-Meadow (2009) noted: "What seems like a 'two-party' problem is, in fact, much more complicated and often affects many other parties...We can almost never assume that a bilateral agreement of two parties will be sufficient to solve anything but perhaps the most simple buyer-seller agreement" (pp. 421-422). As a matter of fact, most negotiations generate linkages by which "one negotiation influences or determines the processes or outcome of another negotiation" (Crump, 2007, p. 118; see also Raiffa, 1982; Thompson, 2014; Watkins, 1999). Specifically, negotiation linkages may arise from repetitions with the same actors over time as in the situations of repetitive negotiations or multi-round negotiations (Raiffa, 1982); they may also arise from situations in which the interests of parties beyond the bargaining table are linked to the negotiated agreement, as in the case of representative negotiations (De Dreu et al., 2014) or when the negotiation generates externalities (Lax and Sebenius, 1986). Although scholars suggest that negotiation linkage may provide parties with an opportunity to gain strategic advantages (Crump, 2010, 2016; 2020; Crump and Moon, 2017; Fisher, 1989), it has long been considered as a major factor that steps up negotiation complexity (Crump, 2015, 2020; Watkins, 1999). In his classic book on negotiation analysis, Raiffa (1982) admonished that negotiators should be aware of the intricacies caused by the linkages of negotiations. When the negotiation generates linkages, parties need to look beyond the negotiation table to the broader linked social system in which the negotiation is embedded (Watkins, 2003b). In this context, negotiating parties should not only consider their

immediate interests from the negotiation, but should also consider how their decision and agreement at the table affect other stakeholders beyond the table, and how such influences, in turn, affect their interests in the long term. Therefore, negotiation linkages strongly influence negotiators' alternatives, preferences, and attitudes in the decision making (Watkins and Passow, 1996) and considerably increase the amount of information that negotiators should deliberate before making a decision. Therefore, negotiation linkages exert a strong influence on the level of complexity of a negotiation.

***The Effect on Negotiators' Behavior and Outcomes.*** Although the important role of negotiation linkage has long been discussed in the negotiation literature (Lax and Sebenius, 1986; Raiffa, 1982; Watkins and Passow, 1996), there is a lack of empirical evidence for its effects on parties' behaviors and outcomes. In a recent series of studies, Zhang and colleagues (2020) examined the situations in which the negotiated agreement affected not only the interests of negotiating parties at the table but also generated externalities on parties who were absent from the table. They found that when facing the situation with external parties whose interests were affected by the negotiated agreement, the complex negotiation situation and the vast cognitive demands arising from the diverse interests beyond the table prompted negotiators to limit their focus on the outcomes at the table, which resulted in a proximity effect: Negotiators successfully explored the integrative potential at the level of the proximal outcomes (parties' outcomes at the table) but failed to explore it at the level of distal outcomes (external parties' outcomes beyond the table), even though the realization of the integrative potential for external parties did not come at the cost of their own interests. Further hints on the effects of negotiation linkages on parties' behaviors and outcomes come from studies on representative negotiations, in which the agreements reached by the representatives are linked to their constituencies on behalf of whom they are negotiating (De Dreu et al., 2014). Those studies have shown that when complex negotiations with linkages, representatives tend to focus on the interests of their constituencies and thus behave in a very competitive manner (e.g., Aaldering and Ten Velden, 2018; Benton and Druckman, 1974; Mosterd and Rutte, 2000). However, when constituents' preferences are diverse, the resulting complex linkages significantly affect representatives' behaviors and performance in the negotiation process (Aaldering and De Dreu, 2012).

### ***Practical Tools for Managing Negotiation Complexity***

A growing literature has arisen to address the challenges in complex negotiations through prescriptive and descriptive advice to practitioners (e.g., Crump, 2020; Laubert and Geiger,

2018; Watkins, 1999). Based on the literature on negotiation, conflict resolution, and international diplomacy, Watkins (1999) made ten propositions for understanding and handling complexity in real-world negotiations. His suggestions include crafting creative deals that bridge differences in parties' interests, systematically structuring the negotiation, forging and neutralizing linkages, and learning and training negotiation skills. Based on a qualitative interview with negotiation practitioners, Laubert and Geiger (2018) elaborated eight handling strategies (e.g., increasing preparation, creating a relationship, increasing the negotiation time, making an interim conclusion) for dealing with issue-based complexity in the context of business negotiations. Specifically, these strategies aim at helping negotiators to better prepare and manage the negotiation processes in order to reduce the degree of complexity in bargaining situations. In recent work, Crump (2020) systematically reviewed existing theoretical frameworks for analyzing complex negotiations. Through this review, he proposed several operational tools such as coalition and team building and juxtaposing divergence and convergence for managing different facets of a complex negotiation. Based on this line of research and empirically relevant studies, we discuss four practical tools that can help parties to manage negotiation complexity in general and complexity caused by the identified eight determinants in particular. Specifically, we propose that setting a negotiation agenda can effectively reduce the negotiation complexity caused by the task-based factors (i.e., the number of issues, the interdependence between issues, the configuration of issues, and the number of agreement options; Balakrishnan et al., 1993; Rubin and Brown, 1975; Sebenius, 1983; Watkins, 2003a); building coalitions can efficiently solve the complexity caused by negotiating parties and their non-monolithic structure (Crump, 2020; Thompson, 2014; Zartman, 1994); negotiation skill training and learning is expected to improve practitioners' ability in handling cultural-based complexity (Thompson, 2014; Watkins, 1999); and adopting an interdependence mindset can effectively help parties to manage complexity in negotiations involving linkages (Crump, 2015; 2020; Kochan and Katz, 1988; Laubert and Geiger, 2018; Weiss, 1983).

### **Agenda Setting**

The agenda has been considered as an essential component in multi-issue negotiations, which has great potential to affect the bargaining process and outcomes (Balakrishnan et al., 1993; Busch and Horstmann, 2002; De Dreu et al., 2009). It sets the boundaries for what issues will be negotiated in which phase and the form in which they will be negotiated. The negotiation agenda influences, to a great extent, the effectiveness and efficiency of the negotiation as



parties' interests, priorities, relative advantages, and willingness to close a deal can significantly vary across issues' ordering, format, and way of presentation (Rubin and Brown, 1975). Specifically, the negotiation agenda can be determined exogenously before the negotiation starts, or alternatively, it can be decided endogenously during the course of the negotiation between the parties (Fatima et al., 2003).

Researchers have suggested that in order to resolve a negotiation with complex multiple issues and wide range of agreement options, parties should deliberately consider the formation of issues under discussion (Albin and Young, 2012; Fisher, 1964; Laubert and Geiger, 2018; Rubin and Brown, 1975; Walton and McKersie, 1965). As Rubin and Brown (1975) noted: "It is by creatively sizing or fractionating issues, expanding the range of alternative outcomes, coupling them to existing or new issues, forming subsets, package deals, or tie-ins, that the likelihood of reaching a mutually satisfactory agreement may be increased" (p. 156). Compared to a sequential agenda (i.e., negotiating issues one by one) that reduces the degree of complexity whereas constraining the potential for integrative trade-offs (Mannix et al., 1989; Patton and Balakrishnan, 2012), fractioning issues into smaller subsets and negotiating these subsets in a sequential way can maintain the potential for integrative solutions, meanwhile cutting down the information-processing demands on negotiators to tractable levels (Fisher, 1964; Fisher and Ury, 1981; Fujita et al., 2014; Levine and Plott, 1977; Watkins, 2003a; Zartman, 1994). Particularly, when setting the agenda, negotiators are suggested to separate the issues that dovetail the respective interests of all parties into the same subsets (Watkins, 2003a; Whitney, 1982). Such a procedure may help parties to better handle the interdependence between issues, thereby increasing the likelihood that parties recognize and realize the integrative potential at the bargaining table. In a recent line of studies on issue packaging negotiations, researchers have found that negotiating various issues in terms of sub-packages effectively reduced the informational complexity during the bargaining process and led to a more accurate judgment about parties' interests and priorities, thus resulting in better negotiation outcomes compared to negotiating all issues simultaneously (Herbst et al., 2017; Zhang et al., 2019).

### **Coalition Building**

In negotiations involving multiple parties and non-monolithic interests, coalitions can be a particularly powerful tool to manage the corresponding complexity, thereby shaping the bargaining process and controlling negotiation outcomes (Crump, 2003; Crump and Zartman, 2003; Kramer, 1991; Lax and Sebenius, 1991). Specifically, researchers of international and

organizational negotiations suggest that forming coalition through external and internal alignments can significantly simplify and structure complex negotiations involving multiple parties and non-monolithic interests (Brett, 1991; Crump, 2020; Crump and Glendon, 2003; Mannix, 1993; Zartman, 1994, 2003). In negotiations with multiple parties, coalition building can structurally reduce the complexity caused by the multifaceted divergence between parties and may even transform a multilateral conflict to a bilateral one (Crump and Glendon, 2003; Kramer, 1991; Polzer et al., 1998; Zartman, 1994). Whereas in negotiations with intragroup conflicts, coalitions contribute to intragroup communication and facilitate the joint decision-making process (Bazerman et al., 1988; Brett, 1991; Mannix, 1993; Thibaut and Kelley, 1959). Moreover, as a common cooperative arrangement in the context of multiparty negotiations, forming a coalition allows different parties to combine their resources to influence the bargaining process and outcomes (Murnighan, 1978; Thompson, 2014). For instance, in a complex, integrative negotiation simulation involving three parties, Polzer and colleagues (1998) found that parties were capable of exploring convergent interests between them and others and thus formed coalitions against the other divergent parties at the table. Nevertheless, negotiators should be aware that the coalition itself may also become “conflict-ridden” in the bargaining process (Crump and Glendon, 2003). Specifically, Lax and Sebenius (1991) differentiated three types of effects of coalitional actions on the negotiation agreements: (1) coalitions that unilaterally improve one’s alternative to the negotiated agreement or worsen that of other coalitions, (2) coalitions to realize mutually beneficial joint gains, and (3) coalitions to commit to acceptable solutions within the zone of possible agreements. Negotiators should seek to strategically use coalitions to realize mutually beneficial agreements for all parties thus maximizing the value at the table, instead of being confined to self-interests of own parties or satisfied with a mutually acceptable solution while leaving money on the table (e.g., Beersma and De Dreu, 2002; Polzer et al., 1998).

### **Skill Learning and Training**

In complex negotiations, individuals’ negotiation skills become an absolute advantage in overcoming challenges caused by complexity (Lewicki et al., 2010, 2011; Thompson, 2014; Watkins, 1999; Weiss, 1993). Facing high degrees of complexity, excellent negotiation skills are essential to success because they can help parties unbiasedly shape their perceptions and effectively analyze the bargaining situations. For instance, in the context of complex negotiations involving different cultures and norms, parties face intercultural challenges such as sacred values, biased focus of conflict, affiliation bias, and faulty perceptions of

conciliation and coercion (Thompson, 2014). A practical way of handling these cultural challenges, while allowing negotiators to primarily focus on solving the conflicts of interest at the core of the bargaining process, is to improve negotiators' skills through effective learning and training (Earley and Peterson, 2004; Lewicki et al., 2010; Thompson, 2014). Watkins (1999) suggested that negotiators should learn by "doing the requisite pre-negotiation preparation; diagnosing the essential features of their negotiating situations; becoming familiar with the history, context, and record of prior negotiations; and probing into the background and reputation of their counterparts" (p. 251). Specifically, negotiators should capture potential learning opportunities within the team thus creating team synergies (Hüffmeier et al., 2019), meanwhile raising an "integrated awareness" that helps them to extract useful knowledge and experience from previous and ongoing negotiation processes (Watkins, 1999, p. 264). In addition to effective learning, training on negotiation skills also improves negotiators' ability of creating value in complex real-world negotiations (Ade et al., 2018; ElShenawy, 2010; Gentner et al., 2003; Lewicki, 1997; Moran et al., 2008; Tsay and Bazerman, 2009; Zerres et al., 2013). In a survey study with directors of diplomatic training institutes, all respondents indicated that training of negotiation skills is crucial for managing complex real-world negotiations (Watkins, 1999). Similarly, experimental negotiation studies also consistently found that negotiators can improve their performance and outcomes through learning and training (e.g., Loewenstein et al., 1999; Nadler et al., 2003; Thompson et al., 2000; Zerres et al., 2013). In all, learning and training of negotiation skills can not only help parties to handle challenges in negotiations involving varying cultures and norms but also provide practitioners with necessary abilities to deal with other aspects of complexity that they may face in real-world negotiations (e.g., managing issue-based complexity; Balakrishnan et al., 2013; Laubert and Geiger, 2018).

### **Interdependence Mindset**

Negotiation can be portrayed as "the deliberate interaction of two or more complex social units which are attempting to define or redefine the terms of their interdependence" (Walton and McKersie, 1965, p. 35). Indeed, a real-world negotiation is a relational process that seeks to resolve the underlying conflicts between parties (Avgar and Lee, 2014; Gelfand et al., 2006), and successful negotiations always involve effective relationships (Thompson, 2014). In negotiations involving complex linkages, the interests and preferences of parties related to the negotiated agreement cannot be merely understood and analyzed between the primary parties at the table (e.g., in the case representative negotiation) nor in an immediate

perspective (e.g., in the situation of multi-round negotiations). Rather, negotiators have to deal with complexity concerning stakeholders beyond the table as well as the long-term interests of all parties involved. In this context, effectively managing the interdependence between parties both at (i.e., other primary parties) and beyond the table (e.g., constituents and other external parties) can substantially facilitate the complex negotiation situation in the short and long run (Crump, 2020; Laubert and Geiger, 2018; Watkins, 2003b). Specifically, research has found that developing a trustworthy interdependence is especially helpful for negotiators when they face complexity facets such as predictability, information non-transparency, and individual orientation (Laubert and Geiger, 2018). Therefore, we propose that adopting an interdependence mindset may help negotiators to systematically analyze the diverse interests across space (i.e., primary parties at the table and secondary parties beyond the table) and across time (i.e., immediate interests and future interests), thus facilitating the achievement of integrative outcomes at both economic and social levels (Curhan et al., 2008; Gelfand et al., 2006). A mindset is a “psychological orientation that affects the selection, encoding, and retrieval of information; as a result, mindsets drive evaluations, actions, and responses” (Rucker and Galinsky, 2016, p. 161). As suggested by various researchers (Bargh, 1994; Bargh and Chartrand, 2000; Gollwitzer, 2012; Rucker and Galinsky, 2016), mindsets automatically and unconsciously mediate and moderate pre-defined responses and behaviors as soon as they are cognitively activated in a specific social context. Thus, mindsets influence cognitive, motivational, and emotional processes and thereby impact the way individuals consciously and unconsciously approach and behave in the corresponding social context. Several negotiation studies from different lines of research have shown that individual negotiators can be led to adopt a certain mindset in negotiations, which consequently impacts their perceptions and behaviors in the ongoing negotiation process and ultimately affects the quality of negotiation outcomes (e.g., Harinck and De Dreu, 2008; Ma et al., 2019; Trötschel et al., 2011). Based on research on relational self-construal (RSC; Andersen and Chen, 2002; Brewer and Gardner, 1996; Cross and Madson, 1997; Gelfand et al., 2006; Kashima et al., 1995), we propose that negotiators with an interdependence mindset will adopt a relational orientation that underscores “connectedness to others and behave in ways that promote and strengthen existing relationships” (Cross et al., 2002, p. 400). Specifically, negotiators in a state of interdependence mindset will manage the linkage complexity by (a) efficiently analyzing information about the negotiation linkages, (b) broadening their perspective beyond the immediate temporal and social context, and (c) considering the long-term consequences of their decision. Different from other tools that reduce the degree of negotiation complexity,

adopting an interdependence mindset aims at helping negotiators to manage the linkage complexity by systematic evaluating and considering the benefits and costs of different dependencies, thus facilitating the achievement of integrative agreements from a comprehensive perspective.

### ***Discussion***

In real-world negotiations, complexity poses particular challenges to parties at the bargaining table. The bargaining situations involve a mix of competition and cooperation, value claiming and value creation, and divergence and convergence. Negotiators not only have to deal with the mixed-motive feature of the negotiation but also have to manage the complexity brought about by different facets of the bargaining situations. Given this, the present work proposes a theoretical model of task-based and context-based determinants of negotiation complexity. Based on the literature of task complexity in individual decision making (e.g., Campbell, 1988; Timmermans, 1993), and complexity in international (Crump and Zartman, 2003; Watkins, 2003a; Winham, 1977; Zartman, 1994) and organizational negotiations (Kramer, 1991; Laubert and Geiger, 2018; Pruitt, 1994; Walton and McKersie, 1965; Weiss, 1993), the model introduces eight determinants of complexity pertaining to the negotiation task and context. These variables comprehensively describe how the level of complexity is affected by the negotiation task itself and the context that it is embedded. Specifically, each of these variables can affect negotiators' decision making in the bargaining processes and the resulting agreements.

### **The Determinants of Negotiation Complexity and Their Interplay**

Based on previous research on negotiation issues (Laubert and Geiger, 2018; Lax and Sebenius, 1986; Geiger and Hüffmeier, 2020; Watkins, 2003a, 2003b; Warsitzka et al., 2019, 2020), we propose that the task features of the negotiation—the number of issues, their interdependence, configuration, and the respective number of agreement options—will considerably affect the degree of complexity in the negotiation. Although each of these variables was depicted in an independent way, they can be interrelated and mutually dependent. For instance, there might be an interplay between the effects of the number of issues and the number of agreement options. Specifically, the joint function of the number of issues and the number of agreement options per issues constitutes the total number of agreement options at the bargaining table, which should lead to a considerable combinatorial explosion when the number of issues and the number of agreement options per issues are both

high (Warsitzka et al., 2020). On the other hand, when the negotiation issues involve fewer options, like in distribution negotiations where parties only have to decide among two or three options how to allocate the resources (e.g., Trötschel et al., 2007, 2011), the low number of options to choose from should alleviate the detrimental effect of a high number of issues on negotiation complexity because the overall combinatory options in the zone of possible agreements is reduced (Lax and Sebenius, 1986). Moreover, when the number of issues increases, the likelihood that the issues involve a complex configuration of interests (i.e., distributive vs. integrative vs. compatible) between parties also increases (Raiffa, 1982). This results in a particularly pronounced degree of complexity confronting negotiators with the challenge of exploring their multifaceted configuration of interests while processing large amounts of information inherent in the high number of issues.

Further, we also analyze four contextual variables that may lead to an increase in negotiation complexity. The negotiation context is the background against which the bargaining process takes place (Neale and Northcraft, 1991). Variables such as the number of negotiating parties, the interest structure within the parties, their culture, and the generated linkages determine how complex the bargaining game will be. The number of negotiating parties has long been considered as an absolute determinant of negotiation complexity (Crump, 2015, 2020; Kramer, 1991; Weiss, 1993; Zartman, 1994). Indeed, an increase in the number of negotiating parties is likely to be associated with an increase in the number of issues involved at the bargaining table in that new parties bring new issues into the discussion (Crump, 2020; Sebenius, 1983; Watkins, 2003a). Therefore, previous research on negotiation complexity often analyzes the effects of the number of parties and issues as two inseparable, interrelated aspects (e.g., Sebenius, 1983; Watkins, 1999, 2003a). Whereas adding or subtracting parties at the table often correspondingly lead to inclusion or exclusion of issues relevant to those parties, adding or subtracting issues can, in turn, consolidate or weaken the coalitions between parties (Crump, 2020; Sebenius, 1983; Watkins, 1999).

Moreover, our model focuses on the number of parties that have distinct interests at the table (cf. *sides* and *multilateral* in international negotiation literature, Crump, 2003; Zartman, 2003) rather than the number of members within a negotiation party (team negotiation, Brodt and Thompson, 2001; Halevy, 2008). Instead of focusing on the number of negotiators within a team, we examined the interest structure within the team—whether they have monolithic or non-monolithic interests against other negotiating parties, because the latter aspect is the core factor that steps up the complexity of conflicts within and between parties. Specifically, when negotiating teams function as monolithic entities and have the

same priorities and preferences regarding the conflict, having multiple members within a team leads to a negotiation advantage—the “two-heads-are-better-than-one perspective” (De Dreu, 2010; Hüffmeier et al., 2019). Empirical studies that compared the performance of individual negotiators with that of monolithic teams showed that having a higher number of negotiators within a team increases the information-processing and problem-solving capabilities, generates more ambitious team goals, and results in mutual reinforcement between team members (Hüffmeier et al., 2019; see also Gelfand et al., 2013; Morgan and Tindale, 2002; O’Connor, 1997; Polzer, 1996; Takemura and Yuki, 2007; Thompson et al., 1996). In this context, the high number of negotiators within a monolithic team does not increase the complexity of the bargaining situation; instead, it leads to high-quality negotiation outcomes compared to negotiations with only one person on each side (Brodt and Thompson, 2001; De Dreu, 2010; Thompson, 2014). Therefore, it is the non-monolithic structure, instead of the number of negotiators within the team that influences the complexity of the negotiation.

Each of the eight determinants has been previously discussed in the negotiation literature, however, some of them have not been empirically and systematically examined regarding their effects on negotiation complexity as well as on the bargaining process and outcomes (e.g., configuration of issues, the number of agreement options). The present model provides future research with a theoretical basis for examining the effects of these factors on negotiation complexity, processes, and ultimately the quality of the outcomes.

### **Managing Complexity in Real-World Negotiations**

In addition to theoretical contributions, the model also proposed four practical tools that aim at helping negotiators to handle complex bargaining situations in real-world settings. Previous literature on complex negotiations has offered important advice on how to analyze and manage a complex negotiation from a different perspective (Crump, 2020; see also Crump, 2015; Gray, 2011; Laubert and Geiger, 2018; Watkins, 1999, 2003b; Weiss, 1993). The current paper focuses on discussing the tools that may effectively help to deal with the complexity caused by the eight task-based and context-based variables in the model. Specifically, when facing negotiations involving various issues and options with complex interdependencies and multifaceted interest configurations, practitioners could reduce the information flood by setting a reasonable agenda with their counterpart (Balakrishnan et al., 1993; Rubin and Brown, 1975). When there is a high degree of complexity because of the presence of various negotiators with conflicting interests, practitioners could integratively form coalitions with other negotiators to facilitate and control the bargaining process (Crump,

2003, 2020; Crump and Zartman, 2003; Kramer, 1991). Moreover, practitioners may improve their skills and ability to deal with complex bargaining situations through effective learning and training (Lewicki et al., 2010, 2011; Thompson, 2014; Watkins, 1999; Weiss, 1993). Negotiators could thus transform the relevant experience and knowledge to their soft power that helps them to effectively handle challenges in complex negotiations such as intercultural situations. Ultimately, when facing negotiations that generate complex linkages beyond the bargaining table either spatially or temporally, adopting an interdependence mindset may help practitioners to systematically and effectively analyze the negotiation situation, taking all relevant interests into consideration, thus facilitating the achievement of sustainable, integrative outcomes from a long-term perspective (Crump, 2020; Laubert and Geiger, 2006; Watkins, 2003b).

In addition to the above-mentioned tools, practitioners can use other strategies to deal with complex negotiations. For instance, researchers suggest that facing complex negotiations such as those with both intragroup and intergroup conflicts (i.e., multiparty negotiations with non-monolithic structure), practitioners should take the leading role and act as “a bridge between internal decision making and external negotiating and in reconciling the divergent interests” (Watkins, 1999, p. 262; see also Crump, 2015, 2020; Zartman, 1994). Such an approach allows negotiators to advance the interests of all sides and to move forward the complex negotiations to a mutually satisfying agreement. Moreover, in repetitive or multi-round negotiations with complex linkages, practitioners can reduce the degree of complexity through benchmarking. By benchmarking, negotiators use “goals, issues, agendas, arguments, positions, and concessions as a reference point in a linked negotiation” (Crump, 2011, pp. 218-219; see also Crump, 2007; 2010). The benchmarking strategy is frequently employed as a tool to create unilateral advantages in international negotiations (e.g., Crump, 2010; Crump and Moon, 2007). Although it can cut down the degree of complexity of negotiation linkages by directly setting reference points, benchmarking, as a shortcut per se, may only benefit the party who uses this strategy in gaining a one-sided negotiation advantage. Due to an insufficient adjustment to the ongoing negotiation by taking all parties’ interests and priorities into account, adopting a benchmarking strategy may lead negotiators to focus on self-interest and engage in more distributive, competitive behavior. Future research should empirically test the efficacy of these different tools in reducing and managing complexity in negotiations, as well as how they consequently affect the negotiation process and the quality of outcomes.



### **Conclusion**

The proposed two-dimension, eight-determinant conceptual model on negotiation complexity is grounded in the existing literature on negotiation complexity and it enriches the literature with insights from other research domains relevant to complexity. It seeks to provide negotiation researchers and practitioners with an important lens through which they can effectively prepare, analyze, and manage complexity in real-world negotiations. The model examines the task-based characteristics of the negotiation (i.e., the number, interdependence, and configuration of issues, and the number of agreement options) and the larger context of the negotiation (i.e., the number of parties, their non-monolithic structure, the culture, and the linkage involved in it). Like the management of complexity, this model provides illustrative rather than an exclusive examination of facets regarding negotiation complexity. It offers a solid basis and a promising starting point for theoretical and empirical research to address the challenges in complex real-world negotiations.

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### Chapter 3: Does Expanding the Pie Spoil the Cake? How and Why the Number of Issues Affects Behaviors and Outcomes in Integrative Negotiation

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#### ***Abstract***

There are two opposing positions in the literature regarding the effect of the number of issues on integrative negotiations: One argues that more issues increase trade-off opportunities and are thus beneficial. The other argues that more issues increase complexity and are thus detrimental. This research seeks to reconcile these opposing positions by providing a theoretical framework explaining how and why the number of negotiation issues affects parties' behaviors and outcomes. In a series of four experiments ( $N = 815$ ), we tested the prediction that a high (vs. low) number of issues will lead to more trade-offs (*quantity* of trade-offs) but reduce their integrativity (*quality* of trade-offs). A non-interactive study provided initial empirical support for our predictions (Experiment 1). Subsequently, we replicated these findings in an interactive setting and further demonstrated that more issues impede joint outcomes. Revealing the underlying mechanism, we discovered that the way negotiators subdivided the whole set of issues into integrative versus non-integrative issue packages accounted for this detrimental effect (Experiment 2) and confirmed this issue-packaging mechanism in an experimental mediation test (Experiment 3). Finally, we investigated the effects of increasing the number of issues versus increasing the integrative potential (Experiment 4; pre-registered; <https://osf.io/6gwny/>): Increasing the number of issues *and* the integrative potential raised the number of trade-offs and joint profits (*absolute outcomes*) but reduced the integrativity of trade-offs and the Pareto efficiency (*relative outcomes*). Results are corroborated by an internal meta-analysis and discussed in light of a theoretical framework on cognitive categorization processes in multi-issue negotiations.

*Keywords:* integrative negotiation, number of issues, trade-offs, joint profits, Pareto efficiency

In 2017, the American microprocessor manufacturer Advanced Micro Devices (AMD) made an effort to extend its market in China by establishing partnerships with local manufacturers. In negotiations with their Chinese partners, AMD representatives faced a wide range of issues that needed to be resolved before closing the deal (e.g., production regulations, patent grants, shares of ownership, protection of intellectual property). Moreover, AMD managers needed to decide whether to include only certain product lines such as high-performance CPUs into the negotiations or whether they should also add other products such as semi-custom chips for gaming PCs and consoles. Thus, AMD managers needed to decide whether to further expand the pie by adding even more issues to the already complex negotiations or whether they should keep the number of issues to a minimum.

Many parties in negotiations face a similar cognitive dilemma between increasing the number of issues, thus creating additional agreement options versus keeping the number of issues low, thus keeping task complexity under control. If they had consulted the negotiation literature addressing this cognitive dilemma, AMD managers would have found two contradicting recommendations based on different theoretical assumptions: In her seminal work on negotiations Thompson (1998; p. 9) recommends increasing the number of issues: “The more issues, the better. More issues provide negotiators with more opportunities to construct trade-offs among issues.” (for more support of the “more-is-better” position, see Fisher & Ury, 1981; Lax & Sebenius, 1986; Pruitt, 1981; Raiffa, 1982). In contrast, Watkins (2003; p. 153f.), among others, raised the opposite standpoint: “The greater the number of [...] issues in a negotiation are, the higher the information-processing demands become on negotiators [...] that undermine movement toward a beneficial agreement.” (for more support of the “fewer-is-better” position, see Albin & Young, 2012; Rubin & Brown, 1975; Winham, 1977). Empirical studies on the impact of the number of issues on negotiation outcomes have not provided a conclusive answer to the question *how* the number of issues affects parties’ behaviors and outcomes. While some studies have suggested that more issues lead to better outcomes (Naquin 2003; Van der Schalk, Beersma, Van Kleef, & De Dreu, 2010), other findings point into the opposite direction (Geiger & Hüffmeier, in press). Even more relevant, previous empirical findings do not provide a theoretical account for the underlying mechanisms that explain *why* the numbers of issues affect the negotiation process and economic outcomes.

Based on previous negotiation research, we propose that the seemingly contradictory positions in the literature are both reasonable and legitimate but refer to different measures of parties’ behaviors and outcomes (see Tripp & Sondak, 1992; see also Clyman, 1995).



Specifically, in line with the more-is-better position (Fisher & Ury, 1981; Lax & Sebenius, 1986; Pruitt, 1981; Raiffa, 1982; Thompson, 1998), we predict that negotiators will benefit from increasing the number of issues in *absolute terms*: Additional issues may extend the amount of achievable payoffs, thus leading to higher joint profits. However, in line with the fewer-is-better position (Albin & Young, 2012; Rubin & Brown, 1975; Watkins, 2003; Winham, 1977), we also predict that negotiators will suffer in *relative terms*: The cognitive demands arising from the additional negotiation issues will reduce parties' capabilities to uncover the full integrative potential, thus leading to less Pareto efficient outcomes. Moreover, we suggest that increasing the number of issues will not only affect negotiation outcomes but also negotiators' trade-off behavior. Specifically, we predict that negotiators will take advantage of the additional opportunities of a higher number of issues to make more trade-offs (i.e., *quantity* of trade-offs); due to the increased cognitive demands induced by a higher number of issues, however, these trade-offs will be less integrative (i.e., *quality* of trade-offs).

Going beyond previous research on the number of issues, the present research does not only aim to reconcile the opposing positions in the literature but also to shed light on the underlying psychological processes in negotiations involving a high versus low number of issues. Thereby, we seek to address empirical claims raised by Rubin and Brown in their seminal on the social psychology of negotiations more than 40 years ago:

Among the more intriguing questions to arise when one considers the effects of the number of issues at stake are those pertaining to *how* the issues are approached or treated by the bargainers. For example, are multiple issues likely to be treated as singles? Broken into subsets? Considered in their entirety? (1975, p. 146)

Specifically, building on and extending Rubin and Brown's theorizing (1975), we transfer research on cognitive processes in the context of complex decision-making and consumer psychology (see *mental parsing*, Thaler, 1999; *choice bracketing*, Read, Loewenstein, & Rabin, 1999; see also; sequential vs. simultaneous choice, Simonson, 1990; isolated vs. scattered choice, Herrnstein & Prelec, 1992; narrow vs. broad decision frames, Kahneman & Lovallo, 1993) to the context of multi-issue negotiations. On that basis, we predict that parties will deal with the increased complexity of a higher number of negotiation issues by breaking them down into cognitive sub-packages rather than considering all issues in their entirety. Considering issues in packages instead of in their entirety, in turn, will impede negotiators' abilities to recognize optimal integrative trade-off opportunities among the whole set of issues and lead to inferior joint economic outcomes.

In the following, we will first review the literatures on expanding the pie and the number of issues in negotiations as well as cognitive processes in complex decision tasks. Then we will introduce our theoretical assumptions, outline our predictions, and conclude with a synopsis of the present work.

### ***Expanding the Pie in Negotiations***

In the negotiation literature, the metaphor of “expanding the pie” (e.g., Fisher & Ury, 1981; Lax & Sebenius, 1986; Raiffa, 1982; Thompson, 2015) is commonly used to describe several integrative strategies “[to increase] the available resources so that both sides get what they want” (Pruitt & Carnevale, 1993; p. 36). For instance, parties can expand the pie by making side deals or by advocating contingency contracts based on different valuations, expectations, risk preferences, or time preferences (Lax & Sebenius, 1986; Thompson, 2015). Another prominent and well-discussed integrative strategy is expanding the pie by increasing the number of negotiation issues. There are three ways in which negotiators can create value by increasing the number of issues (Lax & Sebenius, 1986; Sebenius, 1983; Thompson, 2015):

- 1.) Parties can unbundle existing issues into separate sub-issues. An illustrative example of this strategy can be found in a recent study by Trötschel, Zhang, Höhne, and Brett (2019). In this study, two real-estate agencies conducted a negotiation to distribute different buildings in various European cities. While both agencies had identical priorities for the buildings in their entirety (i.e., superordinate issues), their priorities for the different types of apartments inside the buildings differed (i.e., subordinate issues such as commercial space, office space, family apartments). Thus, unbundling the issues and focusing on the subordinate issues (i.e., the apartments) allowed for integrative agreements.
- 2.) Parties can also add existing issues to the negotiation. For instance, in the study by Geiger and Hüffmeier (in press), a construction firm and a future power plant operator negotiated the terms for the installation of a thermal solar power plant. Specifically, in one condition, parties had to address four mandatory issues (i.e., warranty, delivery date, price, delivery modalities); furthermore, they had the option to add another four issues to the discussion (i.e., early payment discount, plant options, payment terms, schooling). If parties decided not to discuss these issues, a standard agreement took effect for these four issues.
- 3.) Finally, parties can create new issues. For example, in a study by Galinsky, Maddux, Gilin, and White (2008), parties negotiated the sale of a gas station (see Goldberg, 2000 for the original task). In this task, parties’ limits regarding the sales price created a negative bargaining zone, thus rendering an agreement solely based on this single issue impossible. However, parties’ underlying interests allowed for an integrative solution:

The buyer of the gas station could offer the seller the job as the gas station manager, thus expanding the pie by creating a new issue that was not considered at the beginning of the negotiation.

### ***How the Number of Issues Affects Integrative Negotiations***

Although expanding the pie by either unbundling issues, involving further existing issues, or adding new issues has been advocated in various negotiation textbooks (Fisher & Ury, 1981; Lax & Sebenius, 1986; Pruitt, 1981; Raiffa, 1982; Thompson, 1998) and practical guides (e.g., Lewicki, Barry, & Saunders, 2007; Malhotra & Bazerman, 2008), empirical support for this recommendation is weak. Preliminary support for the assumption that increasing the number of issues will lead to better outcomes could be derived from early studies on agenda setting (Mannix, Thompson, & Bazerman, 1989; Weingart, Bennet, & Brett, 1993; Yukl, Malone, Hayslip, & Pamin, 1976). In line with the more-is-better position, negotiation dyads in these studies achieved higher economic outcomes under a wholistic (i.e., all issues are negotiated simultaneously) rather than a partitive agenda (i.e., step-wise, single-issue negotiations). These findings suggests that negotiating a high number of issues simultaneously leads to better agreements than negotiating a low number of issues sequentially. Although these studies provide important insights into the effects of a wholistic versus partitive agenda, they do not answer the question how increasing versus reducing the number of issues within the same agenda phase will affect negotiation outcomes. Specifically, studies on agenda setting have investigated whether a comprehensive, aggregated approach to the negotiation (wholistic agenda) is superior to a partitive, detached sequence of separate negotiation phases (i.e., partitive agenda). To explore this question, previous studies on agenda setting systematically varied the number of (partitive) negotiation phases (e.g., one phase vs. five phases; Weingart et al., 1993), while keeping the total number of issues constant across all agenda phases (e.g., 3 issues in Mannix et al., 1989; 5 issues in Weingart et al., 1993).

Direct empirical support for the more-is-better assumption stems from a study on negotiator satisfaction in which pairs of participants negotiated either a high or low number of issues in the same agenda phase (Naquin, 2003). In this study, negotiating more (vs. fewer) issues led to less satisfaction but higher joint profits. In line with these findings, another study on the role of epistemic motivation in complex negotiation tasks (Van der Schalk, Beersma, Van Kleef, & De Dreu, 2010) revealed that a high level of epistemic motivation is particularly beneficial in negotiations with a high number of negotiation issues (i.e., 18

instead of 6 issues). Also, participants reached higher joint profits with 18 issues at the table. Unfortunately, this study only investigated the effect of a high versus low number of issues in a negotiation scenario with a simulated counterpart.

Empirical support for the fewer-is-better assumptions derives from a recent study by Geiger and Hüffmeier (in press). In this study, the number of issues (i.e., 8 vs. 4) was varied and the quality of outcomes was assessed in terms of joint profits (i.e., absolute outcomes). As the negotiation task allowed for different absolute outcomes in the high- versus low-number-of-issues conditions, the economic outcomes in the fewer-issues condition were extrapolated to the level of outcomes in the more-issues condition (i.e., relative outcomes). Analyses on this mathematically transformed data revealed that parties achieved higher absolute but lower relative outcomes in the more- compared to the fewer-issues condition.

In sum, different lines of research suggest different effects for a high versus low number of issues on economic outcomes in integrative negotiations. Beyond their contradictory findings, the reported studies also differ in their methodological approaches: For instance, in the studies supporting the more-is-better position (Naquin, 2003; Van der Schalk et al., 2010), maximum achievable profit points were higher in the high- versus low-number-of-issues conditions (e.g., 5,300 vs. 1,710 profit points; Van der Schalk et al. 2010). Due to this structural variation, parties achieved higher joint outcomes in the high- (vs. low) number-of-issues condition. Geiger and Hüffmeier (in press) addressed the difference of maximum joint outcomes by extrapolating joint outcomes from a low to a virtual high number of issues by means of linear transformation. Although such a transformation is reasonable from a mathematical perspective, it rules out psychological processes that may come into play when increasing the level of maximum joint outcomes (e.g., increasing the maximum joint outcomes may reduce parties' resistance to concede, thus rendering it less likely to find integrative solutions; De Dreu, Weingart, & Kwon, 2000). Furthermore, with more issues at the table, parties also faced a higher total number of agreement options (e.g., 40 vs. 20; Geiger & Hüffmeier, in press), thus the complexity of the task not only varied in terms of the number of issues but also in terms of the overall number of agreement options.

To arrive at a more conclusive level of findings, studies investigating the mere effect of the number of issues on the quality of negotiation outcomes need to systematically vary the number of issues while keeping other structural factors such as the maximum level of joint outcomes, the level of compromise agreements, the integrative potential, and the total number of agreement options constant. If the quality of achieved outcomes between negotiations with a high versus low number of issues still varies even though the payoff

structure (e.g., maximum of joint outcomes, compromise solution, integrative potential, total number of agreement options) is kept constant, different psychological processes seem to come into play when parties are facing varying numbers of issues at the table.

### ***Psychological Processes in Complex Decision-Making Tasks***

In the (individual) decision-making literature, different lines of research have investigated how individuals deal with multiple options in complex decision-making tasks (e.g., Read et al., 1999; Thaler, 1999; Kahneman & Tversky, 1984; Tversky & Kahneman, 1981)<sup>8</sup>. For instance, Read and colleagues (1999) introduced the concept of *choice bracketing* to describe how individuals approach decision-making tasks with multiple choices. Specifically, choice bracketing refers to the cognitive process of grouping separate choices together into sets (Read et al., 1999): “A set of choices are *bracketed together* when they are made by taking into account the effect of each choice on all other choices in the set, but not on choices outside of the sets.” (p. 172). Two types of bracketing are described by the authors: Sets with an isolated, small number of choices are referred to as *narrow bracketing*, and a set with an integrated, large number of choices as *broad bracketing*. Broad bracketing allows decision makers to consider all the consequences of their choices as a whole, whereas in the case of narrow bracketing, decision makers focus only on certain parts of the consequences while ignoring others. As discussed by Read and colleagues (1999), bracketing effects occur in various decision settings but are particularly relevant to negotiation research in the domain of trade-off choices. Specifically, broad bracketing may enable negotiators “to find ‘integrative solutions’ in which the good parts of some alternatives compensate for the bad parts of others.” (p. 177). Although Read et al. (1999) summarize the multiple benefits of broad bracketing, the authors also emphasize the cognitive limitations of such an approach in highly complex decision-making contexts: “Cognitive limitations [...] sharply constrain our ability to simultaneously consider multiple decisions. As the number of choices—or the number of alternatives per choice—increases, the cognitive cost of broad bracketing will undergo a combinatorial explosion.” (p.187).

Further support for the assumption that decision makers tend to create cognitive subsets of choice options stems from the well-established line of research on mental accounting in the field of consumer research (Thaler, 1985, 1999; Tversky & Kahneman, 1981). Mental accounting refers to the psychological processes by which individuals

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<sup>8</sup> For similar theoretical approaches, see also sequential vs. simultaneous choice (Simonson, 1990), isolated vs. scattered choice (Herrnstein & Prelec, 1992), or narrow vs. broad decision frames (Kahneman & Lovallo, 1993).

categorize benefits and costs for different choice options in separate accounting systems and then evaluate them in a segregated (rather than an integrated) way to determine the utility of a decision outcome (Thaler, 1985, 1999). This cognitive inclination to evaluate outcomes in an isolated instead of a comprehensive way may help to reduce the high level of cognitive demands in complex settings but may also result in a loss of information:

An accounting system is a way of aggregating and summarizing large amounts of data to facilitate good decision making. [...]. Of course, achieving this goal is generally impossible, because something must be sacrificed in order to reduce the information the decision maker has to look at. (Thaler, 1999, p. 185)

As pointed out by Read and colleagues (1999), multi-issue negotiations with integrative potential share several commonalities with complex decision-making tasks. Moreover, there is a strong link between economic decision-making processes in the contexts of consumer behavior and negotiations (Kahneman, 1992). For instance, when exchanging proposals on a high number of issues, negotiators continuously engage in decision-making processes that are based on the evaluation of the benefits and costs they perceive in the proposals and counterproposals (e.g., whether to accept or reject a proposal, how to react with a counterproposal). Thus, the cognitive processes described in the mental accounting research correspond strongly to Rubin and Brown's (1975) theorizing about multiple issues in negotiations who state that "*as the number of issues in a dispute grows, the pressures toward differentiating among them are likely to increase [sic], if for no reason other than the accompanying difficulty of dealing with an excessive number of issues simultaneously*" (p. 147).

### ***Issue-Packaging in Multi-Issue Negotiations***

In the present research, we link Rubin and Brown's (1975) theoretical assumptions regarding multi-issue negotiations to the literature on complex decision-making by transferring the main insights from the mental accounting and choice bracketing research to the context of integrative negotiations involving multiple issues. We propose that the more issues are on the table, the stronger negotiators are inclined to categorize these issues into separate sub-packages and to evaluate the potential negotiation outcomes regarding these issue packages in a segregated rather than an integrated way (Thaler, 1999; Tversky & Kahneman, 1984; see narrow vs. broad bracketing; Read et al., 1999). Packaging issues into packages implies that negotiators will discuss issues within a certain package separately from issue within other packages (see mental parsing; Thaler, 1999; narrow bracketing; Read et al., 1999).

It is important to note that the packaging of issues may have strong implications in negotiations with integrative potential. When packages of issues are created, the integrative potential (i.e., the opportunities to create priority-based trade-offs between issues) can either be aggregated within or scattered between the issue packages. For instance, two sets of logrolling issues (i.e., two issues with a high priority for party A and a low priority for party B and two further issues with a low priority for party A and a high priority for party B) could be packaged with the integrative potential being *aggregated within the issue packages* (i.e., two packages, each with one high and one low priority issue for each party). Alternatively, the integrative potential could be *scattered between the issue packages* (i.e., one package of issues involving two high-priority issues for party A and correspondingly two low-priority issues for party B and another package of issues involving two low-priority issues for party A and correspondingly two high-priority issues for party B). If the integrative potential is aggregated within the packages, parties may easily explore the trade-off opportunities for the high versus low priority issues *within* the respective packages. However, if the integrative potential is scattered between the packages, parties need to identify the trade-off opportunities *between* the respective packages.

Based on the Rubin and Brown's (1975) assumption, we predict what we will subsequently refer to as a *scattering effect* with regard to the integrative potential. The more issue parties face, the more issue packages will be created, thus scattering the integrative potential between these packages. In other words, increasing the number of issues will increase parties' tendency to categorize issues into packages, which, in turn, will increase the risk that the trade-off opportunities of the integrative issues are not aggregated within but scattered between packages. The present research seeks to empirically test these assumptions.

### ***Present Research***

The present research seeks to make three important contributions to the negotiation literature: First, addressing the opposing theoretical positions in the literature and the inconsistent empirical findings, we aim at answering the question how expanding the pie in terms of increasing the number of issues affects negotiators' behavior and the quality of negotiation outcomes. By introducing and examining different measures of trade-off behaviors (i.e., quantity vs. quality of trade-offs) and economic outcomes (i.e., joint profits vs. Pareto efficiency), we seek to reconcile the long-standing contradictions discussed in the negotiation literature. We predict that increasing the number of issues will raise the opportunities for trade-offs but also the complexity of the negotiation task. Thus, parties will create more

trade-offs (i.e., quantity of trade-offs) but at the costs of the integrativity of these trade-offs (i.e., quality of trade-offs). Moreover, we predict that parties facing a high (vs. low) number of issues will achieve higher joint outcomes but only if the negotiation task with more issues allows for higher outcomes in absolute terms (i.e., has higher integrative potential; study 4). By contrast, parties negotiating a high (vs. low) number of issues will achieve lower joint outcomes when the level of absolute outcomes is kept constant (i.e., the integrative potential is the same; Study 1–3). Importantly, parties negotiating more issues will also achieve lower relative outcomes in terms of the Pareto efficiency of agreements irrespective of the integrative potential being higher or constant between a high (vs. low) number of issues. In other words, parties negotiating a high number of issues will effectively utilize the additional payoffs at the table (i.e., they will reach better absolute outcomes) but will fail to efficiently explore the full integrative potential (i.e., they will reach worse relative outcomes).

Second, we seek to explore the underlying mechanisms for the effects of an increased number of negotiation issues. Building on research on individual decision-making processes in complex choice tasks (i.e., choice bracketing, e.g., Read et al., 1999; mental parsing; e.g., Thaler, 1999), we predict that parties facing a high (vs. low) number of issues will create more sub-packages of issues, thus increasing the risk that the integrative potential is scattered between these different issue packages. By investigating the underlying mechanisms, we aim to introduce an influential theoretical approach from the decision-making literature to the field of negotiation research, thus providing a theoretical framework for future research on multi-issue negotiations.

Third, from a methodological perspective, we will introduce a negotiation paradigm that allows us to address the call by Rubín and Brown more than 40 years ago to systematically investigate parties' perceptions, behaviors, and outcomes in negotiations with an increasing number of issues. Specifically, we developed a negotiation paradigm that allows us to disentangle the effects of the number of issues from the effects of the payoff structure.

In the following, we will report four experimental studies investigating parties' perceptions, behaviors, and outcomes in integrative negotiations with a varying number of issues. In Experiment 1, a non-interactive study with a simulated counterpart, we provided participants with a negotiation task involving a high (vs. low) number of issues and examined the effects of the number of issues on the frequency (i.e., quantity) and integrativity (i.e., quality) of trade-offs implied in participants' proposals. In Experiment 2, we investigated the effect of the number of issues on parties' trade-off behaviors and joint outcomes in an



interactive negotiation task. By keeping the payoff structure constant, we isolated the effect arising from a high (vs. low) number of issues from other effects that may serve as an alternative explanation for the observed pattern of findings (e.g., effects arising from an increased levels of maximum joint outcomes and integrative potential, or an increased numbers of agreement options). Moreover, to explore the underlying mechanism, we measured the extent to which parties created packages of issues with the integrative potential aggregated within versus scattered between these packages. In Experiment 3, we conducted an experimental mediation test to examine the causal link between the packaging of issues into integrative versus non-integrative subsets and the quality of negotiation outcomes. Finally, in Experiment 4, we incorporated the notion that increasing the number of issues often corresponds with a larger integrative potential and a higher level of maximum joint outcomes in many real-world negotiations. Specifically, we tested the assumption that parties will utilize the additional payoffs at the table by reaching higher joint outcomes in absolute terms. Furthermore, we investigated whether the detrimental scattering effect of a higher number of issues can be observed even if more issues correspond with a higher integrative potential. Additionally, we explored parties' cognitive processes when more versus fewer issues were to be negotiated in terms of whether they compared potential outcomes across different issue packages.

### ***Experiment 1***

In our first experiment, we examined whether the number of issues affects parties' behavior in an integrative negotiation in a simulated, non-interactive buyer-seller scenario. Participants made two sets of negotiation proposals under different information conditions (information on their payoffs vs. information on their and their counterpart's payoffs; see priority information; Thompson, 1991). Based on our theoretical assumptions, we predicted that due to the increased trade-off opportunities of a high (vs. low) number of issues, parties will create more trade-offs (i.e., quantity of trade-offs). We further predicted that due to the increased task complexity of more (vs. fewer) issues, parties will scatter the integrative potential between packages of issues to a stronger extent and thus create less integrative trade-offs (i.e., quality of trade-offs). As the quality of trade-offs in a non-interactive, simulated negotiation scenario is contingent on the information on counterpart's priorities, we further predicted that the effect of a high (vs. low) number of issues on the quality of trade-offs will be moderated by the information provided. Specifically, we expected that parties facing a low number of issues would explore the integrative potential to a larger

extent, thus creating trade-offs of a higher integrative quality but only if provided with information on their counterpart's priorities (i.e., information on their counterpart's payoffs).

## Method

**Participants and design.** We conducted an a priori sample size analysis using G\*Power (Faul, Erdfelder, Lang, & Buchner, 2007) to determine an adequately powered sample size for the predicted simple effects in Experiment 1 with  $\alpha = .05$  and a statistical power of  $1 - \beta = .80$ . As results from available studies on the effects of the number of issues are not consistent and thus do not provide an adequate basis for an effect size estimation, we used effect sizes from one published study on agenda setting and two unpublished studies on cognitive categorization processes in negotiations as a foundation for this analysis ( $d = 0.62$ ; Weingart et al., 1993;  $d = 0.58$ ,  $d = 0.99$ ; Zhang, Warsitzka, Majer, & Trötschel, 2020). Based on these empirical studies, we opted for a medium to large effect of  $d = 0.60$  as a basis for the sample size analysis. This resulted in a minimum total sample size of  $N = 72$ . 87 students ( $M_{\text{age}} = 21.34$ ,  $SD = 2.47$ ; 63 females) from {Institution} with different academic majors (e.g., Psychology, Business Administration, Law) participated in the study. The experiment followed a  $2 \times 2$  mixed factorial design (Number of Issues [high vs. low]  $\times$  Priority Information [individual priority information vs. both parties' priority information]) with repeated measures on the latter factor. There were 44 participants in the high- and 43 participants in the low-number-of-issues condition. Participants were remunerated with €5 for their participation.

**Experimental task.** After arriving at the laboratory, participants were welcomed, randomly assigned to an experimental condition, and seated in separate cubicles. Then they received instructions in a written booklet including information about the scenario and their payoffs. Participants had a maximum of 15 minutes to make the first set of proposals. After that, participants received additional information on their counterparts' payoffs and were given the opportunity to refine their proposals. Again, they had a maximum of 15 minutes for the second task. After both tasks were completed, participants received payment, were debriefed, and thanked for their participation.

**Manipulation and Negotiation Task.** In the literature on integrative negotiations, the number of issues to be negotiated ranges from 2 (e.g., Froman & Cohen, 1970) to 24 (Trötschel, Hüffmeier, Loschelder, Schwartz, & Gollwitzer, 2011). Based on previous research on the number of issues (Geiger & Hüffmeier, in press; Naquin, 2003; Van der Schalk et al., 2010; Weingart et al., 1993), we provided parties with 5 versus 9 issues in the

low-versus high-number-of-issues condition. Parties were provided with 4 integrative and 1 distributive issue(s) in the low-number-of-issues condition (LNI) and with 8 integrative and 1 distributive issue(s) in the high-number-of-issues condition (HNI).

We developed a negotiation task based on the paradigm developed by Bazerman, Magliozzi, and Neale (1985; see also Pruitt & Lewis, 1975; Van der Schalk et al., 2010). To prevent cognitive categorization mechanisms being based on topical (dis)similarity of issues, we created a fictitious negotiation scenario in which the types of issues reflected unknown natural resources on two imaginary planets. Participants were assigned different roles, namely the trade minister on the planet Eldaria (*the Eldarians*) and the trade minister on the planet Loria (*the Lorians*). Participants either learned that the Lorians possessed 9 or 5 natural resources (e.g., Rhodium, Bilizium, Toranium, see Appendix) and that both parties were interested in trading these resources. Based on a predefined price-setup, parties were asked to negotiate the quality of the natural resources to be delivered from the Lorians (i.e., sellers) to the Eldarians (i.e., buyers).

To rule out alternative explanations for the effect arising from the number of issues (e.g., reducing parties' resistance to concede by increasing the maximum level of joint outcomes; providing parties with additional hints on the integrative trade-off opportunities by increasing the level of integrative potential), we created two symmetric, economically equivalent payoff structures in the LNI and HNI conditions. To this end, the payoff matrix was rotated by 90 degrees. By doing so, we created a 9-issues condition with 5 agreement options per issue and a 5-issues condition with 9 options for each issue (Appendix). By this means, the total number of agreement options (i.e., 45), the compromise solution (i.e., 94,000), the maximum of individual profits (i.e., 91,000), the maximum of joint profits (i.e., 126,000), and the integrative potential (i.e., 32,000) were held constant across conditions.

**Procedure.** Participants received all information on the negotiation scenario, their roles, and the negotiation issues in booklets. Having familiarized themselves with the issues and the corresponding profit points, participants were asked to indicate which issues they would prefer to negotiate simultaneously. In this context, participants could opt to negotiate all issues simultaneously or group issues into packages (however, always within the same agenda phase). We recorded participants' grouping of issues into a comprehensive set versus sub-packages of issues as a direct measure of the bracketing or packaging process described in the decision-making literature (mental parsing, Thaler, 1999; choice-bracketing, Read et al., 1999). To this end, participants were provided with separate payoff cards for each negotiation issue (i.e., natural resources; see Appendix). Participants could freely order and

group the randomly presented issue cards into packages based on their preferences on how to deal with the complexity of the negotiation task. After that, participants were asked to make separate ultimate proposals to a virtual counterpart based on their packaging of the issues. That is, they were asked to make a separate set of ultimate proposals for each of the issue packages. Participants were provided enough time to develop their proposals (up to 15 minutes). Thereafter, participants were given the payoff cards of their virtual counterpart, thus providing them with all information on their counterpart's priorities. Again, participants were given 15 minutes to familiarize themselves with the payoffs and to develop their ultimate proposals based on this additional information. Before starting the experiment, we received informed consent from all participants (this also applies to all subsequent studies). Furthermore, we obtained general approval from the university's ethics commission as our studies do not involve deception.

### **Dependent Variables.**

**Quantity of trade-offs.** We counted the number of trade-offs separately for both the first and the second set of ultimate proposals in the two information conditions. We conceived a trade-off as making concessions on one issue in exchange for concessions on another issue (see Thompson, 2015). It is important to note here that to disentangle the *quantity* (i.e., number) of trade-offs from their *quality* (i.e., integrativity), trade-offs were assessed in terms of the exchange of concessions irrespective of the integrative potential (see Trötschel et al., 2011; Trötschel & Gollwitzer, 2007). For instance, if participants offered a concession on Rhodium (i.e., offering more than the compromise outcome to the other party) and, in exchange, requested a concession on Toranium (demanding more than the compromise outcome from the other party), this proposal was counted as a trade-off. By contrast, if participants requested a concession on both issues, Rhodium and Toranium (demanding more than the compromise outcome on both issues), this was not counted as a trade-off, even though part of this proposal might have been in accordance with parties' priorities.

**Quality of trade-offs.** We again assessed the quality of trade-offs separately for both the first and the second set of ultimate proposals. To measure the quality of trade-offs, we checked whether trade-offs on a pair of issues within an issue package were in line with parties' priorities or not (*logrolling*; Froman & Cohen, 1970; Rubin & Brown, 1975; Thompson, 2015). Based on the logrolling index used in previous research (e.g., Trötschel & Gollwitzer, 2007; Trötschel et al., 2011), we assessed the extent to which participants proposed trade-offs in accordance or in contradiction to their and their counterpart's priorities

on the integrative issues. The corresponding trade-off scores ranged from -16 (all ultimate proposals were made completely *disregarding* parties' integrative priorities) to +16 points (all ultimate proposals completely regarded parties' integrative priorities). In line with the reasoning that the quantity and the quality of trade-offs refer to different types of concession making, the two dependent variables conceptually overlapped only moderately, sharing only 30% of variance across both information conditions (individual priority information:  $R^2 = 0.315$ ,  $r = .561$ ,  $p < .001$ , both parties' priority information:  $R^2 = 0.274$ ,  $r = .523$ ,  $p < .001$ ).

**Scattering of integrative potential.** For exploratory reasons, we assessed the extent to which participants scattered the integrative potential between different packages of issues. For this purpose, we asked participants to indicate which issues they would prefer to package together (if any) before making the ultimate proposals. We then computed what we will subsequently refer to as a scattering index of the integrative potential: We coded issue packages that did not allow parties to logroll on issues within the respective package as 1 (i.e., no high vs. low priority issues within the same issue packages, e.g., only Rhodium and Eralium within the same package). Issue packages that allowed parties to logroll on issues within the respective package were coded as 0 (i.e., high and low priority issues with the same issue packages, such as Rhodium and Toranium or Rhodium and Bilizium within the same package). In other words, we counted the number of issue packages that did not allow for exchanging concessions on high versus low priority issues within the respective package and thus forced parties to explore logrolling opportunities between packages. The lower the scores on the scattering index, the more logrolling potential was aggregated within packages; conversely, the higher the scores, the more logrolling potential was scattered between packages.

## Results

Throughout the whole paper, when testing directional hypotheses, we report one-tailed  $p$ -values.

**Quantity of trade-offs.** A  $2 \times 2$  (Number of issues [high vs. low]  $\times$  Information [individual priority information vs. both parties' priority information]) analysis of variance (ANOVA) with repeated measures on the latter factor and the quantity of trade-offs as dependent variable revealed the predicted main effect for number of issues,  $F(1, 85) = 4.12$ ,  $p = .046$ ,  $\eta_p^2 = .05$  (other  $F$ s  $< 0.16$ , other  $p$ s  $> .696$ ). Participants facing a high number of

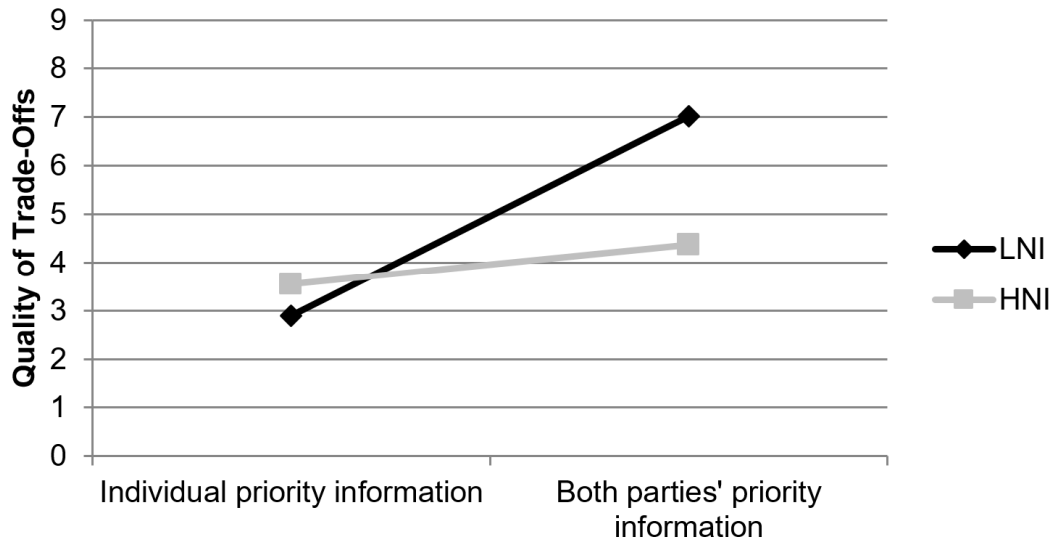
issues proposed more trade-offs ( $M = 2.24$ ,  $SD = 1.69$ ) than participants facing a low number of issues ( $M = 1.70$ ,  $SD = 1.08$ ) across both sets of ultimate proposals.

**Quality of trade-offs.** The  $2 \times 2$  ANOVA on the quality of trade-offs revealed a main effect of information,  $F(1, 85) = 18.53$ ,  $p < .001$ ,  $\eta_p^2 = .18$ , and the predicted interaction effect,  $F(1, 85) = 8.32$ ,  $p = .005$ ,  $\eta_p^2 = .09$ . The main effect of the number of issues was not significant, ( $F < 1.22$ ,  $p > .272$ ).

When provided with information on their counterpart's payoffs, the quality of trade-offs implied in participants' ultimate proposals ( $M = 5.68$ ;  $SD = 5.85$ ) was higher (i.e., trade-offs were more integrative) than when parties had no information on counterpart's payoffs ( $M = 3.22$ ;  $SD = 4.15$ ). Analyses on the interaction effect revealed that the quality of trade-offs did not differ between the number-of-issues conditions when parties had no information on their counterpart's payoffs ( $M_{HNI} = 3.55$ ,  $SD = 4.59$ ;  $M_{LNI} = 2.88$ ,  $SD = 3.67$ ),  $t(85) = 0.74$ ,  $p = .461$ . However, when provided with the information on counterpart's payoffs, participants facing a high number of issues proposed less integrative trade-offs ( $M = 4.36$ ,  $SD = 5.65$ ) than parties facing a low number of issues ( $M = 7.02$ ,  $SD = 5.80$ ),  $t(85) = -2.17$ ,  $p = .016$   $d = -0.47$ . Viewed from a different perspective, providing participants with the information on their counterpart's priorities did not improve the quality of trade-offs when a high number of issues was involved in the negotiation,  $t(85) = 1.01$ ,  $p = .315$ ; by contrast, providing participants with the information on their counterpart's payoffs helped parties to systematically increase the quality of trade-offs when only a low number of issues was involved,  $t(85) = 5.06$ ,  $p < .001$ ,  $d = 0.85$  (see Figure 1).

**Additional analyses.** Analyses on the scattering of integrative potential revealed a main effect for information,  $F(1, 85) = 28.14$ ,  $p < .001$ ,  $\eta_p^2 = .25$  and, more importantly, a main effect for the number of issues,  $F(1, 85) = 7.15$ ,  $p = .009$ ,  $\eta_p^2 = .08$ . The interaction effect did not reach significance ( $F < 0.46$ ,  $p > .501$ ).

Participants scattered more integrative potential between issue packages in their first set of ultimate proposals (i.e., participants had not yet received information on their counterpart's payoffs;  $M = 2.57$ ,  $SD = 1.55$ ) than in their second set (i.e., participants had been provided with the information on counterpart's payoffs;  $M = 1.75$ ,  $SD = 1.53$ ). More importantly, the main effect on the number of issues provided initial clues concerning participants' approach of dealing with a high versus low number of issues. Participants facing a high number of issues scattered more integrative potential between issue packages ( $M = 2.53$ ,  $SD = 1.90$ ) than participants facing a low number of issues ( $M = 1.78$ ,  $SD = 0.94$ ).



*Figure 1.* Experiment 1: The effect of the number of issues on the quality of trade-offs was moderated by the amount of information participants had: If they had only information about their own priorities, they proposed trade-offs of equal integrative quality in both number-of-issues conditions. However, if they also had information about their counterparts' priorities, participants in the high-number-of-issues condition (HNI) proposed trade-offs of lower integrative quality than participants in the low-number-of-issues condition (LNI).

### Discussion

The findings of this non-interactive negotiation study lent first empirical support to the assumption that a high number of issues is a boon in terms of the quantity of trade-offs but a bane for the quality of trade-offs. In other words, the two opposing positions in the literature both offer some truth: On the one hand and in line with the more-is-better position (Fisher & Ury, 1981; Lax & Sebenius, 1986; Naquin, 2003; Pruitt, 1981; Raiffa, 1982; Thompson, 1998), participants proposed a higher number of trade-offs when there were more issues on the table. On the other hand, and in line with the fewer-is-better position (Albin & Young, 2012; Rubin & Brown, 1975; Watkins, 2003; Winham, 1977), more issues led parties to propose trade-offs of lower integrative quality when they were provided with the information on their counterpart's priorities. Noteworthy, parties making proposals on a high number of issues did not benefit from the additional information on their counterpart's priorities. This is remarkable, as parties with a high number of negotiation issues did not face a higher number of agreement options than participants with a low number of negotiation issues (i.e., 45 options for both). Finally, this preliminary study also offered first insights into the underlying mechanism of the reduced quality of trade-offs in the condition with a high number of issues.

Specifically, parties facing a high (vs. low) number of issues scattered the integrative potential more between different packages of issues. It seems that a higher number of issues and a higher number of trade-off opportunities correspond with an increased risk of scattering the integrative potential between packages of issues instead of aggregating it within issue packages. Experiment 2 aimed to investigate this scattering effect in greater detail.

### ***Experiment 2***

Experiment 2 followed three major goals: First, we intended to replicate the results from Experiment 1 regarding the quantity and quality of trade-offs in an interactive negotiation setting. Second, we sought to investigate the effect of an increased number of issues on negotiation outcomes. Third, we intended to examine the underlying mechanism accounting for the effect of an increased number of issues on negotiation outcomes. Specifically, we tested whether the scattering of integrative potential between packages of issues will account for the effect of a high (vs. low) number of issues on joint economic outcomes. In line with Experiment 1, we predicted that trade-offs will be higher in quantity but lower in quality when parties are facing a high (vs. low) number of issues. We further predicted that—controlling for the payoff structure (i.e., maximum joint profits, compromise agreements, integrative potential, agreement options)—parties negotiating a high (vs. low) number of issues will end up with inferior economic outcomes. Finally, we expected that parties negotiating a high (vs. low) number of issues will scatter the integrative potential between issue packages to a stronger extent (i.e., create more packages of issues without logrolling opportunities within the respective package). This scattering of the integrative potential was expected to account for the effect of a high (vs. low) number of issues on economic outcomes.

### **Method**

**Participants and design.** We determined our sample size based on an a priori power analysis using the same parameters as in Experiment 1 ( $\alpha = .05$ ,  $1 - \beta = .80$  and  $d = 0.60$ ), resulting in a minimum sample size of  $N = 72$ . Due to the interactive negotiation task in this second experiment, the unit of analysis referred to the dyads of negotiators. 156 students (78 dyads) with different academic majors (e.g., Psychology, Business Administration, Law) from {Institution} participated in the study. Five dyads had to be excluded from further analyses as they did not follow the instructions correctly (e.g., they followed a sequential agenda by negotiating the issues one by one and indicated that they thought this was the instruction



when asked by the experimenter after the negotiation). This resulted in a total sample size of 146 participants ( $M_{age} = 21.79$ ,  $SD = 2.59$ ; 101 females, 42 males, 3 other), respectively 73 dyads ( $N = 73$ ). As in Experiment 1, we defined the number of issues (high vs. low number of issues with nine vs. five issues, respectively) as our major independent variable. There were 36 dyads in the HNI and 37 dyads in the LNI condition. Participants were remunerated with €5 for their participation.

**Experimental task and procedure.** We used the same paradigm, scenario, and material as in Experiment 1. Experimental sessions were videotaped so that the negotiation process (i.e., packaging of issues, proposals) could subsequently be coded and analyzed.

After arriving at the laboratory, participants were welcomed by the experimenter and informed that they would be videotaped during the negotiation. Then they were randomly assigned to an experimental condition and received instructions for the face-to-face negotiation in a written booklet. Participants were free to negotiate the issues in any form and composition (i.e., issue packages). In particular, participants were instructed to hold exactly those issue cards in their hands which they negotiated at a time and to put the rest aside. This procedure allowed us to record the packaging of issues into subsets. Parties were provided with a maximum of 30 minutes including the preparation of the negotiation and the exchange of the opening proposals. This period of time has been pre-tested to be sufficient to come to an agreement without experiencing time pressure in both experimental conditions. Participants learned that an agreement was not mandatory, and parties were allowed to reach partial or total impasse (Trötschel, et al., 2011). At the end of the experiment participants received payment, were debriefed, and thanked for their participation.

### **Dependent Variables**

**Quantity of trade-offs.** Two independent raters counted the number of trade-offs implied in parties' ultimate proposals ( $ICC = .983$ ) in the same way as in Experiment 1 based on the video material.

**Quality of trade-offs.** As for the quantity of trade-offs, two independent raters measured the quality of trade-offs implied in parties' ultimate proposals ( $ICC = 0.991$ ).

**Joint outcomes.** Negotiation outcomes were assessed in terms of joint profit points achieved at the end of the negotiation. Parties could achieve a maximum of 126,000 joint profit points in both conditions. The compromise agreement was at 94,000 profit points. The integrative potential was 32,000 points.

**Scattering of the integrative potential.** Again, we counted the number of packages parties created without logrolling opportunities between issues within the respective packages. To this end, the videotaped negotiations were coded by two independent rates with respect to the packaging of issues based on the different (sets of) issue cards parties held in their hands when making their ultimate proposals ( $ICC = 0.996$ ). Again, issue packages without any logrolling opportunities (e.g., Rhodium and Eralium; Rhodium and Pasadium) were coded with 1. The total sum of issue packages without any logrolling opportunity served as the dependent variable. The higher the score on the scattering index, the higher the number of issue packages without logrolling opportunities and the more the integrative potential being scattered between rather than aggregated within packages.

## Results

The videotapes from 1 dyad in the HNI and 13 dyads in the LNI condition could not be used because one SD card in one of the cameras was corrupted. Consequently, analyses involving scores calculated on the basis of the videotapes were conducted with the remaining 59 dyads whereas analyses referring to the outcome measures are based on the whole sample (i.e., 73 dyads). Statistical analyses used the degrees of freedom related to the number of negotiation pairs in order to account for the non-independence of data within dyads (Kenny, Kashy, & Cook, 2006).

**Joint outcomes.** As predicted, dyads negotiating a high number of issues reached lower joint profits points ( $M = 111,083.33$ ,  $SD = 10,795.17$ ) than dyads negotiating a low number of issues ( $M = 115,864.86$ ,  $SD = 8,518.48$ ),  $t(71) = -2.10$ ,  $p = .020$ ,  $d = -0.50$ . Two dyads in the high-number-of-issues condition failed to reach an agreement in the given time, resulting in partial agreements with low joint profits (74,000 and 92,000 profit points respectively). To ensure that the effect was not driven by these partial impasses, we reanalyzed joint outcomes by replacing the two dyads' factual outcomes on the impasse issues (i.e., 0) with the minimum joint profit points they could have reached without any impasse (Carnevale & Lawler, 1986; see also De Dreu et al., 2000). Results remained significant,  $t(71) = -1.71$ ,  $p = .046$ ,  $d = -0.40$  ( $M_{\text{HNI}} = 112,555.56$ ,  $SD = 7,990.87$ ;  $M_{\text{LNI}} = 115,864.86$ ,  $SD = 8,518.48$ ). In sum, these findings on joint profits points corroborate our assumption that when the payoff structure of negotiations on a high versus low number of issues is kept constant, parties negotiating more issues end up with inferior outcomes.

**Quantity of trade-offs.** In line with predictions, parties negotiating a high number of issues ( $M = 2.03$ ,  $SD = 1.32$ ) created more trade-offs than parties negotiating a low number of

issues ( $M = 1.52$ ,  $SD = 0.70$ ),  $t(54.08) = 1.91$ ,  $p = .031$ ,  $d = 0.46$ . Degrees of freedom were adjusted due to lack of homogeneity of variance ((Levene's test  $p = .007$ ). Throughout the rest of the paper we will report adjusted *dfs* if variances are not homogeneous. The unadjusted *dfs* can be found in the supplemental material.

**Quality of trade-offs.** As hypothesized, parties discussing a high number of issues created trade-offs of lower integrative quality ( $M = 5.39$ ,  $SD = 4.52$ ) than parties discussing a low number of issues ( $M = 8.06$ ,  $SD = 6.26$ ),  $t(39.03) = -1.80$ ,  $p = .040$ ,  $d = -0.51$ .

**Scattering of the integrative potential.** Based on the findings of the first experiment, we predicted that parties negotiating a high (vs. low) number of issues would scatter the integrative potential between packages to a stronger extent. In line with this prediction, we found that parties negotiating a high number of issues created more issue packages without logrolling opportunities ( $M = 4.14$ ,  $SD = 3.01$ ) than parties negotiating a low number of issues ( $M = 1.52$ ,  $SD = 1.41$ ),  $t(51.43) = 4.48$ ,  $p < .001$ ,  $d = 1.05$ . Thus, the integrative potential in the HNI (vs. LNI) condition was scattered more between rather than aggregated within issue packages.

**Mediation analyses.** We predicted that the scattering of the integrative potential between packages of issues would account for the effect of the number of issues on economic outcomes. To test this prediction, we conducted a mediation analysis using bootstrapping procedures with 5000 iterations (Hayes, 2013; model 4). We entered the number of issues as the predictor, the scattering index as mediator, and joint profits as the dependent variable. Bootstrapping analyses indicated that the indirect effect of the number of issues on joint profits via the scattering of the integrative potential differed significantly from 0 with a point estimate of  $-6,184.09$  ( $SE = 1,548.94$ ) and a BCa 95% CI of  $[-9,950.35, -3,362.51]$ ; zero is clearly excluded in the CI (Figure 2).

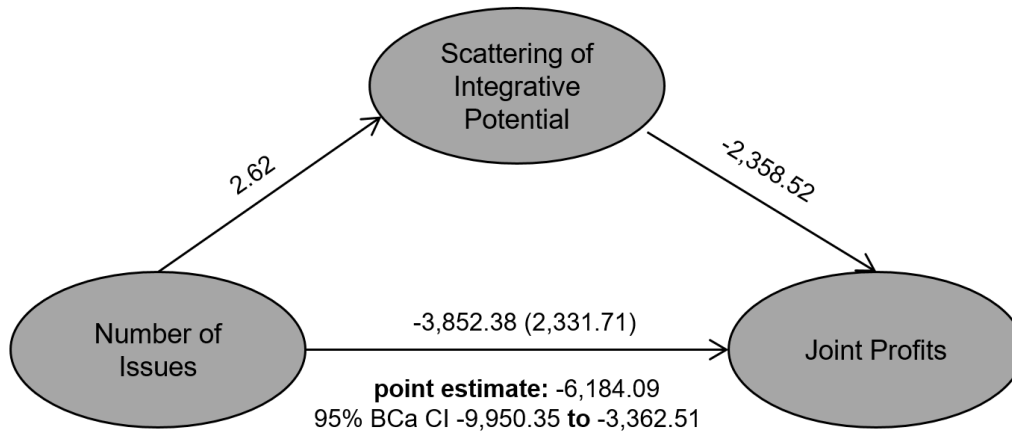


Figure 2. Experiment 2: A higher number of issues led to a higher amount of the integrative potential being scattered between (rather than aggregated within) packages of issues which, in turn, resulted in lower joint profits. Number of issues coded as 0 = low number of issues, 1 = high number of issues.

### Discussion

Experiment 2 replicated the findings regarding the quantity and quality of trade-offs found in Experiment 1 in an interactive negotiation setting. Parties negotiating a high (vs. low) number of issues proposed more trade-offs (*quantity* of trade-offs), but importantly, they also proposed less integrative trade-offs (*quality* of trade-offs). Given that the payoff structure was kept constant, parties negotiating a high (vs. low) number of issues achieved lower absolute joint outcomes. As predicted, this effect could be traced back to the scattering of the integrative potential between packages of issues. Specifically, parties negotiating a high (vs. low) number of issues created more packages without logrolling opportunities between issues within the respective packages. Accordingly, parties in the high number of issue condition were more challenged to explore logrolling opportunities between different issue packages. The following experiment was designed to explicitly test the causal link between the scattering of the integrative potential between packages and negotiation outcomes.

### Experiment 3

Experiment 2 offered first insights into the underlying mechanisms of the effect arising from an increased number of issues on negotiation outcomes. Specifically, parties negotiating a high (vs.) low number of issues appear to create more packages without logrolling opportunities, thus scattering the integrative potential between rather than aggregating it within packages of issues. If this scattering effect is indeed accountable for the impact of an

increased number of issues on negotiation outcomes, the scattering of the integrative potential within versus the aggregation of the integrative potential between packages of issues should systematically impede or improve the quality of negotiation outcomes irrespective of the number of issues under discussion. Specifically, if the integrative potential is scattered between issue packages, parties should fail to explore integrative trade-off opportunities between these packages and should thus end-up with lower negotiation outcomes. By contrast, if the integrative potential is aggregated within issue packages, parties should manage to explore integrative trade of opportunities between high versus low priority issues within the packages and should thus end up with higher negotiation outcomes. Experiment 3 systematically tested whether this effect of the scattering versus aggregation of the integrative potential between versus within issue packages will determine parties' joint outcomes irrespective of the number of issues involved in the negotiation. Put differently, following a causal test of the mediation effect, we predicted that the location of the integrative potential (between or within issue packages) will overrule the effect of the number of issues on negotiation outcomes (see Spencer, Zanna, & Fong, 2005).

## Method

**Participants and design.** We determined the sample size in the current study with a power analysis using the same parameters as in the first two experiments ( $\alpha = .05$ ,  $1 - \beta = .80$  and  $f = 0.30$ ), resulting in a minimum sample size of  $N = 90$ . Again, the units of analyses were the pairs of negotiators. Eventually, 234 students (117 dyads) with different academic majors (e.g., Psychology, Business Administration, Law) from {Institution} participated in the study. Three dyads had to be excluded from further analyses due to errors in the experimental procedure (i.e., the experimenters provided the dyads with the wrong materials), and three more dyads were excluded because they did not follow the experimental instruction (e.g., they negotiated on several issue packages simultaneously; see method section). This resulted in a final sample of 222 participants ( $M_{age} = 22.57$ ,  $SD = 2.86$ ; 125 females, 95 males, 2 other), respectively 111 dyads ( $N = 111$ ). We employed a  $2 \times 2$  between-subjects design (Number of Issues [high vs. low]  $\times$  Location of integrative Potential [scattered between vs. aggregated within issue packages]) with 27 dyads in the high/scattered-between condition and 28 dyads each in the other conditions. Participants received €5 for their participation in the study.

**Experimental manipulation and procedure.** We used the same negotiation task and scenario as in the two previous studies. In contrast to the previous studies, we systematically

varied the location of the integrative potential—either *scattered between* or *aggregated within* packages of issues. To this end, participants were provided with predefined issue packages. Participants received clear instructions how to negotiate the predefined issue packages. Specifically, they were told that when negotiating one of the predefined issue packages, they should only hold the cards displaying the issues of the respective package in their hands while putting aside the remaining packages of issues. Experimenters ensured that participants strictly followed these instructions. Issue packages were shuffled in advance to rule out any order effects. The number of issues within each issues package were defined based on the empirical findings of the previous two studies. Specifically, parties created issue packages of two issues on average—irrespective of whether they negotiated a high versus low number of issues ( $M_{Exp1} = 2.02$ ,  $SD = 0.52$  with  $M_{HNI} = 2.24$ ,  $SD = 0.52$  and  $M_{LNI} = 1.80$ ,  $SD = 0.40$ ;  $M_{Exp2} = 1.70$ ,  $SD = 0.48$  with  $M_{HNI} = 1.71$ ,  $SD = 0.57$  and  $M_{LNI} = 1.69$ ,  $SD = 0.32$ ).

With respect to the location of the integrative potential we realized two experimental conditions. In the *scattered-between* condition the integrative potential was scattered between packages of issues, thus the packages involved issues without logrolling opportunities. Specifically, the two issues within each package reflected a high priority for one party and a low priority for the other party (e.g., Rhodium+Eralium; Bilizium+Toranium). Thus, to engage in logrolling, parties had to exchange concessions on high versus low priority issues (i.e., logroll) between rather than within issue packages. In the *aggregated-within* condition the integrative potential was aggregated within packages of issues, thus the logrolling opportunities were located within the issue packages. Specifically, one of the two issues within a package had a high priority for one party, whereas the other issue had a low priority for that party. Priorities were reversed for the other party (e.g., Rhodium+Toranium; Bilizium+Eralium). Thus, to engage in logrolling, parties had to exchange concessions on high versus low priority issues within the respective issue packages. Irrespective of the experimental conditions, the distributive issue (e.g., Fenatrium) was always treated as single-issue “package”. As in the previous studies, parties were instructed to negotiate all issues within the same negotiation period, thus preventing parties to create disconnected agendas with separate deals on the issue packages (see agenda setting; Mannix et al., 1989; Weingart et al., 1993), which would have ruled out the possibility for parties to realize integrative trade-offs between issue packages. The remaining process of the experiment (experimental procedure, negotiation time) followed the one of Experiment 2.

**Dependent variable.** We assessed joint profits as our major dependent variable. Due to the manipulation of the location of the integrative potential and the corresponding creation of issue packages, the dependent measures of the quantity and quality of trade-offs, the number of packages, and the location of integrative potential were structurally determined by this factor and were thus not analyzed. Consequently, joint outcomes were the only dependent variable in Experiment 3.

## Results

Statistical analyses used the degrees of freedom related to the number of dyads in order to account for the non-independence of data within pairs of negotiators (Kenny et al., 2006).

A  $2 \times 2$  (Number of Issues [high vs. low]  $\times$  Location of Integrative Potential [scattered-between vs. aggregated-within packages]) ANOVA on joint profits revealed a main effect for the location of integrative potential,  $F(1, 107) = 43.05, p < .001, \eta_p^2 = .29$ , and an unpredicted interaction effect,  $F(1, 107) = 10.49, p = .002, \eta_p^2 = .09$  (Figure 3). The main effect for number of issues did not reach significance ( $F < 0.13, p > .729$ )<sup>9</sup>.

When the integrative potential was scattered between issue packages, parties reached lower joint profits ( $M_{between} = 102,854.55, SD = 11,488.19$ ) than when the integrative potential was aggregated within issue packages ( $M_{within} = 114,785.71, SD = 8,278.59$ ). Further analyses on the interaction effect revealed that the simple effect of the location of the integrative potential was more pronounced in the condition involving a high number of issues ( $M_{between} = 99,518.52, SD = 10,667.60$  and  $M_{within} = 117,428.57, SD = 6420.04$ ),  $t(53) = -7.58, p < .001, d = -2.04$  than in the condition involving a low number of issues ( $M_{between} = 106,071.43, SD = 11,511.44$  and  $M_{within} = 112,142.86, SD = 9159.95$ ),  $t(54) = -2.18, p = .033, d = -0.58$ . Viewed from a different perspective, negotiating a high (vs. low) number of issues led to better outcomes when the integrative potential was aggregated within issue packages,  $t(48.37) = 2.50, p = .016, d = 0.67$ ; however, when the integrative potential was scattered between issue packages, negotiating a high (vs. low) number of issues resulted in worse joint outcomes,  $t(53) = -2.19, p = .033, d = -0.59$ . We will further elaborate on this interaction effect in the discussion.

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<sup>9</sup> One dyad in the low-number-of-issues condition did not reach an agreement on all issues in the given time. Following the same procedure as in Experiment 2, we replaced their joint profits with the theoretically lowest possible solution for the respective issues (e.g., Carnevale & Lawler, 1986; see also De Dreu et al., 2000). Results on the adjusted means remained virtually unchanged.

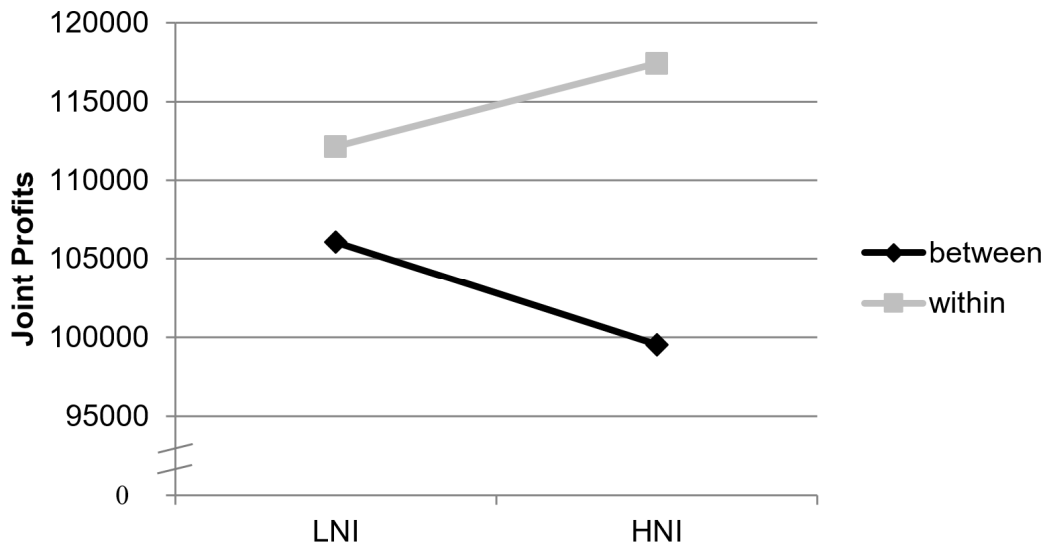


Figure 3. The effect of the location of the integrative potential (scattered between vs. aggregated within packages of issues) overruled the main effect of the number of issues on joint profits. HNI = high number of issues, LNI = low number of issues.

### Discussion

Experiment 3 tested the causal link between the location of the integrative potential between or within packages of issues and negotiation outcomes. When the integrative potential was scattered between issue packages, parties achieved lower joint outcomes than when the integrative potential was aggregated within issue packages. In accordance with our predictions, this scattering effect emerged irrespective of the number of issues under negotiation being high or low. Interestingly, however, the scattering effect was more pronounced in the condition with a high number of issues. Specifically, when the integrative potential was scattered between issue packages, parties negotiating a high number of issues achieved lower outcomes than parties negotiating a low number of issues. Noteworthy, parties negotiating a high number of issues also faced a higher number of issue packages between which the integrative potential was even more scattered. By contrast, parties negotiating a high number of issues achieved even better outcomes than parties negotiating a low number of issues when the integrative potential was aggregated within packages of issues. As parties with a high number of issues also faced a higher number of packages, one may conclude that they were provided with a higher number of “learning opportunities” to explore the integrative potential within the respective issue packages. Thus, an important question arising from this third experiment is whether parties who are provided with more



opportunities to explore the integrative potential will benefit from the additional information available through the higher number of issues.

#### **Experiment 4**

In Experiments 1–3 we held the payoff structure (i.e., maximum joint profits, compromise agreement, integrative potential, total number of agreement options) constant across conditions to investigate only the number-of-issues effect on negotiation behaviors and outcomes. Parties either dealt with 4 (LNI condition) or 8 (HNI condition) logrolling issues and could achieve the same maximum joint profits in both conditions. However, in most real-world settings, the payoff structure varies with the number of issues (Lax & Sebenius, 1986; Thompson, 1998; Van der Schalk et al., 2010). To address this aspect, we not only varied the number of issues but also systematically increased the integrative potential in Experiment 4 (pre-registered; <https://osf.io/6gwny/>). Specifically, we added two conditions with a high number of issues in which we duplicated both the number of logrolling issues (i.e., 4 vs. 8 logrolling issues) *and* the integrative potential (this implies duplicated maximum achievable joint profits and a duplicated value of the compromise agreement).

From a methodological perspective, the integrative potential in the high-number-of-issues condition can be duplicated in two different ways: First, parties' priorities can be multiplied by two while keeping the number of agreement options on the same level (i.e., 9 issues each with 5 agreement options and duplicated integrative potential) (see Appendix). Alternatively, the number of agreement options for each of the 9 issues can be increased to the level of the low-number-of-issues condition (i.e., 9 issues each with 9 agreement options), also resulting in a duplicated integrative potential (see Appendix). Noteworthy, both ways of increasing the integrative potential can result in different psychological processes, which may help parties to explore the integrative potential even with a higher number of issues under discussion. Specifically, increasing the differences between parties' priorities regarding the negotiation issues may facilitate the exploration of the integrative potential by means of a better recognition of the trade-off opportunities even *across* packages of issues. By contrast, adding agreement options to each issue may help parties to engage in a stepwise, more fine-grained exchange of concessions on high versus low priority issues. Thus, it may foster the exploration of the integrative potential by means of a stepwise increase of the logrolling behaviors *within* issue packages. In this final experiment, we sought to investigate whether the detrimental effects arising from a higher number of issues and the corresponding

scattering of the integrative potential can be successfully overcome when the integrative potential is increased and is thus more likely to be explored.

Referring to previous studies, we expected to replicate the effects of a high (vs. low) number of issues on trade-offs and outcomes. Specifically, given structurally equivalent payoffs, parties negotiating a high (vs. low) number of issues were predicted to make more trade-offs; however, these trade-offs were predicted to be of lower integrative quality (i.e., quantity vs. quality of trade-offs). Furthermore, parties negotiating a high (vs. low) number of issues were also expected to achieve lower joint outcomes. Again, we hypothesized that the effect of the number of issues on joint outcomes in negotiations with structurally equivalent payoffs can be traced back to the scattering of the integrative potential between packages of issues.

More importantly, this final experiment sought to investigate whether increasing the number of issues *and* the integrative potential will foster the identification of win-win solutions. Noteworthy, increasing the integrative potential implies raising the maximum joint outcomes achievable in the negotiation. (e.g., Van der Schalk et al., 2010; Geiger & Hüffmeier, in press). In other words, increasing the integrative potential adds value to the negotiation. Accordingly, we predicted that parties facing a high number of issues and a duplicated integrative potential would take advantage of the additional value lying on the table and will thus achieve better outcomes in absolute terms (i.e., joint profits) irrespective of how the integrative potential is duplicated (i.e., by adding agreement options vs. boosting the priority differences).

Taking advantage of the additional value lying on the table (i.e., achieving better outcomes in absolute terms) may, however, differ from *efficiently* using the additional integrative trade-off opportunities to increase negotiation outcomes in relative terms. Analyses on the Pareto efficiency of agreements as a measure of relative negotiation outcomes<sup>10</sup> (Clyman, 1995; Lax & Sebenius, 1987; Tripp & Sondak, 1992) will thus provide further insights into how parties deal with a higher number of issues with duplicated integrative potential. The predictions for the two additional conditions involving a high number of issues and an increased integrative potential were twofold (see pre-registration; <https://osf.io/6gwny/>). For the duplicated integrative potential through additional agreement options we made decisive predictions: Adding agreement options will not help parties to

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<sup>10</sup> Because the Pareto efficiency of agreements is independent from the maximum achievable profit points in a negotiation task it constitutes an adequate measure of relative outcomes particularly when comparing outcomes between conditions with varying integrative potential.

overcome the detrimental effects arising from the scattering of the integrative potential between packages of issues. Specifically, as the increased number of agreement options only provides parties with additional opportunities to exchange stepwise concessions on high and low priority issues *within* issue packages, it should not affect the detrimental impact of scattering the integrative issues *between* these packages. Thus, negotiating a high number of issues with duplicated integrative potential through additional agreement options will lead to a lower quality of trade-offs and worse outcomes in relative terms (Pareto efficiency of agreements) than negotiating a low number of issues. By contrast, the predictions for the duplicated integrative potential through more pronounced priority differences were less decisive: On the one hand, boosting priority differences between issues could render the logrolling opportunities more salient, thus helping parties to explore the integrative potential even across issue packages. In line with this assumption, one would expect that negotiating a high number of issues with duplicated integrative potential in terms of boosted priority differences will not only help parties to improve their outcomes in absolute (i.e., joint profits) but also in relative terms (i.e., Pareto efficiency) compared to negotiating a low number of issues. On the other hand, even boosted priority differences might not be sufficient to reduce parties' tendency to cognitively process trade-off opportunities merely within packages of issues and thus disregard the integrative potential scattered between issue packages as a result of the higher number of issues. In line with this assumption, one would predict that negotiating a high number of issues with duplicated integrative potential through more pronounced priority differences will help parties to increase their outcomes in absolute terms but not in relative terms compared to negotiating a low number of issues.

## Method

**Participants and design.** Since we approached the comparison between a low number of issues and a high number of issues with pronounced priority differences in an explorative manner, we took into account the possibility of weaker effects. Thus, we modified the assumed effect size in the a priori power analysis from  $f = 0.30$  to  $f = 0.25$ . This resulted in a minimum sample size of  $N = 180$  dyads ( $F_{crit} = 2.66$ , non-centrality parameter  $\lambda = 11.25$ ). 380 students (190 dyads) from {Institution} with different academic majors (e.g., Psychology, Business Administration, Social Sciences) participated in the study. Ten dyads were excluded from further analyses due to a lack of understanding of the task (e.g., they followed a sequential agenda by negotiating the issues one by one and indicated that they thought this

was the instruction when asked by the experimenter after the negotiation,  $n = 3$ ), errors in the experimental process (e.g., participants were given the wrong set of issue cards,  $n = 4$ ), because they did not take the task seriously (e.g., they explicitly said they do not care about their negotiation outcomes while negotiating;  $n = 2$ ), or because they did not clearly indicate their negotiation agreement ( $n = 1$ ). This resulted in a total sample size of 360 participants ( $M_{\text{age}} = 23.99$ ,  $SD = 4.67$ ; 227 females, 126 males, 4 other, 3 missing statements). We employed a  $1 \times 4$  between-subjects design: Participants in the control conditions with a high and low number of issues (HNI and LNI) received the same materials and instructions as in the previous studies. Participants in the condition with a high number of issues and *duplicated integrative potential through additional agreement options* (DIP-AO) were provided with a payoff table including the 9 issues of the HNI condition, but with the same number of agreement options as in the LNI condition (Appendix). Participants in the condition with a high number of issues and *duplicated integrative potential through pronounced priority differences* (DIP-PD) were provided with a payoff table including the 9 issues of the HNI condition, but the priority score was multiplied by two resulting in the duplicated integrative potential (Appendix). There were 44 dyads each in the LNI and the HNI conditions, and 46 dyads each in the DIP-AO and DIP-PD conditions. Subjects received €8.00 for participating in the study.

**Procedure.** The experimental procedure was parallel to Experiment 2 with two exceptions. First, we assumed that negotiating 9 issues with 9 agreement options each in the DIP-AO condition would require additional time. Based on pre-tests, parties in all conditions were provided with a maximum of 35 minutes to reach agreement including time to prepare the negotiation and to exchange the opening proposals. Second, instead of videotaping parties' packaging behaviors and coding the videos by different raters we reverted to the assessment of parties' packaging behaviors used in the first study by asking participants to indicate which issues they had negotiated simultaneously in the post-questionnaire. After participants had filled in the post-negotiation questionnaire, they were debriefed, remunerated, and thanked for their participation.

### Dependent Variables

We measured the quantity and quality of trade-offs and joint profits in the same way as in Experiments 1–3.

**Pareto efficiency of agreements.** To measure economic outcomes in relative terms, we calculated the Pareto efficiency of each dyad's negotiation agreement as suggested by Lax

and Sebenius (1987; see also Clyman, 1995; Tripp & Sondak, 1992). This Pareto efficiency score is based on the ratio between the number of agreements that are more Pareto efficient than the reference agreement and the total number of potential agreements. This ratio is subtracted from 1. Hence, the *fewer* potential agreements are more Pareto efficient than a parties' reference agreement, the more the score approximates a value of 1. By contrast, the *more* potential agreements are more Pareto efficient than a dyads' reference agreement, the more the score approximates a value of 0. Thus, the Pareto efficiency score can range from 0 to 1 with higher scores indicating higher Pareto efficiency (Lax & Sebenius, 1987).

**Scattering of integrative potential between packages.** Based on parties' notations of their packaging of issues, we computed the index quantifying the scattering of the integrative potential between or within issue packages (see Experiments 1 & 2).

**Outcome integration.** For exploratory reasons, we also measured the extent to which parties took the outcomes for issues across different issue packages into consideration. Specifically, increasing the integrative potential for a high number of issues by boosting the priority differences should only result in beneficial effects on the quality of trade-offs and the Pareto efficiency of agreements if parties integrate the outcomes across the packages of issues (rather than segregate outcomes for the different packages of issues). Accordingly, we asked participants whether they had considered the outcomes for different issue packages in an integrated (rather than segregated) way (i.e., "I compared the negotiation outcomes across different packages of issues"; "I offset the negotiation outcomes across different packages of issues against each other"; Cronbach's alpha party Eldaria:  $\alpha = .67$ ; party Loria:  $\alpha = .78$ ). Items were scored on a scale ranging from 1 (*do not agree*) to 7 (*strongly agree*)<sup>11</sup>.

## Results

Two dyads in the LNI condition did not clearly indicate their issue-packaging. Consequently, analyses involving scores calculated on the basis of parties' issue-packaging were conducted with the remaining 178 dyads whereas analyses referring to the outcome measures are based on the whole sample size (i.e., 180 dyads). As in Experiments 2 and 3, we conducted all statistical analyses on the level of the dyads.

**Quantity of trade-offs.** A  $1 \times 4$  ANOVA on the number of trade-offs showed a significant effect for the number of issues,  $F(3, 174) = 5.72, p = .001, \eta_p^2 = .09$ . We further decomposed this effect using a linear contrast; in accordance with our predictions, which

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<sup>11</sup> One party in the HNI-condition did not give an answer to one of the items. We replaced the respective score with the mean score of the HNI-condition.

focuses on comparing the LNI condition with the three other conditions involving a high number of issues, contrast weights were defined as  $[-3, +1, +1, +1]$  for the four conditions (LNI vs. HNI, DIP-AO, DIP-PD). The respective analysis revealed a strong contrast effect,  $t(126.12) = 4.43, p < .001$ . Replicating and extending results from Experiments 1 and 2, negotiators created more trade-offs in all three high-number-of-issues conditions compared to the low-number-of-issues condition ( $M_{LNI} = 1.33, SD = 0.79; M_{HNI} = 1.82, SD = 1.35; M_{DIP-AO} = 2.00, SD = 1.62; M_{DIP-PD} = 2.48, SD = 1.31$ ).

**Quality of trade-offs.** Analyses on the quality of trade-offs revealed a significant effect,  $F(3, 174) = 3.29, p = .022, \eta_p^2 = .05$ . We further inspected this effect using linear contrasts with the same contrast weights as for the quantity of trade-offs. The respective contrast effect was significant,  $t(174) = -2.01, p = .046$ . Overall, trade-offs in the high-number-of-issues conditions were less integrative than in the low-number-of-issues condition ( $M_{LNI} = 6.12, SD = 5.04; M_{HNI} = 4.50, SD = 4.53; M_{DIP-AO} = 3.41, SD = 3.93; M_{DIP-PD} = 5.67, SD = 4.44$ ). We further tested how increasing the number of issues and the integrative potential affected the quality of parties' trade-offs. A simple contrast between the LNI and the DIP-AO condition revealed a significant difference,  $t(174) = -2.83, p = .003$ . However, the difference between the LNI and the DIP-PD condition was not significant,  $t(174) = -0.47, p = .643$ . Thus, more issues led to a lower quality of trade-offs than fewer issues if the corresponding integrative potential was duplicated by adding further agreement options to each issue; however, this detrimental effect of a higher number of issues could not be observed when more issues corresponded with duplicated integrative potential in terms of boosted priority differences between issues.

**Joint profits.** Again, analyses on joint profits revealed a significant effect,  $F(3, 176) = 816.02, p < .001, \eta_p^2 = .93$ . Replicating the findings of study 2, we found that parties in the HNI condition ( $M = 110,431.82, SD = 8145.19$ ) achieved lower joint profits than parties in the LNI condition ( $M = 114,704.55, SD = 8568.68$ ),  $t(85.78) = -2.40, p = .009$ . Again, this effect can be explained in terms of the structurally equivalent payoffs in these two conditions. We further inspected whether the additional value lying on the table in the DIP-AO and DIP-PD condition were utilized by the parties to improve their absolute economic outcomes. Corroborating earlier research (Geiger & Hüffmeier, in press; Van der Schalk et al., 2010), parties in the DIP-AO ( $M = 215,521.74, SD = 19,440.78$ ) and the DIP-PD condition ( $M = 224,913.04, SD = 18,030.62$ ) achieved significantly higher joint profits than parties in the two other conditions  $t(124.93) = 50.11, p < .001$ . Interestingly, additional analyses also revealed

that parties in the DIP-PD condition reached significantly higher joint profits than parties in the DIP-AO condition,  $t(89.49) = 2.40, p = .018$  (see Figure 4). Thus, duplicating the integrative potential by boosting the priority differences between important and less important issues helped parties to increase their absolute outcomes to a larger extent than adding further agreement options.

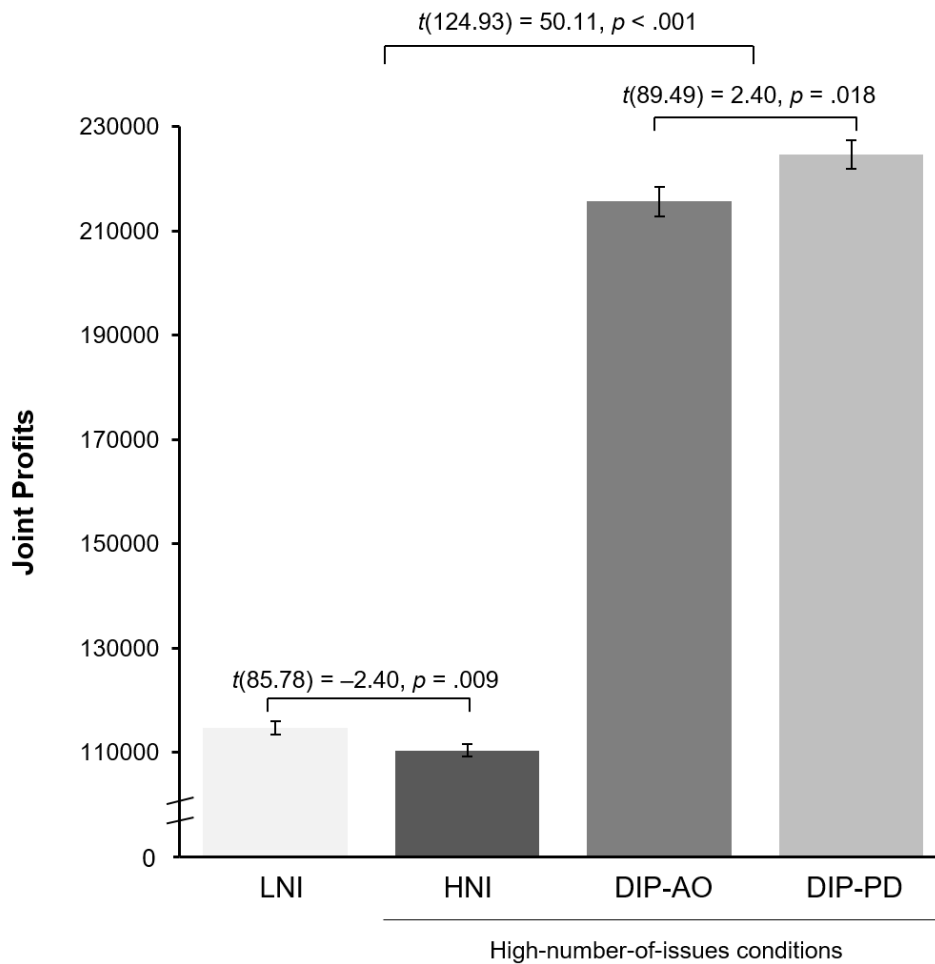


Figure 4. A higher number of issues resulted in lower joint profits than a lower number of issues given a constant integrative potential. By contrast, a higher number of issues resulted in higher joint profits given a duplicated integrative potential. LNI = low number of issues, HNI = high number of issues, DIP-AO = high number of issues with additional agreement options, DIP-PD = high number of issues with boosted priority differences. Confidence intervals indicate +/- 1 SEM.

**Pareto efficiency of agreements.** The analysis on the Pareto efficiency score revealed a significant effect,  $F(3, 176) = 4.05, p = .008, \eta_p^2 = .07$ . We further decomposed this effect using a linear contrast (-3, +1, +1, +1 for the LNI, HNI, DIP-AO, and DIP-PD

conditions, respectively). This contrast effect was significant,  $t(95.63) = -3.20$ ,  $p = .002$ . Additional contrast analyses showed that parties in the HNI condition ( $M = 0.960$ ,  $SD = 0.035$ ) achieved less Pareto efficient outcomes than parties in the LNI condition ( $M = 0.977$ ,  $SD = 0.032$ ),  $t(85.21) = -2.39$ ,  $p = .010$ . Also, corroborating our predictions, parties in the DIP-AO condition ( $M = 0.948$ ,  $SD = 0.052$ ), achieved less Pareto efficient agreements than parties in the LNI condition,  $t(74.71) = -3.21$ ,  $p = .001$ . Finally, parties in the DIP-PD condition ( $M = 0.966$ ,  $SD = 0.038$ ) reached descriptively less Pareto efficient agreements than parties in the LNI condition, however, these results did not reach statistical significance,  $t(86.24) = -1.57$ ,  $p = .120$  (see Figure 5). Furthermore, negotiators in the DIP-PD condition reached descriptively more Pareto efficient outcomes than negotiators in both other high-number-of-issues conditions, however, results were also not statistically significant,  $t(100.61) = 1.56$ ,  $p = .123$ . Overall, results corroborate our prediction that there is a detrimental effect of a higher number of issues: Even boosting the priority differences between high and low important issues while keeping the number of agreement options constant did not help parties to substantially improve the Pareto efficiency of their agreements when they negotiated a high versus low number of issues.

**Scattering of the integrative potential.** The analysis on the scattering of the integrative potential between packages of issues revealed a significant effect,  $F(3, 174) = 12.46$ ,  $p < .001$ ,  $\eta_p^2 = .18$ . Additional contrast analyses replicated the findings of Experiment 2. Parties facing a high number of issues created more issue packages without logrolling opportunities ( $M_{\text{HNI}} = 4.27$ ,  $SD = 2.45$ ) than parties negotiating a low number of issue ( $M_{\text{LNI}} = 1.95$ ,  $SD = 1.38$ ),  $t(68.32) = 5.44$ ,  $p < .001$ . Contrast analyses on the conditions with duplicated integrative potential revealed the same pattern of findings: Irrespective of the way in which the integrative potential was increased, parties created more packages of issues without logrolling opportunities ( $M_{\text{DIP-AO}} = 4.78$ ,  $SD = 2.77$  and  $M_{\text{DIP-PD}} = 3.39$ ,  $SD = 2.35$ ) than parties in the condition with a low number of issues,  $t(67.26) = 6.14$ ,  $p < .001$  and  $t(73.77) = 3.54$ ,  $p = .001$ , for the DIP-AO and the DIP-PD condition, respectively. Additional exploratory analyses further revealed that parties in the DIP-PD condition created significantly fewer packages of issues without logrolling opportunities than parties in the two other high-number-of-issues conditions (HNI & DIP-AO),  $t(99.39) = -2.57$ ,  $p = .012$ . Overall, irrespective of the integrative potential, negotiators created more issue packages without logrolling opportunities when they negotiated a higher number of issues.



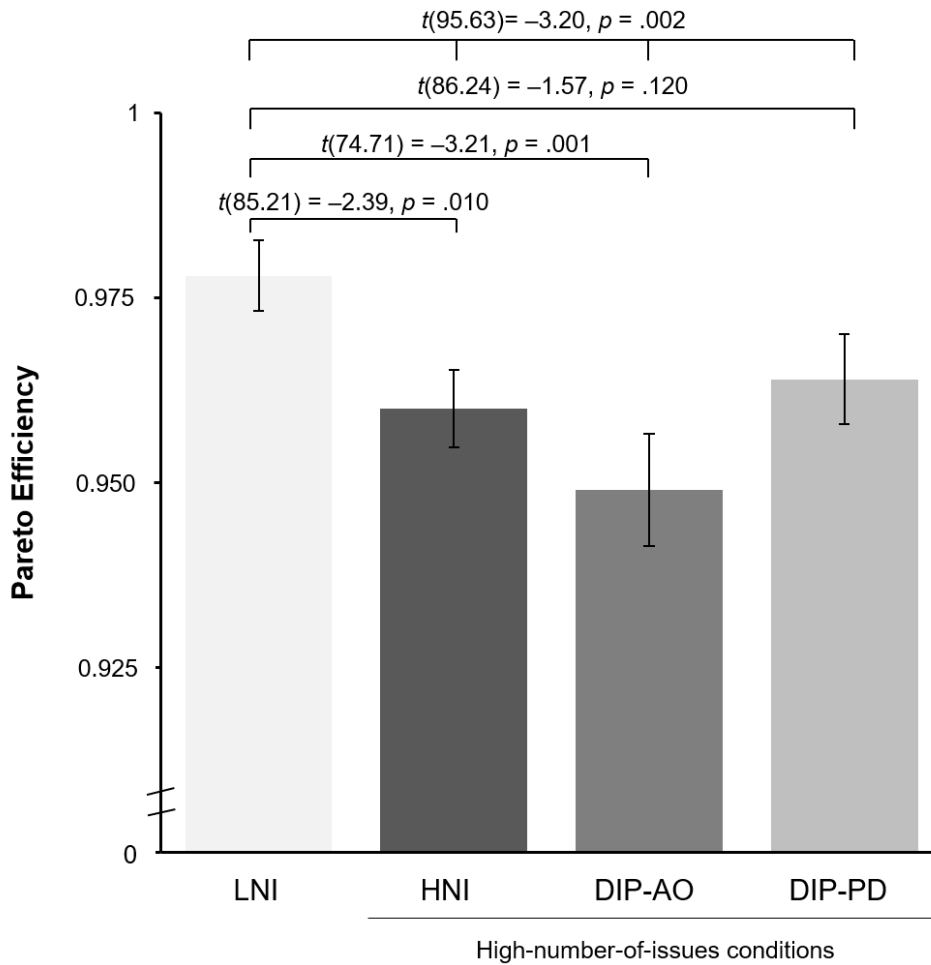


Figure 5. Overall, a higher number of issues resulted in a lower Pareto efficiency of agreements than a lower number of issues irrespective of the integrative potential. Accordingly, a high number of issues with a constant integrative potential and a high number of issues with a duplicated integrative potential by adding further agreement options resulted in a lower Pareto efficiency of agreements than a low number of issues. However, the difference between a high number of issues with duplicated integrative potential by boosted priority differences and a low number of issues did not reach statistical significance. LNI = low number of issues, HNI = high number of issues, DIP-AO = high number of issues with additional agreement options, DIP-PD = high number of issues with boosted priority differences. Confidence intervals indicate +/- 1 SEM.

**Outcome Integration.** The exploratory analyses on the cognitive integration of outcomes across packages of issues showed a significant effect,  $F(3, 176) = 7.44, p < .001, \eta_p^2 = .11$ . Decomposing this effect using a linear contrast (-3, +1, +1, +1 for the LNI, HNI, DIP-AO, and DIP-PD conditions, respectively) demonstrated that parties in all high-number-

of-issues conditions integrated outcomes across issue packages to a lesser extent than parties in the LNI condition ( $M_{LNI} = 4.80$ ,  $SD = 1.11$ ;  $M_{HNI} = 4.10$ ,  $SD = 1.34$ ;  $M_{DIP-AO} = 3.64$ ,  $SD = 1.42$ ;  $M_{DIP-PD} = 3.76$ ,  $SD = 1.21$ ),  $t(176) = -4.36$ ,  $p < .001$ .

**Mediation analyses.** Replicating and extending our mediation analysis of Experiment 2, we added the number of issues as the independent variable, the scattering of the integrative potential as mediator, and the Pareto efficiency score as the dependent variable into the analysis (bootstrapping procedures with 5000 interactions; Hayes, 2013, model 4). In line with our hypothesis, bootstrapping analyses indicated that the indirect effect of a high versus low number of issues with constant a constant integrative potential via the scattering of the integrative issues on the Pareto efficiency of agreements differed significantly from 0 with a point estimate of  $-0.0159$  ( $SE = 0.0048$ ) and a BCa 95% CI of  $[-0.0263, -0.0075]$ <sup>12</sup>. Confirming and extending results from the previous experiments, we found that parties negotiating a high number of issues reached less Pareto efficient agreements and that this effect could be traced back to the scattering of the integrative potential between packages of issues.

For exploratory reasons, we also analyzed whether parties' tendency to mentally segregate rather than integrate outcomes across issue packages served as a cognitive mediator for the effect of a high versus low number of issues with constant integrative potential on the Pareto efficiency of outcomes. Accordingly, the number of issues were entered as the independent variable, the integration of outcomes as a mediator, and the Pareto efficiency score as the dependent variable into the analysis (bootstrapping procedures with 5000 interactions; Hayes, 2013, model 4). The bootstrapping analyses indicated that the indirect effect via the integration of outcomes on the Pareto efficiency of agreements differed significantly from 0 with a point estimate of  $-0.0070$  ( $SE = 0.0030$ ) and a BCa 95% CI of  $[-0.0136, -0.0017]$ <sup>13</sup>. This finding suggests that parties who faced a high number of issues considered the outcomes for the different issue packages more strongly in a segregated rather than integrated way, which ultimately led to less Pareto efficient agreements.

## Discussion

Experiment 4 corroborated and extended the findings regarding the effects of the number of issues on the negotiation process and its outcomes. Most relevant to the present research, the

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<sup>12</sup> The indirect effect of the LNI and the DIP-AO conditions via the scattering of the integrative potential yielded parallel results, point estimate =  $-0.0194$ ,  $SE = 0.0056$ , BCa 95% CI of  $[-0.0311, -0.0094]$ .

<sup>13</sup> The indirect effect of the LNI and the DIP-AO conditions via the scattering of the integrative potential again yielded parallel results, point estimate =  $-0.0117$ ,  $SE = 0.0038$ , BCa 95% CI of  $[-0.0202, -0.0052]$ .

findings reconcile the two opposing positions in the literature: Supporting proponents of the more-is-better position, we found that negotiating a high number of issues with an increased integrative potential led to more trade-offs and eventually better absolute negotiation outcomes in terms of joint profits than negotiating a low number of issues (Fisher & Ury, 1981; Lax & Sebenius, 1986; Naquin, 2003; Pruitt, 1981; Raiffa, 1982; Thompson, 1998). However, this positive effect comes with costs: Supporting proponents of the fewer-is-better position—that is, the detrimental effect of a high number of issues—we demonstrated that negotiating more issues reduced parties' abilities to recognize optimal integrative trade-off opportunities and finally relative negotiation outcomes in terms of Pareto efficiency (Albin & Young, 2012; Rubin & Brown, 1975; Watkins, 2003; Winham, 1977). This detrimental number-of-issues effect could not even be reversed by negotiating a high number of issues with pronounced priority differences and the same total number of agreement options. The additional exploratory analyses of this final experiment also revealed another interesting finding regarding the effects of the number of issues on the cognitive processing of outcomes in multi-issue negotiations. Parties negotiating a higher number of issues reported that they had integrated the outcomes across different issue packages to a lesser extent, which accounted as a potential cognitive mediator in the exploratory mediation analysis. Thus, these exploratory results contribute to a more comprehensive picture of the observed findings regarding the scattering of the integrative potential between packages of issues. We will revert to these findings in the general discussion.

### ***General Discussion***

The current research investigated *how* and *why* expanding the pie by increasing the number of issues affects integrative negotiations. In the extant negotiation literature, there are two opposing positions: Proponents of the more-is-better position emphasize the advantages of having more issues at the table due to more opportunities for trade-offs (Fisher & Ury, 1981; Lax & Sebenius, 1986; Pruitt, 1981; Raiffa, 1982; Thompson, 1998). By contrast, proponents of the fewer-is-better position emphasize the *disadvantages* of negotiating more issues due to the higher complexity (Albin & Young, 2012; Rubin & Brown, 1975; Watkins, 2003; Winham, 1977). We reconciled these two positions by demonstrating that there is some truth in both arguments. In a series of four experiments, we investigated the effects of the number of issues by having negotiators discuss a high (i.e., 9) versus lower number (i.e., 5) of negotiation issues and examined different aspects of their perceptions, behaviors, and outcomes.

Four buyer-seller experiments indicated that given a constant number of agreement options and integrative potential, fewer is clearly better: Although negotiating more issues led to more trade-offs (i.e., quantity of trade-offs), parties were less able to make integrative trade-offs that fulfill both their interests (i.e., quality of tradeoffs) and reached inferior outcomes in absolute (Experiments 2 & 4) and relative terms (Experiment 4). However, when having more issues at the negotiation table was accompanied with additional integrative potential for parties, the effects of the number of issues were more diverse. On the one hand, a higher number of issues *and* an increased integrative potential enabled negotiators to make more trade-offs and to achieve higher absolute outcomes (see Geiger & Hüffmeier, in press; Naquin, 2003; Van der Schalk et al., 2010). On the other hand, even when corresponding to more integrative potential, negotiating a higher number of issues reduced negotiators' abilities to recognize optimal integrative trade-off opportunities and led to lower relative outcomes.

Statistical mediation analyses revealed that negotiators' issue-packaging approach accounted for the detrimental effect of a higher number of issues on negotiation outcomes (Experiments 2 & 4). Specifically, a high number of issues led parties to subdivide the whole set of issues into more separate packages, which resulted in more integrative issues being scattered between these packages. This scattering effect, in turn, rendered the discovery of the integrative potential more difficult and led to worse negotiation outcomes. Experiment 3 shed additional causal light on this underlying mechanism by experimentally testing the impact of negotiators' issue-packaging approach on negotiation outcomes. Exploratory findings extended this perspective by elucidating the effects of varying numbers of issues on negotiators' cognitive processing of outcomes among different issue packages: With more issues on the table, negotiators had a stronger tendency to process outcomes of different issue packages in a segregated way. Additional statistical mediation analyses showed that parties' segregation of outcomes of different issue packages served as a cognitive mediator for the detrimental number-of-issues effect on the Pareto efficiency of agreements (Experiment 4). In the following, we will first report the results of an internal meta-analysis corroborating our overall conclusions regarding the effects of the number of issues on integrative negotiation outcomes (for a similar approach see Schaerer, Schweinsberg, & Swaab, 2018). Subsequently, we will discuss our findings in light of a theoretical framework on cognitive processes in multi-issue negotiations and relevant related empirical findings.

### Transparency and Internal Meta-Analysis

In light of the ongoing debate about good research practices, we wish to disclose that we ran a total of five experiments in the current research project. Four of these five experiments are reported in this manuscript. Before conducting Experiment 4, we had run a similar experiment ( $N = 129$ ; pre-registered; <https://osf.io/9cq2b/>) that aimed to test the predictions that were addressed in Experiment 4. However, we failed to replicate the original effect of a high versus low number of issues (same number of agreement options and integrative potential) on negotiation outcomes. Specifically, joint profits were not significantly different between the high-number-of-issues condition ( $M = 113,666.67$ ,  $SD = 8,559.46$ ) and the low-number-of-issues condition ( $M = 112,575.00$ ,  $SD = 9,066.39$ ),  $t(68) = -0.51$ ,  $p = .611$ . In this context, it is important to take into consideration that given a statistical power of  $1 - \beta = .80$  in each study, the probability of obtaining significant results across five studies is only at 32.77% ( $0.80 \times 0.80 \times 0.80 \times 0.80 \times 0.80 = 0.3277$ ; see also Lakens & Etz, 2017). Therefore, in order to test the robustness of number-of-issues effect and rule out the possibility of a type II error, we conducted Experiment 4 that examined our predictions under conditions of both a constant integrative potential and a duplicated integrative potential. To adequately take into account the results from all experiments, we conducted an internal meta-analysis (McShane & Böckenholt, 2017) quantifying the overall effects of the number of issues on joint profits and the Pareto efficiency of outcomes. We included all experiments into this analysis in which we obtained data regarding the respective dependent variables except the experimental test for mediation (Experiment 3). In this experiment, the effect of the number of issues was overruled by the effect of the scattering of integrative potential between or within issue packages (as predicted). Including this result would therefore have distorted the overall effect estimate.

The internal meta-analysis of Experiments 2, 4, and the unreported experiment estimated an effect of  $-2,453.01$  joint profit points ( $CI_{95\%} : -4,768.07, -227.93$ ) for the original high- versus low-number-of-issues comparison. In other words, negotiating a high number of issues (i.e., 9 issues) reduced joint profits by 2,453.01 points compared to a lower number of issues (i.e., 5 issues) given the same number of agreement options and integrative potential. This difference equals around 8% of the integrative potential (i.e., 32,000 points). We used  $I^2$  as a measure of heterogeneity of results attributable to method factors (McShane & Böckenholt, 2017; Higgins & Thompson, 2002).  $I^2$  was estimated at 29.95% ( $CI_{95\%} : 0\% - 72.94\%$ ). Hence, method factors accounted for around 30% of the variation of observations between studies indicating medium heterogeneity (Pigott, 2012). Moreover, the internal

meta-analysis of Experiment 4 and the unreported experiment estimated an effect of  $-0.049$  units of the Pareto-efficiency measure ( $CI_{95\%} : -0.085, -0.012$ ) for the comparison between the low-number-of-issues condition and all three high-number-of-issues conditions (HNI, DIP-AO, DIP-PD). Therefore, across both studies, negotiating a high number of issues reduced the Pareto efficiency of outcomes by 5% compared to a low number of issues irrespective of the integrative potential. Method factors accounted for around 33% of the variation of observations between experiments ( $I^2 = 32.60\%$ ;  $CI_{95\%}: 0\%–74.38\%$ ), indicating medium heterogeneity (Pigott, 2012). Taken together, the meta-analytic results underscore the robustness of the detrimental number-of-issues effects found in the current research.

### **Cognitive Categorization Processes in Negotiations**

The present research on the effect of the number of issues in integrative negotiations is part of a more comprehensive theoretical framework on mental accounting processes in multi-issue negotiations (Trötschel, Majer, Zhang, Warsitzka, & Leitsch, 2020). Based on the literature on cognitive processes in complex decision making (e.g., Read et al., 1999; Thaler, 1985; 1999; Tversky & Kahneman, 1981), this framework conceptualizes mental accounting in negotiations as a holistic process that comprises several cognitive principles (i.e., creating, regulating, balancing, evaluating, and closing of mental accounts). Among these principles, the cognitive creation of mental accounts (i.e., considering issues in terms of issue packages) through mental parsing (Thaler, 1999) appears to be most essential for mental accounting processes in negotiations. In line with this framework and the notion that observable categorization processes on the behavioral level have a cognitive correspondence (Thaler, 1999), we argue that negotiators' issue-packaging behavior in the present research is indicative of their mental parsing processes. Supporting this cognitive perspective, exploratory analyses suggested that the number of issues affected not only negotiators' issue-packaging approach but also their cognitive processing of outcomes among these packages (Experiment 4). Specifically, parties were more likely to cognitively process the outcomes of different issue packages in a segregated way when there were more issues on the table. This observation resonates with the argumentation that when the number of issues in a negotiation increases, a comprehensive, integrated consideration of these issues and potential outcomes becomes impossible and thus negotiators are more likely to consider the issues in a segregated, isolated way (Trötschel et al., 2020; see also segregated vs. integrated mental accounting; Thaler, 1985; 1999; Tversky & Kahneman, 1984; narrow vs. broad bracketing; Read et al., 1999). Corroborating this notion, recent research on the effects of mental parsing

in complex multi-issue negotiations (Zhang et al, 2020;  $N = 1,275$ ) revealed that negotiators tended to mentally parse a whole set of 8 negotiation issues into smaller topical subsets (or packages) of issues (i.e., topical mental accounting). In line with our findings regarding the scattering effect of the integrative potential, Zhang and colleagues (2020) found that creating topical subsets of issues was detrimental for the negotiation process and joint outcomes if the issues providing integrative trade-off opportunities were scattered between these subsets. By contrast, when parties mentally created subsets of issues with the integrative potential aggregated within the subsets, topical mental accounting facilitated the bargaining process and led to better economic outcomes. Moreover, it was found that adopting an integrated mental-accounting approach by systematically comparing outcomes across issue subsets reduced the scattering effect to some extent. However, as the number of issue subsets steps up with an increasing number of issues (Trötschel et al., 2020), such a systematic comparison of outcomes between issue subsets might become a challenging task due to negotiators' limited cognitive capacities. This reasoning is in line with the exploratory findings of the present research, which revealed that negotiators integrated outcomes from different issue packages to a smaller extent when the number of issues was higher. Overall, the combined insights from the present research and the empirical evidence on mental accounting processes in negotiations (Zhang et al., 2020) provide first valuable hints regarding the fundamental role of mental accounting processes in the context of multi-issue negotiations (Trötschel et al., 2020).

### **Limitations and Future Research**

The present research has some limitations, which provide intriguing opportunities for future research. First, we investigated the effects of the number of issues on negotiators' perceptions, behaviors, and outcomes by systematically comparing a negotiation about a high number of 9 issues with a negotiation about a low number of 5 issues. Although the determination of a specific high versus a specific low number of issues is in line with prior research relevant to this topic (see Geiger & Hüffmeier, in press; Mannix et al., 1989; Naquin, 2003; Van der Schalk et al., 2010; Weingart et al., 1993) and provides important insights into the effects of the number of issues on negotiations, other constellations of high versus low numbers of issues are also possible. For instance, in the extant negotiation literature, the number of issues ranges from 2 (Froman & Cohen, 1970) to 24 (Trötschel et al., 2011), which allows for diverse comparisons between a high versus low number of issues. Thus, future research should investigate whether the number-of-issues effect

generalizes to situations with different issue constellations. For instance, when the negotiation is about 2 issues, adding another 2 issues with integrative potential to the bargaining table may not necessarily lead to a higher-number-of-issues disadvantage because discussing 4 issues might not strain negotiators' cognitive capacities significantly more than 2 issues. This reasoning is in line with findings from a study on the effectiveness of mediator-proposals when more (i.e., 6) versus fewer (i.e., 3) issues are under discussion (Wall, 1984). In that study, no main effect of the number of issues on joint profits emerged. Therefore, future research may want to examine the nature of the relationship between the number of issues and relative joint outcomes in integrative negotiations: The relationship between the number of issues and the quality of outcomes may be continuously linear with a negative slope (the more issues, the lower the quality of outcomes). Alternatively, it might also be segmented into two parts, in which the negative slope only occurs after the number of issues exceeds a certain threshold. Due to the fact that the number of issues varies between different negotiation paradigms used in various studies on integrative negotiations (e.g., *Market Simulation task* with 3 issues; Bazerman et al., 1985; *Waste-management task* with 5 issues; Sondak, Neale, & Pinkley, 1995; *New Car task* with 8 issues; Nadler, Thompson, & Morris, 2004), a meta-analytic approach that examines the association between the number of issues and joint economic outcomes across these studies could complement and extend the present research in important ways (for a similar approach see Thompson & Hrebec, 1996). Thus, employing such an approach is a fruitful area for future research.

Second, the present research indicates that the effects of the number of issues on negotiation outcomes can be explained by negotiators' mental categorization processes (see Trötschel et al., 2020; see also Thaler, 1999; Read et al., 1999). When negotiating a high number of issues, parties are not able to cognitively process all issues as a whole issue set such that they could thoroughly explore optimal opportunities for integrative trade-offs within that issue set. Instead, they tend to categorize the issues into different packages and consider issues within these packages separately from issues within other packages. However, whereas the present research clearly demonstrates this crucial impact of negotiators' cognitive categorization processes on their behaviors and negotiation outcomes, the criteria for assigning issues into the same (or different) issue packages remain uninvestigated. The mental accounting literature (e.g., Kahneman & Tversky, 1984; Thaler, 1999; Tversky & Kahneman, 1981) suggests that mental categorization is primarily guided by topical criteria in the context of individual (consumer) decision making. Specifically, issue categorization could be based on different product groups (e.g., Herr, 1989; Viswanathan &



Childers, 1999), brand types (Barone & Miniard, 2002; Boush & Loken, 1991), attribute-based similarities (Hutchinson, Raman, & Mantralal, 1994), or goal-related categories (Ratneshwar, Barsalou, Pechmann, & Moore, 2001). Transferred to negotiations, this would imply that negotiators would mentally create packages of issues on the basis of topical (dis)similarity of issues. However, one may also argue that because negotiations require joint decision making by both parties to integrate their opposing interests, parties may apply negotiation-specific principles by creating priority-related (e.g., high vs. low priority issues) or interest-related packages (e.g., monetary related interests vs. quality related interests) in the issue categorization process. Shedding empirical light on this question should be an intriguing avenue for future research.

Finally, from a methodological perspective, it was necessary to use a negotiation scenario involving fictitious issues to exclude the possibility of topically guided issue-categorization as described above. Despite this being a methodological necessity, it could be argued that the fictitious nature of the negotiation issues might have affected participants' perceptions and behaviors in unintended ways. However, it is a common practice in experimental negotiation research to use tasks and issues that are supposedly unfamiliar to student samples in the context of negotiations (e.g., agreement terms of a joint venture; Beersma & De Dreu, 2003; raw materials; Pruitt & Lewis, 1975; islands; Trötschel et al., 2011). Nevertheless, future research may investigate whether the effects obtained in the present research can also be observed in more realistic settings. Again, the meta-analysis described above seems to be an adequate methodological approach for examining this research question.

### **Practical Implications**

The present research provides important implications for negotiation practitioners and organizations. First and foremost, we suggest a cautious and careful attitude towards the unanimous recommendation from practical negotiation guidebooks to increase the number of issues as “[t]he more issues you have to play with, the easier it will be to find opportunities for logrolling.” (Malhotra & Bazerman, 2008, p. 63; see also Lewicki et al., 2007). Instead, our findings paint a more nuanced picture of the effect of the number of issues on integrative negotiations. On the one hand, increasing the number of issues in negotiations leads to superior absolute outcomes if the additional issues raise the integrative value of the negotiation pie. On the other hand, this benefit comes with a cost: Having more issues under discussion increases the difficulty for negotiators to discover the integrative win-win

solutions thoroughly across all issues. As a consequence, adding integrative issues to the negotiation confronts negotiation practitioners with a trade-off: They must balance gains in absolute outcomes against potential losses in relative outcomes and consider which pan of the balance is more important.

Second, insights from the present research into negotiators' issue-packaging behavior and their corresponding cognitive processes in multi-issue negotiations also offer important practical implications. On the one hand, it is reasonable for negotiators to subdivide the whole set of issues into smaller packages and to discuss issues within packages separately to avoid cognitive overload in complex multi-issue negotiations (Trötschel et al., 2020; Zhang et al., 2020). On the other hand, our empirical results emphasize that the more issue packages are created, the higher is the risk to scatter the integrative issues across different packages and thus to miss opportunities for integrative trade-offs. Therefore, negotiators should try to include issues that provide trade-off opportunities *within* issue packages to avoid a potential scattering effect. Also, to further minimize the risk of that scattering effect to occur, negotiators should attempt to consider as many issues as possible within an issue package (i.e., make multi-issue offers; Leonardelli, Gu, McRuer, Medvec, & Galinsky, 2019), as long as the number of issues involved in the packages does not overstrain their cognitive capacities. Furthermore, as suggested by our exploratory results, negotiators should comprehensively compare the potential results across issue packages in order to avoid missing win-win opportunities between these packages (see also Zhang et al., 2020).

These practical implications might be particularly consequential for complex business and political negotiations such as mergers and acquisitions, joint ventures, or international trade negotiations, where numerous issues are at stake and in which the parties involved have to decide whether to add even more issues to the negotiation. Overall, insights of the present research provide negotiation practitioners with a detailed and sophisticated analysis of the influence of having more issues at the table. Meanwhile, we also offer efficient tools to help negotiators to reduce the potentially detrimental effects caused by the high number of issues.

### ***Concluding Thoughts***

Prior research has arrived at inconsistent conclusions regarding the effect of the number of issues in integrative negotiations. By integrating the seemingly incompatible positions from past research, the current findings provide an in-depth analysis of how increasing the number of issues affects negotiations. Negotiating more issues allows parties to make more trade-offs and achieve better absolute outcomes. However, it exacerbates their abilities to discover

optimally integrative trade-off opportunities and leads to worse relative outcomes. Moreover, we provide insights into the psychological mechanisms underlying the detrimental effect of a higher number of issues on integrative negotiations. Therefore, we refer to existing cognitive research on economic and consumer decision making. Negotiating a high number of issues diminishes negotiators' ability to consider all issues simultaneously. Thus, they reduce this overwhelming task complexity by mentally categorizing the whole set of issues into smaller packages, which consequently increases the risk of scattering the integrative potential between different issue packages and renders the achievement of mutually beneficial agreements more difficult. The present research offers a comprehensive understanding of how and why the number of issues impacts perceptions, behaviors, and outcomes in negotiations.

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*Appendix*

**Payoff Schedules**

Table 1

*Profit points in the low-number-of-issues (LNI) condition*

Options	Issues				
	<u>Rhodium</u>	<u>Bilizium</u>	<u>Eralium</u>	<u>Toranium</u>	<u>Pasadium</u>
<u>A</u>	32; 1	18; 0	24; 2	9; 0	8; 0
<u>B</u>	28; 2	16; 3	21; 4	8; 4	7; 1
<u>C</u>	24; 3	14; 6	18; 6	7; 8	6; 2
<u>D</u>	20; 4	12; 9	15; 8	6; 12	5; 3
<u>E</u>	16; 5	10; 12	12; 10	5; 16	4; 4
<u>F</u>	12; 6	8; 15	9; 12	4; 20	3; 5
<u>G</u>	8; 7	6; 18	6; 14	3; 24	2; 6
<u>H</u>	4; 8	4; 21	3; 16	2; 28	1; 7
<u>I</u>	0; 9	2; 24	0; 18	1; 32	0; 8

*Note.* First number represents profits for party Eldaria, second number represent profits for party Loria. Profit points in units of a 1000. Compromise solution 94,000 points, maximum joint profits 126,000 points. First 4 issues integrative, last issue distributive.

Table 2

*Profit points in the high-number-of-issues (HNI) condition*

Options	Issues								
	<u>Rhodium</u>	<u>Bilizium</u>	<u>Eralium</u>	<u>Toranium</u>	<u>Pasadium</u>	<u>Siridium</u>	<u>Zerudium</u>	<u>Venturium</u>	<u>Fenatrium</u>
<u>A</u>	16; 0	10; 0	12; 0	5; 0	16; 1	8; 0	12; 2	4; 0	8; 0
<u>B</u>	12; 1	8; 3	9; 2	4; 4	12; 2	6; 3	9; 4	3; 4	6; 2
<u>C</u>	8; 2	6; 6	6; 4	3; 8	8; 3	4; 6	6; 6	2; 8	4; 4
<u>D</u>	4; 3	4; 9	3; 6	2; 12	4; 4	2; 9	3; 8	1; 12	2; 6
<u>E</u>	0; 4	2; 12	0; 8	1; 16	0; 5	0; 12	0; 10	0; 16	0; 8

*Note.* First number represents profits for party Eldaria, second number represents profits for party Loria. Profit points in units of a 1000. Compromise solution 94,000 points, maximum joint profits 126,000 points. First 8 issues integrative, last issue distributive.

Table 3

*Profit points in the high-number-of-issues condition with additional agreement options (DIP-AO)*

Options	Issues								
	<u>Rhodium</u>	<u>Bilizium</u>	<u>Eralium</u>	<u>Toranium</u>	<u>Pasadium</u>	<u>Siridium</u>	<u>Zerudium</u>	<u>Venturium</u>	<u>Fenatrium</u>
<u>A</u>	32; 1	18; 0	24; 2	9; 0	32; 1	18; 0	24; 2	9; 0	16; 0
<u>B</u>	28; 2	16; 3	21; 4	8; 4	28; 2	16; 3	21; 4	8; 4	14; 2
<u>C</u>	24; 3	14; 6	18; 6	7; 8	24; 3	14; 6	18; 6	7; 8	12; 4
<u>D</u>	20; 4	12; 9	15; 8	6; 12	20; 4	12; 9	15; 8	6; 12	10; 6
<u>E</u>	16; 5	10; 12	12; 10	5; 16	16; 5	10; 12	12; 10	5; 16	8; 8
<u>F</u>	12; 6	8; 15	9; 12	4; 20	12; 6	8; 15	9; 12	4; 20	6; 10
<u>G</u>	8; 7	6; 18	6; 14	3; 24	8; 7	6; 18	6; 14	3; 24	4; 12
<u>H</u>	4; 8	4; 21	3; 16	2; 28	4; 8	4; 21	3; 16	2; 28	2; 14
<u>I</u>	0; 9	2; 24	0; 18	1; 32	0; 9	2; 24	0; 18	1; 32	0; 16

*Note.* First number represents profits for party Eldaria, second number represents profits for party Loria. Profit points in units of a 1,000. Compromise solution 188,000 points, maximum joint profits 252,000 points. First 8 issues integrative, last issue distributive.

Table 4

*Profit points in the high-number-of-issues condition with pronounced priority differences (DIP-PD)*

Options	Issues								
	<u>Rhodium</u>	<u>Bilizium</u>	<u>Eralium</u>	<u>Toranium</u>	<u>Pasadium</u>	<u>Siridium</u>	<u>Zerudium</u>	<u>Venturium</u>	<u>Fenatrium</u>
<u>A</u>	32; 0	20; 0	24; 0	10; 0	32; 2	16; 0	24; 4	8; 0	16; 0
<u>B</u>	24; 2	16; 6	18; 4	8; 8	24; 4	12; 6	18; 8	6; 8	12; 4
<u>C</u>	16; 4	12; 12	12; 8	6; 16	16; 6	8; 12	12; 12	4; 16	8; 8
<u>D</u>	8; 6	8; 18	6; 12	4; 24	8; 8	4; 18	6; 16	2; 24	4; 12
<u>E</u>	0; 8	4; 24	0; 16	2; 32	0; 10	0; 24	0; 20	0; 32	0; 16

*Note.* First number represents profits for party Eldaria, second number represents profits for party Loria. Profit points in units of a 1,000. Compromise solution 188,000 points, maximum joint profits 252,000 points. First 8 issues integrative, last issue distributive.

## Chapter 4: A Meta-Analytic Review on the Effect of the Number of Issues on Integrative Negotiation Outcomes and its Moderators

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### ***Abstract***

The present research investigates the effect of the number of issues on integrative negotiation outcomes. Specifically, based on the notion that increasing the number of issues raises complexity and previous empirical research about how negotiators cognitively manage this complexity, we test two competing hypotheses: First, a linearly negative relation between the number of issues and relative joint outcomes (i.e., outcome-efficiency) can be predicted, implying that more issues generally diminish outcomes. Alternatively, a segmented relation can be predicted, implying that more issues only diminish relative joint outcomes if the resulting number of issues exceeds a critical threshold. Importantly, the detrimental effect of higher numbers of issues is expected to be influenced by person-based, task-based, and situation-based moderators that should affect negotiators' cognitive issue processing, which should, in turn, reduce the effect. To test these predictions, we reviewed 172 empirical articles on integrative negotiations ( $n = 172$ ) and analyzed the association between the number of issues and relative joint economic outcomes across 217 studies ( $k = 217$ ) in which numerous negotiation tasks with varying numbers of issues and diverse samples were used ( $N = 22,914$ ). Studies were included if the number of negotiation issues could be clearly determined, joint economic outcomes were reported, and impasses were excluded. Results from our multilevel modelling approach support the predicted segmented relation between the number of issues and relative joint outcomes with one breaking point. However, we did not find clear evidence for moderation effects. Implications for negotiation theory, real-world negotiations, and future research are discussed.

*Keywords:* integrative negotiation, number of issues, meta-analytic review



The *negotiation pie* is one of the most prominent metaphors in the negotiation literature. For instance, researchers have investigated how perceiving a fixed pie influences negotiations (e.g., Pinkley, Griffith, & Northcraft, 1995), how a fixed pie can be unfixed (e.g., De Dreu, Koole, & Steinel, 2000), and why negotiators overestimate the size of their own pie slice (Larrick & Wu, 2007). However, for decades, negotiation scholars lacked a comprehensive understanding of how, why, and when *expanding the pie* (Lax & Sebenius, 1986) by increasing the number of negotiation issues affects integrative negotiations. Building on and extending recent research on this topic (Warsitzka, Zhang, Loschelder, Majer, & Trötschel, 2020), the present meta-analytic review seeks to investigate *how* and *when* the number of issues affects integrative negotiation outcomes by analyzing studies from 50 years of empirical negotiation research.

There has been a long-lasting debate among researchers about whether expanding the pie by increasing the number of issues will be a benefit or a burden for negotiators (see Warsitzka et al., 2020). Proponents of the “more-is-better” position argued that more issues increase possibilities for trade-offs, thus leading to better negotiation outcomes (Fisher & Ury, 1981; Lax & Sebenius, 1986; Pruitt, 1981; Raiffa, 1982; Thompson, 1998). By contrast, proponents of the “fewer-is-better” position reasoned that more issues increase complexity, thus resulting in worse negotiation outcomes (Albin & Young, 2012; Rubin & Brown, 1975; Watkins, 2003; Winham, 1977). For a long time, empirical studies could not help solving this paradox: Whereas some studies showed a positive impact of a higher number of issues on integrative negotiation outcomes (Naquin 2003; Van der Schalk, Beersma, Van Kleef, & De Dreu, 2010), others suggested the opposite (Geiger & Hüffmeier, in press), or found no difference between negotiating more or fewer issues (Wall, 1984). Reconciling these opposing positions, a recent set of studies (Warsitzka et al., 2020) demonstrated *how* a high compared to a low number of issues distinctly affected different dimensions of negotiators’ trade-off behavior (i.e., *quantity* and *quality* of trade-offs) and negotiation outcomes (i.e., *absolute* and *relative outcomes*). Lending support to the more-is-better position, negotiating a higher number of issues led to more trade-offs (i.e., quantity of trade-offs); more issues also improved joint economic outcomes in absolute terms (i.e., joint profits) but only if a high number of issues corresponded with substantially more integrative potential and higher achievable profits than a low number of issues. However, resonating with the fewer-is-better position, Warsitzka et al. (2020) showed that more issues could reduce the integrativity of trade-offs (i.e., quality of trade-offs) and deteriorate joint outcomes in relative terms (i.e., Pareto efficiency of agreements) irrespective of the amount of integrative potential of the

negotiation task. Furthermore, they shed empirical light on *why* a higher number of issues reduced relative joint outcomes by investigating the underlying psychological mechanism. Therefore, they transferred insights about cognitive processes in complex (financial) decision-making situations (*choice bracketing*; Read, Loewenstein, & Rabin, 1999; *mental accounting*; Thaler, 1999; Tversky & Kahneman, 1981) to the domain of negotiations. Specifically, they showed that negotiating many issues increased negotiators' tendency to reduce the complexity of the task by *parsing* the whole set of issues into smaller sub-packages and by negotiating issues within packages separately from issues within other packages. Parsing the whole set of issues into more sub-packages increased the likelihood that the integrative issues were *scattered between* rather than *aggregated within* issue packages, which, in turn, impeded negotiators' abilities to recognize opportunities for optimal integrative trade-offs. Extending this work, other recent research (Zhang, Warsitzka, Majer, & Trötschel, 2020) demonstrated that the way negotiators parsed the issues on the negotiation table corresponded to their mental-parsing processes (see also Thaler, 1999), corroborating the cognitive perspective of Warsitzka et al. (2020)<sup>14</sup>.

Although the work by Warsitzka and colleagues (2020) made important contributions to a comprehensive understanding of how and why varying numbers of issues affect integrative negotiations, the scope of their research was limited to comparing the effects of negotiating a relatively higher number of 9 issues with negotiating a relatively lower number of 5 issues. However, to fully understand how the number of issues influences integrative negotiations, more research is needed. Specifically, it is unclear if the detrimental number-of-issues effect also emerges for other issue constellations (e.g., 5 vs. 3 issues; 8 vs. 6 issues). In the present meta-analytic review, we seek to complement previous work (Warsitzka et al. 2020) through analyzing the effect of increasing the number of issues on relative outcome quality for a wide range of numbers of issues. Therefore, we investigate the generalizability of the effect based on 22,914 negotiations from various empirical studies using different negotiation tasks with varying numbers of issues (e.g., *Market Simulation task* with 3 issues; Bazerman, Magliozzi, & Neale, 1985; *Waste-management task* with 5 issues; Sondak, Neale, & Pinkley, 1995; *New Car task* with 8 issues; Nadler, Thompson, & Morris, 2004).

Furthermore, we examine *when* the number of issues negatively affects negotiation outcomes. Thereby, we intend to contribute to the negotiation literature by investigating potential boundary conditions for the detrimental number-of-issues effect on integrative

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<sup>14</sup> For a comprehensive theoretical framework on cognitive processes in multi-issue negotiations embedded into the *model of mental accounting in negotiations* see Trötschel, Majer, Zhang, Warsitzka, & Leitsch (2020).

outcome quality. Specifically, we investigate if *person-based* (i.e., epistemic motivation, negotiation experience), *task-based* (i.e., the number of agreement options per negotiation issue), and *situation-based* (i.e., the number of negotiators per party) factors can reduce the effect. Whereas epistemic motivation as a moderator of the number-of-issues effect is derived from existing empirical research (Van der Schalk et al., 2010), and the potential interaction of the number of negotiators per party and the number of issues has been previously discussed (Gelfand et al., 2013), the two other moderators have not been subjects of earlier considerations. Thus, the present research offers a better understanding of when the number of issues influences joint economic outcomes in integrative negotiations by integrating and extending previous theory and research.

In the following, we will first review the literature on expanding the pie and the effects of varying numbers of issues on integrative negotiation outcomes including the underlying psychological mechanisms. Subsequently, we will explain our theoretical assumptions, delineate our predictions, and conclude with a synopsis of the present meta-analytic review.

### ***Expanding the Pie in Negotiations***

Several integrative strategies are subsumed under the metaphor of *expanding the pie* in the negotiation literature (e.g., Fisher & Ury, 1981; Lax & Sebenius, 1986; Raiffa, 1982; Thompson, 2015). Parties can, for instance, make side deals or conclude contingency contracts to expand the pie and promote integrative agreements (Lax & Sebenius, 1986; Thompson, 2015). The focus of the present work, however, is on the effects of adding issues to the negotiation table as a third and intensively discussed way of expanding the negotiation pie. Negotiators can increase the number of issues in a negotiation in three ways (Lax & Sebenius, 1986; Sebenius, 1983; Thompson, 2015): 1.) They can unbundle issues on the negotiation table into separate sub-issues as illustrated in the well-known story of Mary Parker Follett (1940). In this story, two sisters negotiating about a single orange do not realize that each of them needs a different part (or sub-issue) of the fruit (i.e., the peel and the pulp), thus ending up with the suboptimal solution of splitting the orange in half. 2.) Negotiators can also add existing issues to the discussion. For instance, a bicycle dealer in a negotiation about a bicycle could offer a free check-up after a one-year period to a potential buyer. 3.) Negotiators can create completely new issues. For example, when discussing about where to spend the next vacation, a spouse could offer his wife a daily foot massage to

convince her to spend their holidays in a cottage in the mountains instead of a wellness hotel at the beach (see Pruitt, 1986).

### ***The Number of Issues in integrative Negotiations***

Earlier studies on the effect of the number of issues on integrative negotiations under a wholistic agenda (i.e., all issues have to be discussed within the same agenda phase; Mannix, Thompson, & Bazerman, 1989; Weingart, Bennett, & Brett, 1993) yielded unequivocal results. In line with the more-is-better position (Fisher & Ury, 1981; Lax & Sebenius, 1986; Pruitt, 1981; Raiffa, 1982; Thompson, 1998), a study on negotiator satisfaction showed that negotiating 8 issues led to less satisfaction but higher absolute outcomes in terms of joint profits than negotiating 4 issues (Naquin, 2003). Similarly, in a non-interactive study by Van der Schalk and colleagues (2010), participants reached higher joint profits when a large number of 18 compared to a moderate number of 6 issues were on the table. An interactive study by Geiger and Hüffmeier (in press) lent first empirical support for the fewer-is-better position (Albin & Young, 2012; Rubin & Brown, 1975; Watkins, 2003; Winham, 1977). In this study, the authors investigated the effects of negotiating 8 compared to 4 issues on two different outcome variables: First, they measured absolute outcomes in terms of joint profits. Second, as maximum achievable profits were higher in the 8-issues condition, they mathematically extrapolated achieved joint profits from the 4-issues condition to the 8-issues condition to make outcomes comparable across negotiation tasks. In line with prior studies, negotiators reached higher joint profits when they discussed 8 compared to 4 issues. By contrast, they reached lower outcomes measured by extrapolated joint profits. Furthermore, in a study on the effectiveness of mediator-proposals (Wall, 1984), no main effect of negotiating 6 in comparison to 3 issues was found. However, receiving a mediator-proposal led to worse outcomes with 6 but not with 3 issues under discussion. The author reasoned that a mediator-proposal further increased the complexity of the 6-issues negotiation, resulting in worse negotiation outcomes.

Methodological shortcomings of these studies provide some explanation for the unequivocal results (see Warsitzka et al., 2020). For instance, as in the studies by Geiger and Hüffmeier (in press), in the studies supporting the more-is-better position (Naquin, 2003; Van der Schalk et al., 2010) negotiators in the high-number-of-issues conditions could achieve substantially higher profits than in the low-number-of-issues conditions, rendering both conditions hardly comparable in terms of absolute joint profits. Additionally, in the studies by Geiger and Hüffmeier (in press) and Wall (1984), not only the number of issues but also the

total number of agreement options varied between conditions (i.e., 40 vs. 20 and 54 vs. 27), limiting causal inferences. Moreover, it is noteworthy that in the study by Wall (1984) a different issue-constellation was investigated (i.e., 6 vs. 3) than in the other interactive studies on this topic (i.e., 8 vs. 4; Geiger & Hüffmeier, in press; Naquin, 2003). In addition to their methodological shortcomings, none of these studies provided a comprehensive psychological explanation as to *why* the number of issues affects negotiation outcomes.

Recent work (Warsitzka et al., 2020) reconciled the opposing findings from previous research. Specifically, the authors investigated how negotiating a high number of 9 issues compared to a lower number of 5 issues affected negotiators' trade-off behavior (i.e., quantity and quality of trade-offs), joint profits, and the Pareto efficiency of agreements (i.e., absolute and relative negotiation outcomes) while taking into account other structural features of the negotiation task (i.e., maximum achievable profits and integrative potential, number of agreement options). Confirming the more-is-better position (Fisher & Ury, 1981; Lax & Sebenius, 1986; Pruitt, 1981; Raiffa, 1982; Thompson, 1998), they showed that negotiating 9 compared to 5 issues allowed negotiators to make more trade-offs (i.e., quantity of trade-offs). Moreover, discussing 9 issues led to higher absolute outcomes in terms of joint profits but only if this higher number of issues corresponded with substantially more integrative potential than 5 issues (see Geiger & Hüffmeier, in press; Naquin, 2003; Van der Schalk et al., 2010). By contrast and corroborating the fewer-is-better position (Albin & Young, 2012; Rubin & Brown, 1975; Watkins, 2003; Winham, 1977), they also showed that negotiating 9 versus 5 issues reduced negotiators' abilities to recognize opportunities for optimal integrative trade-offs (i.e., quality of trade-offs). Furthermore, negotiating more issues led to lower absolute outcomes in terms of joint profits if the integrative potential was kept constant between the negotiation tasks involving 9 and 5 issues. Importantly, negotiating a higher number of issues also resulted in lower relative outcomes in terms of the Pareto efficiency of agreements<sup>15</sup> even if that higher number of issues corresponded with substantially more integrative potential than a lower number of issues. These findings provide evidence for a considerable negative effect of expanding the pie by increasing the number of issues on trade-off behavior and outcome-efficiency in integrative negotiations.

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<sup>15</sup> The Pareto efficiency of agreements is independent from differences in achievable profits and the amount of integrative potential of the negotiation task. Thus, it represents a more adequate measure to compare negotiators' performances than joint profits when the effect of different numbers of issues on negotiation outcomes is investigated (see Clyman, 1995; Tripp & Sondak, 1992; Warsitzka et al., 2020), particularly when more issues correspond with substantially more achievable profits.

The study by Warsitzka and colleagues (2020) contributed in important ways to a better understanding of how negotiating a high versus low number of issues influences behaviors and outcomes in integrative negotiations. However, in line with earlier studies on this topic (Geiger & Hüffmeier, in press; Naquin, 2003; Van der Schalk et al., 2010; Wall, 1984), they focused on comparing the effects of two specific numbers of issues (i.e., 9 vs. 5). Therefore, the first major research goal of the present work is to extend prior research by investigating if the detrimental effect of a higher number of issues on relative outcome quality generalizes to other issue-constellations (e.g., 5 vs. 3 issues; 8 vs. 6 issues). To accomplish this goal, we examined data from a variety of simulated studies on integrative negotiations using different negotiation tasks covering a wide range of numbers of issues (e.g., *Market Simulation task* with 3 issues; Bazerman et al., 1985; *Waste-management task* with 5 issues; Sondak et al., 1995; *New Car task* with 8 issues; Nadler et al., 2004). However, making predictions regarding the effect to be investigated requires a closer examination of the psychological processes underlying the detrimental effect of a higher number of issues on relative joint outcomes.

### ***Cognitive Processes in Multi-Issue Negotiations***

The study by Warsitzka and colleagues (2020) examined not only how but also why discussing a high versus low number of issues negatively affects the quality of negotiators' trade-offs and relative negotiation outcomes by investigating the underlying psychological mechanism. Therefore, they transferred insights from two related lines of research from the domains of consumer psychology and complex decision making to the context of negotiation (*mental accounting*; Kahneman & Tversky, 1984; Thaler, 1985; 1999; Tversky & Kahneman, 1981; *choice bracketing*; Read et al., 1999; see also Trötschel et al., 2020). According to the mental-accounting framework, individuals make use of a cognitive version of financial bookkeeping as a basis for complex financial decision making (e.g., spendings, investments, savings). Specifically, they categorize costs and benefits associated with different decisions and financial events in separate mental accounts and evaluate these accounts in a segregated, topical manner (*topical accounting*) rather than a comprehensive, integrated manner (*comprehensive accounting*; Kahneman & Tversky, 1984; Thaler, 1985; 1999). On the one hand, this cognitive procedure helps decision makers to deal with complex settings and to avoid cognitive overload. On the other hand, it also entails the risk of losing important information (Thaler, 1999). Choice bracketing is based on the same conceptual idea as mental accounting: It refers to the cognitive process of either grouping (sets of) decisions together

and considering all consequences associated with these decisions in their entirety (*broad bracketing*) or separating (sets of) decisions and considering associated consequences in an isolated way (*narrow bracketing*; Read et al., 1999). As pointed out by the authors (Read et al., 1999), an individual's bracketing approach in a given situation depends on the complexity of the decision task: If the number of decisions or decision alternatives exceeds cognitive capacities, broad bracketing becomes impossible. Interestingly, the conceptual ideas of these two approaches resonate with early theorizing in the seminal work of Rubin and Brown (1975) about how negotiators deal with the complexity of multi-issue negotiations: According to Rubin and Brown (1975), negotiators reduce this complexity by subdividing the whole set of issues into subsets (or packages) and by considering issues within subsets separately from issues within other subsets (Rubin and Brown, 1975). Inspired by this reasoning and building on insights from the literature on mental accounting and choice bracketing, Warsitzka et al. (2020) showed that a higher number of issues increased negotiators' inclination to subdivide the whole set of issues into packages and to discuss issues within packages separately from issues within other packages. More issue packages, in turn, increased the likelihood that the integrative issues were *scattered between* rather than *aggregated within* issue packages. In line with the literature on complex decision-making (Kahneman & Tversky, 1984; Read et al., 1999; Thaler, 1985; 1999; Tversky & Kahneman, 1981) and Rubin and Brown's (1975) theorizing, Warsitzka and colleagues (2020) assumed that issues within packages are cognitively processed independently from issues within other packages, rendering the discovery of optimal integrative trade-off opportunities increasingly difficult, the more integrative issues become scattered between packages. Supporting this reasoning, manipulating the location of integrative issues within versus between issue packages as an experimental test for mediation (see Spencer, Zanna, & Fong, 2005) overruled the detrimental number-of-issues effect on joint outcomes (Warsitzka et al., 2020; study 3). Lending further support to the cognitive explanation of Warsitzka and colleagues (2020), a recent set of studies (Zhang et al., 2020) demonstrated that the creation of issue packages on the negotiation table resembles negotiators' cognitive grouping of issues into separate mental accounts (Zhang et al., 2020)<sup>16</sup> thereby affecting integrative negotiation outcomes (see mental parsing; Trötschel et al., 2020; see also Thaler, 1999).

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<sup>16</sup> The terms "issue package" and "mental account" both refer to the grouping of issues during the negotiation process. The term issue package relates more strongly to negotiators' behavior (i.e., the grouping of issues into packages on the negotiation table), whereas the term mental account explicitly relates to negotiators' cognitive processes (i.e., the grouping of issues into mental accounts in negotiators' minds). However, because these processes correspond strongly with each other (Zhang et al., 2020), we use both terms interchangeably.

### ***The Relation between the Number of Issues and Relative Joint Outcomes***

With respect to the first major research goal of the present work, we will test two competing hypotheses regarding the relation between the number of issues and relative joint outcomes. First, it is plausible to generalize the reasoning and the empirical results delineated in the last paragraph to all constellations involving a higher and a lower number of issues: The more issues negotiators face, the stronger is their inclination to mentally parse issues into separate, topical mental accounts (Trötschel et al., 2020; Warsitzka et al., 2020; Zhang et al., 2020; see also Kahneman & Tversky, 1984; Thaler, 1985; 1999), rendering the realization of optimal trade-offs increasingly difficult irrespective of the specific high- versus low-number-of-issues comparison. This argumentation suggests a linearly negative relation between the number of negotiation issues and relative negotiation outcomes.

*Hypothesis 1a:* There is a linearly negative relation between the number of issues and relative joint outcomes.

Alternatively, one can also derive a more fine-grained prediction based on the notion that the process of mental parsing, specifically topical accounting, serves the function of reducing task complexity to a manageable level (Trötschel et al., 2020; Warsitzka et al., 2020; Zhang et al., 2020; see also Kahneman & Tversky, 1984; Read et al., 1999; Thaler, 1985, 1999; Tversky & Kahneman, 1981). This function implies that as long as the complexity of a multi-issue negotiation does not severely strain negotiators' cognitive capacities, there tendency to parse the whole set of issues into different mental accounts (topical accounting) should be reduced. Instead, they should be more inclined to consider all issues in a comprehensive, integrated way (comprehensive accounting). Considering issues in their entirety, in turn, should enable negotiators to discover optimal trade-off opportunities, resulting in highly integrative negotiation outcomes (Read et al., 1999). Therefore, expanding the pie by adding issues to the negotiation should not diminish the integrativity of trade-offs and relative outcome quality as long as the resulting number of issues does not overstrain negotiators' cognitive capacities. Put differently, there should be a breaking point in the relation between the number of negotiation issues and relative joint outcomes. Intriguingly, this notion is also reflected in Rubin and Brown's (1975) work on how negotiators manage the complexity of negotiations involving numerous issues. Specifically, they postulate that "*as the number of issues in a dispute grows, the pressures toward differentiating among them are likely to increase* [sic], if for no reason other than the accompanying difficulty of dealing with an excessive number of issues simultaneously" (p. 147). Importantly, they further elaborate that "the point at which differentiation pressures begin to operate—whether at 5,



10, 20, or more issues—is by no means clear” (ibid.). Empirical support for the reasoning that as long as a certain total number of issues is not exceeded, comprehensive accounting is possible and thus outcomes are not affected by adding issues to the negotiation stems from one of the studies by Zhang and colleagues (2020). In two conditions within the respective study, the effect of having participants negotiate a total of 8 issues either in packages of 2 or 4 issues each on overall integrative outcomes was investigated. Furthermore, integrative issues were either scattered between or aggregated within issue packages. In other words, the package size (i.e., the size of the mental accounts) and the location of the integrative potential were manipulated. Interestingly, when the integrative potential was aggregated within issue packages, there was no difference in overall integrative outcomes between negotiations involving packages of 2 or 4 issues each. These results imply that having to consider 4 issues simultaneously within the same mental account did not raise the complexity of the task to a level that impeded negotiators’ ability to discover the integrative potential to a higher degree than considering 2 issues within the same mental account<sup>17</sup>. Thus, these findings support our argumentation that within the range of low to moderate numbers of issues comprehensive accounting allows for highly integrative outcomes irrespective of the specific number of issues under discussion. Summing up the reasoning outlined above, we alternatively predicted that the relation between the number of issues and relative outcome quality will be segmented into two parts with one breaking point: Before the breaking point, adding issues to the negotiation will not affect relative outcomes. However, after the breaking point, increasing the number of issues will reduce relative outcome quality (Warsitzka et al., 2020). We refrained from making a prediction about the exact location of the breaking point, though, because previous research on this topic is not sufficient. We could only estimate it to lie between 4 and 7 issues (e.g., Geiger & Hüffmeier, in press; Wall, 1984; Warsitzka et al., 2020; Zhang et al., 2020). Thus, we considered it an empirical question where exactly the breaking point is located (if it exists).

*Hypothesis 1b:* There is a breaking point in the relation between the number of issues and relative joint outcomes. Before the breaking point, there is no association between both variables. After the breaking point, more issues are associated with lower relative joint outcomes.

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<sup>17</sup> Of course, we are aware of the fact that in this study negotiators were instructed to create topical accounts instead of a comprehensive account. Nonetheless, because topical accounts varied in size and because overall outcomes were calculated by simply adding up joint profits from each mental account, these results allow drawing conclusions regarding negotiators’ cognitive capacities to effectively manage varying numbers of issues simultaneously within one mental account.

### ***Moderation of the Effect of the Number of Issues on Relative Outcomes***

The second major goal of the present work is to test the robustness of the detrimental effect of the number of issues on relative joint outcomes by investigating potential boundary conditions. Specifically, the main focus is on how the effect can be attenuated. In the present analysis, we consider the alteration of negotiators' mental-accounting processes (Trötschel et al., 2020; Warsitzka et al., 2020; Zhang et al., 2020) as a general moderating principle. Specifically, we will make propositions about how *person-based* (i.e., epistemic motivation, negotiation experience), *task-based* (i.e., the number of agreement options per negotiation issue), and *situation-based* (i.e., the number of negotiators per party) moderators might influence negotiators' mental-parsing approach in negotiations with varying numbers of issues. On that basis, we will derive our moderation hypotheses.

**Epistemic motivation.** The first person-based moderator—epistemic motivation—concerns individuals' willingness to process information systematically and to develop an elaborate understanding of a given task or situation (De Dreu & Carnevale, 2003). Previous research on integrative negotiations indicated that a high epistemic motivation helps parties to achieve better joint outcomes (e.g., De Dreu, Beersma, Stroebe, & Euwema, 2006; De Dreu, Koole et al., 2000). Thus, we expected to replicate these findings.

*Hypothesis 2a:* A high epistemic motivation leads to better relative joint outcomes than a low epistemic motivation.

Furthermore, epistemic motivation turned out to be particularly relevant in complex negotiations involving many issues (Van der Schalk et al., 2010). In this non-interactive study, participants allegedly negotiating a very large number of 18 issues with their simulated counterpart reached greater absolute joint profits when they were high versus low on epistemic motivation. By contrast, epistemic motivation had no effect on joint profits when a moderate number of 6 issues were under discussion. The authors explained this effect on a general level with regard to participants' reliance on heuristics and shortcuts. They reasoned that with 18 issues on the negotiation table, participants low on epistemic motivation should be prone to using simplifying heuristics to reduce the corresponding complexity, resulting in inferior integrative outcomes. By contrast, participants high on epistemic motivation should process task related information deeply and systematically instead of relying on cognitive heuristics, resulting in better integrative outcomes. However, because no such data was collected, the specific cognitive explanatory mechanism for this effect remained unclear. We offer a more refined explanation as to why epistemic motivation affects integrative outcomes particularly in negotiations on high numbers of issues with regard to mental accounting.

Specifically, we propose that in order to develop a comprehensive understanding of the task and not to lose important information (e.g., about potential linkages between issues; see Read et al., 1999; Thaler, 1999), negotiators high on epistemic motivation will utilize their cognitive capacities to consider as many issues simultaneously as possible. Thus, they will be less inclined to parse the whole set of issues into mental accounts (i.e., perform topical accounting). In other words, epistemic motivation should influence the size of the mental accounts (respectively issue packages) negotiators assign issues to such that negotiators high on epistemic motivation should form larger mental accounts with more issues within each account. Larger mental accounts should, in turn, lead to more integrative potential being aggregated within accounts, resulting in improved relative joint outcomes. In line with this reasoning and previous research (Van der Schalk et al., 2010), we predicted that high epistemic motivation will attenuate the detrimental number-of-issues effect on relative negotiation outcomes.

*Hypothesis 2b:* Epistemic motivation moderates the effect of the number of issues on relative joint outcomes such that high epistemic motivation attenuates the effect.

**Negotiation experience.** The second person-based moderator considered in this analysis is negotiation experience. In integrative negotiations, novice negotiators face at least two challenges: First, they have to act in an unfamiliar social situation for which they do not have a script of appropriate behavior. At the same time they have to find solutions for how to integrate own and counterparts' interests without being able to rely on prior knowledge about negotiation strategies in general and integrative strategies in particular. By contrast, experienced negotiators should have developed a script of appropriate behavior (Mazei et al., 2014), enabling them to focus primarily on finding viable solutions for the conflict of interests. Furthermore, they should have acquired integrative skills through experience, enabling them to identify mutually beneficial solutions more easily (Moran & Ritov, 2007; Thompson, 1990a, b). Thus, replicating previous research, we expected experienced negotiators to reach higher relative joint outcomes than novice negotiators.

*Hypothesis 3a:* Experienced negotiators achieve better relative joint outcomes than inexperienced negotiators.

Moreover, we argue that novice negotiators should be particularly overstrained in highly complex multi-issue negotiations whereas experienced negotiators should be able to deal with this complexity more effectively. Specifically, we assume that experienced negotiators will be able to process more issues simultaneously, resulting in larger mental accounts. Furthermore, because experienced negotiators should be aware of the potential

benefits of taking multiple issues into simultaneous consideration (e.g., for exploring logrolling opportunities; Thompson, 1990a, b), we propose that they will also strive to simultaneously discuss as many issues as possible to realize these benefits (i.e., assign as many issues as possible into the same mental accounts). Thus, we predicted that the detrimental number-of-issues effect on relative joint outcomes will be mitigated when negotiators have experience.

*Hypothesis 3b:* Negotiation experience moderates the effect of the number of issues on relative joint outcomes such that it is mitigated when negotiators have experience.

**Number of agreement options per issue.** As a task-based moderator we investigate the impact of the number of agreement options per issue on the detrimental number-of-issues effect on relative joint outcomes. The number of agreement options per issue is the amount of potential solutions negotiators can choose from regarding a specific issue. For instance, in a negotiation about the exclusive ownership of an indivisible issue between two parties (e.g., a piano in a divorce negotiation) the number of agreement options per issue is two: either of the parties can get the issue (assuming that there are no other options like selling the issue and distributing the money between parties). The number of agreement options is explicitly discussed in theoretical and analytical research in terms of value functions for the issues under negotiation (e.g., Sebenius, 1983; Tripp & Sondak, 1992); it is also taken into consideration in the payoff charts of many negotiation tasks in experimental research (e.g., Bazerman et al., 1985; Beersma & De Dreu, 1999; Pruitt & Lewis, 1975). However, to the best of our knowledge, there is no empirical study in which the impact of the number of agreement options per issue on negotiations was systematically investigated. Despite being a neglected topic in the empirical negotiation literature, the number of agreement options per issue should contribute to the complexity of that issue (see Payne, 1976; Schroder et al., 1967) and thus it is a relevant factor for the present analysis. For instance, it is less complex (though not necessarily less difficult) to find a solution how to allocate the indivisible issue between the two parties in the example above than to negotiate an agreement for a divisible issue with multiple agreement options (e.g., the salary in a job negotiation) because there are considerably fewer agreement options in the former than in the latter negotiation. As illustrated by this example, the number of issues and the number of agreement options per issue differ substantially on a conceptual level: Whereas the former determines the number of decisions parties have to make in a negotiation (i.e., one decision for each issue), the latter represents the number of choice options for each decision. Despite being conceptually different, both the number of issues and the number of agreement options per issue should be

relevant facets of complexity in multi-issue negotiations (see Laubert & Geiger, 2018). As mental parsing in negotiations is a function of the complexity of the task (Trötschel et al., 2020; Warsitzka et al., 2020; Zhang et al., 2020), we expected the number of agreement options per issue to affect negotiators' mental parsing processes. Specifically, fewer agreement options per issue should enable negotiators to consider more issues simultaneously within the same mental accounts, resulting in higher integrative outcomes. Preliminary empirical support for the potentially beneficial effect of fewer agreement options on the quality of negotiation outcomes are provided by exploratory findings of Warsitzka et al. (2020; study 4). In the respective study, parties negotiating 9 issues with 5 agreement options each reached higher integrative outcomes than parties negotiating 9 issues with 9 agreement options each. Thus, we expected that fewer agreement options per issue will be associated with higher relative outcomes.

*Hypothesis 4a:* There is a linearly negative association between the number of agreement options per issue and relative joint outcomes.

Moreover, we expected that particularly the combination of the number of issues and the number of agreement options per issue would contribute to the overall complexity of the negotiation task, thus affecting integrative outcomes. Specifically, fewer agreement options per issue should prevent parties from getting lost in the “combinatorial explosion” (Read et al., 1999; p. 187) of numerous choice options across many negotiation issues, therefore mitigating the detrimental effect of a high number of issues. Thus, we predicted that fewer agreement options per issue will reduce the detrimental number-of-issues effect in integrative negotiations.

*Hypothesis 4b:* The number of agreement options per issue moderates the effect of the number of issues on relative joint outcomes such that fewer agreement options attenuate the effect.

**Number of negotiators per party.** As a situation-based moderator, we examine the influence of the number of negotiators per party on the effect of the number of issues on relative outcomes. More members in a negotiation team make it more likely that a competent negotiator is present who promotes integrative solutions (Hüffmeier et al., 2018; see also Morgan & Tindale, 2002; Thompson, Peterson, & Brodt, 1996). Accordingly, we expected that more negotiators per party will be associated with a higher integrative outcome quality.

*Hypothesis 5a:* There is a linearly positive association between the number of negotiators per party and relative joint outcomes.

Likewise, a higher number of negotiators per party raises the likelihood that a negotiator high on epistemic motivation or experience is present. We hence argue that more negotiators per party increase the chances that epistemic motivation and/or experience can unfold their predicted positive effects on complex multi-issue negotiations (see Hypotheses 2b and 3b). Interestingly, previous research has found a positive effect of more negotiators per party particularly in complex negotiations with 8 issues (Morgan & Tindale, 2002; Thompson et al., 1996) but not in negotiations low on complexity with only 4 (Gelfand et al., 2013) or 5 issues (O'Connor, 1997; Polzer, 1996). This suggests that more negotiators per party are particularly helpful in negotiations with high numbers of issues (Gelfand et al., 2013), lending indirect empirical support for our reasoning. Thus, we predicted that more negotiators per party will mitigate the detrimental number-of-issues effect on integrative negotiations.

*Hypothesis 5b:* The number of negotiators per party moderates the effect of the number of issues on relative joint outcomes such that more negotiators per party attenuate the effect.

### ***Present Research: Contributions and Overview***

By examining the generalizability of the detrimental effect of increasing the number of issues on relative joint outcomes and potential boundary conditions we intend to contribute to negotiation research in different ways: First, we complement previous work (Warsitzka et al., 2020). Specifically, we analyze if the conclusion that more issues diminish integrative outcome quality in relative terms applies to various other issue-constellations than the one investigated in the respective set of studies or has to be refined. Thereby, we intend to finalize the reconciliation of the two opposing positions in the negotiation literature regarding that effect (more-is-better position; Fisher & Ury, 1981; Lax & Sebenius, 1986; Pruitt, 1981; Raiffa, 1982; Thompson, 1998; fewer-is-better position; Albin & Young, 2012; Rubin & Brown, 1975; Watkins, 2003; Winham, 1977). Second, we test if the detrimental effect of a higher number of issues generalizes not only to other issue-constellations but also to other negotiation scenarios than the one used by Warsitzka and colleagues (2020). Third, we integrate and extend previous theory and research by investigating if losses in relative outcome quality can be reduced depending on specific characteristics of the negotiators, the negotiation issues, or the situation. Fourth, our results will allow us to draw conclusions about negotiators' mental-accounting processes when varying numbers of issues are under

discussion. Overall, we intend to contribute to a more comprehensive understanding of the effects of expanding the pie by increasing the number of issues on integrative negotiations.

From an applied, perspective, we aim at providing negotiation practitioners with empirically grounded information on how expanding the pie by adding issues to the negotiation affects their economic outcomes for a variety of numbers of issues. Furthermore, we intend to give recommendations on how losses in relative outcome quality could potentially be reduced.

The meta-analytical approach employed in this research differs from “classical” meta-analyses because available data on the impact of varying numbers of issues on the quality of economic outcomes in negotiations is insufficient to conduct a meta-analysis based on standardized effect-sizes. Specifically, there are only six studies in which the effects of differing numbers of issues on integrative outcome quality are investigated within interactive negotiations (i.e., Geiger & Hüffmeier, in press; Naquin, 2003; Wall, 1984; Warsitzka et al., 2020). Of these six studies, three stem from the same article (i.e., Warsitzka et al., 2020). Hence, a classical meta-analysis could only be based on six standardized effect-sizes. Furthermore, methodological issues limit the validity of an overall effect-size based on these studies (see Warsitzka et al., 2020). However, the number of issues varies between structurally different negotiation tasks used in various studies on integrative negotiations. Moreover, many of these studies report joint economic negotiation outcomes. Thus, the present research used empirical data from approximately 50 years of negotiation research as a rich fund for analysis. Specifically, we created a dataset based on specific combinations of a number of issues and a mean of relative joint outcomes (calculated from reported data) stemming from available primary studies (for a similar approach see Guido, Robbett, & Romaniuc, 2019; Thompson & Hrebec, 1996). Accordingly, we analyzed the effect of varying numbers of issues on relative joint outcomes across various negotiation tasks (e.g., joint venture negotiations; Beersma & De Dreu, 2003; job negotiations; Neale, 1997; various buyer-seller negotiations; e.g., Nadler et al., 2004) and diverse samples (e.g., undergraduates, MBA students, practitioners). The exact calculation of relative joint negotiation outcomes, the consequences of this approach for the data structure, and the statistical analyses will be outlined in the method-section.

### **Method**

The present meta-analytic review follows the Meta-Analysis Reporting Standards (MARS) of the American Psychological Association insofar as they are applicable (APA, 2010; see also Cooper, 2010).

### **Literature Search**

Multiple search strategies were employed between January and May 2019. First, a systematic literature search was conducted using three online database providers (EBSCO, ISI Web of Science, ProQuest). In EBSCO, we searched the databases PsycINFO, PsyARTICLES, PSYINDEX, Business Source Complete, and ERIC using the following exact search terms: (integrative OR win-win OR multi-issue) AND (negotiat\* OR bargain\*) NOT electronic NOT software NOT agent NOT algorithm. For ISI Web of Science, we used the exact search terms (integrative OR win-win OR multi-issue) AND (negotiat\* OR bargain\*) NOT electronic NOT software NOT agent NOT algorithm in the search categories Business, Management, Psychology, Psychology- (Social, Applied, Multidisciplinary, Experimental). In ProQuest, we searched for “integrative negotiation” OR “win-win negotiation” OR “multi-issue negotiation” OR “integrative bargain” OR “win-win bargain” OR “multi-issue bargain” NOT electronic NOT software NOT agent NOT algorithm. Additionally, we searched the first 980 results in Google Scholar using the following search terms: “integrative negotiation” OR “win-win negotiation” OR “integrative bargain” OR “win-win bargain”. Second, we conducted a “backward search” of the reference lists of retrieved studies. Third, we conducted a “forward search” via ISI Web of Science with six articles central in integrative negotiation research (Bazerman et al., 1985; Froman & Cohen, 1970; Pruitt & Lewis, 1975; Thompson & Hastie, 1990; Thompson, 1991; Weingart et al., 1993). Fourth, we requested unpublished studies via the mailing lists of the Conflict Management Division of the Academy of Management, the International Association of Conflict Management, and the German Psychological Society. Finally, the literature search was complemented by unsystematic searches and screening of reference lists from included studies.

### **Operationalization of Main Variables**

The main focus of the present research is on the relation between the number of issues and relative joint outcomes in integrative negotiations. The operationalization of the number of issues is straightforward: We simply counted the number of issues within the respective negotiation task (e.g., 3 in the seminal paradigm by Pruitt and Lewis, 1975). For the quality



of joint economic outcomes in negotiations, there are two predominant measures in the negotiation literature: Joint profits (or utility) and the Pareto efficiency of agreements (Clyman, 1995; Tripp & Sondak, 1992). The range of achievable joint profits differs substantially between different negotiation paradigms (see Warsitzka et al., 2020), thus absolute joint profits cannot be directly compared across studies using different paradigms. Therefore, empirical joint profits do not represent an adequate measure of outcome quality in the present analysis. By contrast, the Pareto efficiency of agreements is a standardized measure allowing for comparisons of outcome quality across studies (Clyman, 1995; Tripp & Sondak, 1992; Warsitzka et al., 2020) Thus, it represents an adequate measure of relative economic outcomes in negotiations (see also *Theory* section). Unfortunately, most of the studies analyzed in the present work did not report data on the Pareto efficiency of agreements but only on joint profits. Moreover, information relevant to calculate the Pareto efficiency of agreements for the included studies were not available for all studies. Therefore, to include as many studies as possible and in line with prior research (Morgan, & Tindale, 2002), we opted for a different operationalization of relative negotiation outcomes: We calculated the percentage of maximum joint profits negotiators achieved (relative joint profits = mean joint profits/maximum joint profits  $\times$  100) to make joint profits comparable across paradigms and studies. Furthermore, we applied the same calculation to studies that only reported data on the Pareto efficiency of agreements to translate all measures of joint economic outcomes into the same *currency* (see Thompson & Hrebec, 1996). This procedure was necessary because despite being a standardized measure the Pareto efficiency of agreements was reported using different scales in some studies (e.g., 0–1000; Galinsky, Maddux, Gilin, & White, 2005; 0–1; Gelfand et al., 2013).

### **Screening**

Titles and abstracts of 3,364 articles were screened for relevance to the present work by the first author. 2,645 articles were excluded during the screening process resulting in 720 full-text articles, which were assessed for eligibility according to the exclusion criteria outlined in the following paragraph. 548 of these articles were excluded during the eligibility assessment, resulting in a final database of 172 articles including 22,914 negotiations (see flow chart in Figure 1 for details).

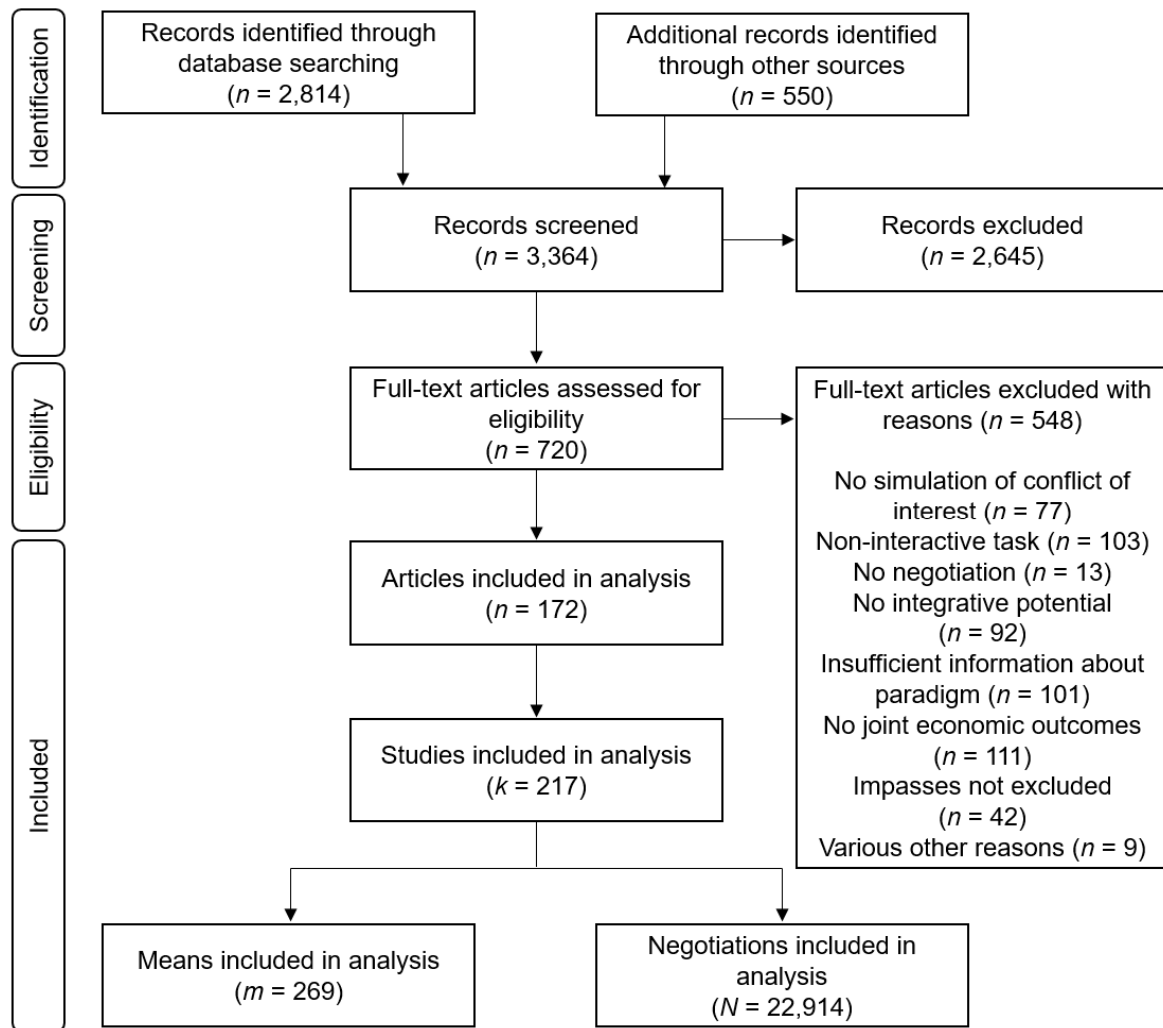


Figure 1. Flow chart of the literature search and coding.

### Inclusion and Exclusion Criteria

Studies were only included into the present research if they met the following criteria: 1.) They involved a simulation of a conflict of interest. Survey studies (e.g., Curhan, Elfenbein, & Kilduff, 2009), qualitative studies (e.g., Liht, Suedfeld, & Krawczyk, 2005), or case and field studies (e.g., Baarveld, Smit, & Dewulf, 2015) were not included. 2.) They involved interaction between at least two real participants. Studies were excluded if the negotiation counterpart was simulated (e.g., Van der Schalk et al., 2010) or a confederate of the experimenter (e.g., Trotman, Wright, & Wright, 2005). 3.) The simulated task met the criteria defining a negotiation as described in Gelfand, Fulmer, and Severance (2011). Specifically, we excluded bargaining-game studies in which participants interacted in the context of a conflict of interest but communication was not possible (e.g., Brown, 1968). 4.) Negotiation tasks contained integrative potential. Purely distributive negotiations were not included (e.g., Trötschel, Bündgens, Hüffmeier, & Loschelder, 2013). 5.) Minimum information about

negotiators' payoffs were reported or could be obtained (i.e., number of issues, maximum joint outcomes). If not reported, we contacted the first author of a paper via e-mail to ask for the respective information and sent a reminder in case of no reply after a couple of weeks. Studies were only excluded if authors indicated that information about payoffs were not available or if they did not respond at all. 6.) Means of joint outcomes (i.e., joint profits/utility, Pareto efficiency) a.) were reported, b.) could be calculated on the basis of other information reported in the paper (e.g., by summing the means of individual outcomes in a within-dyads design; see Kray, Galinsky, & Markman, 2009), or c.) could be obtained from first authors (the same procedure was applied as for obtaining missing information about payoffs). 7.) Reported results did not include impasses (i.e., no impasses occurred, or impasses were excluded)<sup>18</sup>. Additionally, we excluded nine articles for various reasons (e.g., the exact same data was reported in a conference paper and in a journal article).

### **Structuring of Data and Analytic Strategy**

The analytical approach employed in this research differs from classical meta-analyses not only regarding the use of standardized effect-sizes (see section *Present Research*) but also concerning the data structure and the statistical analyses. Therefore, in the following, the structuring of data and the analytic strategy will be outlined.

**Structuring of data.** Available data on the impact of varying numbers of issues on the quality of economic outcomes in negotiations is insufficient to investigate the research questions of the present work based on standardized effect-sizes. However, the number of issues varies across studies depending on the specific negotiation task used for investigation. Thus, we created a dataset containing specific combinations of numbers of issues and means of relative joint outcomes stemming from available primary studies as a basis for analysis (see Guido et al., 2019; Thompson & Hrebec, 1996).

Not only the number of negotiation issues varied across studies in past research, moderators relevant for this analysis were also studied in a diverse manner. They differ partially between studies (e.g., in the study by Croson, 1999, all participants had received a negotiation training, thus had experience) and partially between conditions within single studies (e.g., in the study by De Dreu, Koole et al., 2000, epistemic motivation was

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<sup>18</sup> Although we generally acknowledge the relevance of impasses in negotiation research (see Tripp & Sondak, 1992), we only included studies without impasses in the current analysis for two reasons: First, the focus of this analysis is the quality of joint outcomes (i.e., the degree to which negotiators were able to integrate their interests) but not if negotiators were able to reach agreement at all. Second, assigning impasses a value of 0 or an artificially corrected value would have substantially biased the measure of relative outcome quality employed in this research (see above).

manipulated as an independent variable). Accordingly, the unit of analysis in the present meta-analytic review also varies between studies. Specifically, the unit of analysis is the overall sample of a single study if the number of issues was constant within that study (i.e., the same negotiation paradigm was used in all conditions, or negotiation paradigms differed only in content but not in structure; e.g., Steinel, Abele, & De Dreu, 2007), and no moderators varied between conditions. However, the unit of analysis are the subsamples of single conditions within a study if either the number of issues (e.g., Geiger & Hüffmeier, in press; Warsitzka et al., 2020) or (one of the) moderators systematically varied between conditions within that study. For instance, in the study by Polzer (1996) team size (i.e., the number of negotiators per party) was crossed with experience. Thus, in that particular study, we coded the number of issues and joint economic outcomes separately for the subsamples in the four conditions (teams/high experience, teams/low experience, solos/high experience, solos/low experience). To sum up, the unit of analysis is the largest (sub-) sample of a study for which neither the independent variable nor the moderators varied.

**Analytic strategy.** The current research used a mixed-effects multilevel model to perform all analyses. By employing a multilevel model potential dependencies among effects from the same articles and the nested structure of the data can be adequately addressed (Raudenbush & Bryk, 2002; Snijders & Bosker, 2012). The individual empirical contribution (i.e., the singular article) was included as level 2-variable into the multilevel model whereas all other variables were included as level 1-variables. We tested Hypotheses 1–5 in several analytic steps (see Aguinis, Gottfredson, & Culpepper, 2013). First, we estimated a null model represented by the following equation:

$$\text{Model 1: } Y_{ij} = \gamma_0 + u_{0j} + r_{ij} \quad (1)$$

In equation 1, relative joint outcomes  $Y$  of a specific unit of analysis  $i$  (i.e., study or condition; see former paragraph) in a specific paper  $j$  are a function of a.) the grand mean of relative outcomes (i.e.,  $\gamma_0$ ), b.) across-paper differences in means of relative outcomes (i.e.,  $u_{0j}$ ), and c.) within-paper differences in means of relative outcome quality (i.e.,  $r_{ij}$ ). We then computed the intraclass correlation coefficient (ICC) to demonstrate that the nested data structure requires multilevel modeling.

In a second step, we estimated a mixed effects model including the number of issues<sup>19</sup>:

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<sup>19</sup> For all subsequent analyses, we centered the number of issues at its median. However, to keep equations as simple as possible, we refrained from denoting this in all equations. Thus, in equations 2-5,  $X_{ij}$  equals  $(X_{ij} - Mdn)$ .

$$\text{Model 2: } Y_{ij} = \gamma_0 + u_{0j} + \gamma_1 X_{ij} + r_{ij} \quad (2)$$

In equation 2, we added  $\gamma_1 X_{ij}$  to equation 1 representing the change in units of relative economic outcomes if the number of issues changed by one. We then assessed if model 2 exhibited a significantly improved model fit compared to model 1 to test the overall effect of the number of issues on relative outcome quality.

Subsequently, we analyzed the shape of the relation between the number of issues and relative economic outcomes more in detail to test Hypothesis 1. Specifically, we assessed if it is continuously linear with a negative slope or if it is segmented with a slope of 0 in the range of a small to moderate number of issues and a negative slope after a breaking point is reached. Accordingly, we added a term to equation 2 leading to:

$$\text{Model 3: } Y_{ij} = \gamma_0 + u_{0j} + \gamma_1 X_{ij} + \gamma_2 (X_{ij} - X^{(k)}) X_k + r_{ij} \quad (3)$$

In equation 3,  $X^{(k)}$  represents the breaking point and  $X_k$  is a dummy variable assuming a value of 0 if  $X_{ij} \leq X^{(k)}$  and 1 if  $X_{ij} > X^{(k)}$ . Thus, for all cases in which the number of issues is  $\leq X^{(k)}$ , the term  $\gamma_2 (X_{ij} - X^{(k)}) X_k$  equals 0 and the model is equivalent to model 2. However, for all cases in which the number of issues is  $> X^{(k)}$ ,  $(X_{ij} - X^{(k)}) X_k$  assumes a positive value extending model 2. We then compared the fit of model 3 with breaking points at 4, 5, 6, and 7 issues to the fit of model 2 to test Hypothesis 1 and to identify the location of the breaking point if it exists.

Lastly, we analyzed the impact of the remaining moderator variables separately for each moderator according to Hypotheses 2–5. For each moderator, we tested their main effect independent of the number of issues (Hypotheses 2–5a) and the moderation (Hypotheses 2–5b) in two separate steps. The procedure for testing the main effects paralleled the one employed to test the overall effect of the number of issues (see above). To test for moderation, we first estimated a model including the main effects of the number of issues and the respective moderator only:

$$\text{Model 4: } Y_{ij} = \gamma_0 + u_{0j} + \gamma_1 X_{ij} + \gamma_2 W_{ij} + r_{ij} \quad (4)$$

In equation 4, we added  $\gamma_2 W_{ij}$  to equation 2 representing the main effect of moderator  $W$  on relative economic outcomes. We then estimated a model including the main effect of the number of issues, the respective moderator and an interaction term (i.e.,  $\gamma_3 X W_{ij}$ ):

$$\text{Model 5: } Y_{ij} = \gamma_0 + u_{0j} + \gamma_1 X_{ij} + \gamma_2 W_{ij} + \gamma_3 X W_{ij} + r_{ij} \quad (5)$$

After that, for each moderator we tested if a.) including the main effect of the respective moderator significantly improved the model fit (model 2 vs. model 4)<sup>20</sup> and b.) if including the interaction term improved the model fit beyond the main-effects model (model 4 vs. model 5) as a hypothesis test.

For all analyses, we used a weighted least squares approach with weights equal to (sub-) sample sizes to account for different sizes of datasets<sup>21</sup>. Data analyses were conducted using the `lmerTest` package of the open source statistical software R (version 3.5.1).

### Coding of Moderators

Several potential moderators of the effect of the number of issues on relative joint outcomes in integrative negotiations were coded.

**Epistemic motivation.** In line with previous research (De Dreu, 2003; De Dreu et al., 2006; De Dreu, Koole et al., 2000; De Dreu, Nijstad, & van Knippenberg, 2008), epistemic motivation was coded as 1 if participants in a condition or study a.) were process accountable<sup>22</sup>, b.) experienced low time pressure, or c.) had a low need for cognitive closure (Kruglanski, & Webster, 1996). Additionally, studies were also coded as 1 if participants were assigned a learning goal (but not a performance goal) focusing explicitly on improving own bargaining skills during the negotiation process (e.g., Bereby-Meyer, Moran, & Unger-Aviram, 2004). By contrast, studies were coded as 0 if participants a.) were not process accountable, b.) experienced high time pressure, c.) had a high need for cognitive closure, and d.) were not assigned a learning goal.

**Negotiation experience.** In accordance with previous research (Mazei et al., 2014), experience was coded as 1 if participants in a condition or study a.) received a negotiation training or took part in a negotiation course prior to the experiment, b.) negotiated a market simulation (Bazerman et al., 1985), or c.) negotiated the second or third of consecutive integrative negotiation tasks (e.g., Hüffmeier et al., 2018). Experience was coded as 0 if none of this was the case.

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<sup>20</sup> As outlined in the theory part, one major focus of the present work is how the detrimental effect of the number of issues can be attenuated. Thus, we included only a linear model into the moderation analyses. In case that the segmented model will have a better model fit than the continuously linear model (Hypothesis 1b), the focus of analysis will be on the negative part of the regression slope instead of the whole curve.

<sup>21</sup> In some articles, subsample sizes for different conditions were not reported (e.g., Ben-Yoav & Pruitt, 1984). In these cases, we requested them from first authors via mail. If subsample sizes were not available or authors did not respond, we assumed equal distribution of participants across conditions.

<sup>22</sup> This includes all studies in which epistemic motivation was manipulated.

**Number of agreement options per issue.** The number of agreement options per issue was calculated by dividing the total number of agreement options within a negotiation task by the number of issues. This computation was necessary since the number of agreement options differed across issues in some tasks (e.g., De Dreu, Giacomantonio, Shalvi, & Sligte, 2009).

**Number of negotiators per party.** We calculated the average number of negotiators per party across negotiations as the total number of individuals per negotiation divided by the number of parties instead of counting it because the number of negotiators per party varied across negotiations in some studies (e.g., Yang, Tang, Qu, Wang, & Denson, 2018).

## **Results**

### **Adequacy of Multilevel Modeling**

As a first step in the analysis, we calculated a null model and computed the intraclass correlation coefficient (ICC) for that model to assess if the data structure requires a multilevel modeling approach. Results indicate that  $ICC = .751$ , meaning that differences across articles account for as much as 75.10% of the total variability in relative economic outcome quality<sup>23</sup>. These results provide strong evidence for a nested data structure clearly requiring multilevel modeling.

### **The Effect of the Number of Issues on Relative Outcomes**

As a second step, we tested the relation between the number of issues and relative joint outcomes (see Figure 2). Specifically, we investigated if it is continuously linear or segmented with one breaking point (Hypotheses 1). As shown in Table 1, based on full information maximum likelihood (FIML), the mixed effects model including the linear effect of the number of issues fits the data better than the null model including only random intercepts (i.e.,  $\Delta$  deviance of  $1,835.90 - 1,828.50 = 7.40$ ;  $p = .007$ ). Also, the coefficient of regressing relative joint outcomes on the number of issues was significantly different from zero with  $\gamma_1 = -0.63$ ,  $t(231.68) = -2.74$ ,  $p = .007$ , indicating that across the whole dataset increasing the number of issues by one was associated with a decrease of relative economic outcomes by 0.63 %. Additionally, explained variance increased from 8.10% (null model) to

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<sup>23</sup> This value seems very large given that the ICC usually ranges from .05 to .30 in psychology and related fields (for an overview see Aguinis et al., 2013). However, it has to be noted that ICCs included in this range stem from separate studies in which various higher order variables explain part of the variation in the data. This is fundamentally different in the present work because the ICC is based on aggregated data from 172 different articles investigating various research questions and manipulating diverse independent variables. Thus, it is plausible that articles datasets stem from explain a substantial amount of the variability in relative outcomes because they comprise different research questions, (independent) variables, and methods.

8.65% (mixed effects model) as indicated by pseudo  $R^2$ . Thus, there was an overall negative association between the number of issues and relative joint outcomes.

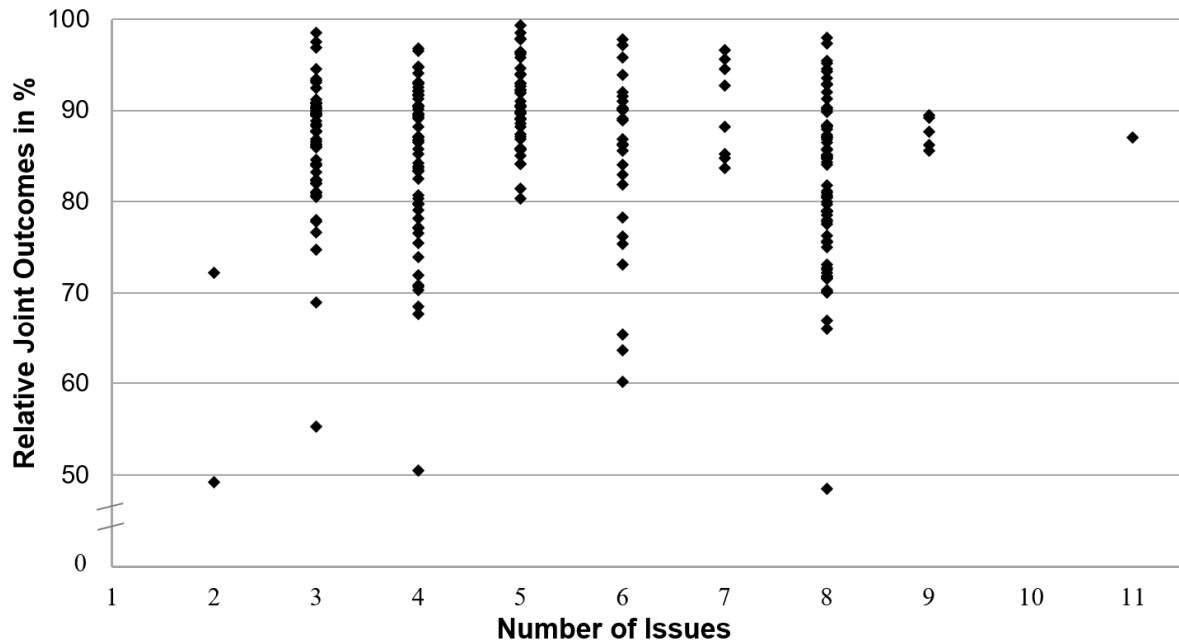


Figure 2. Empirical relation between the number of issues and relative joint outcomes. Analyses based on 217 studies ( $k = 217$ ), including 269 means ( $m = 269$ ), and 22,014 negotiations ( $N = 22,914$ ). Number of issues uncentered for ease of interpretation.

Subsequently, we analyzed if the segmented model including one breaking point significantly improved the model fit compared to the continuously linear model. In line with Hypothesis 1b, results indicated a significant improvement in model fit for the model with the breaking point at 5 issues (i.e.,  $\Delta$  deviance of  $1,828.50 - 1,823.00 = 5.50$ ;  $p = .018$ ) but neither for the models with the breaking point at 4, 6, or 7 issues (see Table 1). Furthermore, analyses of the regression coefficients demonstrated that the association between the number of issues and relative negotiation outcomes was significantly negative after the breaking point with  $\gamma_2 = -2.33$ ,  $t(248.38) = -2.38$ ,  $p = .018$ , but there was no significant association between both variables before the breaking point as indicated by  $\gamma_1 = 0.94$ ,  $t(261.63) = 1.34$ ,  $p = .181$ . Thus, the number of issues and relative outcome quality were unrelated before the breaking point. However, increasing the number of issues by one was associated with a decrease in relative outcomes by 2.33% after the breaking point of 5 issues.



Table 1

*Results of Multilevel Modeling Analysis of the Effect of the Number of Issues on Relative Joint Outcomes*

Model	Parameter				
	ICC	-2log likelihood (FIML)	Pseudo $R^2$	Intercept	Slope
Null Model	0.751	1,835.90	0.0810	85.33*** (0.65)	
Random Intercept and Fixed Slope Models					
Linear		1,828.50**	0.0865	85.36*** (0.64)	-0.63** (0.23)
Segmented 1 (breaking point at 4 issues)		1,826.20	0.0888	88.65*** (2.41)	
Before breaking point					1.28 (1.28)
After breaking point					-2.20 (1.44)
Segmented 2 (breaking point at 5 issues)		1,823.00*	0.0865	87.21*** (1.00)	
Before breaking point					0.94 (0.70)
After breaking point					-2.33* (0.98)
Segmented 3 (breaking point at 6 issues)		1,826.30	0.0866	86.07*** (0.90)	
Before breaking point					0.04 (0.51)
After breaking point					-1.53 (1.02)
Segmented 4 (breaking point at 7 issues)		1,826.80	0.0866	85.69** (0.78)	
Before breaking point					-0.19 (0.41)
After breaking point					-1.82 (1.40)

*Note.* FIML = full information maximum likelihood estimation. Level 1 sample size  $m = 269$  and level 2 sample size  $n = 172$ . Values in parentheses are standard errors. The focus of analysis was only on lower-level direct effects while controlling for the hierarchical data structure. Thus, no cross-level direct effects are displayed.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

In sum, these results suggest that the relation between the number of issues and relative joint outcomes is segmented into two parts with a breaking point at 5 issues: Within the range of a low to moderate number of at most 5 issues, varying numbers of issues did not affect relative economic outcomes. By contrast, from 5 issues onwards, more issues were associated with a significant decrease in relative outcomes, lending empirical support for Hypothesis 1b.

### **Moderator Analyses**

As a third step, we analyzed the moderator variables to test Hypotheses 2–5. Analyses of the main effects of the moderator variables independent of the number of issues (Hypotheses 2–5a) were based on the whole dataset. For the moderation analyses (Hypotheses 2–5b), however, we were particularly interested in factors that potentially mitigate the detrimental number-of-issues effect. Thus, we included only cases in which at least 5 issues were under discussion. This resulted in a dataset of 154 means ( $m = 154$ ). Specifically, we analyzed the effects of person-based characteristics (i.e., epistemic motivation, negotiators' experience), task-based (i.e., the number of agreement options per issue), and situation-based (i.e., number of negotiators per party) moderators. We conclude with additional exploratory analyses.

**Epistemic motivation.** First, we tested the main effect of epistemic motivation independent of the number of issues. Contrary to expectations and previous research (e.g., De Dreu et al., 2006; De Dreu, Koole et al., 2000), the model fit did not improve significantly compared to the null model (i.e.,  $\Delta$  deviance of  $1,035.90 - 1,035.70 = 0.20$ ;  $p = .674$ ). Hence, epistemic motivation exerted no positive impact on relative joint outcomes and thus Hypothesis 2a was rejected.

After that, we conducted moderation analyses. Therefore, we first tested the fit of the model including both the main effect of the number of issues and epistemic motivation against the model including only the main effect of the number of issues. Paralleling results regarding the main effect of epistemic motivation independent of the number of issues, there was no significant improvement in model fit (i.e.,  $\Delta$  deviance of  $1,033.50 - 1,032.00 = 1.50$ ;  $p = .221$ ). Adding the interaction effect did also not improve the model significantly (i.e.,  $\Delta$  deviance of  $1,032.00 - 1,031.90 = 0.10$ ;  $p = .769$ ). Thus, epistemic motivation did not reduce the detrimental number-of-issues effect on relative joint outcomes and thus Hypothesis 2b was not supported. However, these findings are not surprising given that there are only thirteen cases with high epistemic motivation in the whole dataset ( $m = 269$ ) and five cases with high epistemic motivation in the reduced dataset ( $m = 154$ ). Therefore, as will be

elaborated in the discussion, we suspect this to be rather a result of insufficient statistical power instead of a non-existence of the effects themselves.

**Experience.** Comparing the fit of two multilevel models requires datasets of the same size. However, for one case we could not clearly determine the level of experience for the negotiation dyads because novice negotiators were paired with experienced negotiators (Berger, Kern, & Thompson, 2003). Thus, before conducting the actual analyses, we excluded that case and reiterated steps 1 and 2 to demonstrate that the number-of-issues effect persists if cases of missing data are excluded. Results for these models remained virtually the same and are therefore not discussed in detail.

Testing the main effect of experience only, we obtained a significant improvement in model fit (i.e.,  $\Delta$  deviance of  $1,029.30 - 1,025.30 = 4.00$ ;  $p = .047$ ). The regression coefficient of experience was significantly different from zero with  $\gamma_1 = 2.42$ ,  $t(122.07) = 1.99$ ,  $p = .047$ , indicating that if negotiators had experience, relative joint outcomes increased by 2.42%. Explained variance indicated by pseudo  $R^2$  decreased from 8.10% to 8.08%<sup>24</sup>. Thus, Hypothesis 3a was supported. These results are in line with previous research (e.g., Thompson, 1990a, b) and confirm that negotiation experience leads to better joint outcomes in integrative negotiations.

As a first part of the moderation analysis, we tested if adding the main effect of experience improved the model fit compared to the model including only the main effect of the number of issues. In line with results on the sole main effect of experience, a significant improvement in model fit was indicated (i.e.,  $\Delta$  deviance of  $1,027.00 - 1,022.10 = 4.90$ ;  $p = .027$ ). The regression coefficient of experience was significantly different from zero with  $\gamma_2 = 3.62$ ,  $t(147.75) = 2.26$ ,  $p = .026$ , indicating that if negotiators had experience and the number of issues was controlled for, relative joint outcomes increased by 3.62%. The coefficient of regressing relative outcome quality on the number of issues of  $\gamma_1 = -1.78$  was also significantly different from zero,  $t(134.62) = -4.15$ ,  $p < .001$ , indicating that one additional issue was associated with a decrease in relative outcome quality of 1.78% if experience was controlled for. The amount of variance explained by the two models indicated by pseudo  $R^2$  decreased slightly from 9.70% to 9.37% if the main effect of experience was included into the model. Subsequently, we tested if adding the interaction effect significantly improved the model fit. Results suggested that this was not the case (i.e.,  $\Delta$  deviance of  $1,022.10 - 1,021.00 = 1.10$ ;  $p = .296$ ). Thus, the detrimental number-of-issues effect was not affected by

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<sup>24</sup> Although this seems counterintuitive, pseudo  $R^2$  can in some cases become smaller when predictors are added to the model due to the way it is calculated. For a more detailed description see Aguinis et al. (2013).

negotiators' experience and hence Hypothesis 3b was not confirmed. Overall, these results demonstrate that the effect of the number of issues is not influenced by negotiators' experience.

**Number of agreement options per issue.** As for experience, in thirteen cases we could not determine an average number of agreement options per issue for the respective negotiation task, for instance, because only the number of issues but not the number of agreement options were reported (e.g., Overbeck, Neale, & Govan, 2010), resulting in missing data. Thus, we excluded these cases and reiterated steps 1 and 2 before conducting all subsequent analyses. Results did not change significantly and are thus not further discussed.

As outlined in the method section, we first tested the main effect of the number of agreement options per issue<sup>25</sup>. Results indicated no significant improvement in model fit (i.e.,  $\Delta$  deviance of  $1,751.90 - 1,751.40 = 0.50$ ;  $p = .495$ ). Thus, the number of agreement options per se did not affect relative joint outcomes and Hypothesis 4a received no empirical support.

Then we conducted moderation analyses. Therefore, we first tested if adding the main effect of the number of agreement options per issue significantly improved the model fit compared to the mixed effects model including only the main effect of the number of issues. Interestingly, results indicated that the improvement in model fit was significant (i.e.,  $\Delta$  deviance of  $1,001.63 - 996.85 = 4.78$ ;  $p = .029$ ). Inspecting this main-effects model more closely, we found that the coefficient of regressing relative outcomes on the number of agreement options per issue was significant with  $\gamma_2 = -1.08$ ,  $t(125.85) = -2.21$ ,  $p = .029$ , indicating that one additional number of agreement options per issue was associated with a decrease in relative outcomes of 1.08% when controlling for the number of issues. The regression coefficient for the main effect of the number of issues of  $\gamma_1 = -1.95$  remained significant,  $t(137.32) = -4.34$ ,  $p < .001$ , indicating that increasing the number of issues by one was associated with a decrease in relative joint outcomes by 1.95% if the influence of the number of agreement options per issue was controlled for. Additionally, the change in pseudo  $R^2$  demonstrated that including the main effect of the number of agreement options per issue increased the explained variance slightly from 9.75% to 10.50%. Subsequently, we tested if including the interaction effect of the number of issues and the number of agreement options per issue significantly improved the model fit compared to the model including only the two main effects. Results clearly indicated that this was not the case (i.e.,  $\Delta$  deviance of  $996.85 -$

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<sup>25</sup> As for the number of issues, we centered the average number of agreement options per issue at its median.

996.33 = 0.52;  $p = .474$ ). Therefore, the number of agreement options per issue had no impact on the effect of the number of issues on relative joint outcomes and thus Hypothesis 4b was not supported. Overall, these findings show that the number of issues affects relative joint outcomes independently of the number of agreement options per issue. However, the effect of the number of agreement options per issues depends on the effect of the number of issues: It can only be observed when controlling for the number of issues.

**Number of negotiators per party.** Results regarding the main effect of the number of negotiators per party independent of the effect of the number of issues indicated a significant improvement in model fit (i.e.,  $\Delta$  deviance of 1,835.90–1,029.60 = 6.30;  $p = .012$ ). The coefficient of regressing relative outcomes on the number of negotiators per party of  $\gamma_1 = 2.16$  was significantly different from zero,  $t(73.44) = 2.54$ ,  $p = .012$ , indicating that an additional negotiator per party was associated with an increase in outcome quality of 2.16%. As indicated by pseudo  $R^2$ , the model including the main effect of the number of negotiators per party explained more of the total variance (8.62%) than the null model (8.10%). Confirming previous research (Hüffmeier et al., 2018; see also Morgan & Tindale, 2002; Thompson et al., 1996), these results show that more negotiators at the table are associated with better integrative outcomes. Thus, Hypothesis 5a received empirical support.

Again, for the moderation analyses, we first tested the significance of the improvement in model fit of the model including the main effect of the number of issues and the number of negotiators per party versus the model including only the effect of the number of issues. In accordance with the results regarding the sole effect of the number of negotiators per party, we obtained a significant improvement in model fit (i.e.,  $\Delta$  deviance of 1,033.50–1,027.40 = 6.10;  $p = .014$ ). Investigating this model in more detail, we found that the coefficient of regressing relative outcomes on the number of negotiators per party of  $\gamma_2 = 2.15$  was significantly different from zero,  $t(81.30) = 2.52$ ,  $p = .014$ , indicating that an additional negotiator per party was associated with an increase in outcome quality of 2.15% if the effect of the number of issues was controlled for. The regression coefficient for the number of issues was also significantly different from zero with  $\gamma_1 = -1.59$ ,  $t(130.41) = -3.85$ ,  $p < .001$ . As indicated by pseudo  $R^2$ , the main-effects model explained more of the total variance (11.03%) than the model including only the effect of the number of issues (9.68%). Subsequently, we assessed if including the interaction effect improved the model fit significantly. Results indicated no significant improvement (i.e.,  $\Delta$  deviance of 1,027.40–1,026.10 = 1.30;  $p = .245$ ). Thus, more negotiators at the table did not mitigate the detrimental effect of the number of issues on relative joint outcomes and consequently

Hypothesis 5b was rejected. These results demonstrate that the effect of the number of issues on outcomes is not affected by the number of negotiators per party.

### **Additional Analyses**

In addition to testing Hypotheses 1–5 we conducted exploratory analyses on the potential moderating effects of two methodological variables on the negative association between the number of issues and relative joint outcomes: the incentive scheme and time constraints.

**Incentive scheme.** In negotiation research, performance-based incentives are used to motivate participants to take the task seriously (Stuhlmacher, Gillespie, & Champagne, 1998). Suggesting that this strategy might be effective, empirical studies showed that performance-based incentives increase competitive behavior in distributive negotiations in comparison to fixed incentives (Kong, Bottom, & Konczak, 2016; Murnighan, Babcock, Thompson, & Pillutla, 1999). However, empirical results for integrative negotiation settings are unequivocal: In two studies, performance-based incentives were associated with higher joint outcomes (Daniels, 1967; Kong et al., 2016) whereas no such association was found in Murnighan et al. (1999). Interesting additional results relevant in this context stem from research on participants' behavior in survey and vignette studies: In his systematic review, Krosnick (1991) transferred the concept of *satisficing* (Simon, 1957) to participants' response behavior in survey studies. He concluded that task difficulty is one factor fostering satisficing (i.e., participants tend to give an acceptable answer instead of an optimal one). Applying this reasoning to vignette studies, Stolte (1994) demonstrated that satisficing versus maximizing also plays a vital role in experimental research. Based on this research, we argue that with an increasing number of issues research participants will show a stronger tendency to satisfice (i.e., attempt to reach an acceptable instead of an optimal agreement) if they receive a fixed or no payment because more issues increase the difficulty of the experimental task. By contrast, participants will maximize (i.e., attempt to reach an optimal instead of an acceptable outcome) regardless of the number of issues if they receive a performance-based payment. With respect to participants' behavior in studies on integrative negotiations, maximizing can have two consequences: First, maximizing can lead participants to invest more effort to identify optimal trade-off opportunities once they realize that the negotiation task contains integrative potential. If this was true, maximizing should reduce the detrimental number-of-issues effect in comparison to satisficing because satisficing should increase with more issues to be negotiated, whereas maximizing should not be affected by the number of negotiation issues (see Krosnick, 1991). However, because parties enter negotiations with fixed-pie

perceptions (e.g., Thompson & Hastie, 1990), maximizing might also lead to more competitive behavior in order to claim a large slice of the (supposedly) fixed negotiation pie (Lax & Sebenius, 1986). This should, in turn, not reduce the effect of the number of issues on relative joint outcomes. Due to the exploratory nature of this analysis and because previous research does not clearly support either position (Daniels, 1967; Kong et al., 2016; Murnighan et al., 1999), we refrained from deriving a directional hypothesis. A study was coded as 1 if participants received performance-based incentives (i.e., money or better grades) and 0 if this was not the case.

Analyses paralleled the ones for the other moderation tests. We first tested the model including both main effects against the model including only the main effect of the number of issues. Results indicated that the model including the main effect of the incentive scheme and the number of issues significantly improved the model fit (i.e.,  $\Delta$  deviance of 1,033.50–1,023.40 = 10.10;  $p = .002$ ). Then we tested the interaction effect. Results indicated no significant improvement in model fit (i.e.,  $\Delta$  deviance of 1,023.40–1,023.40 = 0.00;  $p = .997$ ). Thus, the incentive scheme did not alter the negative effect of a higher number of issues on relative joint outcomes. Additional analyses of the main-effects model showed that the regression coefficient of the incentive scheme differed significantly from zero with  $\gamma_2 = -5.20$ ,  $t(144.24) = -3.28$ ,  $p = .001$ , indicating that incentivizing participants based on their performance reduced relative joint outcomes by 5.20% when controlling for the number of issues. The main effect of the number of issues was also significant with  $\gamma_1 = -1.69$ ,  $t(127.45) = -4.14$ ,  $p < .001$ , indicating that increasing the number of issues by one was associated with a reduction of relative joint outcomes of 1.69% if the effect of the incentive scheme was controlled for. The main effects model explained 11.91% of the total variance as indicated by pseudo  $R^2$ . Overall, the incentive scheme did not influence the effect of the number of issues on relative outcomes.

**Time constraints.** Past research showed that imposing time constraints on negotiations reduces negotiators' judgment accuracy, systematic concession making, and problem solving, resulting in lower joint outcomes in integrative negotiations (Carnevale & Lawler, 1987; Harinck & De Dreu, 2004; Yukl, Malone, Hayslip, & Pamin, 1976). However, objective time constraints have to be distinguished from experienced time pressure since both impact negotiation behavior and outcomes in different ways: The former reduces negotiators' cognitive capacities whereas the latter diminishes their epistemic motivation (De Dreu, 2003). Thus, we separately analyzed objective time constraints in addition to epistemic motivation and experienced time pressure (see above) as manipulated in De Dreu (2003). We

tested if the time available for negotiation influences the effect of the number of issues on relative outcome quality. Based on results from past research summarized above, it is conceivable that time constraints might limit negotiators' opportunities to explore each other's interests particularly in complex negotiations involving many issues, thus exacerbating the detrimental effect of more negotiation issues. By contrast, low time constraints should mitigate that effect. However, due to the exploratory nature of the analysis, we refrained from deriving a corresponding hypothesis. To arrive at a comparable measure across studies we calculated available time per issue by dividing the total negotiation time in minutes by the number of issues.

As for the number of agreement options per issue and experience, we excluded 26 cases from the analysis because no time limit was set for the negotiations (e.g., Croson, 1999), negotiation time was limited by fixing the number of rounds (e.g., Trötschel, Hüffmeier, & Loschelder, 2010), or there was only a time limit for the whole market but not for the separate negotiations (e.g., Bazerman et al., 1985). Excluding these 26 cases did not change the results of the overall number-of-issues effect. We first tested the model including the two main effects of the number of issues and time per issue against the model including only the main effect of the number of issues. Results indicated no significant improvement in model fit (i.e.,  $\Delta$  deviance of  $840.18 - 839.07 = 1.11$ ;  $p = .292$ ). Accordingly, the main effect of the number of issues was significant with  $\gamma_1 = -1.74$ ,  $t(103.70) = -3.70$ ,  $p > .001$  but the main effect of time per issue with  $\gamma_2 = -0.30$ ,  $t(78.88) = -1.09$ ,  $p = .281$  was not. However, adding the interaction effect to the model did improve the model fit significantly (i.e.,  $\Delta$  deviance of  $839.07 - 830.16 = 8.91$ ;  $p = .003$ ). The model explained 12.06% of the total variance as indicated by Pseudo  $R^2$ . In this model, the regression coefficient of the interaction effect was significant with  $\gamma_3 = -0.64$ ,  $t(112.86) = -3.07$ ,  $p = .003$ . We conducted simple slopes analyses to break down this interaction effect. For this purpose, we tested the effect of the number of issues on relative outcomes separately for a subset of data including only cases below the mean of time per issue and a second subset of data including only cases equal to and above that mean. Analyses of cases in which time to negotiate was below the mean revealed that the effect of the number of issues on outcome quality was significant with  $\gamma_1 = -1.47$ ,  $t(76.74) = -3.35$ ,  $p = .001$ . Contrary to expectations, for cases in which time to negotiate per issue was above the mean the effect was also significant and even more pronounced with  $\gamma_2 = -3.46$ ,  $t(24.87) = -2.15$ ,  $p = .042$ . These results suggest that one additional issue was associated with a decrease in relative outcomes of 1.47% if time per issue was below its mean and a decrease in relative outcomes of 3.46% if time per issue was



above its mean in the dataset. We will deal with these counterintuitive results in the discussion.

### ***Discussion***

This meta-analytic review examined the effect of the number of issues on relative joint outcomes in integrative negotiations. Corroborating and extending previous research on this topic (Warsitzka et al., 2020), results reveal that the relation between the number of issues and relative joint outcomes in negotiations is segmented into two parts with one breaking point (Hypothesis 1b). Before the breaking point, increasing the number of issues does not affect relative joint outcomes. By contrast, after the breaking point is reached, the relation between the number of issues and relative joint outcomes becomes negative. Specifically, from 5-issue negotiations onwards, one additional issue is associated with a decrease in relative joint outcomes by 2.33%. Contrary to our predictions, none of the hypothesized moderators turned out to attenuate this detrimental number-of-issues effect on relative joint outcomes after the breaking point (Hypotheses 2–5b). We investigated the impact of person-based, task-based, and situation-based moderators, but we did not obtain clear meta-analytic evidence of moderation effects. This demonstrates how difficult it is for parties to manage the complexity of multi-issue negotiations efficiently (see Rubin & Brown, 1975). Even having experienced negotiators at the table, negotiating a set of issues with fewer agreement options, or sending teams with more members to a negotiation exerts no mitigating influence on the detrimental number-of-issues effect. However, in line with previous research, relative joint outcomes are generally higher when negotiators have experience (e.g., Thompson, 1990a, b) or negotiation parties are larger in size (e.g., Hüffmeier et al., 2018) irrespective of the number of issues (Hypotheses 3a & 5a). Furthermore, more agreement options per issue decrease negotiation outcomes but only if the number of issues is explicitly controlled for. Overall, our results do not support the idea that certain factors alter how negotiators cognitively process varying numbers of issues other than the number itself. However, these conclusions have to be limited insofar as methodological problems restrict the validity of the analysis of epistemic motivation as a moderator of the number-of-issues effect. In the following, we will discuss the role of epistemic motivation more in detail first and then focus on the other moderators. Finally, we will discuss the results of our exploratory moderation analyses.

### **The Robustness of the Number-of-Issues Effect**

One major goal of the present research was to examine contextual factors that potentially attenuate the detrimental number-of-issues effect on relative outcome quality in integrative negotiations. Therefore, we analyzed factors that we expected to influence negotiators' approach of mentally parsing different numbers of issues (Trötschel et al., 2020; Warsitzka et al., 2020; Zhang et al., 2020). However, we did not find empirical evidence for any moderation effect.

As a first person-based moderator, we investigated the impact of epistemic motivation on the detrimental number-of-issues effect. We reasoned that high epistemic motivation should lead negotiators to consider more issues within the same mental accounts, which should be particularly beneficial in complex multi-issue negotiations (see Van der Schalk et al., 2010). Thus, we predicted that high epistemic motivation should attenuate losses in relative outcome quality when the number of issues is increased. In contrast to this prediction, we did not find such an effect. However, given that there are only five cases with high (vs. 149 cases with low) epistemic motivation in the dataset we assume that these results rather reflect insufficient statistical power instead of a non-existence of a moderation effect. Visual inspections of the simple slopes of the relation between the number of issues and relative joint outcomes showed that the regression slope was substantially steeper for cases with low compared to high epistemic motivation, lending tentative descriptive support for our reasoning. Unfortunately, statistical simple slopes analyses to further explore this issue could not be conducted due to the small number of observations in the latter category. Furthermore, the fact that we also did not find high epistemic motivation per se to improve relative economic outcomes—contrasting results from previous research (e.g., De Dreu et al., 2006; De Dreu, Koole et al., 2000)—corroborates our argumentation that lacking statistical power could explain our results. Thus, we believe that more research is needed to elucidate the impact of epistemic motivation on negotiators' cognitive processing of varying numbers of issues and relative joint outcomes in integrative negotiations.

As a second person-based moderator, we examined negotiation experience. We argued that experienced negotiators should tend to assign more issues into the same mental accounts than inexperienced negotiators, particularly in complex negotiations involving many issues. Accordingly, we predicted that negotiation experience should attenuate the negative number-of-issues effect on relative negotiation outcomes. Results do not support these predictions. However, in line with prior research (e.g., Bazerman et al., 1985; Moran & Ritov, 2007; Thompson, 1990a, b; Thompson & DeHarpport, 1994), we obtained evidence

that having negotiation experience is associated with better relative joint outcomes independent of the number of issues under negotiation. These findings confirm that having negotiation experience is generally beneficial for integrative negotiation outcomes. By contrast, they also suggest that experience does not affect how negotiators cognitively process varying numbers of issues in integrative negotiations.

As a task-based moderator, we analyzed the number of agreement options per issue. We proposed that the number of issues in combination with the number of agreement options per issue would contribute to the overall complexity of the negotiation task (see Laubert & Geiger, 2018), thereby affecting negotiators' mental-parsing processes and finally relative negotiation outcomes. Contrary to this prediction, the number of agreement options per issue does not moderate the effect of the number of issues on relative joint outcomes. Also, there is no empirical evidence for an effect of the number of agreement options per issue on relative negotiation outcomes independent of the number of issues. Interestingly, however, more agreement options per issue are associated with lower relative negotiation outcomes when the effect of the number of issues is controlled for. This lends first empirical support to our argumentation that the number of agreement options per issue is a relevant factor in negotiations and thus opens intriguing avenues for future research. However, results suggest that the number of agreement options per issue does not influence the effect of the number of issues on relative joint outcomes in negotiations.

As a situation-based moderator, we investigated the number of negotiators per party. Building on our reasoning regarding epistemic motivation and experience, we predicted that more negotiators per party should mitigate the effect of the number of issues on relative joint outcomes, because more negotiators per team raise the likelihood that a negotiator with experience or high epistemic motivation is present at the table. However, as discussed above, results do not support our reasoning regarding the positive impact of experience on increasingly complex multi-issue negotiations (Hypothesis 3b). With respect to epistemic motivation, the lacking mitigating influence of the number of negotiators per party on the number-of-issues effect can be interpreted in two different ways: First, one can conclude that, similar to experience, epistemic motivation does not affect negotiators' mental-accounting processes when varying numbers of issues are under discussion, thus exerting no influence on the number-of-issues effect on relative negotiation outcomes. Unfortunately, as depicted above, we could not validly test the moderating effect of epistemic motivation in the present research. Second, it is also possible that although epistemic motivation mitigates the effect of the number of issues on joint outcomes via its impact on negotiators' mental-accounting

processes in one-on-one negotiations (as indicated by Van der Schalk et al., 2010), a single negotiator with high epistemic motivation at the table is not sufficient to affect the mental-accounting processes of an entire negotiation team. Besides the fact that results do not show a moderation effect of a higher number of negotiators per party, results confirm that more members in a negotiation team improve relative joint outcomes independent of the number of issues (e.g., Hüffmeier et al., 2018; Morgan & Tindale, 2002; Thompson et al., 1996).

Overall, these findings emphasize the robustness of the number-of-issues effect in integrative negotiations: It can neither be attenuated by negotiators' experience, the number of agreement options per issue, nor the number of negotiators per party.

### **Exploratory Findings**

For exploratory purposes, we analyzed the potentially moderating effects of incentive schemes and time constraints. Regarding the former, we argued on the basis of research on vignette and survey studies (Krosnick, 1991; Stolte, 1994) that the raised task difficulty of a negotiation with many issues should lead participants to satisfice if they get a fixed or no incentive. By contrast, performance-based incentive schemes should motivate research participants to maximize regardless of the number of issues under discussion. Maximizing should, in turn, either correspond to more distributive or more integrative behavior irrespective of the number of issues. If the latter was true, incentivizing participants based on their negotiation performance should attenuate the detrimental number-of-issues effect on relative joint outcomes. Results demonstrate that the incentive scheme does not influence the effect of the number of issues on relative negotiation outcomes. However, performance-based incentives reduce relative joint outcomes irrespective of the number of issues under discussion. Because distributive behavior leads to an inferior outcome quality in integrative negotiations (e.g., Beersma & De Dreu, 2002; Pruitt & Lewis, 1975; Olekalns & Smith, 2003), these results support the notion that performance-based incentives evoke distributive instead of integrative behavior (see Kong et al., 2016; Murnighan et al., 1999). However, this conclusion is limited to rewards for individual performance, because in the vast majority of the included studies in which a performance-based incentive scheme was employed, participants were rewarded for their individual negotiation outcomes ( $m = 46$ ) not for joint outcomes ( $m = 3$ ). We will further elaborate on this aspect when discussing why we did not investigate the moderating role of social motivation in the section on limitations and future research.

Moreover, we tested the idea that low time constraints might attenuate the number-of-issues effect because they allow negotiators to explore each other's interests more thoroughly (Carnevale & Lawler, 1987; De Dreu, 2003; Harinck & De Dreu, 2004; Yukl et al., 1976), which might be particularly relevant in complex multi-issue negotiations. Contrary to expectations, we found that lower time constraints exacerbated the number-of-issues effect on negotiation outcomes compared to higher time constraints. However, these results have to be interpreted with caution for at least two reasons: First, the analysis was exploratory, not confirmatory in nature. Second, it is unclear if the available negotiation time per issue is an accurate operationalization of time constraints because it does not take into account how much time participants really needed to finish the negotiation. In fact, for most studies involving a time limit pretests were reported, which indicated that the given time limit was sufficient to reach agreement. Thus, it is unclear if negotiation time was actually constrained in the studies investigated. Consequently, we strongly suggest conducting a primary study under controlled laboratory conditions to clarify these results before drawing conclusions.

### **Theoretical Implications**

The current meta-analytic review offers important implications for negotiation theory. Specifically, our findings finalize the reconciliation of the two opposing positions in the literature regarding the effect of expanding the pie by increasing the number of issues on integrative negotiations: On the one hand, as our results demonstrate that losses in relative outcomes do not occur within the range of a low to moderate numbers of negotiation issues, they lend further support to the more-is-better position (Fisher & Ury, 1981; Lax & Sebenius, 1986; Pruitt, 1981; Raiffa, 1982; Thompson, 1998). On the other hand, results also show that above the threshold increasing the number of issues substantially deteriorates relative joint outcomes, thus corroborating the fewer-is-better position (Albin & Young, 2012; Rubin & Brown, 1975; Watkins, 2003; Winham, 1977). These results support the conclusion that there is some truth in both positions (Warsitzka et al., 2020).

The present work also allows drawing conclusions concerning the proposed explanatory mechanism for the effects of varying numbers of issues on integrative negotiations. In the current meta-analytic review, we applied the model of mental accounting in negotiations (Trötschel et al., 2020; Zhang et al., 2020) as a unifying framework. Because recent primary studies demonstrated mental parsing as the underlying psychological mechanism accounting for the detrimental effect of negotiating a high compared to low number of issues on joint outcomes (Warsitzka et al., 2020), this choice was obvious.

Moreover, previous studies on the number of issues in negotiations did not provide a comprehensive alternative theoretical explanation as to why a higher number of issues impedes relative joint outcomes in integrative negotiations. Although mental-accounting processes are not directly operationalized in the current analysis, obtained results allow us to make inferences regarding these processes in negotiations with varying numbers of issues. The fact that the relation between the number of issues and relative joint outcomes is segmented into two parts instead of being continuously linear supports our mental-accounting perspective. Specifically, it is in line with the notion that the primary function of mental parsing (in negotiations) is to deal with complexity. Given this function, it can be assumed that as long as a certain number of issues is not exceeded and the corresponding complexity is cognitively manageable, negotiators tend to assign issues into one comprehensive mental account instead of assigning them into separate topical mental accounts. Comprehensive accounting, in turn, implies considering all issues simultaneously (Trötschel et al., 2020; Zhang et al., 2020; see also Kahneman & Tversky, 1984; Thaler, 1999), which allows negotiators to efficiently explore opportunities for integrative trade-offs (Read et al., 1999). In line with this reasoning, the number of issues does not affect relative joint outcomes until the breaking point is reached. After the breaking point, however, more issues are associated with lower relative joint outcomes. This suggests that because comprehensive accounting would severely strain negotiators' cognitive capacities when the number of issues exceeds a critical threshold, they assign issues into separate topical mental accounts, resulting in the detrimental scattering effect of the integrative potential and reduced joint outcomes (see Warsitzka et al., 2020; Zhang et al., 2020).

It has to be noted, though, that whereas this theoretical explanation resonates with the assumptions of the framework of mental accounting in negotiations (Trötschel et al., 2020; Zhang et al., 2020) and the original mental-accounting literature (e.g., Kahneman & Tversky, 1984; Thaler, 1985; 1999), it does not fully integrate previous empirical findings and the present research. Specifically, the studies by Warsitzka et al. (2020) provide clear evidence that negotiators already tend to perform topical accounting (instead of comprehensive accounting) with 5 issues at the table. Thus, if comprehensive accounting was the only explanation as to why the number of issues does not affect negotiation outcomes before the breaking point, that breaking point would have to be located at 4 issues. However, results from the present research suggest that relative joint outcomes deteriorate from 5 issues onwards. Therefore, although the present research design does not allow to determine the exact location of the breaking point with absolute certainty (as will be further discussed in the

*Limitations and Future Research* section), the question arises if comprehensive accounting is sufficient to explain the segmented relation of the number of issues and relative negotiation outcomes. Within the mental-accounting framework (Trötschel et al., 2020; Zhang et al., 2020; see also Kahneman & Tversky, 1984; Thaler, 1985; 1999; Tversky & Kahneman, 1981), another cognitive mechanism is specified, which could potentially supplement our explanation as to why the relation between the number of issues and relative joint outcomes is segmented into two different parts, thus helping to integrate findings from previous and the present research: outcome editing. In negotiations, outcome editing refers to the cognitive process of evaluating negotiation outcomes of separate mental accounts either in an isolated, segregated way (i.e., negotiation outcomes of different mental accounts are not compared) or in a comprehensive, integrated way (i.e., negotiation outcomes of different mental accounts are compared; Trötschel et al., 2020; Zhang et al., 2020). The difference between mental parsing and outcome editing is straightforward: Whereas the former refers to the cognitive process of assigning issues into (one) mental account(s), the latter pertains to comparing potential outcomes between different mental accounts. Integrated outcome editing enables negotiators to discover opportunities for integrative trade-offs even across mental accounts (Zhang et al., 2020), thus it can help them to reduce the detrimental effect of scattering the integrative issues between accounts. Therefore, it is conceivable that as long as the number of mental accounts issues are assigned to allows for a complete cognitive integration of outcomes across mental accounts, scattering the integrative potential between accounts does not harm relative joint outcomes. This reasoning could help to align the findings of the present and past research (i.e., Warsitzka et al., 2020) and could extend the theoretical explanation for the segmented relation between the number of issues and relative negotiation outcomes: As long as the resulting number of issues allows for comprehensive accounting, adding issues to the negotiation table does not reduce relative outcome quality. However, even if the resulting number of issues renders comprehensive accounting impossible and thus negotiators perform topical accounting (Trötschel et al., 2020; Zhang et al., 2020), increasing the number of issues does not reduce relative outcomes if the number of mental accounts issues are assigned to allows for a full integration of outcomes across accounts. This reasoning could explain the location of the breaking point at 5 issues in the present research despite the fact that negotiators already tend to perform topical accounting when facing 5 issues (Warsitzka et al., 2020). In support of this argumentation, negotiators discussing 5 issues reported having integrated outcomes across mental accounts to a stronger extent than parties negotiating 9 issues in the studies by Warsitzka and colleagues (2020). By contrast,

Zhang et al. (2020) found no behavioral indications in their studies that negotiators proactively performed outcome editing not even when they would have had to compare outcomes across only two mental accounts. This finding is in line with the original literature on mental accounting suggesting that individuals do not proactively perform outcome editing (Kahneman & Tversky, 1984; Thaler, 1985; 1999; Tversky & Kahneman, 1981). Given this unclear picture, future research should elucidate if integrated outcome editing also plays a role in explaining the breaking point in the relation between the number of issues and relative negotiation outcomes or if comprehensive accounting suffices to explain this effect in a controlled laboratory experiment.

### **Limitations and Future Research**

The results of the current meta-analytic review are restricted in several ways due to the characteristics of the existing primary studies included into the analysis and the methodological approach. Additionally, because the present study is a meta-analysis and not a laboratory experiment, it is possible that confounds that were not explicitly taken into account influence how the number of issues affect relative outcome quality in integrative negotiations. In the following, we discuss these restrictions and outline an agenda for future research to complement the present analysis. We conclude with ideas for future research based on our exploratory results.

First, in most studies negotiation tasks involving 3 to 8 issues were used. Specifically, only one (unpublished) article in which 2 issues had to be discussed (Reina, 2003) met our inclusion criteria. Furthermore, only six of the included studies used negotiation tasks with more than 8 issues. Thus, our conclusions are based on a limited range of numbers of issues. With respect to the lower end of this range, we do not suspect that our results would have been significantly different if more studies with 2-issue tasks had been included into the analysis. Based on our theoretical explanation that a low to moderate number of issues allows for comprehensive accounting (see Trötschel et al., 2020; Zhang et al., 2020; see also Kahneman & Tversky, 1984; Thaler, 1985; 1999), we assume that discussing 2 issues should not result in different relative joint outcomes than 3 or 4 issues. This assumption is in line with previous empirical findings (Zhang et al., 2020). With respect to very large numbers of issues (e.g., 22–28), we also assume that our reasoning is valid: The more issues negotiators have to discuss, the stronger is their tendency to parse these issues into topical mental accounts and the more mental accounts negotiators create, the higher is the risk to scatter the integrative issues between these mental accounts (Warsitzka et al., 2020) irrespective of the



total numbers of issues being 8 versus 4, 9 versus 5, or 28 versus 22. However, it is also conceivable that within the range of very large numbers of issues adding a few more issues to the negotiation does not substantially affect negotiators' mental parsing processes and thus does not influence integrative outcomes. Therefore, future research should investigate if the detrimental scattering effect *after* the breaking point is continuously linear or if there is another breaking point after which outcomes are unaffected by increasing the number of issues further.

Second, results indicate that the relation between the number of issues and relative joint outcomes is segmented into two parts with a breaking point at 5 issues. However, it has to be noted that the analytic approach employed in the current research limits inferences regarding the exact location of that breaking point to some extent. Specifically, different numbers of issues are embedded in various negotiation tasks and therefore many covarying factors exist. For instance, negotiation issues in each task belong to a specific topical category (e.g., finance-related issues such as discount or financing vs. delivery-related issues such as shipment; Bazerman et al., 1985; food related-resources such as corn and meat vs. construction-related resources such as wood and stone; Trötschel & Gollwitzer, 2007). These topical categories might have suggested specific ways of parsing the issues in some negotiation tasks (see also Warsitzka et al., 2020; Zhang et al., 2020), rendering the identification of the exact location of a general breaking point imprecise in the present research. The same argumentation applies to the size of the detrimental number-of-issues effect after the breaking point. Thus, future research should further investigate the location of the breaking point and the amount of reduction in relative outcome quality if the number of issues is increased beyond that breaking point to supplement our analyses in a controlled laboratory environment.

Third, our theoretical explanation as to why varying numbers of issues affect relative outcome quality pertains primarily to the integrative strategy of *logrolling* (e.g., Froman & Cohen, 1970). However, in some of the various negotiation tasks used in the studies included in the current analysis other integrative tactics are also relevant to maximize integrative outcomes (e.g., crafting a contingency contract in the *Cartoon Task*; Brett & Okumura, 1998). We wanted to include as many studies as possible in the dataset and thus decided not to exclude these means (excluding these cases would have reduced the final dataset from 269 to 252 means). Supporting our theoretical reasoning, the effect of the number of issues on relative joint outcomes was more pronounced when these studies were excluded. By contrast, it vanished when we separately analyzed the subset of data including only studies in which

negotiators had to perform alternative integrative strategies in addition to logrolling to maximize relative joint outcomes. Thus, future research should systematically examine how varying levels of complexity in terms of different numbers of issues affect integrative strategies other than logrolling.

Furthermore, extant primary studies did not allow to conclusively investigate all theoretically relevant moderators. First and foremost, this applies to epistemic motivation. Unfortunately, there are only a few cases in the whole dataset in which epistemic motivation is high. We strongly suspect that this fact explains why results do not support our prediction that epistemic motivation moderates the detrimental number-of-issues effect on relative joint outcomes (see Van der Schalk et al., 2010) and why we could not confirm the main effect of epistemic motivation on integrative outcomes from previous studies (De Dreu, 2003; De Dreu et al., 2006; De Dreu, Koole et al., 2000). Thus, examining the influence of epistemic motivation on the effect of the number of issues on relative joint outcomes and negotiators' mental-accounting processes is an important aspect to be addressed by future research. The second theoretically relevant moderator is general cognitive ability (or intelligence). This construct involves various cognitive abilities, for instance, abstract thinking, reasoning, problem solving, and information processing (Gottfredson, 1997). General cognitive ability is positively associated with job performance and career success (e.g., Hunter, 1986; Kuncel, Hezlett, & Ones, 2004; Schmidt & Hunter 1998; 2004). At the bargaining table, intelligent negotiators are better able to effectively process relevant information (Barry & Friedman, 1998), resulting in better joint outcomes. Thus, it is conceivable that negotiators high on general cognitive ability might be able to deal with the complexity of multi-issue negotiations more efficiently than other negotiators, resulting in better outcomes. With regard to mental-accounting, this could mean that highly intelligent negotiators can cognitively process more issues simultaneously (i.e., assign more issues into the same mental account), improving negotiation outcomes. Despite its theoretical relevance, general cognitive ability was not measured in the vast majority of the studies and could thus not be included as a moderator into the current analysis. Therefore, examining the potential moderating impact of general cognitive ability on the effect of varying numbers of issues on relative joint outcomes in integrative negotiations might be a promising future research endeavor. Furthermore, investigating the combined influence of high epistemic motivation and high intelligence on that effect might be especially fruitful because both are different sides of the same coin with regard to information processing in negotiations: Epistemic motivation determines the degree to which negotiators *want* to process relevant information deeply and systematically whereas

intelligence determines the degree to which negotiators *can* do this. Hence, both effects combined could potentially have a strong impact on integrative negotiations with varying numbers of issues.

Moreover, another important construct from negotiation research was not included into the current analysis as a potential moderator of the number-of-issue effect: social motivation. Negotiators' motivational orientation towards their own and counterparts' interests (i.e., egoistic/individualistic vs. prosocial/cooperative motivation; e.g., De Dreu, Weingart, & Kwon, 2000) is one of the most extensively researched topics in the negotiation literature. Findings generally provide evidence that a prosocial motivation leads to more problem solving behavior and promotes integrative outcomes in negotiations compared to an egoistic motivation (e.g., Beersma & De Dreu, 1999; 2002; Weingart et al., 1993; Weingart, Brett, Olekalns, & Smith; see also De Dreu, Weingart et al., 2000). Despite its important impact on negotiations, we did not investigate social motivation as a potential moderator in the current analysis for two reasons: First, our analysis primarily had a cognitive focus. Based on empirical evidence from previous research (Warsitzka et al., 2020; Zhang et al., 2020), we examined the potential impact of specific moderators on the way negotiators cognitively deal with the corresponding complexity of varying numbers of issues. Although we also included a motivational moderator into the analysis (i.e., epistemic motivation), that moderator drives negotiators' information processing and thus has a cognitive focus. Hence, in line with previous research on this topic (Van der Schalk et al., 2010), we considered it obvious to assume that epistemic motivation might affect how negotiators deal with varying numbers of issues in negotiations. However, social motivation has no such cognitive focus and is thus beyond the theoretical scope of the present analysis. Second, as our main independent variable is an integral aspect of the negotiation task, we focused on moderators predominantly affecting the negotiator—task relation. Social motivation, however, pertains primarily to the negotiator—negotiator relation irrespective of the characteristics of the negotiation task. Hence, we do not see a plausible argument why social motivation should moderate the effect of the number of issues on relative joint outcomes in negotiations. Nonetheless, results of our exploratory analyses on incentive schemes can be considered a first test of the moderating impact of social motivation. Specifically, as in the vast majority of studies using performance-based incentives negotiators were awarded for individual performance and as this is a common manipulation of egoistic motivation (e.g., Beersma & De Dreu, 1999), it can be tentatively concluded that egoistic motivation has no moderating

impact on the number-of-issues effect on integrative negotiation outcomes. However, future research might want explore this and the role of prosocial motivation in more detail.

Finally, additional findings also offer potential for future research. First, we found that the number of agreement options per issue reduces relative joint outcomes when the impact of the number of issues is controlled. These results lend first empirical support to our argumentation that this topic deserves more attention. Thus, we believe that investigating this neglected topic in the negotiation literature more in detail might offer a promising avenue for future research. Second, future research should shed empirical light on the moderating influence of objective time constraints on the effect of the number of issues on relative outcome quality under controlled laboratory conditions to elucidate if the counterintuitive exploratory results obtained in the current analysis reflect an actual effect or an insufficient measurement of objective time constraints.

### **Practical Implications**

From a practical perspective, the current meta-analytic review also offers important implications. First and foremost, expanding the pie by adding issues to the negotiation does not reduce outcome-efficiency if the resulting number of issues does not exceed a critical threshold. Thus, below that threshold, adding issues to the table will help negotiators to raise absolute joint profits without suffering losses in relative outcomes if the additional issue(s) increase(s) the size of the integrative negotiation pie (see Warsitzka et al., 2020). Although the exact location of the breaking point has yet to be confirmed in a more controlled setting, it can be estimated at around 5 issues based on the present and previous research (Warsitzka et al., 2020; Zhang et al., 2020). After the threshold, however, adding another issue to the negotiation deteriorates relative joint outcomes substantially by around 2%. The significance of this amount of reduction in relative joint outcomes after the breaking point—though it should also not be considered more than a first, approximate estimation—becomes entirely clear when taking into account the fact that real-world negotiations in business and political contexts often involve multi-million or even billion-euro deals. For instance, in the negotiations between the European Commission and the Japanese government that preceded the ratification of the Japan-EU Free Trade Agreement (JEFTA), multiple issues had to be discussed (e.g., customs regulations, access to markets, investment protection, product standards, climate protection). Considering the trade volume between the EU and Japan (e.g., European companies exported goods and services valuing approximately €100 billion per year to Japan before the agreement became effective at the beginning of 2019; “The EU and

Japan's Economic Partnership Agreement", 2019) underscores that leaving around 2% of the total value of the deal on the table in such multi-issue negotiations can easily have effects within the range of millions or even billions of euros. Furthermore, it has to be noted that losses in outcome-efficiency accumulate when the number of issues is further increased within a negotiation. Thus, negotiators risk substantial losses in outcome-efficiency when they increase the number of issues in negotiations beyond a certain threshold.

At this point, we wish we were able to provide practitioners with advice on how to avoid losses in outcome-efficiency when raising the number of negotiation issues. However, results suggest that the detrimental number-of-issues effect on relative joint outcomes is robust. Neither having experienced negotiators discuss the deal nor more negotiators at the table attenuate the effect. Furthermore, negotiating issues that are in itself less complex does also not reduce or even reverse the effect. By contrast, the effect emerged across a variety of negotiation tasks (e.g., joint venture negotiations; Beersma & De Dreu, 2003; job negotiations; Neale, 1997; various buyer-seller negotiations; e.g., Nadler et al., 2004) and samples (e.g., undergraduates, MBA students, practitioners). Nonetheless, there is a glimmer of hope for negotiators: Previous research suggests that epistemic motivation might reduce losses in relative outcome quality when the number of issues is increased in negotiations (Van der Schalk et al., 2010). Unfortunately, results in the current analysis do not provide a clear test of this hypothesis. Therefore, future research should clarify whether raising negotiators' epistemic motivation might be a way for practitioners to overcome the detrimental number-of-issues effect in integrative negotiations.

### **Conclusion**

The current meta-analytic review offers important insights into how and when expanding the pie by increasing the number of issues affects integrative negotiation outcomes. Confirming findings from previous research (Warsitzka et al., 2020), we demonstrate a detrimental effect of a higher number of issues on relative joint outcomes across various negotiation tasks and samples. However, extending this research, we also show that this effect does not emerge for low to moderate numbers of issues. Integrating and extending previous theory and research, we investigate the impact of six potential moderators on the detrimental number-of-issues effect. Contrary to expectations, we do not find clear meta-analytic evidence that the effect is conditional. This underscores the difficulty of managing complex negotiations with increasing numbers of issues efficiently. Overall, the present work makes important

contributions to our understanding of the effect of the number of issues on integrative negotiations.

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*Appendix*

**Overview of Included Primary Studies with Number of Issues,  
Relative Negotiation Outcomes, Sample Sizes, and Moderator Values**

Paper	Study	Number of issues	Relative joint outcomes	n	Epistemic motivation	Negotiation experience	Moderators			
							Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
Adair (2003)	1	4	77.11	228	No	No	2.5	1	No	22.5
Adair & Brett (2005)	1	4	75.46	115	No	No	2.5	1	No	22.5
Adair et al. (2007)	1	4	82.50	40	No	Yes	2.5	1	No	22.5
Adler & Graham (1989)	1	3	86.25	231	No	No	9	1	No	20
Amistad et al. (2018)	1	7	88.19	69	No	No	5	1	No	3.57
Arunachalam & Dilla (1995)	1	4	96.56	60	No	No	5	1	Yes	6.25
Arunachalam et al. (1998)	1.2	4	67.69	96	No	No	5	1	Yes	5
Aslani et al. (2016)	1	6	84.03	178	No	No	5	1	No	5
Aykac et al. (2017)	1	6	73.11	17	No	No	4.33	2.25	Yes	-
Bartunek et al. (1975)	1	3	68.92	45	No	No	9	1	No	8.33
Bazerman et al. (1985)	1	3	89.46	942	No	Yes	9	1	No	-
Beersma & De Dreu (1999)	1	3	77.99	22	No	No	5	1	Yes	6.67

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
Beersma & De Dreu (2003)	2	3	93.05	47	No	No	5	1	Yes	6.67
Bereby-Meyer et al. (2010)	1.1	3	88.46	180	No	Yes	9	1	Yes	-
	1.2	3	82.30	162	Yes	Yes	9	1	Yes	-
	1.3	8	85.65	29	No	Yes	5	1	No	-
	1.4	8	80.44	30	Yes	Yes	5	1	No	-
Bereby-Meyer et al. (2004)	1.1	3	89.47	62	No	Yes	9	3	Yes	-
	1.2	3	84.13	32	Yes	Yes	9	3	Yes	-
	1.3	8	80.68	10	No	No	5	3	Yes	-
	1.4	8	75.57	20	No	Yes	5	3	Yes	-
	1.5	8	95.45	10	Yes	Yes	5	3	Yes	-
Berger et al. (2003)	1	8	81.82	15	No	-	5	1	No	3.75
Bottom & Paese (1997)	1	5	94.60	54	No	No	5	1	No	9
Bottom & Studt (1993)	2	5	89.74	30	No	No	5	1	Yes	4
Brett & Okumura (1998)	1	4	79.76	95	No	No	2.5	1	No	22.5
Brett et al. (1998)	1	4	71.94	228	No	Yes	2.5	1	No	22.5
Bündgens (2014)	3	6	97.20	90	No	No	2	3	No	2.5

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
	4	6	95.83	56	No	No	2	1	No	2
Calhoun & Smith (1999)	1	3	86.03	134	No	No	9	1	Yes	-
Carnevale & Isen (1986)	1	3	90.84	40	No	No	6	1	Yes	10
Carnevale & Lawler (1986)	1.1	3	86.60	23	No	No	9	1	Yes	8.33
	1.2	3	82.06	19	No	No	9	1	Yes	1.67
Carnevale et al. (1979)	1	3	89.64	40	No	No	9	1	Yes	-
Carnevale et al. (1981)	1	3	93.23	66	No	No	9	1	Yes	10
Chang et al. (2013)	1.1	6	93.90	15	No	No	3	1	Yes	3.33
	1.2	6	97.82	15	Yes	No	3	1	Yes	3.33
Choi & Harden (2009)	1	3	81.03	45	No	No	7	1	Yes	5
Choi (2010)	1	4	86.75	125	No	No	7	1	Yes	5
Curhan et al. (2008)	1	8	77.57	36	No	Yes	5	1	No	5.63
	2	8	71.84	41	No	No	5	1	Yes	3.75
Curhan & Pentland (2007)	1	8	72.22	50	No	No	5	1	Yes	5.63
De Dreu (2003)	2.1	4	87.13	20	Yes	No	5	1	Yes	-
	2.2	4	79.75	20	No	No	5	1	Yes	6.25

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
De Dreu et al. (2006)	2.1	4	91.73	56	No	No	6.5	1	Yes	5
	2.2	4	93.04	55	Yes	No	6.5	1	Yes	5
	3.1	5	84.11	25	No	No	-	1	Yes	4
	3.2	5	85.84	25	Yes	No	-	1	Yes	4
De Dreu et al. (2009)	2	6	90.23	47	No	No	6	1	Yes	3.33
	3	6	90.04	57	No	No	6	1	Yes	3.33
De Dreu et al. (1998)	1	4	83.84	41	No	No	5	1	Yes	5
	2	4	86.47	21	No	No	5	1	Yes	5
De Dreu et al. (2000)	1.1	4	78.21	20	No	No	5	1	No	5
	1.2	4	83.35	21	Yes	No	5	1	No	5
Der Foo et al. (2004)	1	4	91.61	82	No	No	3.25	1	Yes	-
Dinkevych et al. (2017)	3	6	60.14	21	No	No	4.33	1	Yes	15
Elfenbein et al. (2007)	1	4	92.59	82	No	No	3.25	1	Yes	-
Fry et al. (1983)	1	3	81.00	106	No	No	9	1	No	-
Fulmer et al. (2008)	2	8	97.35	118	No	Yes	5	1	Yes	7.5
Galinsky et al. (2005)	3	5	99.34	163	No	No	5	1	No	-



Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
Galinsky et al. (2008)	3	8	87.93	73	No	Yes	5	1	No	3.75
Geiger & Hüffmeier (2020)	1.1	4	94.83	33	No	No	5	1	Yes	7.5
	1.2	8	88.19	33	No	No	5	1	Yes	3.75
Gelfand et al. (2013)	1.1	4	79.09	24	No	No	5.5	1	No	7.5
	1.2	4	76.57	19	No	No	5.5	2	No	7.5
Giacomantonio et al. (2010)	2	6	86.25	40	No	No	-	1	No	2.5
Giebels et al. (2000)	1	4	92.07	65	No	No	5	1	Yes	5
Giebels et al. (2003)	1	5	88.54	48	No	No	6.2	1	Yes	4
	2	5	89.73	47	No	No	6.2	1	Yes	4
Gunia et al. (2011)	3	4	73.92	50	No	No	2.5	1	No	18.75
Gunia et al. (2013)	2	4	81.00	24	No	No	-	1	No	15
Gupta & Livne (1990)	1	3	97.54	58	No	No	12	1	Yes	6.67
Hafenbrack et al. (2014)	2	8	88.29	48	No	No	5	1	No	1.5
	1.1	8	75.63	20	No	No	5	4	Yes	5.62
Halevy (2008)	1.2	8	75.03	20	No	No	5	2	Yes	5.62
	1	5	86.89	53	No	No	9	1	No	10

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
Harinck & De Dreu (2004)	1	5	96.16	14	No	No	5	1	No	6
	1	5	93.98	14	No	No	5	1	No	2
Harinck & De Dreu (2008)	1	6	86.26	67	No	No	5	1	No	2.5
	2	6	85.63	34	No	No	5	1	No	2.5
Hatta et al. (2007)	1.1	4	89.64	40	No	No	9	1	Yes	11.25
	1.2	4	93.06	27	No	No	9	1	Yes	11.25
Henderson (2011)	1	4	89.09	24	No	No	5	1	Yes	5
	2	4	94.10	33	No	No	5	1	Yes	7.5
	3	4	92.87	48	No	No	5	1	Yes	5
Henderson & Trope (2009)	1	4	84.24	37	No	No	5	1	Yes	5
Henderson et al. (2006)	3	4	88.18	23	No	No	5	1	Yes	5
Honts (1997)	1.1	3	90.19	48	No	No	9	1	No	6.67
	1.2	3	91.19	59	No	No	9	1	No	6.67
Hüffmeier et al. (2018)	1.1	8	85.74	51	No	No	5	1	No	3.75
	1.2	8	94.26	42	No	No	5	3	No	3.75
	1.3	8	87.34	113	No	Yes	5	1	No	3.75

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
	1.4	8	94.55	21	No	Yes	5	3	No	3.75
	1.5	7	92.76	114	No	No	2.71	1	No	4.29
	1.6	7	96.60	21	No	No	2.71	3	No	4.29
Jones & Jelassi (1990)	1	4	90.07	51	No	No	5.5	1	Yes	6.25
Katz-Navon & Goldschmidt (2009)	2	8	78.52	39	No	Yes	4.38	1	No	7.5
Kemp & Smith (1994)	1	3	88.85	60	No	No	9	1	No	-
Kern (2005)	1	7	94.51	16	No	No	4.43	1	No	4.29
	2	7	83.72	43	No	No	4.43	1	Yes	4.29
	3	7	85.20	25	No	No	4.43	1	Yes	4.29
Kern et al. (2012)	1	8	75.59	46	No	No	5	1	No	5
Kim et al. (2015)	1	5	92.97	101	No	No	5	1	Yes	5
Kim et al. (2014)	1	5	92.93	142	No	No	5	1	Yes	5
Kolodziej et al. (2016)	1	8	70.08	60	No	No	5	1	No	4.38
Kong et al. (2016)	1	4	68.50	60	No	No	2.5	1	Yes	7.5
Kray et al. (2009)	1	8	89.87	82	No	Yes	5	1	No	7.5

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
Kray et al. (2002)	2	8	78.86	21	No	Yes	5	1	No	-
Kray et al. (2008)	1	4	85.22	19	No	Yes	2.5	1	No	-
Kray et al. (2004)	1	8	78.94	3	No	No	5	1	Yes	3.75
	2	11	87.04	30	No	No	5.36	1	No	-
Kray et al. (2001)	4	8	65.97	62	No	No	5	1	Yes	3.75
Kurtzberg et al. (2018)	1	8	84.89	154	No	No	5	1	No	3.75
Kurtzberg et al. (2009)	1	8	70.29	61	No	Yes	5	1	No	-
Lim (1997)	1	3	89.48	190	No	No	9	1	Yes	13.33
Lituchy (1997)	1	4	87.09	95	No	No	75	1	No	7.5
Liu et al. (2010)	3	4	50.50	238	No	No	2.5	1	No	15
	4	8	48.50	68	No	No	5	1	Yes	7.5
Liu et al. (2012)	2.1	4	89.58	60	No	No	5	1	No	-
	2.2	4	89.45	60	Yes	No	5	1	No	-
Liu et al. (2016)	1	4	90.45	32	No	No	5	1	No	-
Loschelder et al. (2016)	1	3	93.44	80	No	No	5	1	No	10
	2	3	89.46	68	No	No	9	1	Yes	10

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
	3	3	77.81	84	No	No	9	1	Yes	10
Lügger et al. (2015)	1	6	65.37	158	No	No	4.33	1	Yes	15
Maddux et al. (2008)	1	8	92.91	52	No	Yes	5	1	No	3.75
Mannix & Neale (1993)	1	5	92.25	1416	No	Yes	9	1	No	-
Mannix et al. (1989)	1	3	55.33	82	No	No	5	1	Yes	5
McAllister et al. (1986)	1	3	96.90	410	No	Yes	9	1	No	-
Miles & Clenney (2012)	1	8	84.36	182	No	No	5	1	No	-
Miles & LaSalle (2009)	1	6	88.97	777	No	No	5	1	No	4.17
	2	5	95.81	68	No	No	5	1	No	5
Mohammed et al. (2008)	1	5	89.13	28	No	No	5	1	No	9
Moran & Ritov (2007)	1	3	84.13	209	No	Yes	9	1	No	-
	2	4	90.41	36	No	Yes	5	1	No	3.75
Morgan & Tindale (2002)	1.1	8	79.00	46	No	No	5	1	Yes	3.75
	1.2	8	85.00	33	No	No	5	2	Yes	3.75
	1.3	8	87.00	34	No	No	5	3	Yes	3.75
Murningham et al. (1999)	1	3	98.53	17	No	Yes	9	1	Yes	6.67

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
Nadler et al. (2003)	1	4	90.54	58	No	Yes	5	1	Yes	6.25
Nagler (2018)	1	6	92.00	104	No	No	4.33	1	Yes	15
	2	6	91.00	10	No	No	4.33	1	Yes	15
	3	6	83.00	23	No	No	4.33	1	Yes	15
Neale & Bazerman (1985)	1	3	87.74	474	No	Yes	5	1	No	-
Neale et al. (1987)	1	3	88.32	570	No	Yes	9	1	No	-
O'Connor (1997)	1.1	5	92.18	26	No	No	5	1	Yes	4
	1.2	5	92.61	47	No	No	5	3	Yes	4
O'Connor (1997)	1	5	84.17	88	No	No	5	1	Yes	4
O'Connor et al. (2005)	1	6	88.95	119	No	Yes	5	1	No	3.33
O'Connor & Carnevale (1997)	1	5	85.07	88	No	No	5	1	Yes	4
Okhuysen et al. (2003)	2	5	89.10	170	No	No	5	1	No	15
	3	5	88.25	159	No	No	5	1	No	15
Overbeck et al. (2010)	1	6	76.20	82	No	No	-	1	No	5
Patton & Balakrishnan (2010)	1	3	83.26	42	No	No	9	1	No	-
Peng et al. (2015)	1	4	85.77	107	No	No	3.25	1	Yes	10

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
Peterson (1997)	2	5	85.72	76	No	No	5	1	Yes	8
	1	6	90.09	71	No	No	5	2	Yes	5
Pietrzak et al. (2014)	1.1	4	70.83	19	No	No	7.75	1	Yes	-
	1.2	4	70.28	18	Yes	No	7.75	1	Yes	-
Pinkley (1995)	1	8	79.73	79	No	No	5	1	No	3.75
Polzer (1996)	1.1	5	96.39	9	No	Yes	5	1	No	12
	1.2	5	89.94	14	No	Yes	5	2	No	12
	1.3	5	89.68	8	No	Yes	5	3	No	12
	1.4	5	93.94	8	No	Yes	5	1	No	12
	1.5	5	96.44	13	No	Yes	5	2	No	12
	1.6	5	97.78	7	No	Yes	5	3	No	12
Potter & Balthazard (2000)	1	4	89.26	66	No	No	75	1	No	-
Pruitt et al. (1986)	1	3	86.62	80	No	No	9	1	Yes	-
Pruitt & Lewis (1975)	1	3	89.68	41	No	No	9	1	No	10
	2	3	90.85	30	No	No	9	1	No	10
Pulles & Hartman (2017)	1	3	90.29	100	No	No	9	1	Yes	-

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
Pullins (1997)	1	3	85.96	894	No	Yes	9	1	No	-
Purdy et al. (2000)	1	3	80.49	75	No	No	9	1	No	-
Reina (2003)	1.1	2	72.18	13	No	No	10	1	Yes	3.5
	1.2	2	49.27	12	No	No	10	1	Yes	3.5
Ritov (1996)	1	3	83.95	230	No	Yes	9	1	No	-
Ritov & Moran (2008)	1	3	92.49	295	No	Yes	9	1	No	-
Rognes & Schei (2010)	2	3	90.44	147	No	No	9	1	No	10
Rothman & Northcraft (2015)	3	7	84.78	87	No	No	-	1	No	4.29
Schaerer et al. (2018)	1	8	93.51	46	No	No	5	1	No	5.63
Schei (2013)	1	3	90.78	116	No	Yes	9	1	No	8.33
Schei & Rognes (2003)	1	3	89.99	41	No	Yes	9	1	No	10
Schei & Rognes (2005)	1	5	90.44	75	No	No	4.6	1	No	9
Schei et al. (2008)	1	5	91.88	44	No	No	4.6	1	No	9
Schei et al. (2006)	1	3	90.33	31	No	Yes	9	1	No	10
Schei et al. (2011)	1	3	90.79	56	No	Yes	9	1	No	8.33
Schlegel et al. (2018)	1	8	71.59	64	No	No	5	1	Yes	3.75



Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
Schroeder et al. (2019)	1a.1	8	97.94	35	No	Yes	5	1	No	-
	1a.2	8	87.10	67	No	Yes	5	1	No	-
	1b	5	98.53	35	No	Yes	4.4	1	No	-
	2	3	94.51	60	No	No	3	1	Yes	-
Schulz & Pruitt (1978)	1	3	89.80	58	No	No	9	1	Yes	-
Schweitzer & Gomberg (2001)	1	5	81.44	21	No	No	5	1	Yes	-
	2	5	80.30	23	No	No	5	1	Yes	-
Shalvi et al. (2010)	1	3	80.67	47	No	No	9	1	No	-
Sheffield (1995)	1	3	87.64	47	No	No	9	1	No	11.67
Shirako et al. (2015)	3	8	76.31	29	No	No	5	1	No	3.13
Sinaceur (2010)	2a	6	91.54	47	No	No	5	1	No	5.83
	2b	6	81.91	32	No	No	5	1	No	3.33
Sondak et al. (1995)	1	5	97.86	205	No	No	5	1	No	15
Sondern (2016)	1	5	89.01	63	No	No	6.2	1	No	7
Steinel (2017)	1	8	90.29	98	No	No	3	1	Yes	2.5

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
Stevahn et al. (1996)	2	8	90.10	219	No	No	3	1	Yes	2.5
	1.1	3	74.76	25	No	No	-	1	No	-
	1.2	4	77.15	24	No	Yes	-	1	No	-
Stevahn et al. (2002)	1.1	3	76.61	23	No	No	-	1	No	-
	1.2	3	84.59	22	No	Yes	-	1	No	-
	1.3	3	82.43	23	No	No	-	1	No	-
	1.4	3	86.34	22	No	Yes	-	1	No	-
Swaab et al. (2011)	1	8	77.78	33	No	Yes	5	1	No	7.5
	2	8	84.66	24	No	Yes	5	1	No	7.5
Tasa et al. (2013)	2.1	8	71.61	43	No	No	5	1	No	5
	2.2	8	81.17	19	Yes	No	5	1	No	5
Ten Velden et al. (2010)	1.1	4	86.67	12	No	No	6.5	1	No	5
	1.2	4	91.76	39	Yes	No	6.5	1	No	5
Thompson (1991)	1	4	91.28	268	No	No	5	1	Yes	6.25
Thompson & Hastie (1990)	1	4	87.04	90	No	No	5	1	Yes	6.25
	2	8	84.08	61	No	No	5	1	Yes	4.38

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
Thompson et al. (1988)	1	3	81.95	96	No	No	3	1	Yes	6.67
Thompson et al. (1996)	1.1	8	70.00	21	No	No	5	1	No	3.75
	1.2	8	79.00	19	No	No	5	1.5	No	3.75
	1.3	8	81.00	20	No	No	5	2	No	3.75
	2.1	8	67.00	51	No	No	5	1	No	3.75
	2.2	8	78.00	52	No	No	5	1.5	No	3.75
	2.3	8	80.00	51	No	No	5	2	No	3.75
	Thompson et al. (1995)	1	6	89.11	45	No	No	5	1	No
Tinsley et al. (2002)	1	4	84.00	60	No	No	-	1	No	-
Trötschel & Gollwitzer (2007)	2	4	70.70	60	No	No	7.25	1	No	2.5
	3	6	75.37	93	No	No	10	1	Yes	-
Van de Vliert et al. (1999)	2	4	94.73	64	No	No	5	1	No	5
Volkema et al. (2011)	1	7	95.65	20	No	Yes	3.71	1	No	-
Wall (1984)	1.1	3	86.82	71	No	No	9	1	No	-
	1.2	6	86.82	71	No	No	9	1	No	-
Warsitzka et al. (2019)	2.1	5	91.96	37	No	No	9	1	No	3

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
	2.2	9	89.47	34	No	No	5	1	No	1.67
	3.1	5	87.14	54	No	No	9	1	No	3
	3.2	9	86.22	55	No	No	5	1	No	1.67
	4.1	5	91.04	44	No	No	9	1	No	4
	4.2	9	87.63	44	No	No	5	1	No	2.22
	4.3	9	85.57	45	No	No	9	1	No	2.22
	4.4	9	89.16	47	No	No	5	1	No	2.22
Weingart et al. (1993)	1	5	85.74	74	No	No	5	1	No	18
Weingart et al. (1996)	1	4	83.37	90	No	No	9	1	No	15
Weiss (2010)	1	8	95.20	530	No	Yes	5	1	No	3.75
Wening et al. (2015)	1	5	90.36	52	No	No	5	1	No	3
	2.1	5	87.39	35	No	No	5	1	No	3
	2.2	8	86.89	35	No	Yes	5	1	No	1.88
White et al. (2004)	3	8	92.04	98	No	No	5	1	No	3.75
Wilson (2016)	1	8	73.15	86	No	No	5	1	No	4.38
	2	8	72.55	103	No	No	5	1	No	4.38

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
Wiltermuth & Neale (2011)	4a	8	71.77	93	No	No	5	1	No	4.38
	4b	8	72.73	66	No	No	5	1	No	4.38
	1	6	78.26	46	No	No	5	1	No	-
	2	6	63.61	70	No	No	5	1	Yes	-
Wiltermuth et al. (2015)	3	8	80.49	101	No	No	5	1	No	-
Wolfe & McGinn (2005)	1	5	90.55	53	No	No	5	1	Yes	-
Wong et al. (2012)	3	8	90.26	35	No	Yes	5	1	No	-
Wong & Howard (2016)	1	6	90.28	144	No	No	5	1	Yes	5
	2	6	86.30	48	No	No	5	1	Yes	5
Yang et al. (2018)	1	4	96.82	224	No	No	5	4.5	No	11.25
Zhang (2017)	1	8	88.37	102	No	No	5	1	Yes	3.75
	2	8	91.28	68	No	No	5	1	Yes	3.75
	3	8	92.80	117	No	No	5	1	Yes	4.38
Zhang & Han (2007)	1	4	80.36	75	No	No	2.5	1	No	22.5
Zhang et al. (2019)	2	8	86.50	161	No	No	5	1	No	3
	3	8	85.13	174	No	No	5	1	No	3

Moderators										
Paper	Study	Number of issues	Relative joint outcomes	<i>n</i>	Epistemic motivation	Negotiation experience	Number of agreement options per issue	Number of negotiators per party	Incentive scheme	Time per issue
Zhang et al. (2013)	4	8	84.83	121	No	No	5	1	No	3
	5	8	84.89	123	No	No	5	1	No	3
	1	4	92.00	106	No	No	5	1	No	6.25

*Note.* Epistemic motivation: No = epistemic motivation low/not manipulated; Yes = high epistemic motivation; Negotiation experience: No = no prior experience; Yes = some experience; Number of agreement options per issue = total number of agreement options/number of issues; Number of negotiators options per party = total number of negotiators/number of parties; Incentive scheme: No = no incentive or incentive independent of performance; Yes = performance-based incentive; Time per issue = total negotiation time in minutes/number of issues.

**Chapter 5: Mental Accounting in Negotiations: Solving Negotiators' Cognitive Dilemmas in Multi-Issue Negotiations**

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***Abstract***

Five experiments ( $N = 1275$ ) investigate how negotiators cognitively process proposals and outcomes when a broad set of issues are negotiated simultaneously. Based on seminal research on mental accounting, we predict that negotiators strive to reduce complexity in multi-issue negotiations by mentally creating subsets of issues (i.e., topical mental accounting; Thaler, 1999; Tversky & Kahneman, 1981). We propose that such mental accounting processes play out as a double-edged sword: creating mental accounts on issues that include the integrative potential within subsets of issues will help parties to reduce complexity and explore beneficial tradeoffs. By contrast, creating mental accounts on issues that scatter the integrative potential between subsets of issues will impede the discovery of win-win agreements. Experiment 1 explored the cognitive process of mental parsing (i.e., creating cognitive subsets of issues) in multi-issue negotiations. Experiments 2 and 3 investigated how the way the issue subsets were created impacted parties' perceptions, behaviors, and outcomes. Experiments 4 and 5 sought to investigate a cognitive tool (i.e., outcome editing, Thaler, 1999) that helps parties to overcome detrimental effects arising from the mental accounting process. Overall, our findings highlight when, how, and why mental accounting helps versus hurts negotiators in complex multi-issue negotiations.

“The art of simplicity is a puzzle of complexity” (Douglas Horton, 1891-1968).

Negotiations, as one of the most important coordination processes within and between organizations, often involve multiple issues at stake (Bazerman, Curhan, Moore, & Valley, 2000; Brett & Thompson, 2016; Rubin & Brown, 1975). Managing such multi-issue negotiations is like solving a puzzle of complexity: if parties seek to consider all issues simultaneously, finding mutually satisfying agreements among all combinatory options is akin to discovering the optimal match of pieces of a multifaceted puzzle at a glance. Thus, similar to players who seek to reduce the complexity of a puzzle by organizing the pieces of the puzzle in segregated groups, negotiators may feel the urge to reduce the cognitive demands of various issues by mentally creating subsets of issues. We predict that this cognitive approach may turn out to be a double-edged sword: like the pieces of a puzzle, issues can cognitively be gathered together in a complementary way such that they allow integrative tradeoffs to be made in accordance with parties’ priorities and interests. On the contrary, however, issues can also be gathered together in a non-complementary way—like ill-sorted pieces of a puzzle—thus preventing the discovery of integrative tradeoffs. Therefore, in complex multi-issue negotiations, the art of simplicity to make integrative tradeoffs within subsets of issues is a puzzle of complexity across all issues.

This fundamental interplay between the simplicity of making tradeoffs between high and low priority issues and the complexity of exploring the integrative potential (i.e., win-win solutions) across all issues has been extensively discussed in the negotiation literature over the past decades (e.g., Bazerman & Lewicki, 1983; Geiger & Hüffmeier, 2020; Lax & Sebenius, 1986; Rubin & Brown, 1975; Van der Schalk, Beersma, Van Kleef, & De Dreu, 2010). Several researchers have suggested that having a high number of issues under discussion may offer more trade-off opportunities (e.g., Pruitt & Carnevale, 1993; Thompson, 1998). Other researchers, however, have suggested that when parties search for trade-off opportunities across a high number of issues with a large amount of combinatorial agreement options, the vast cognitive demands prompt them to lower the complexity of the negotiation to a manageable level (Watkins, 2003). In other words, parties face a *cognitive dilemma*: if parties seek to consider all issues simultaneously in order to preserve possible trade-off opportunities, they may get cognitively lost in the complexity of all combinatory agreement options. However, if parties seek to reduce the cognitive demands by considering (subsets of) issues in isolation, they may suffer deeply from this need for cognitive simplicity because they may fail to discover trade-off opportunities between the segregated (subsets of) issues.



Consistent with our description of this cognitive dilemma, Thaler (1999: 185) argues: “An accounting system is a way of aggregating and summarizing large amounts of data to facilitate good decision making. [...]. Of course, achieving this goal is generally impossible, because something must be sacrificed in order to reduce the information the decision maker has to look at.”

In the present research, we seek to address the intriguing question of how negotiators solve the cognitive dilemma that is prevalent across complex multi-issue negotiations. Specifically, the present research seeks to explore how parties deal with the cognitive dilemma of being torn between the arising cognitive demands of complexity and their need for cognitive simplicity in integrative negotiations with many issues. We build upon seminal work on mental accounting in the field of consumer and decision-making research (Kahneman & Tversky, 1984; Thaler, 1985, 1999) to address this fundamental question and to integrate the controversial stances in the negotiation and management literature. First, we will review the literature on mental accounting in decision-making research. Then, we summarize studies on agenda setting that provide initial indications for mental accounting processes in negotiations. Subsequently, we highlight the key role of mental accounting processes in negotiations and conclude with a synopsis of the present research.

### ***Mental Accounting in Decision-Making Research***

Based on prospect theory (Kahneman & Tversky, 1979, 1984; Tversky & Kahneman, 1981), the concept of mental accounting was originally introduced by Thaler (1980, 1985) to characterize mental representations and cognitive processes involved in financial decision making. According to his work, mental accounting describes the cognitive process in which individuals assign events to different mental accounts and evaluate the costs and benefits associated with these accounts to determine the utility of a decision outcome (Thaler, 1985). In particular, mental accounts can be created narrowly at the level of single units (i.e., minimal account), at the level of subsets of units (i.e., topical account), or can be more broadly formed at the level of their entirety (i.e., comprehensive account; Kahneman & Tversky, 1984). The cognitive process of mental accounting has been shown to impact consumer choice and individual decision making in a broad range of social contexts such as investment decisions (Barberis & Huang, 2001), pricing strategies (Rockenbach, 2004), and saving behavior (Prelec & Loewenstein, 1998). Findings across all these fields of research suggest that decision makers are inclined to evaluate their gains and losses—not in an integrated, comprehensive manner (comprehensive mental accounting), nor in a completely

isolated manner (minimal mental accounting)—but instead in a segregated, topical way (topical mental accounting; Bonini & Rumiati, 1996; Heath & Soll, 1996; Kahneman & Tversky, 1984; Soman, 2001). Accordingly, Thaler (1999: 186) emphasized that “mental accounting is piecemeal and topical.” Viewed from the perspective of a psychological function, topical processing of information helps individuals to simplify decision making and to reduce the complexity of the task to a manageable level (Antonides & Ranyard, 2015).

Comparing consumer and negotiation studies, we suggest that both lines of research share a lot of similarities (e.g., decision-making processes, buyer-seller context). Given the manifold similarities, both lines of research have investigated the influences of various cognitive heuristics on human perception, behavior, and decisions (e.g., framing; Bettman & Sujan, 1987; Trötschel, Loschelder, Höhne, & Majer, 2015; e.g., anchoring; Lynch, Chakravarti, & Mitra, 1991; Majer, Trötschel, Galinsky, & Loschelder, 2019). Although several similarities between the two domains exist, the unique characteristics of each field of studies warn against a simple generalization of findings from one line of research to the other. Importantly, consumer studies deal with individual, non-interactive choices, while negotiation research focuses on joint, interactive decision-making processes. Consumer research investigates the perceptions and behaviors of individuals in one specific role (i.e., consumer choice), whereas negotiation studies deal with individuals in various social contexts and roles (e.g., buyers, sellers, employers, political parties). Finally, consumer research commonly investigates choice behavior for a limited number of consumer products, whereas negotiation studies often investigate decision-making processes in complex multi-issue negotiations with a considerably higher number of combinatory agreement options.

### ***Initial Indications for Mental Accounting at the Bargaining Table***

Although mental accounting processes have been shown to play a pivotal role in human decision making, negotiation research has not yet started to systematically investigate how parties' behaviors and outcomes are affected by mental accounting. However, a few studies allude to the important role of mental accounting at the bargaining table. Specifically, research on negotiation agenda setting suggests that splitting up the whole negotiation into separate negotiation phases has strong effects on the quality of outcomes (Mannix, Thompson, & Bazerman, 1989; Weingart, Bennett, & Brett, 1993; Yukl, Malone, Hayslip, & Pamin, 1976). Parties who followed a wholistic agenda (i.e., all issues were included in the agenda in one negotiation phase; Erickson, Holmes, Frey, Walker, & Thibaut, 1974; see also Mannix et al., 1989; Weingart et al., 1993; Yukl et al., 1976) achieved higher outcomes than

parties who pursued a partitive agenda (i.e., a step-wise, single-issue agenda in which parties only negotiate one issue in one phase). This beneficial effect of a wholistic agenda has been supported in other lines of negotiation research such as studies on compromising, power, third-party intervention, and team negotiation (e.g., Erickson et al., 1974; Froman & Cohen, 1970; Patton & Balakrishnan, 2012).

It is important to note, however, that although a wholistic agenda has been shown to be superior to a partitive one, one should be cautious in concluding that (a) parties who followed a wholistic agenda cognitively processed and evaluated all issues in a comprehensive, integrated manner (comprehensive mental accounting), nor (b) that the beneficial effect of a wholistic agenda found in situations with a relatively small number of issues (e.g., two or five issues; Erickson et al., 1974; Froman & Cohen, 1970; Mannix et al., 1989; Weingart et al., 1993; Yukl et al., 1976) will endure in more complex negotiations involving a higher number of issues (e.g., eight or more issues; Hüffmeier, Zerres, Freund, Backhaus, Trötschel, & Hertel, 2019; Kray, Galinsky, & Markman, 2009; Trötschel, Hüffmeier, Loschelder, Schwartz, & Gollwitzer, 2011). In particular, when the number of issues increases in negotiations following a wholistic agenda, parties may feel the urge to reduce the perceived complexity by segregating issues on a cognitive level. This has already been pointed out by Rubin and Brown (1975: 147) in their seminal work on negotiations: “As the number of issues in a dispute grows, the pressures toward differentiating among them are likely to increase, if for no reason other than the accompanying difficulty of dealing with an excessive number of issues simultaneously.”

### ***Mental Accounting in Negotiations: Resolving the Cognitive Dilemma of Multiple Issues***

Building on mental accounting and decision making research (e.g., Read, Loewenstein, & Rabin, 1999; Thaler, 1985, 1999), we predict that negotiators will try to master the cognitive dilemma of multi-issue negotiations by creating topical mental accounts. Specifically, parties who face many issues under a wholistic agenda (i.e., negotiating all issues within one phase) tend to reduce the complexity to a manageable level by mentally creating subsets of issues. Thus, they consider issues in a topical, segregated rather than a comprehensive, integrated way (i.e., topical accounting; Thaler, 1985; Tversky & Kahneman, 1984). Importantly, we assume that topical mental accounting turns out to be a double-edged sword: mentally creating issue subsets and considering them in a segregated way will help parties to simplify the complex decision-making process. At the same time, however, this mental accounting process will result in a loss of information (Thaler, 1999).

In integrative negotiations, topical mental accounting may result in two contrary effects: when parties cognitively parse the issues and create mental accounts for different subsets, issues that provide trade-off opportunities may either be (1) aggregated within the same account or (2) scattered between different accounts. These subtle, but different ways of creating mental accounts have far-reaching consequences for negotiators. When integrative trade-off issues are scattered between accounts, mental accounting may obstruct the discovery of integrative potential as parties need to explore logrolling opportunities (i.e., the opportunity to exchange concessions on high vs. low priority issues) across separate mental accounts. By contrast, however, when integrative trade-off issues are aggregated within accounts, mental accounting may foster the discovery of integrative potential as parties may easily explore logrolling opportunities within the less complex subsets of issues (i.e., solving the puzzle of complexity through discovering the simplicity of integrative tradeoffs within mental accounts). In other words, creating topical mental accounts with integrative trade-off opportunities renders the negotiation less complex, with the advantage that parties are still able to exploit “‘integrative solutions’ in which the good parts of some alternatives compensate for the bad parts of others” (Read et al., 1999: 177). By contrast, creating topical mental accounts without trade-off opportunities hinders parties in the discovery of integrative solutions (Rubin & Brown, 1975).

### ***Present Research: Contributions and Overview***

In the present research, we seek to investigate mental accounting processes in multi-issue negotiations with a wholistic agenda (e.g., Mannix et al., 1989; Weingart et al., 1993). We predict that parties who are facing a high number of issues will feel the urge to mentally parse the negotiation into subsets of issues on a topical level (i.e., topical mental accounting; Kahneman & Tversky, 1984). Such mental accounting processes result in a cognitive dilemma between complexity and simplicity: the more the negotiation is mentally parsed (Thaler, 1999) into subsets of issues, the lower is the perceived complexity of the decision-making task, however, the higher is the risk to scatter the integrative potential between the issue subsets. And vice versa: the less the negotiation is mentally parsed into subsets of issues, the higher is the perceived complexity of the decision-making task, however, the lower is the risk to scatter the integrative potential between the issue subsets.

By introducing mental accounting to the field of negotiations, we seek to contribute to research on mental accounting, managerial decision-making, and negotiation in different ways: 1) From the perspective of the mental accounting literature, the assumptions on a well-

established theoretical concept are examined in another important domain of behavioral decision making; 2) From the standpoint of the decision-making literature, we transfer the concept of mental accounting from individual, non-interactive decision making to dynamic, interactive negotiation processes; 3) From the perspective of negotiation theory, a well-established theoretical approach will be introduced to address the pervasive cognitive dilemma that parties face in multi-issue negotiations; 4) From an applied perspective, the present research seeks to provide important practical implications on how decision makers, leaders, and managers can avoid the pitfalls of mental accounting in multi-issue negotiations.

We conducted a total of five experiments with 1,275 participants to investigate the fundamental role of mental accounting in negotiations. In the first experiment, we tested how parties cognitively approach negotiations when a large number of issues are under discussion. Specifically, we examined how many issues negotiators prefer to cognitively process simultaneously when sending proposals to (i.e., senders' perspectives) and receiving proposals from their counterparts (i.e., recipients' perspectives, Experiment 1; Trötschel et al., 2015). Experiment 2 explored how different mental accounting processes (i.e., comprehensive mental accounting, topical mental accounting, and minimal mental accounting; Kahneman & Tversky, 1984) affect parties' perceptions, behaviors, and outcomes in interactive negotiations. Experiment 3 empirically tested our prediction that topical mental accounting based on issue-subsets is a double-edged sword. Specifically, we examined whether cognitively parsing the whole set of negotiation issues into subsets, with aggregated (i.e., trade-off opportunities within issue subsets) versus scattered integrative potential (i.e., trade-off opportunities between issue subsets), will improve versus worsen negotiation outcomes. Finally, Experiments 4 and 5 sought to examine whether the evaluation of outcomes across mental accounts in an integrated way (outcome editing, Thaler, 1999) will help parties to overcome the detrimental effect potentially arising from non-integrative topical mental accounting.

### ***Experiment 1: Mental Accounting in Multi-Issue Negotiations***

In Experiment 1, participants in the roles of buyers or sellers were asked to send a proposal to or receive a proposal from their counterpart in a negotiation involving multiple issues. Based on an extensive literature review on integrative negotiations ( $N = 310$  studies), we found that the prevailing majority of integrative negotiation studies involved three to six issues (72.6% of the studies). To be on the safe side with respect to the complexity of the negotiation task, we created a paradigm with a total of eight issues. We predicted that irrespective of their roles

(i.e., buyer vs. seller, sender vs. recipient), participants would tend to cognitively create subsets of issues in order to master the complexity of a multi-issue negotiation. In particular, we expected that:

*Hypothesis 1: Participants would prefer to send and receive proposals on a subset of issues (i.e., topical accounting)—rather than on the whole set of issues (i.e., comprehensive accounting) or a sequence of individual issues (i.e., minimal accounting).*

## Method

**Sample size analysis.** To determine the sample size for Experiment 1, we conducted an *a priori* sample size analysis using G\*Power (Faul, Erdfelder, Lang, & Buchner, 2007). Due to a lack of available effect sizes, a medium effect size according to Cohen's *d* of  $d = 0.50$  ( $f = 0.25$ ) was predetermined. We used this effect size as a foundation for the mental accounting effect and estimated the minimally-required total sample size of 60 participants to attain a power of  $1 - \beta = 0.80$  (G\*Power parameters:  $f = 0.25$ ,  $\alpha = .05$ ,  $\rho = 0.1$ , non-sphericity correction = 1).

**Participants and design.** One hundred and seventeen students ( $M_{\text{age}} = 23.36$ ,  $SD = 3.31$ ; 99 female) with different academic majors (e.g., business administration, psychology, economics, etc.) took part in the experiment as a part of a course requirement. Experiment 1 followed a 2 (Negotiating Role [buyer vs. seller])  $\times$  2 (Actor Role [sender vs. recipient]) design with repeated measures on the latter factor.

**Procedure and independent and dependent variables.** Participants in the role of sellers (buyers) were asked to imagine selling (buying) raw materials. To avoid cognitive categorization of issues based on preexisting schemata (e.g., electronic goods vs. fashion items), structural similarities (e.g., fluids vs. solids), or instrumental functions (e.g., consumption vs. investment), the issues under negotiation included eight fictional raw materials. In accordance with the majority of negotiation studies, buyers and sellers were provided with pay-off tables for the given issues (see Appendix, Table 1).

After familiarizing themselves with the pay-off table, buyers and sellers were asked to indicate the number of issues they would like to consider simultaneously in their proposal on a scale ranging from 1 (i.e., consider only one issue at a time when sending/receiving a proposal) to 8 (i.e., consider all issues simultaneously when sending/receiving a proposal; forced choice). We also measured participants' willingness to cognitively process a given number of issues (1 to 8 issues) simultaneously when sending or receiving proposals.

Specifically, on a 7-point Likert scale (1 = “completely disagree” to 7 = “completely agree”), participants were asked to indicate their willingness to consider a certain number of issues simultaneously (e.g., “When making an offer I would like to consider four issues simultaneously in the proposal;” “When receiving an offer, I would like to consider four issues simultaneously in the proposal”). After filling out the questionnaire, participants were thanked and debriefed.

## Results

In support of Hypothesis 1, descriptive analyses revealed that when sending a proposal, most participants preferred to consider four issues simultaneously ( $n = 28$ , 23.9% of the participants), followed by two issues ( $n = 25$ , 21.4%), eight issues ( $n = 17$ , 14.5%), and one single issue ( $n = 16$ , 13.7%). By comparison, participants were less likely to consider seven issues ( $n = 2$ , 1.7%), six issues ( $n = 6$ , 5.1%), five issues ( $n = 11$ , 9.4%), and three issues ( $n = 12$ , 10.3%) simultaneously (see Figure 1). When receiving the proposal from the counterpart, most participants preferred to consider four issues ( $n = 26$ , 22.4%), two issues ( $n = 22$ , 19.0%), eight issues ( $n = 21$ , 18.1%), and one issue ( $n = 16$ , 13.8%) simultaneously. Again, a lower number of participants preferred to consider seven ( $n = 1$ , 0.9%), six ( $n = 11$ , 9.5%), three ( $n = 11$ , 9.5%) or five issues ( $n = 8$ , 6.9%) simultaneously.<sup>26</sup> There were no significant differences between buyers and sellers or between senders and recipients.

Participants’ ratings on the preferred number of issues in the proposal revealed a similar pattern: a  $2 \times 2 \times 8$  (Negotiating Role [buyer vs. seller]  $\times$  Actor Role [sender vs. recipient]  $\times$  Number of issues in the proposal [1 vs. 2 vs. ... vs. 7 vs. 8]) ANOVA with repeated measures on the latter two factors revealed only the predicted significant main effect for the number of issues in the proposal ( $F[4.10, 467.06] = 10.27, p < .001, \eta_p^2 = .08$ ).<sup>27</sup> No other effect reached significance ( $F_s < 3.68, p_s > .057$ ).<sup>28</sup> In further support of Hypothesis 1, a paired-samples  $t$ -test indicated that participants were more willing to consider four issues, two issues, eight issues and one issue simultaneously in the proposal ( $M_{1-issue} = 3.55, SD = 2.71$ ;  $M_{2-issue} = 4.04, SD = 2.62$ ;  $M_{4-issue} = 3.93, SD = 2.71$ ;  $M_{8-issue} = 3.42, SD = 2.93$ ; and  $M_{total} =$

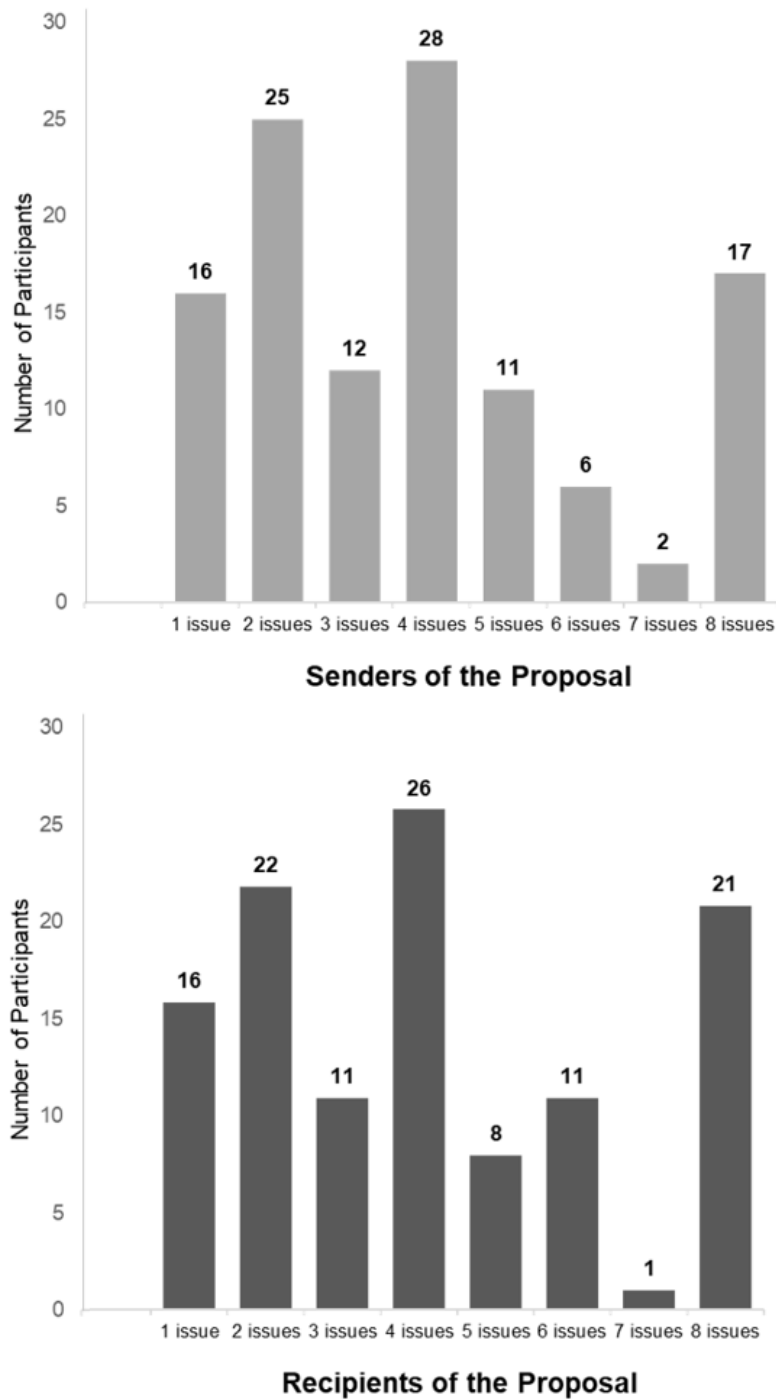
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<sup>26</sup> One participant in the seller condition failed to respond to the measure from a recipient’s perspective and therefore was excluded in the relevant analyses.

<sup>27</sup> To guard against violations of the sphericity assumption, the degrees of freedom were corrected by multiplying with Greenhouse-Geisser’s epsilon.

<sup>28</sup> The analyses revealed a marginally significant main effect for actor role (sender vs. recipient;  $F[1, 114] = 3.67, p = .058, \eta_p^2 = .03$ ). It seems that participants rated the proposals with different numbers of issues as more favorable when receiving the proposal from the counterpart ( $M = 3.47, SD = 0.99$ ) than when sending a proposal ( $M = 3.35, SD = 0.86$ ). No interaction effect was significant ( $F_s < 2.37, p_s > .075$ ). Due to a lack of theoretical reasoning and logic, this effect is not further discussed.

3.73,  $SD = 2.19$ ) than seven issues, six issues, three issues, and five issues ( $M_{3-issue} = 3.60$ ,  $SD = 2.43$ ;  $M_{5-issue} = 3.12$ ,  $SD = 2.24$ ;  $M_{6-issue} = 2.99$ ,  $SD = 2.41$ ;  $M_{7-issue} = 2.59$ ,  $SD = 2.19$ ; and  $M_{total} = 3.19$ ,  $SD = 1.92$ ,  $t [931] = 6.88$ ,  $p < .001$ ).



**Figure 1.** Experiment 1: The number of issues that participants would like to simultaneously consider in the negotiation proposal.



## Discussion

Experiment 1 provided support to our prediction that parties in complex multi-issue negotiation prefer to “mentally parse” (Thaler, 1999) a whole set of issues into subsets in order to cognitively process proposals that they send to or receive from their counterparts. This effect strongly corresponds to previous research on mental accounting processes in consumer research in which buyers tend to consider the costs and benefits of their choices in topical mental accounts that incorporate some, but not all, aspects of the transaction (Antonides & Ranyard, 2015; Heath & Soll, 1996; Soman, 2001; Thaler, 1999; Tversky & Kahneman, 1981). Extending previous research, the findings of this study also suggest that the preference for topical mental parsing not only exists for decision makers in the roles of buyers (i.e., consumers) but also in the roles of sellers. Although the non-interactive experiment allowed us to gain initial insights into the mental accounting processes in negotiations, the unexplored question remained as to how mental accounting affects parties’ perceptions, behaviors, and outcomes in the interactive course of a negotiation. Experiment 2, therefore, aimed at investigating the interpersonal implications of our findings in an interactive face-to-face negotiation.

### *Experiment 2: Mental Accounting Affects Negotiation Outcomes*

Experiment 2 pursued two major goals: first, we aimed to demonstrate that mental accounting affects parties’ bargaining processes and outcomes in the interactive process of negotiations. In this first interactive negotiation study, we asked parties to determine themselves how to create subsets of issues (i.e., topical accounting). The outcomes of parties who created subsets of issues were then compared with the outcomes of parties that were either asked to negotiate the eight issues in isolation (i.e., minimal accounting based on single issues) or in their entirety (i.e., comprehensive accounting based on the comprehensive package including all eight issues). Second, we explored the impact of integrative potential (i.e., integrative trade-off opportunities) that was aggregated within versus scattered between the subsets of issues. We expected that parsing the whole set of issues into subsets would render the finding of integrative solutions within the complex negotiation task easier, however only if issues providing integrative trade-off opportunities were cognitively processed within the same mental account rather than cognitively scattered between different mental accounts. Therefore, we predict that:

*Hypothesis 2: Topical accounting will lead to better negotiation outcomes than comprehensive mental accounting and minimal mental accounting,*

*albeit only when the topical accounts include subsets of issues with the integrative potential aggregated within the subsets rather than scattered between the subsets.*

## **Method**

**Sample size analysis.** We extracted the effect size of Experiment 1 (Cohen's  $d = 0.54$ ;  $f = 0.27$ ) to determine the sample size for Experiment 2. The power analysis revealed a required sample size of  $N = 170$  (G\*Power parameters:  $f = 0.27$ ,  $\alpha = .05$ ,  $1-\beta = 0.80$ ) for five conditions. Due to the interactive negotiation task, the unit of analysis referred to the dyads of negotiators. Accordingly, the required sample size was doubled to 340 participants.

**Participants and design.** Three hundred and thirty-eight students with different academic majors (e.g., business administration, psychology, economics, etc.) were recruited and received €8.00 for their participation in the study. Seven dyads were excluded from the analyses because they failed to comply with instructions (e.g., parties in the minimal mental accounting condition exchanged proposals on multiple issues simultaneously). One dyad ended the negotiation without reaching an agreement. The remaining sample was comprised of 322 participants ( $M_{\text{age}} = 22.09$ ,  $SD = 2.89$ ; 222 female) to form 161 dyads.

Experiment 2 followed a one-factorial design with five conditions. Specifically, based on the findings of Experiment 1, the way in which parties mentally parsed the whole set of issues was varied as the independent variable between dyads by instructing participants to consider one (minimal accounting), two (topical accounting), four (topical accounting), eight (comprehensive accounting), or a self-chosen number of issues (topical accounting) simultaneously when exchanging their proposals (see the detailed description below).

**Negotiation task and procedure.** We used the same negotiation paradigm from Experiment 1, in which buyers and sellers negotiated on a business deal involving eight fictional raw materials. The eight negotiation issues were all integrative, which allowed for integrative tradeoffs and win-win agreements (see Appendix, Table 1).

The materials used in the study contained a general instruction page, which briefly described the negotiation background, eight issue cards indicating the agreement options and the corresponding profit points, and eight offer sheets, which allowed parties to note down their proposals and their counterparts' proposal in the course of the negotiation. Participants were provided with separate pay-off cards for each issue (instead of a classical pay-off table with all information on one page; e.g., Pruitt & Lewis, 1975) to allow parties to create subsets of issues in accordance with their respective experimental instructions (see mental accounting

manipulation below). The whole negotiation lasted up to thirty minutes, including time to take notes on the parties' own and their counterparts' proposals. Pretests had shown that this period of time was sufficient for reaching an agreement on all issues without experiencing time pressure. Participants were informed that in the case of an impasse, neither party would receive any profit points for the entire negotiation. Upon completion of the negotiation, participants filled out a questionnaire containing manipulation checks and demographic questions. Participants were then paid, thanked, and debriefed.

**Experimental manipulations.** According to their mental accounting conditions, participants were instructed to consider the respective numbers of issues simultaneously when sending or receiving proposals. Specifically, the whole bargaining process was split up into separate negotiation rounds, but within each round, all eight issues had to be covered by the parties making and receiving proposals. The experimental factor of mental accounting was realized within each negotiation round—parties were instructed to create offers on a pre-defined number of issues and exchange these offers with their counterparts. In the *comprehensive mental accounting* condition, parties were asked to create offers on all issues. Specifically, they were instructed to exchange their offers and counteroffers across all eight issues simultaneously and consider the respective payoffs in a comprehensive way. In the *minimal mental accounting* condition, parties were asked to create offers on each issue individually. Specifically, they were instructed to exchange proposals on every single issue in isolation and consider the respective payoffs of each proposal separately. In the *two-issue mental accounting* condition, parties were asked to create offers on a subset of two issues, exchange these offers with their counterparts and proceed to the next two-issue subset until they have exchanged proposals on all eight issues within the respective negotiation round. In other words, parties exchanged offers and counteroffers on subsets of issues and considered the payoffs for the two issues within each of these subsets in isolation. The *four-issue mental accounting* condition was created in parallel to the two-issue mental accounting condition, except that there were four instead of two issues in each subset. Finally, in the *free-to-choose mental accounting* condition, negotiating dyads were asked to jointly pre-determine whether they would prefer to consider two or four issues simultaneously. Based on their decisions, parties were asked to follow the instructions of the respective mental accounting condition (i.e., two-issue or four-issue mental accounting condition). Notably, in the conditions with subsets of issues (i.e., two-issue, four-issue, and free-to-choose mental accounting conditions), parties jointly decided which issues had to be considered together within the respective subsets. Besides, participants were provided with a card stand on which they were

asked to attach the pay-off cards of the respective issues under consideration. An experimenter was assigned to each negotiating dyad to ensure that parties understood and followed the experimental instructions correctly.

**Manipulation check.** To check whether the manipulation of mental accounting was effective, participants were asked whether they had considered the eight issues as a whole (“In the previous negotiation I considered all issues simultaneously”), or one by one (“In the previous negotiation I considered only one issue at one time”), or as multi-issue subsets (“In the previous negotiation I considered the issues within one subset at one time”). Items were scored on 7-point scales, ranging from 1 (“completely disagree”) to 7 (“completely agree”).

**Dependent variable.** The quality of joint outcomes (ranging from 19,200 to 44,800 points) was assessed at the end of the negotiation as the main dependent variable.

**Explorative analysis.** In general, by mentally parsing the whole set of issues into subsets, parties distributed the integrative potential (i.e., integrative trade-off opportunities) either *within* or *between* subsets of issues (i.e., mental accounts). According to the issue subsets that parties composed in the three topical mental accounting conditions, we assessed whether parties created mental accounts that provided integrative potential *within* the respective issue subsets (i.e., issues within the respective subset allowed parties to make integrative tradeoffs on high vs. low priority issues), or whether they created mental accounts without integrative potential within the respective subsets (i.e., issues within the respective subset did *not* allow parties to make integrative tradeoffs). Based on this logic, a score for the location of the integrative potential was computed, ranging from 0 (zero percent of the integrative potential was located within the subset of issues—all integrative tradeoffs could only be achieved through the systematic exchange of concessions between the subsets of issues) to 1 (one-hundred percent of the integrative potential was located within the subsets of issues—all integrative tradeoffs could be achieved through the systematic exchange of concessions within the subsets of issues). We used this post-hoc measure to exploratively investigate how topical mental accounting affected the aggregation and segregation of the integrative potential at the bargaining table and how it ultimately impacted the quality of achieved outcomes.

## Results

**Manipulation check.** Planned contrast analyses on the three manipulation check items suggested that the manipulation was successful: participants in the comprehensive mental accounting condition gave more affirmative answers to the “comprehensive mental

accounting” item ( $M_{comprehensive} = 4.17, SD = 1.81$ ) than participants in the four other conditions ( $M_{minimal} = 2.67, SD = 1.78; M_{2-issue} = 2.11, SD = 1.70; M_{4-issue} = 2.91, SD = 2.07; M_{Free-to-choose} = 2.95, SD = 1.89; t[317] = 5.84, p < .001$ ). Conversely, participants in the minimal accounting condition gave more affirmative answers to the “minimal mental accounting” item ( $M_{minimal} = 5.11, SD = 1.90$ ) than participants in the four other conditions ( $M_{comprehensive} = 2.77, SD = 1.73; M_{2-issue} = 2.39, SD = 1.74; M_{4-issue} = 2.22, SD = 1.57; M_{Free-to-choose} = 2.33, SD = 1.43; t[317] = 11.45, p < .001$ ). Participants in the three topical mental accounting conditions gave more affirmative answers to the “topical mental accounting” item ( $M_{2-issue} = 6.47, SD = 1.22; M_{4-issue} = 5.53, SD = 1.70; M_{free-to-choose} = 6.30, SD = 1.01$ ) than participants in the two other conditions ( $M_{comprehensive} = 4.66, SD = 2.02; M_{minimal} = 1.75, SD = 1.45; t[198.21] = 15.86, p < .001$ ).<sup>29</sup>

**Joint outcomes.** A  $1 \times 5$  ANOVA revealed a significant effect of mental accounting on joint outcomes ( $F[4, 156] = 4.03, p = .004, \eta_p^2 = .09$ ). Parties in the comprehensive accounting condition ( $M_{comprehensive} = 39,287.50, SD = 3,864.46$ ) achieved higher outcomes than parties in the minimal accounting condition ( $M_{minimal} = 36,687.50, SD = 2,950.31; t[156] = 2.97, p = .003$ ). Similarly, parties in the three topical accounting conditions ( $M_{2-issue} = 38,525.00, SD = 3,597.04; M_{4-issue} = 39,475.00, SD = 3,186.16; M_{free-to-choose} = 39,757.58, SD = 3,788.06$ ) achieved higher outcomes than parties in the minimal accounting condition ( $t[156] = 3.60, p < .001$ ).<sup>30</sup> No difference emerged between the comprehensive accounting and the three topical accounting conditions ( $t[156] = 0.05, p = .961$ ). In sum, the findings suggest that the simplified cognitive processing of offers on an issue-by-issue basis (i.e., minimal mental accounting) deteriorates the quality of outcomes compared to comprehensive or topical accounting (see Figure 2).

**Exploratory analysis of the location of the integrative potential.** To test Hypothesis 2 and analyze whether the integrative potential between or within the mental accounts in the three topical accounting conditions affected the quality of outcomes, we compared dyads that had a surplus of integrative potential aggregated within issue subsets (i.e., parties with an integrative potential location score of  $\geq .50$ ) with dyads that had a surplus of integrative

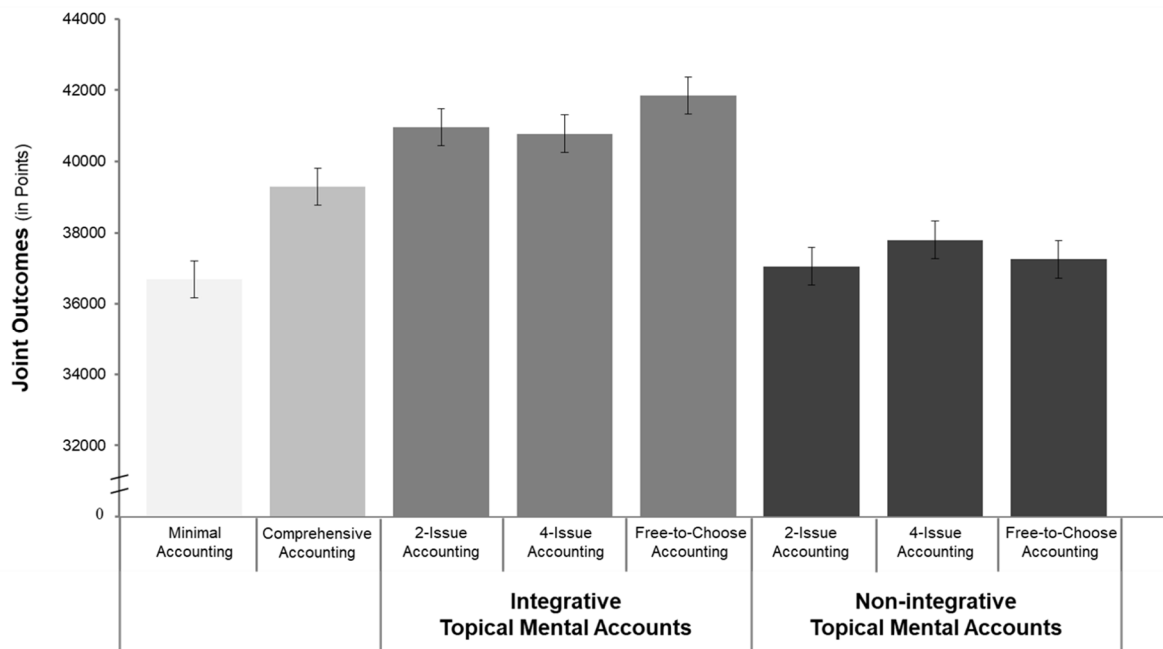
<sup>29</sup> Because of the heterogeneity of variances, we adjusted the degrees of freedom for the  $t$ -test. In the subsequent analyses in this paper, the degrees of freedom were adjusted if the variances were heterogeneous.

<sup>30</sup> Creating two-issue vs. four-issue mental accounts did not yield different negotiation outcomes ( $t[156] = 1.09, p = .279$ ). On a closer inspection, parties with the assigned two-issue accounts and those deciding to create two-issue accounts in the free-to-choose mental accounting condition ( $n = 16$  dyads) yielded identical outcomes ( $t[155] = 0.41, p = .686$ ), and the same goes for parties creating four-issue accounts in the assigned vs. free-to-choose condition ( $n = 17$  dyads;  $t[155] = 1.79, p = .075$ ).

potential scattered between issue subsets (i.e., parties with an integrative potential location score of  $< .50$ ).<sup>31</sup> Importantly, parties with a surplus of integrative potential within issue subsets achieved higher outcomes ( $M_{2\text{-issue}} = 40,966.67$ ,  $SD = 2,555.33$ ;  $M_{4\text{-issue}} = 40,777.78$ ,  $SD = 3,409.25$ ;  $M_{\text{free-to-choose}} = 41,844.44$ ,  $SD = 2,858.68$ ) than dyads with a surplus of integrative potential between subsets ( $M_{2\text{-issue}} = 37,060.00$ ,  $SD = 3,362.39$ ;  $M_{4\text{-issue}} = 37,800.00$ ,  $SD = 1,907.07$ ;  $M_{\text{free-to-choose}} = 37,253.33$ ,  $SD = 3,249.15$ ;  $t[153] = 5.83$ ,  $p < .001$ ; see Figure 2). When comparing dyads with more integrative potential within subsets of issues with dyads with a comprehensive mental account, we found that dyads with more integrative potential within subsets even outperformed dyads in the comprehensive mental accounting condition ( $t[153] = 2.61$ ,  $p = .010$ ). On the contrary, dyads who created subsets with more integrative potential between subsets achieved significantly lower joint outcomes than dyads in the comprehensive mental accounting condition ( $t[153] = 2.64$ ,  $p = .009$ ), providing support for Hypothesis 2.

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<sup>31</sup> We also performed moderated multiple regressions using the mental accounting approach (*comprehensive* vs. *2-issue* vs. *4-issue* vs. *free-to-choose mental accounting*) as the predictor, the joint outcomes as the dependent variable, and the integrative potential location score as the moderator variable. The pattern of findings corresponds with the observed effects when using integrative-potential location score as a categorical variable. Specifically, a significant moderator effect ( $\Delta R^2 = .031$ ,  $p = .022$ ) indicated that the location of the integrative potential moderated the effects of the mental accounting approach on negotiation outcomes.



**Figure 2.** Experiment 2: Negotiating parties' joint outcomes (in points) as a function of the mental accounting approach. Topical mental accounting with integrative accounts increased the negotiation outcomes relative to the minimal accounting condition and comprehensive accounting condition. Whereas topical mental accounting with non-integrative accounts impaired the negotiation outcomes relative to the comprehensive accounting condition. Error bars indicate  $\pm 1$  SEM.

## Discussion

The findings of Experiment 2 offer further support for our prediction that mental accounting processes affect parties' behavior and outcomes in interactive negotiations. Specifically, parties who simply processed offers on an issue-by-issue basis (i.e., minimal mental accounting) achieved lower joint outcomes than parties who cognitively processed the offers in a combinatorial way, across subsets of issues (i.e., topical mental accounting) or across the whole set of issues (i.e., comprehensive mental accounting). At first sight, outcomes between parties with topical versus comprehensive mental accounting did not differ from each other. However, further analyses revealed that parties who tried to consider all eight issues within each proposal simultaneously achieved *higher* outcomes than parties who created subsets of issues with scattered integrative potential. Obviously, in the comprehensive mental accounting condition, the integrative potential was always located within the whole set of issues. The exploratory findings of this first interactive negotiation study suggest that the distribution of integrative potential *within* or *between* subsets of issues (i.e., mental accounts) is a crucial factor concerning mental accounting processes in multi-issue negotiations. Even

more intriguing is, however, the reversed finding that parties with comprehensive mental accounting achieved *lower* outcomes than parties who created topical mental accounts that included subsets of issues with aggregated integrative potential. This interesting finding speaks for another crucial factor besides the integrative potential *within* or *between* issue subsets. From these findings, we conclude that a high number of issues involved in a proposal will increase the cognitive complexity and thus will hinder the exploitation of the integrative potential (i.e., comprehensive accounting). Reducing the number of issues within proposals will reduce the complexity and may help parties to easily explore integrative trade-off opportunities, however, only when the integrative potential is aggregated within the subsets of issues. By contrast, it will even hamper the finding of integrative trade-off opportunities when parsing the whole set of issues in terms of subsets scatters the integrative potential between the created issue subsets. We tested these assumptions in the following experiment by systematically varying the location of the integrative potential *within* or *between* issue subsets.

### ***Experiment 3: The Integrative Potential of Issue Subsets and the Topical Accounting Effect***

Experiment 3 followed three major goals—first, we sought to replicate the topical mental accounting effects in negotiations involving issues from a business-to-business case based on a real-world negotiation scenario (i.e., financial-related issues such as pricing and discounting) rather than fictional issues (Experiments 1 and 2). Second, we manipulated (rather than measured) the integrative potential *within* versus *between* accounts to provide causal support for the moderating effect of the location of the integrative potential. Third, we aimed at investigating the psychological and behavioral processes underlying the mental accounting effects. As in Experiment 2, we predict that processing issues in topical mental accounts lead to better economic outcomes compared to minimal accounts and a comprehensive account when the integrative potential is aggregated within mental accounts. However, when the integrative potential is scattered between accounts, topical mental accounting leads to a negotiation disadvantage (Hypothesis 2). With respect to psychological and behavioral processes, we assume that the mental accounting effects on negotiation outcomes can be traced back to parties' understanding of their counterparts' priorities and their logrolling behavior during the negotiation process. Specifically, we predict that:

*Hypothesis 3: Topical mental accounting will help parties to get a more accurate judgment about their counterparts' interests, thus leading to more*



*logrolling behavior and consequently better negotiation outcomes than parties with no-topical mental accounting, albeit only when the integrative potential is aggregated within (rather than scattered between) the mental accounts (moderated serial mediation hypothesis).*

## Method

**Sample size analysis.** Based on the effect size of Experiment 1 (Cohen's  $d = 0.54$ ;  $f = 0.27$ ), a power analysis revealed a required sample size of  $N = 136$  (G\*Power parameters:  $f = 0.27$ ,  $\alpha = .05$ ,  $1-\beta = 0.80$ ) for a  $3 \times 2$  between-subject design. As in Experiment 2, we doubled the sample size due to the dyadic level analysis to 272 participants.

**Participants and design.** Three hundred and sixty-six students with different academic majors (e.g., business administration, psychology, economics, etc.) were recruited and received €8.00 for their participation in the study. Nine dyads failed to reach an agreement and were excluded from further analyses. The remaining sample was comprised of 348 participants ( $M_{\text{age}} = 21.79$ ,  $SD = 2.82$ ; 240 female) to form 174 dyads. The experiment had a  $3$  (Topical accounting: no-topical accounting vs. topical accounting with two issues vs. topical accounting with four issues)  $\times 2$  (Location of integrative potential: aggregated within vs. scattered between accounts) between-subjects design.

**Negotiation task and procedure.** The negotiation task was adapted from Geiger and Hüffmeier (2020) and revolved around the sale of a power plant, featuring a total of eight issues including *plant options*, *schooling*, *delivery modalities*, *delivery date*, *warranty*, *price*, *early payment discount*, and *payment terms*. All eight issues were integrative and thus allowed for win-win agreements. The negotiation procedure was identical to Experiment 2, with the exception that the negotiation was split into four rounds rather than two rounds.

**Experimental manipulations.** We systematically varied (a) the mental accounting approach that parties adopted and (b) the location of the integrative potential in the negotiations.

Basically, the manipulation of mental accounting paralleled Experiment 2. Unlike Experiment 2, the composition of topical mental accounts—with respect to the issues that were assigned to specific subsets—was pre-defined. Specifically, parties in the topical accounting condition with two issues were provided with four subsets of issues, each involving two issues. Parties in the topical accounting condition with four issues were provided with two subsets of issues, each involving four issues. Finally, parties in the no-

topical accounting condition were not asked to create subsets of issues. Thus, the no-topical accounting condition served as a control condition.

The variation in the location of the integrative potential—*aggregated within* versus *scattered between* mental accounts—was realized by creating different (sub)sets of issues. Specifically, in the condition with aggregated integrative potential within (sub)sets, the packages comprised logrolling issues that allowed parties to exchange concession on high versus low priority issues (i.e., one pair of logrolling issues, two-pairs of logrolling issues, or four pairs of logrolling issues in the topical accounting condition with two issues, topical accounting with four issues, and the no-topical accounting condition, respectively;<sup>32</sup> see Appendix, Table 2). In the condition with scattered integrative potential between (sub)sets of issues, the packages comprised issues that did not allow parties to exchange concessions on high versus low priority issues (i.e., no logrolling issues within the same subset of issues in the topical accounting condition with two issues, topical accounting with four issues, and the no-topical accounting condition, respectively;<sup>33</sup> see Appendix, Table 2).

**Manipulation check.** To check whether the manipulation of mental accounting was successful, participants were asked to indicate whether or not (yes/no) they had considered and negotiated the eight issues as multi-issue subsets (“In the previous negotiation I considered the issues within one subset simultaneously” and “My counterpart and I negotiated the issues in each subset simultaneously”), and whether they had made proposals on the issues within each subset simultaneously (“I made proposals on the issues within one subset simultaneously”).

**Dependent variables.** We used the same measures as in Experiment 2 for the joint outcomes of each negotiating dyad (ranging from 15,200 to 29,600 points).

To examine the underlying mechanisms of the mental accounting effect in negotiations, parties’ judgment accuracy (perception) and logrolling (behavior) were assessed as potential mediators. Following Thompson and Hastie (1990), a judgment accuracy score was calculated by comparing negotiators’ estimates of their counterparts’ payoffs with their counterparts’ actual payoffs. The more the score deviates from zero, the less accurate negotiators’ understanding of the other party’s priorities (Thompson & DeHarpport, 1994). In addition, negotiators’ logrolling behavior—the systematic exchange of concessions

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<sup>32</sup> The no-topical accounting condition with 4 pairs of logrolling issues within the package is identical to a comprehensive accounting condition. Thus, in accordance with the previous study, this condition was realized as a control condition with the integrative potential being fully aggregated within mental accounts.

<sup>33</sup> The no-topical accounting condition without integrative potential is identical to a minimal accounting condition. Thus, in accordance with the previous study, this condition was realized as a control condition with the integrative potential that was fully scattered between mental accounts.

(Thompson & Hastie, 1990; Trötschel et al., 2011)—was captured over the course of the negotiation. Participants were asked to note down their proposals for the respective issue (sub)sets at each of the four negotiation rounds. Based on these interim proposals, the averaged logrolling score was calculated for each round. The respective logrolling score of each negotiation round (Trötschel et al., 2011) ranged from -16 (all issues were exchanged in a completely priority-inconsistent way) to +16 (all issues were exchanged in a completely priority-consistent way).

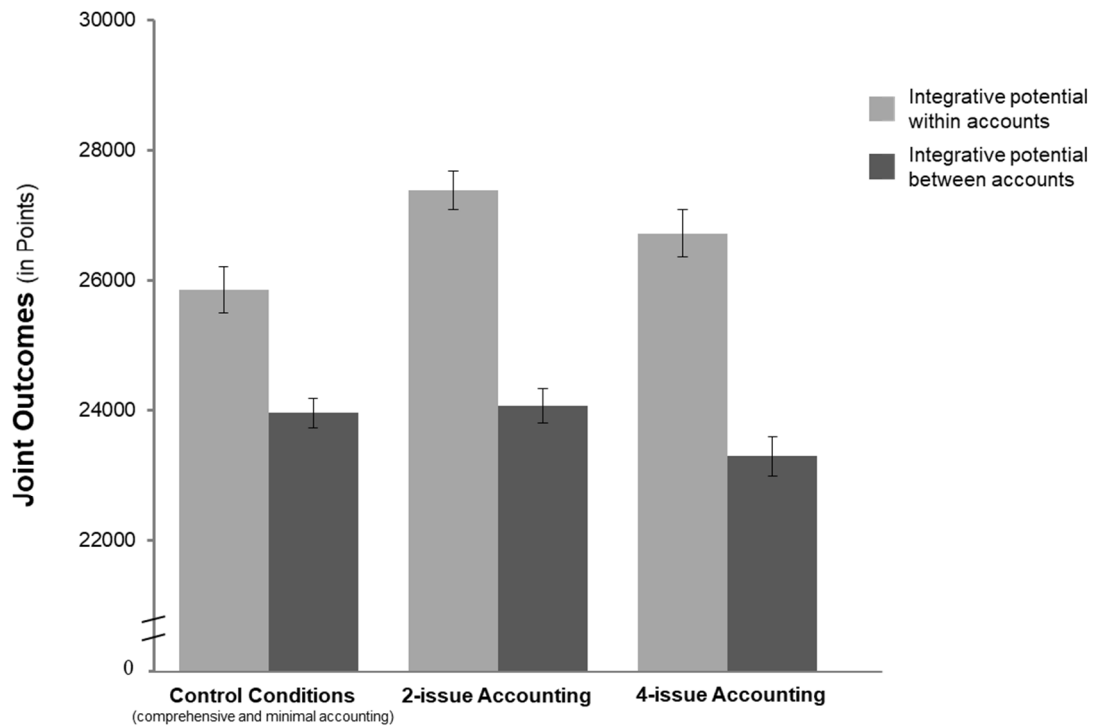
## Results

**Manipulation check.** Chi-square analyses revealed that parties in the topical mental accounting conditions gave significantly more affirmative answers to the three manipulation check items regarding the consideration (2-issue account condition: 88.4%; 4-issue account condition: 91.7%), negotiation (94.6%; 90.8%), and exchange of proposals in terms of issue subsets (88.4%; 96.7%). Conversely, participants in the no-topical accounting conditions predominantly indicated that they did not consider and negotiate the issues in terms of topical subsets (81.9%, 91.4%, and 91.4% in the items about considering, negotiating, and making proposals, respectively;  $\chi^2[2] = 179.08, p < .001$ ;  $\chi^2[2] = 239.44, p < .001$ ;  $\chi^2[2] = 240.81, p < .001$ ). As the second experimental factor—the location of the integrative potential—was structurally predetermined, a manipulation check on this factor was not conducted.

**Joint outcomes.** We predicted that topical mental accounting would yield better negotiation outcomes, albeit only when the integrative potential was aggregated within respective mental accounts. The data supported our prediction: A 3 (Topical accounting: no-topical accounting vs. topical accounting with two issues vs. topical accounting with four issues)  $\times$  2 (Location of integrative potential: aggregated within vs. scattered between accounts) ANOVA on parties' joint outcomes revealed a main effect for topical accounting ( $F[2, 168] = 4.27, p = .016, \eta_p^2 = .05$ ), a main effect for the location of the integrative potential ( $F[1, 168] = 134.22, p < .001, \eta_p^2 = .44$ ), and the predicted interaction effect ( $F[2, 168] = 3.98, p = .020, \eta_p^2 = .05$ ). Figure 3 illustrates parties' joint outcomes as a function of the mental accounting approach and the location of the integrative potential.

Contrast analyses revealed that when the integrative potential was aggregated within respective mental accounts, parties generated higher joint outcomes in the topical accounting conditions ( $M_{2-issue} = 27,392.59, SD = 1,930.31$ ;  $M_{4-issue} = 26,727.33, SD = 1,612.67$ ) than in the no-topical accounting conditions ( $M_{comprehensive} = 25,851.73, SD = 1,950.88$ ;  $M_{minimal} = 23,957.14, SD = 1,380.94$ ;  $t[102.49] = 6.66, p < .001$ ). In contrast, when the integrative

potential was scattered between different mental accounts, the topical mental accounting advantage disappeared and even became a disadvantage, as dyads reached lower joint outcomes ( $M_{2\text{-issue}} = 24,068.97$ ,  $SD = 1,619.11$ ;  $M_{4\text{-issue}} = 23,292.63$ ,  $SD = 1,240.95$ ) than those in the no-topical accounting conditions ( $t[102.18] = 4.22$ ,  $p < .001$ ).<sup>34</sup>



**Figure 3.** Experiment 3: Negotiators' joint outcomes (in points) as a function of the mental accounting approach (control vs. 2 accounts vs. 4 accounts) and the location of the integrative potential (within vs. between accounts). Topical mental accounting led to better outcomes when the integrative potential was aggregated within accounts (grey bars) but led to worse outcomes when the integrative potential was scattered between accounts (black bars). Error bars indicate  $\pm 1$  SEM.

**Judgment accuracy.** We predicted that parties adopting a topical mental accounting approach would be more accurate in estimating the other parties' interests—would hold a less pronounced fixed-pie bias—when the integrative potential was within rather than between mental accounts. A 3 (Topical accounting)  $\times$  2 (Location of integrative potential) ANOVA revealed a main effect for the location of the integrative potential ( $F[1, 168] = 37.65$ ,  $p < .001$ ,  $\eta_p^2 = .18$ ) and the predicted interaction effect ( $F[2, 168] = 4.30$ ,  $p = .015$ ,  $\eta_p^2 = .05$ ; for the

<sup>34</sup> Two-issue ( $M = 25,671.43$ ,  $SD = 2,429.87$ ) versus four-issue ( $M = 25,009.98$ ,  $SD = 2,243.77$ ) mental accounting did not yield a significant difference in joint outcomes ( $t[111.53] = -1.52$ ,  $p = .131$ ).

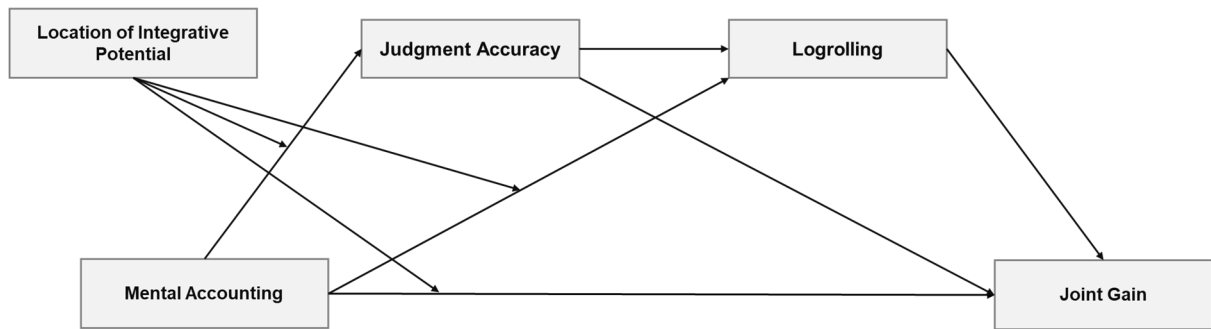
main effect for topical accounting,  $F[2, 168] = 2.27, p = .107$ ). In support of our prediction, contrast analyses revealed that when the integrative potential was *within* mental accounts, topical mental accounting provided negotiators with a more accurate insight into their counterparts' interests ( $M_{2-issue} = 37,592.59, SD = 26,366.62; M_{4-issue} = 51,223.33, SD = 25,106.12$ ) than no-topical accounting ( $M_{comprehensive} = 53,690.00, SD = 19,707.94; M_{minimal} = 61,801.43, SD = 15,271.34; t[94.33] = 3.23, p = .002$ ). Conversely, when the integrative potential was scattered across different mental accounts, topical mental accounting even resulted in inferior integrative insights ( $M_{2-issue} = 66,684.83, SD = 10,495.79; M_{4-issue} = 67,666.67, SD = 13,091.78$ ) in comparison to the no-topical accounting conditions ( $t[94.88] = 3.40, p = .001$ ).

**Logrolling behavior.** Furthermore, we predicted that parties' logrolling behavior would also be affected by the topical mental accounting and the location of the integrative potential. Parties' logrolling behavior over the course of negotiation was analyzed with a 3 (Topical accounting)  $\times$  2 (Location of integrative potential)  $\times$  4 (Negotiation round) ANOVA, with repeated measures on the last factor. The analysis revealed significant main effects for negotiation round ( $F[3, 504] = 162.57, p < .001, \eta_p^2 = .49$ ), topical accounting ( $F[2, 168] = 11.12, p < .001, \eta_p^2 = .12$ ), and the location of the integrative potential ( $F[1, 168] = 203.82, p < .001, \eta_p^2 = .55$ ). Moreover, there was a significant interaction effect between topical accounting and the location of the integrative potential ( $F[2, 168] = 22.49, p < .001, \eta_p^2 = .21$ ), topical accounting and negotiation round ( $F[6, 504] = 4.75, p < .001, \eta_p^2 = .05$ ), the location of the integrative potential and negotiation round ( $F[3, 504] = 124.19, p < .001, \eta_p^2 = .43$ ), and a three-way interaction effect ( $F[6, 504] = 9.98, p < .001, \eta_p^2 = .11$ ).

To further decompose the topical accounting by location of integrative potential interaction, pairwise comparisons on the topical accounting effect in the integrative potential within versus between mental accounts conditions were conducted, respectively. Analyses revealed that when the integrative potential was aggregated within accounts, topical mental accounting led to more frequent logrolling behavior ( $M_{2-issue} = 15.31, SD = 6.64; M_{4-issue} = 10.66, SD = 4.86$ ) than did no-topical accounting conditions ( $M_{comprehensive} = 6.88, SD = 4.58; M_{minimal} = 3.58, SD = 3.12; t[82.75] = 8.33, p < .001$ ). In contrast, when the integrative potential was scattered between accounts, topical mental accounting resulted in less frequent logrolling behavior ( $M_{2-issue} = 1.59, SD = 3.57; M_{4-issue} = -0.65, SD = 2.16$ ) than did no-topical accounting conditions ( $t[92.73] = 7.44, p < .001$ ). Analyses of the topical accounting by negotiation round interaction revealed that although there was no difference in logrolling behavior between parties adopting different mental accounting approaches at the start of the

negotiation, differences in logrolling emerged over the course of the negotiation ( $F[2, 171] = 2.30, p = .104$ ;  $F[2, 171] = 4.94, p = .008, \eta_p^2 = .06$ ;  $F[2, 171] = 3.70, p = .027, \eta_p^2 = .04$ ; and  $F[2, 171] = 2.88, p = .059, \eta_p^2 = .03$ , for Rounds 1 to 4, respectively). Analysis of the location of integrative potential by negotiation round interaction effect revealed that from the start of the negotiation onwards, parties engaged more in logrolling behavior when the integrated potential was aggregated within (vs. between) mental accounts and, as indicated by further contrast analyses, this effect even became stronger over the course of the negotiation ( $t[143.74] = 5.03, p < .001$ ;  $t[134.09] = 9.96, p < .001$ ;  $t[129.93] = 12.65, p < .001$ ; and  $t[130.63] = 13.40, p < .001$ ; for Rounds 1 to 4, respectively).

**Moderated serial mediation analysis.** We predicted that parties' judgment accuracy and their logrolling behavior would account for the topical mental-accounting advantage in sequence, albeit only for the situation in which the integrative potential was aggregated within rather than scattered between mental accounts (Hypothesis 3, Figure 4). To test this moderated serial mediation hypothesis, we conducted process analyses using a bootstrapping procedure with 5,000 iterations. Topical accounting was entered as the predictor (-2 = no-topical accounting condition, +1 = topical accounting with two issues, +1 = topical accounting with four issues), the joint negotiation outcome was entered as the dependent variable, parties' judgment accuracy score and their logrolling behavior in the course of the negotiation (i.e., averaged score of Round 2, 3, and 4) were entered as successive mediators, and the location of the integrative potential was entered as a moderator (Hayes, 2015, Model 85). Bootstrapping analyses corroborated that parties' judgment accuracy and logrolling behavior mediated the effect of topical mental accounting on negotiation outcomes when the integrative potential was aggregated within mental accounts (conditional indirect effect:  $b = .04, SE = .02, BC\ 90\% CI [0.0043; 0.0761]$ ), but not when the integrative potential was scattered between accounts (conditional indirect effect:  $b = -.02, SE = .02, BC\ 90\% CI [-0.0491; 0.0000]$ ). In sum, the findings of this mediation analysis supported Hypothesis 3 that topical mental accounting will improve parties' judgment accuracy on the differences between their own and their counterparts' priorities, will increase parties' logrolling behavior, and ultimately improve the negotiation outcomes, however only when the integrative potential is aggregated within rather than scattered between mental accounts.



**Figure 4.** Experiment 3: Moderated serial mediation analyses (see Hayes, 2015; Model 85) showed that topical mental accounting led parties to a more accurate understanding of the other parties' interests, which in turn led to more frequent logrolling behavior, and ultimately resulted in more joint outcomes. These successive mediating effects, however, only emerged when the integrative potential was aggregated within respective mental accounts rather than scattered between accounts.

## Discussion

In a classic buyer-seller transaction, Experiment 3 replicated the findings from Experiment 2 that topical mental accounting resulted in better economic outcomes when the integrative potential was aggregated within mental accounts. However, when the integrative potential was scattered between accounts, topical mental accounting led to a negotiation disadvantage. In addition, parties with topical mental accounts and aggregated integrative potential developed a better understanding of the differences between their own and their counterparts' priorities, and were more successful in systematically increasing their logrolling behaviors over the course of the negotiation. On the contrary, parties with topical mental accounts and scattered integrative potential failed to uncover the integrative potential and did not systematically increase their logrolling behaviors over the course of the negotiation.<sup>35</sup> Thus, an important question arising from these findings is whether the detrimental effect caused by the scattered integrative potential between topical mental accounts can be overcome when parties take an integrated perspective on the topical mental accounts—rather than mentally treating them in an isolated, segregated way. Building on the consumer and decision-making

<sup>35</sup> We also examined parties' judgment accuracy and logrolling behavior in Experiment 2. A serial mediation analysis (Hayes, 2015; Model 6) showed that when parties created *integrative* topical mental accounts (vs. minimal accounts and a comprehensive account), they had more accurate judgment about the other party's interests, which in turn led to more logrolling behavior, and finally produced more joint outcomes (indirect effect:  $b = 0.28$ ,  $SE = 0.09$ , BC 95% CI [0.1228; 0.4842]). This finding supports our assumption that parties' judgment accuracy and logrolling behavior account for the topical mental accounting effect when the integrative potential is aggregated within the respective mental accounts.

literature (cf. integrated outcome editing; Kahneman & Tversky, 1979; broad choice bracketing; Read et al., 1999; simultaneous choice; Simonson, 1990; broad decision frames; Kahneman & Lovallo, 1993), Experiments 4 and 5 tested the prediction that the integrated (vs. segregated) evaluation of outcomes across topical mental accounts may help parties to achieve beneficial outcomes when the integrative potential is scattered between rather than aggregated within mental accounts.

#### ***Experiment 4: Outcome Editing***

Experiments 1 to 3 supported our prediction that negotiators tend to mentally account multiple issues into smaller topical subsets and evaluate these issue subsets (i.e., topical mental accounts) separately. Importantly, our experiments reveal that topical mental accounting can be advantageous when trade-off opportunities are aggregated within mental accounts; However, the findings also reveal that mental accounting produces a disadvantage for negotiators when the integrative potential is scattered between mental accounts. Building on the concept of outcome editing in the mental accounting literature (Thaler, 1985; 1999), we suggest that parties evaluating the outcomes of different topical mental accounts in an integrated manner (i.e., integrated outcome editing) can overcome the emerging disadvantage of topical mental accounting with scattered integrative potential between subsets of issues.

Outcome editing is the process of evaluating the potential outcomes (i.e., gains and losses) of different mental accounts (Kahneman & Tversky, 1979; Thaler, 1985). Specifically, outcome editing can occur either in a segregated or integrated manner (Kahneman & Tversky, 1979; Thaler, 1985). In segregated outcome editing, decision makers have a non-comparative mindset and evaluate the outcomes of different mental accounts in an isolated way. Thus, decision makers do not compare the outcomes across their different topical accounts but rather evaluate the outcomes on each topical account in isolation. On the contrary, individuals who adopt an integrated approach evaluate the outcomes of different mental accounts in a comparative and comprehensive manner. Such a process allows decision makers to leverage the utilities of different accounts and compensate costs in one account with larger benefits in another account (Thaler, 1985).

Previous decision-making research has demonstrated that by default, individuals tend to evaluate outcomes of mental accounts in a segregated way (Tversky & Kahneman, 1981). This finding is in line with the results of Experiments 2 and 3, which showed that parties were less likely to discover the integrative potential scattered between the topical mental accounts. Following previous decision-making research (e.g., broad choice bracketing; Read et al.,



1999; integrated outcome editing; Thaler, 1999), negotiators should be able to explore integrative trade-off opportunities between topical accounts if they adopt an integrated rather than segregated approach when evaluating the outcomes on the separate mental accounts. Therefore, we predict that integrated outcome editing will help parties to overcome the barrier between non-integrative topical mental accounts and facilitate the finding of win-win solutions across subsets of issues.

We conducted Experiment 4 to test the expected beneficial effect of integrated outcome editing in multi-issue negotiations with non-integrative potential within topical mental accounts (i.e., all the integrative potential is scattered between the mental accounts—no integrative potential is aggregated within the accounts; cf. Experiment 3). Building on the individual decision-making literature (e.g., Read et al., 1999; Thaler, 1999), we systematically varied whether parties were led to evaluate the potential outcomes on the subsets of issues (i.e., topical mental accounts) in a segregated versus integrated way during the negotiation. We also systematically varied the location of the integrative potential *within* or *between* topical accounts in a negotiation task with four subsets of issues (i.e., four topical accounts with vs. without integrative trade-off opportunities). We predict that the findings will coincide with those of Experiment 3 for the effect of the location of the integrative potential when negotiators are instructed to evaluate the outcomes of the issue subsets in a segregated manner. Specifically, evaluating the outcome of the issue subsets in a segregated way should result in less integrative tradeoffs and lower joint outcomes, when the integrative potential is scattered between (vs. aggregated within) the subsets of issues. By contrast, evaluating outcomes in an integrated way should reduce or even eliminate the effect caused by the location of the integrative potential.

*Hypothesis 4: Outcome editing (i.e., segregated vs. integrated evaluation of outcomes) will moderate the effect caused by the location of the integrative potential on parties' negotiation outcomes.*

Specifically, we predict that:

*Hypothesis 4a: The location of the integrative potential between (vs. within) subsets of issues will strongly reduce the quality of outcomes when parties evaluate outcomes on the subsets of issues in a segregated way.*

*Hypothesis 4b: The effect of the location of the integrative potential between (vs. within) subsets of issues will have a less pronounced effect on the quality of outcomes or will even dissolve when parties evaluate outcomes on the subsets of issues in an integrated way.*

## Method

**Sample size analysis.** Based on the effect sizes of Experiments 2 and 3 (Cohen's  $d = 0.60$ ;  $f = 0.30$ ), the power analysis revealed a minimum required sample size of  $N = 90$  (G\*Power parameters:  $f = 0.30$ ,  $\alpha = .05$ ,  $1-\beta = 0.80$ ) for a  $2 \times 2$  between-subject design. As in the previous experiments, this sample size had to be doubled to 180 participants due to the dyadic-level analysis.

**Participants and design.** Two hundred and fifty students with different academic majors (e.g., business administration, psychology, economics, etc.) were recruited and received €8.00 for their participation. Four dyads failed to reach an agreement and were excluded from further analyses. The remaining sample was comprised of 242 participants ( $M_{\text{age}} = 22.66$ ,  $SD = 3.22$ ; 145 female) to form 121 dyads. The experiment followed a  $2 \times 2$  factorial design with the location of the integrative potential (within vs. between topical accounts) and parties' outcome editing approach (segregated vs. integrated) as between-subjects variables.

**Negotiation task and procedure.** The task and the procedure were identical to Experiment 3, with the exception that the subsets of issues always involved two issues, resulting in four topical accounts each with two issues.

**Experimental manipulations.** The manipulation of the location of the integrative potential (within vs. between topical accounts) paralleled that of Experiment 3.

To manipulate outcome editing, participants were instructed to evaluate the outcomes of the subsets of issues either in a comparative, integrated way (integrated outcome editing condition), or an isolated, segregated way (segregated outcome editing condition) throughout the negotiation process. To reinforce the manipulations, participants were equipped with a calculator to either compute the outcomes on subsets of issues in isolation or in combination.

Specifically, participants in the *integrated* outcome editing condition read:

*“Previous research has shown that in order to achieve beneficial outcomes, negotiators must consider all potential outcomes from different issue subsets in an integrated and comparative manner. Therefore, please compare your potential outcomes on the subsets of issues throughout the negotiation process and consider these outcomes in an integrated, comparative way. To evaluate the outcomes across the issue subsets, please use the calculator during the negotiation process.”*

In contrast, in the segregated outcome editing condition participants read:

*“Previous research has shown that in order to achieve beneficial outcomes, negotiators must consider the potential outcomes from the different issue subsets in a segregated and isolated manner. Therefore, please focus on your potential outcomes on each subset of issues throughout the negotiation process and consider these outcomes in a segregated, isolated way. To evaluate the outcomes within the issue subsets, please use the calculator during the negotiation process.”*

**Manipulation check.** To check whether the manipulation of outcome editing was successful, participants were asked to indicate whether or not (yes/no) they had evaluated and compared the potential outcomes of different issue subsets during the negotiation in an integrated way (“During the negotiation, I calculated and compared the profits for the different subsets of issues in an integrated manner”).

**Dependent variables.** We used the same measures as in Experiment 3 for joint outcomes, judgment accuracy, and logrolling behavior.

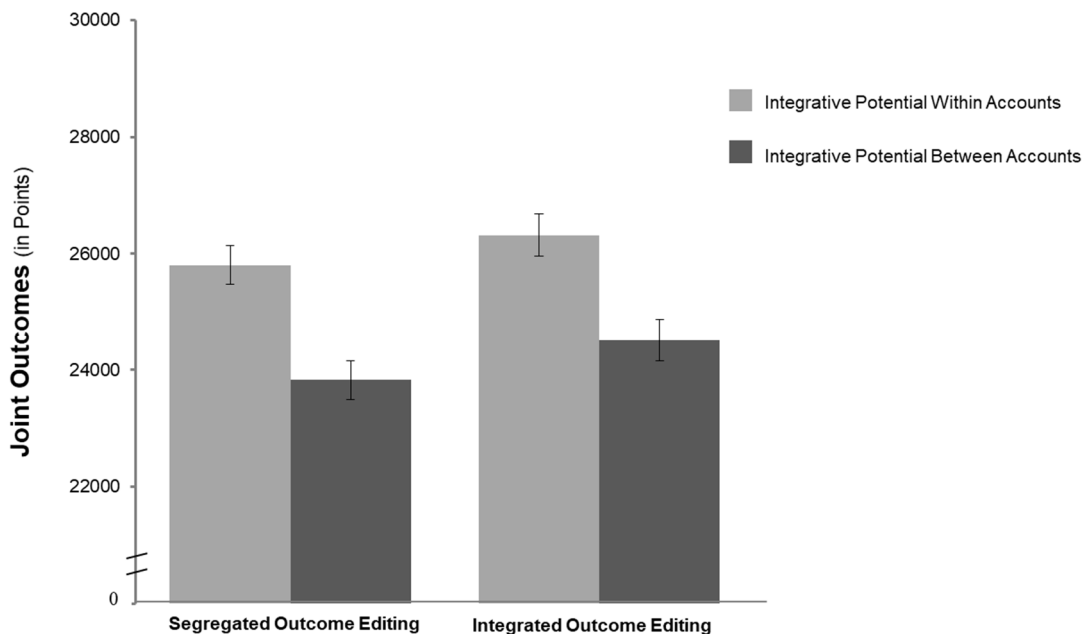
## Results

**Manipulation check.** The outcome editing manipulation was effective. Chi-square analyses revealed that participants in the integrated outcome editing condition gave significantly more affirmative answers to the integrated outcome editing item (95.9%) than participants in the segregated outcome edition condition (14.2%;  $\chi^2[1] = 163.55, p < .001$ ).

**Joint outcomes.** We predicted that the way parties evaluated outcomes (segregated vs. integrated outcome editing) would moderate the effect of the location of the integrative potential (Hypothesis 4). A 2 (Location of integrative potential)  $\times$  2 (Outcome editing) ANOVA on parties’ joint outcomes revealed a main effect for the location of the integrative potential ( $F[1, 117] = 43.46, p < .001, \eta_p^2 = .27$ ) and a main effect for outcome editing ( $F[1, 117] = 4.33, p = .040, \eta_p^2 = .04$ ). The predicted interaction effect did not reach significance ( $F[1, 117] = 0.10, p = .751$ ).

Although the interaction effect between the location of the integrative potential and outcome editing did not reach significance, for explorative reasons we examined the effects caused by the location of the integrative potential separately for negotiators with a segregated and an integrated outcome editing approach. Contrast analyses revealed that the effect of the location of the integrative potential was significant both when negotiators evaluated the outcomes in a segregated way ( $M = 25,810.00, SD = 1,778.87$  vs.  $M = 23,823.33, SD = 1,242.82$  for the integrative potential within vs. between issue subsets;  $t[51.86] = 5.01, p <$

.001) and in an integrated way ( $M = 26,316.67$ ,  $SD = 1,982.35$  vs.  $M = 24,512.90$ ,  $SD = 1,182.58$  for the integrative potential within vs. between issue subsets;  $t[47.02] = 4.30$ ,  $p < .001$ ; see Figure 5). Analyzing these conditional main effects from a different perspective, the outcome editing approach did not result in different profits when the integrative potential was aggregated within the issue subsets ( $t[57.33] = 1.04$ ,  $p = .302$ ). In contrast, evaluating outcomes in an integrated (vs. segregated) manner significantly improved parties' joint profits when the integrative potential was scattered between issue subsets ( $t[58.60] = 2.22$ ,  $p = .030$ ).



**Figure 5.** Experiment 4: Negotiators' joint outcomes (in points) as a function of the location of the integrative potential (within vs. between accounts) and outcome editing (segregated vs. integrated). Integrated outcome editing led to better outcomes when the integrative potential was scattered between mental accounts rather than aggregated within accounts. Error bars indicate  $\pm 1$  SEM.

**Judgment accuracy.** A 2 (Location of integrative potential)  $\times$  2 (Outcome editing) ANOVA revealed a main effect for the location of the integrative potential ( $F[1, 117] = 20.25$ ,  $p < .001$ ,  $\eta_p^2 = .15$ ) and a main effect for outcome editing ( $F[1, 117] = 5.04$ ,  $p = .027$ ,  $\eta_p^2 = .04$ ).<sup>36</sup> The predicted interaction effect did not reach significance ( $F[1, 117] = 0.50$ ,  $p = .482$ ).

<sup>36</sup> Two participants failed to respond to the judgment accuracy measure completely. The missing values were replaced by the mean based on all participants answering the item (De Dreu, Beersma, Stroebe, & Euwema, 2006). The results remained unchanged by using alternative substitution procedures.

Again, for explorative reasons, we conducted contrast analyses on the conditional main effects. These findings paralleled the pattern of findings on the joint outcomes. Negotiators with a segregated outcome editing approach made less accurate judgments when the integrative potential was scattered between the issue subsets ( $M = 66,256.33$ ,  $SD = 12,220.69$ ) than when it was aggregated within the subsets ( $M = 50,155.53$ ,  $SD = 19,495.74$ ;  $t[48.74] = 3.83$ ,  $p < .001$ ). When negotiators evaluated outcomes in an integrated manner, the effect caused by the location of the integrative potential was still significant ( $M = 45,400.00$ ,  $SD = 20,375.34$  vs.  $M = 57,133.55$ ,  $SD = 14,658.08$  for the integrative potential within vs. between issue subsets;  $t[52.58] = 2.58$ ,  $p = .013$ ). Analyzing the conditional main effects from a different perspective, the outcome editing approach (segregated vs. integrated) did not affect negotiators' judgment accuracy when the integrative potential was aggregated within the issue subsets ( $t[57.89] = 0.92$ ,  $p = .359$ ). In contrast, when the integrative potential was scattered between the issue subsets, evaluating the outcomes in an integrated (vs. segregated) manner improved parties' judgment accuracy ( $t[57.75] = 2.64$ ,  $p = .011$ ).

**Logrolling behavior.** Parties' logrolling behavior over the course of negotiation was analyzed with a 2 (Location of integrative potential)  $\times$  2 (Outcome editing)  $\times$  4 (Negotiation round) ANOVA, with repeated measures on the last factor. The analysis revealed significant main effects for negotiation round ( $F[3, 351] = 107.08$ ,  $p < .001$ ,  $\eta_p^2 = .48$ ), a significant main effect for the location of the integrative potential ( $F[1, 117] = 108.75$ ,  $p < .001$ ,  $\eta_p^2 = .48$ ), a significant interaction effect between the location of the integrative potential and negotiation round ( $F[3, 351] = 60.45$ ,  $p < .001$ ,  $\eta_p^2 = .34$ ), and a marginally significant interaction effect between outcome editing and negotiation round ( $F[3, 351] = 2.46$ ,  $p = .063$ ,  $\eta_p^2 = .02$ ; other  $F$ s  $< 2.41$ ,  $ps > .123$ ).

Analyses on the location of integrative potential by negotiation round interaction revealed that from the start of the negotiation onwards, parties engaged more in logrolling behavior when the integrative potential was aggregated within (vs. between) subsets of issue and, as indicated by further contrast analyses, this effect even became stronger over the course of the negotiation ( $t[100.01] = 4.42$ ,  $p < .001$ ;  $t[107.32] = 8.69$ ,  $p < .001$ ;  $t[90.74] = 10.58$ ,  $p < .001$ ; and  $t[94.98] = 11.03$ ,  $p < .001$ ; for Rounds 1 to 4, respectively). Analyses on the marginally significant interaction between outcome editing and negotiation round revealed that although there was no difference in logrolling behavior between parties adopting different outcome editing approaches at the start of the negotiation, differences in logrolling emerged over the course of the negotiation, albeit these were nonsignificant ( $t[119] = 0.21$ ,  $p = .833$ ;

$t[119] = 1.68, p = .095$ ;  $t[119] = 0.84, p = .405$ ; and  $t[119] = 0.90, p = .368$ ; for Rounds 1 to 4, respectively).

Again, for explorative reasons, we investigated the effects caused by the location of the integrative potential for negotiators adopting a segregated and integrated outcome editing approach, respectively. The effect of the location of the integrative potential was significant both when negotiators evaluated the outcomes in a segregated way ( $M = 10.47, SD = 5.78$  vs.  $M = 1.14, SD = 2.78$  for the integrative potential within vs. between issue subsets;  $t[41.77] = 7.97, p < .001$ ) and in an integrated way ( $M = 11.43, SD = 5.99$  vs.  $M = 2.85, SD = 3.54$  for the integrative potential within vs. between issue subsets;  $t[46.79] = 6.78, p < .001$ ). Analyzing the conditional main effects from a different perspective, the outcome editing approach did not affect negotiators' logrolling behavior when the integrative potential was aggregated within subsets of issues ( $t[57.93] = 0.63, p = .530$ ). In contrast, when the integrative potential was scattered between subsets of issues, integrated (vs. segregated) outcome editing led to more logrolling behavior ( $t[56.64] = 2.09, p = .041$ ).

## Discussion

Experiment 4 did not provide support for our assumption that outcome editing would moderate the effect of the location of the integrative potential between (vs. within) subsets of issues and would thus either reduce (or even eliminate) the detrimental effects caused by subsets of issues without aggregated integrative potential (i.e., non-integrative topical mental accounts). In line with previous research (Read et al., 1999; Thaler, 1999), however, evaluating outcomes in an integrated manner nevertheless unfolded a beneficial effect without reducing or eliminating the detrimental effects caused by the scattered integrative potential. Even though the integrated evaluation of outcomes helped parties to improve the quality of negotiation agreements (irrespective of the location of the integrative potential), it did help parties to exploit the integrative potential to a larger extent when the integrative potential was scattered between the different subsets of issues. In this respect, one could assume that the exploration of the integrative potential that was scattered between the different subsets of issues might have been a particularly challenging task to fulfill in the present study, as parties were instructed to create four subsets of issues without integrative potential being aggregated within the topical accounts. In other words, in the conditions in which the integrative potential was scattered between four different subsets of issues, parties faced the challenge to explore integrative tradeoffs or logrolling opportunities being hidden between four subsets of issues. Thus, it remains an important question as to whether the integrative and comparative

evaluation of outcomes may help parties to explore logrolling opportunities, when the integrative potential is not scattered between four (i.e., four subsets each with two issues) but only between two subsets of issues (i.e., two subsets each with four issues). Accordingly, in a final experiment, we tested whether the evaluation of outcomes across subsets of issues in an integrated manner will help parties to reduce (or even eliminate) the detrimental effect caused by the location of the integrative potential, when parties must deal with two topical accounts only.

### ***Experiment 5: Outcome Editing and the Topical-Accounting Disadvantage***

We conducted Experiment 5 (pre-registered at AsPredicted.org) to further examine the effect of integrated outcome editing in a negotiation with a lower number of topical mental accounts (i.e., two topical accounts each with four issues). As in Experiment 4, we predicted that the evaluation of outcomes in an integrated (vs. segregated) way would moderate the effect caused by the location of the integrative potential. Specifically, the hypothesis in this final experiment completely matched the hypothesis of the preceding experiment (see Hypothesis 4).

### **Method**

**Participants and design.** Two hundred and sixty students with different academic majors (e.g., business administration, psychology, economics, etc.) were recruited and received €8.00 for their participation. Seven dyads failed to reach an agreement and were excluded from further analyses. The remaining sample was comprised of 246 participants ( $M_{\text{age}} = 21.60$ ,  $SD = 3.55$ ; 160 female) to form 123 dyads. The experiment followed a  $2 \times 2$  factor design with the location of the integrative potential (within vs. between topical accounts) and parties' outcome editing approach (segregated vs. integrated) as between-subjects variables.

**Negotiation task and procedure.** The task and the procedure were identical to Experiment 4, with the exception that the subsets of issues always involved four issues, resulting in two topical accounts each with four issues.

**Experimental manipulations.** The manipulations for the location of the integrative potential (within vs. between topical accounts) and outcome editing (segregated vs. integrated) paralleled those of Experiment 4.

**Manipulation check.** To check whether the manipulation of outcome editing was effective, participants were again asked to indicate whether or not (yes/no) they had evaluated the potential outcomes during the negotiation in an integrated way. In order to achieve a better

understanding of whether parties felt capable of engaging in integrated outcome editing thoroughly, we also measured the extent to which they had successfully evaluated the outcomes of different topical accounts in a segregated versus integrated way (“During the negotiation, I was successful in evaluating the profits...”, 1 = “separately within the issues subsets” to 6 = “comprehensively across the issue subsets”).

**Dependent variables.** We used the same measures as in Experiments 3 and 4 for joint outcomes, judgment accuracy, and logrolling behavior.

## Results

**Manipulation check.** The treatment check on the outcome editing manipulation revealed that participants understood the instructions correctly. Chi-square analyses showed that participants in the integrated outcome editing condition gave significantly more affirmative answers to the integrated outcome editing item (forced-choice item: 89.5%) than participants in the segregated outcome editing condition (10.7%;  $\chi^2[1] = 152.99, p < .001$ ). In addition, analysis of the questionnaire item further confirmed that participants systematically differed in the way they evaluated the outcomes across the issue subsets. Specifically, participants in the integrated outcome editing condition indicated that they evaluated the profits of the different issue subsets in more integrated manner ( $M = 2.67, SD = 1.58$ ) than participants in the segregated outcome editing condition ( $M = 2.16, SD = 1.45; t[244] = 2.61, p = .010$ ). Notably, participants’ self-reports on their segregated versus integrated outcome editing approaches revealed that irrespective of the instructions, participants reported to have evaluated the outcomes more in a segregated rather than an integrated manner: mean scores in both outcome editing conditions were significantly lower than the indifference point of the scale (3.5;  $t[121] = 10.17, p < .001$ , and  $t[123] = 5.85, p < .001$ , for the segregated and integrated outcome editing condition, respectively). We will further elaborate on this finding in the subsequent discussion.

**Joint outcomes.** A 2 (Location of integrative potential)  $\times$  2 (Outcome editing) ANOVA on parties’ joint outcomes revealed a main effect for the location of the integrative potential ( $F[1, 119] = 31.81, p < .001, \eta_p^2 = .21$ ) and the predicted interaction effect ( $F[1, 119] = 4.43, p = .037, \eta_p^2 = .04$ ). The main effect of outcome editing did not reach significance ( $F[1, 119] = 0.53, p = .468$ ).

Contrast analyses on the significant interaction effect revealed that the effect caused by the location of the integrative potential was very strong when negotiators evaluated the outcomes in a segregated way ( $M = 26,332.26, SD = 2,413.49$  vs.  $23,646.67, SD = 972.64$  for



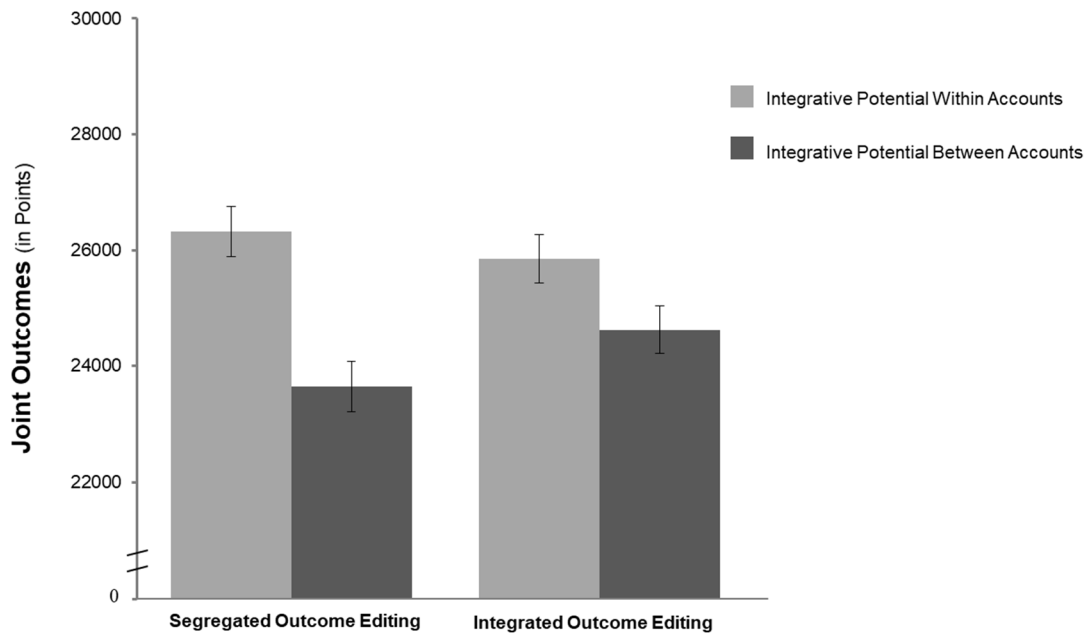
the location of the integrative potential within vs. between issue subsets;  $t[39.76] = 5.73, p < .001$ ). The effect caused by the location of the integrative potential was far less pronounced when negotiators evaluated the outcomes in an integrated way; however, the conditional main effect of the location of the integrative potential still reached significance ( $M = 25,854.84, SD = 2,349.73$  vs.  $M = 24,629.03, SD = 1,550.53$  for the location of the integrative potential within vs. between issue subsets;  $t[51.96] = 2.42, p = .019$ ). Viewed from a different perspective, evaluating outcomes in a segregated versus integrated manner did not result in different outcomes when the integrative potential was aggregated within the issue subsets ( $t[59.96] = 0.79, p = .433$ ). In contrast, evaluating outcomes in an integrated (vs. segregated) manner significantly improved outcomes when the integrative potential was scattered between issue subsets ( $t[50.69] = 2.97, p = .004$ ; see Figure 6).

**Judgment accuracy.** A 2 (Location of integrative potential)  $\times$  2 (Outcome editing) ANOVA revealed a main effect for the location of the integrative potential ( $F[1, 119] = 6.17, p = .014, \eta_p^2 = .05$ ) and a significant interaction effect ( $F[1, 119] = 8.72, p = .004, \eta_p^2 = .07$ ). The outcome editing main effect did not reach significance ( $F < 0.27, p > .60$ ).<sup>37</sup>

Contrast analyses on the interaction effect showed that when negotiators evaluated outcomes in a segregated manner, they made less accurate judgments when the integrative potential was scattered between the issue subsets ( $M = 68,901.38, SD = 9,111.76$ ) than when it was aggregated within the subsets ( $M = 51,735.48, SD = 21,011.99$ ;  $t[41.18] = 4.16, p < .001$ ). When negotiators evaluated outcomes in an integrated manner, the effect caused by the location of the integrative potential—within ( $M = 59,420.00, SD = 16,404.87$ ) versus between the issue subsets ( $M = 57,939.35, SD = 20,601.94$ )—vanished ( $t[57.14] = 0.31, p = .755$ ). Viewed from a different perspective, the evaluation of outcomes in an integrated versus segregated manner did not yield an effect on negotiators' judgment accuracy when the integrative potential was aggregated within the issue subsets ( $t[56.67] = 1.61, p = .114$ ). In contrast, when the integrative potential was scattered between the issue subsets, evaluating the outcomes in an integrated (vs. segregated) manner significantly improved parties' judgment accuracy ( $t[41.60] = 2.70, p = .010$ ).

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<sup>37</sup> Four participants failed to respond to the judgment accuracy measure completely. The missing values were replaced by the mean based on all participants answering the item (De Dreu et al., 2006).



**Figure 6.** Experiment 5: Negotiators' joint outcomes (in points) as a function of the location of the integrative potential (within vs. between accounts) and outcome editing (segregated vs. integrated). Integrated outcome editing led to better outcomes when the integrative potential was scattered between mental accounts rather than aggregated within accounts. Error bars indicate  $\pm 1$  SEM.

**Logrolling behavior.** Again, we analyzed parties' logrolling behavior over the course of the negotiation. A 2 (Location of integrative potential)  $\times$  2 (Outcome editing)  $\times$  4 (Negotiation round) ANOVA with repeated measures on the last factor revealed a significant main effect for negotiation round ( $F[3, 357] = 47.82, p < .001, \eta_p^2 = .29$ ), a significant main effect for the location of the integrative potential ( $F[1, 119] = 59.21, p < .001, \eta_p^2 = .33$ ), a significant interaction effect between the location of the integrative potential and negotiation round ( $F[3, 357] = 28.77, p < .001, \eta_p^2 = .20$ ), and a marginally significant interaction effect between outcome editing and the location of the integrative potential ( $F[1, 119] = 3.48, p = .065, \eta_p^2 = .03$ ; other  $F$ s  $< 2.41, p$ s  $> .068$ ).

Analyses on the location of integrative potential by negotiation round interaction revealed that from the start of the negotiation onwards, parties engaged more in logrolling behavior when the integrative potential was aggregated within (vs. between) subsets of issues and, as indicated by further contrast analyses, this effect even became stronger over the course of the negotiation ( $t[109.05] = 3.47, p = .001$ ;  $t[84.90] = 6.13, p < .001$ ;  $t[91.29] = 7.29, p <$

.001; and  $t[103.14] = 7.83, p < .001$ ; for Rounds 1 to 4, respectively). In sum, these findings on logrolling behavior parallel those of Experiment 4.

Although the interaction effect between outcome editing and the location of the integrative potential did not reach significance, for explorative reasons, we inspected the effects caused by the location of the integrative potential separately for negotiators with a segregated and integrated outcome editing approach. In line with the findings on joint outcomes and judgment accuracy, negotiators with a segregated approach were far less successful in engaging in logrolling behavior when the integrative potential was scattered between issue subsets ( $M = 0.61, SD = 1.67$ ) than when it was aggregated within the subsets ( $M = 9.77, SD = 6.79; t[33.73] = 7.29, p < .001$ ). When negotiators evaluated outcomes in an integrated manner, the location of the integrative potential still affected parties' logrolling behavior, although the effect caused by the location of the integrative potential was far less pronounced ( $M = 8.65, SD = 6.87$  vs.  $M = 3.06, SD = 4.00$  for the location of the integrative potential within vs. between issue subsets;  $t[48.25] = 3.91, p < .001$ ). Viewed from a different perspective, parties' logrolling behavior was not affected by their outcome editing approach when the integrative potential was aggregated within mental accounts ( $t[59.99] = 0.65, p = .521$ ). In contrast, when the integrative potential was scattered between accounts, integrated (vs. segregated) outcome editing led to more logrolling behavior ( $t[40.42] = 3.15, p = .003$ ).

## Discussion

Experiment 5 revealed that outcome editing can be an effective tool to reduce the detrimental effects caused by topical mental accounting with scattered integrative potential between issue subsets. It is important to note, however, that outcome editing failed to fully eliminate the potentially detrimental effects caused by topical accounting. In line with the findings of Experiment 4, integrated outcome editing produced positive effects on negotiators' perceptions (i.e., judgment accuracy), behaviors (i.e., logrolling), and outcomes (i.e., joint profits) when the integrative potential was scattered between mental accounts but failed to improve outcomes to a level comparable to those achieved when the integrative potential was aggregated within topical accounts. This finding suggests that integrated outcome editing (i.e., the comparative evaluation of outcomes across topical mental accounts) is a highly challenging cognitive endeavor—not only when a high number of issues subsets have been created (cf. e.g., four topical accounts in Experiment 4)—but also when a small number of subsets have to be evaluated simultaneously (e.g., two topical accounts in the current Experiment 5). The challenging cognitive endeavor of outcome editing is also reflected in the

manipulation check of the current study. Even though participants in the integrated editing condition reported to have evaluated outcomes in a more comprehensive manner than participants in the segregated editing condition, on average, participants from all conditions were inclined to evaluate outcomes in an isolated, non-comparative way (see the mean scores below the indifference point of the scale). Although this finding is just another implicit hint on the cognitive dilemma between parties' need for cognitive simplicity and the challenge of task complexity in multi-issue negotiations, it fits clearly into the general pattern of findings in the present research, which show that mental accounting is both a boon and a bane for parties' limited cognitive capacities in complex multi-issue negotiations.

### ***General Discussion***

Previous research on mental accounting has mainly focused on consumer behavior and individual decision making (Antonides & Ranyard, 2015; Shefrin & Thaler, 1988). Extending this line of research, we applied the concept of mental accounting in the context of negotiations by investigating the effects of mental parsing in the interactive process of joint decision making. Specifically, the present research aimed to investigate how parties deal with the cognitive dilemma between their need for cognitive simplicity and high task complexity when facing a high number of negotiation issues. In five experiments, we investigated the powerful effects of mental accounting processes in multi-issue negotiations, how mental parsing facilitates versus impedes the finding of win-win agreements, and ultimately, we examined whether the detrimental effects arising from mental parsing can be successfully overcome by an integrated evaluation of outcomes (cf. integrated outcome editing; Thaler 1999; broad bracketing; Read et al., 1999).

In facing the cognitive dilemma between parties' need for cognitive simplicity and the challenge of task complexity in multi-issue negotiations, negotiators are inclined to cognitively parse the whole set of issues into subsets and consider these subsets in isolation (topical mental accounting; Experiment 1). Parties' tendency to cognitively parse the whole set of issues into topical subsets, however, turns out to be a double-edged sword: if mental parsing leads to a scattering of the integrative potential (i.e., integrative trade-off opportunities are dispersed between subsets of issues), parties are less likely to explore win-win agreements. On the contrary, if mental parsing results in the aggregation of the integrative potential (i.e., integrative trade-off opportunities are pooled within subsets of issues), parties are more likely to reach win-win agreements (Experiment 2). This effect of mental parsing is particularly impactful when the location of the integrative potential is systematically varied

between subsets of issues. Specifically, if the integrative potential is fully scattered between subsets, parties with topical accounts end up with inferior outcomes compared to parties with a comprehensive mental account. If, however, the integrative potential is fully aggregated within subsets of issues, parties with topical accounts reach even better outcomes than parties with a comprehensive account (Experiment 3). Finally, through testing whether the detrimental effects arising from non-integrative topical accounting (i.e., integrative potential fully scattered between subsets of issues) can successfully be overcome, the findings of the present research point to another important cognitive principle of mental accounting in multi-issue negotiations. Specifically, nudging parties to “edit outcomes” across topical mental accounts in an integrated rather than segregated way (i.e., outcome editing; Thaler, 1999; Tversky & Kahneman, 1981; choice bracketing; Read et al., 1999) may facilitate the discovery of the integrative potential (Experiment 4). In particular, when the number of created topical accounts is low and parties do not have to evaluate various outcomes simultaneously, adopting an integrated outcome editing approach capacitates parties to reduce the detrimental effects arising from the non-integrative topical mental accounting (Experiment 5). In sum, the findings of the final two experiments suggest that parties may solve the cognitive dilemma in multi-issue negotiations by creating topical mental accounts to reach a desired level of cognitive simplicity; However, to be consistent with the complexity of the negotiation task, parties should systematically evaluate and edit outcomes across topical accounts in an integrated rather than segregated way (i.e., integrated outcome editing; Thaler 1999). In other words, mental parsing may help parties to cognitively create issue subsets and thus explore integrative trade-offs within parties’ mental accounts, and integrative outcome editing and the corresponding comparison of payoffs across subsets of issues may foster the discovery of integrative trade-off opportunities across parties’ mental accounts.

### **Mental Accounting Processes in Negotiations**

The present research on mental parsing and outcome editing in multi-issue negotiation is part of a more comprehensive framework on mental accounting processes in negotiations (Trötschel, Majer, Zhang, Warsitzka, & Leitsch, 2020). In this framework, mental accounting in negotiations is described as a holistic process involving several cognitive principles such as the creating, regulating, balancing, evaluating, and closing of mental accounts. In this holistic cognitive process, the creation of mental accounts through mental parsing (Thaler, 1999) and the comparison of outcomes across subsets of issues through outcome editing (Tversky & Kahneman, 1981) appear to be the most fundamental mechanisms of mental accounting

processes in the context of negotiations. Notably, however, negotiators' perceptions, behaviors, and outcomes may be affected not only by the way in which parties cognitively create or evaluate mental accounts but also by the way in which parties set themselves goals and limits on mental accounts (cf. mental budgeting; Heath & Soll, 1996; Polzer & Neale, 1995), by the way in which parties balance offers and counteroffers on issues within mental accounts (cf. procedural framing; Majer et al., 2019; Trötschel et al., 2015), or by the way in which parties conclude deals on issues within or across mental accounts (Mannix et al., 1989; Thompson, Mannix, & Bazerman, 1988; Weingart et al., 1993). For instance, creating mental accounts may lead parties to set themselves several topical goals or limits on the different accounts rather than a comprehensive one across all accounts. Such mental budgeting (Heath & Soll, 1996; Thaler, 1999) of topical accounts may hinder parties in exchanging concessions across these accounts, even though they may have explored integrative trade-off opportunities through integrated outcome editing. Moreover, parties may apply different approaches to cognitively balance the "give" and "take" on the issues within the topical accounts, which may consequently either foster or hinder the finding of integrative trade-off opportunities within mental accounts. For instance, parties may oversee integrative tradeoffs within mental accounts when they solely focus on resources that are requested from the other party, while ignoring resources that are also offered by the other party (mental balancing of the give and take of resources, Majer et al., 2019; Trötschel et al., 2015). Finally, the creation and evaluation of mental accounts may also have strong effects on how parties conclude deals on the different subsets of issues. For instance, mental parsing and the corresponding creation of issue subsets may lead parties to conclude deals in a sequential rather than embracive manner (i.e., conclude deals on subsets of issues one by one; cf. Mannix et al. 1989; Thompson et al., 1988; Weingart et al., 1993). This closing of mental accounts in a sequential way may hinder parties to engage in integrated outcome editing and thus will impede the comparative evaluation of outcomes across subsets of issues. Taking the different cognitive principles of mental accounting processes in negotiations into consideration (i.e., creating mental accounts through mental parsing, regulating mental accounts through mental budgeting, weighing mental accounts through mental balancing, evaluating mental accounts through outcome editing, and concluding mental accounts through mental closing; Trötschel et al., 2020) may provide a comprehensive theoretical framework on different cognitive processes that may come into play when negotiators face the great complexity of multi-issue negotiations.

### **Limitations**

Although the present studies mark a starting line for future research on mental accounting processes in negotiations, the findings of the present research are not without limitations. For instance, the present research has not investigated the underlying cognitive principles of mental parsing, such as the similarity-based categorization, preference-related classification, or conceptual clustering of issues (Rosch, 1978; Kaufman, 2012). Specifically, although the present studies reveal that the cognitive categorization of issues into subsets has a strong impact on parties' perceptions, behaviors, and outcomes, the present findings do not provide an answer on how issues are packaged together or what cognitive principles negotiators follow when creating topical accounts for different subsets of issues. Concerning the categorization of issues into subsets, consumer research may again provide a profound basis for the principles of issue categorization (Loken, Barsalou, & Joiner, 2008). For instance, issues can either be categorized based on different product groups (e.g., Herr, 1989; Viswanathan & Childers, 1999), brand types (Barone & Miniard, 2002; Boush & Loken, 1991), attribute-based similarities (Hutchinson, Raman, & Mantrala, 1994), or goal-related categories (Ratneshwar, Barsalou, Pechmann, & Moore, 2001). Moreover, parties may also follow negotiation-specific principles of categorization such as priority-related (e.g., high vs. low priority issues) or interest-related packages (e.g., monetary-related interests vs. quality-related interests). Thus, future research needs to take a closer look—not only into how and why topical mental accounting affects negotiations—but also into what principles guide parties' mental accounting processes when they face a high number of issues with various topical characteristics.

Although the present research has provided the first evidence that an overly large or overly small number of issues within mental accounts may hinder the finding of integrative agreements, it remains an important question as to what is the optimal number of issues that parties should concentrate on in a mental account. Specifically, considering too many issues simultaneously (e.g., eight-issue subset) when exchanging concessions may hinder the exploration of integrative trade-off opportunities within complex proposals and counterproposals (cf. Experiments 2 and 3). Vice versa, considering too few issues at the same time may also prevent parties from exploring win-win agreements as the integrative trade-off opportunities are more likely to be scattered between the different subsets of issues. Basically, parties need to consider at least two issues simultaneously to create integrative tradeoffs between these issues. Accordingly, considering issues on a one by one basis (i.e., minimal accounting) is unfavorable to explore trade-off opportunities in integrative multi-

issue negotiations (cf. Experiments 2 and 3). Mentally parsing the whole set of issues into topical subsets may, on the one hand, reduce the task complexity but, on the other hand, may increase the risk of scattering the integrative potential between the different subsets of issues. Following mathematical reasoning, the cognitive principle of mental parsing in multi-issue negotiations (e.g., negotiations on eight issues) is torn between creating a lower number of topical accounts with a higher number of issues within the respective mental accounts (e.g., two subsets each with four issues) or a higher number of topical accounts with a lower number of issues within these accounts (e.g., four subsets of issues each with two issues). In other words, the less topical accounts that are created, the higher the complexity within the subsets of issues and the lower the risk of scattering the integrative potential between these subsets, and vice versa—the more topical accounts that are created, the lower the complexity within the subsets of issues and the higher the risk of scattering the integrative potential between these subsets. The findings of the present research suggest that there is no difference in the likelihood of exploring integrative trade-off opportunities between topical accounts with two versus four issues, as long as the integrative potential is located within the respective subsets of issues (note, however, that parties are less likely to explore integrative trade-off opportunities when mental accounts comprise eight integrative issues). From this finding, one may conclude that creating topical accounts with four issues is superior to creating topical accounts with two issues, as the risk that the integrative potential is scattered between the issue subsets (two vs. four subsets) will be lower. However, even creating a high number of topical accounts could be a promising cognitive strategy to systematically reduce the task complexity in multi-issue negotiations, if it is combined with the cognitive strategy of integrated outcome editing (i.e., evaluating and comparing outcomes across subsets of issues). This cognitive approach may, however, stretch parties' mental limits, as with an increasing number of negotiation issues, the number of topical accounts increases linearly, thus rendering integrated outcome editing across all topical accounts a hopeless endeavor. Corroborating this line of reasoning, recent research on the effects of a high versus a low number of issues (Warsitzka, Zhang, Loschelder, Majer, & Trötschel, 2019; see also Geiger & Hüffmeier, 2020) revealed that a higher number of issues will increase the likelihood of packaging multiple-issue subsets with scattered integrative potential, thus ultimately resulting in inferior negotiation outcomes. Taking the findings of the present research and recent studies (Geiger & Hüffmeier, 2020; Warsitzka et al., 2019) into consideration, future research needs to investigate the optimal ways of mental parsing and topical accounting when a higher versus a lower number of issues are involved in the negotiation task.



In addition, it is important to note that the present research investigated negotiation situations with a lot of integrative trade-off opportunities (i.e., four pairs of integrative logrolling issues). Thus, it remains unclear how mental parsing, topical accounting, or outcome editing may affect parties' perceptions, behaviors, and outcomes in negotiations involving distributive (i.e., zero-sum) issues. In this respect, it could be reasonable to differentiate between two different types of trade-off strategies in negotiations: integrative or complementary tradeoffs allow parties to exchange concessions in a variable-sum way (e.g., make a concession on one low priority issue and receive a complementary counter-concession on one high priority issue), thus allowing them to integratively create value. By contrast, distributive or compensatory tradeoffs allow parties to exchange concessions in a fixed-sum manner (e.g., by making concessions on a high number of low priority issues and receiving a fully compensatory counter-concession on a small number of high priority issues), thus allowing them to compensatorily claim value. Differentiating between these two types of tradeoffs could be indicative in negotiations with distributive issues in order to introduce the concept of "compensative potential" (analogous to the concept of integrative potential). Specifically, issues with compensative potential allow parties to exchange concessions in a recouping way, thus preventing parties from getting stuck in scarce, high priority resources and consequently avoiding partial or even total impasses (Trötschel, Hüffmeier, & Loschelder, 2010; Trötschel et al., 2011). Similar to the situation with integrative potential, mental parsing may also have a strong impact on the scattering of the compensative potential: parties may either create subsets of issues allowing them to equivalently compensate for each party's gains and losses within the respective issue subsets, or similarly, parties may also create subsets of issues that force them to compensate for their gains and losses across the different subsets. Future research thus should take a closer look at negotiations involving distributive or even a mixture of integrative and distributive issues.

Finally, it is important to note that the present research has investigated mental accounting processes on the dyadic level. Accordingly, pairs of negotiators were instructed to exchange proposals on the same issues, thus leading parties to mentally account for profits and costs on the same (sub-)sets of issues. In real-world negotiations, however, it is quite likely that parties approach negotiations with different mental accounts. In other words, parties' topical accounts may not only vary between but also within dyads of negotiators. If parties approach negotiations with different mental accounts, this may impede the coordination of proposals and counterproposals and thus may even further reduce the chance that parties will explore integrative trade-off opportunities. In this respect, it could be assistive

if parties “negotiate over the negotiation” before they start to “negotiate over the issues.” Specifically, parties may seek to create congruent mental accounts, for instance by means of a pre-negotiation on agenda setting and issue packaging (e.g., Mannix et al., 1989; Weingart et al., 1993; see also Fatima & Kattan, 2011; Fatima, Wooldridge, & Jennings, 2003). On the contrary, one may also speculate that having incongruent mental accounts could even improve the chance that parties will explore integrative trade-off opportunities within and between subsets of issues. As suggested by previous negotiation research (Hüffmeier et al., 2019; Thompson, 1991; Zerres, Hüffmeier, Freund, Backhaus, & Hertel, 2013), one party is sufficient to explore integrative trade-off opportunities in order to create win-win agreements. If parties explore integrative trade-off opportunities within different topical accounts, incongruent mental accounts may even facilitate the finding of win-win agreements across different subsets of issues. Thus, future research may want to investigate how parties’ perceptions, behaviors, and outcomes are affected by congruent versus incongruent mental accounting and whether negotiations on agenda setting (negotiating the process of the negotiation) facilitates the coordination of proposals and counterproposals.

### **Implications for Practice**

The present findings provide broad implications for practitioners and organizations. In light of the well-established mental accounting effect in consumer decision making, the present findings suggest that the cognitive dilemma in complex multi-issue negotiations can be effectively resolved by cognitive segregation (topical mental accounting) and integration (integrated outcome editing). When there are a high number of issues involved in the negotiations, negotiators should consider issues in subsets including issues of different priorities. Although the present research does not provide a clear answer on how many issues should be categorized within one package, negotiators should aim to include as many issues as possible in their proposals (i.e., multi-issue offers; Leonardelli, Gu, McRuer, Medvec, & Galinsky, 2019; Pruitt & Lewis, 1975), however without losing track of the different priorities for the issues. In addition, negotiators should evaluate and compare the outcomes of issue subsets in an integrated way to avoid missing the win-win opportunities between subsets of issues. The observed mental accounting effect might be especially consequential in negotiations between organizations, where various issues are at stake, such as in merger and acquisition negotiations or union and management negotiations. In this context, the high number of negotiation issues and informational complexity likely impose a cognitive dilemma

for the negotiating parties. Resolving this cognitive dilemma by mental accounting may smoothen the bargaining processes and facilitate the discovery of win-win agreements.

### ***Concluding Thoughts***

Prior research has predominantly focused on mental accounting in consumer and decision-making research. In contrast, complex joint decision-making tasks, such as multi-issue negotiations, impose cognitive demands that urge negotiators to reduce the complexity by topical mental accounting. The present research integrates the literature on mental accounting and negotiation and highlights when, how, and why mental accounting processes impact negotiators' perceptions, behaviors, and outcomes. When parties created integrative mental accounts, topical mental accounting reduced the complexity of the negotiation and led to more accurate integrative understanding, more logrolling behavior, and better economic outcomes. However, when the mental accounts were non-integrative, the discovery of integrative potential across mental accounts was impeded, thus resulting in inferior negotiation outcomes. In this context, applying integrated outcome editing could help parties to recognize the trade-off opportunities between their different topical accounts. Across five experiments, mental accounting processes emerged as critical determinants of the perception, behavior, and outcomes of negotiating parties, and pointed to a number of intriguing research questions that might further testify how mental accounting constitutes a fundamental process across a variety of negotiations.

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*Appendix*

**Table 1.**

*Experiment 1: Negotiation Issues, Options, and Profit Points for Buyers and Sellers*

<i>Wiehedium</i>			<i>Disanium</i>			<i>Tlietnium</i>			<i>Erbanium</i>		
Options	Buyer	Seller	Options	Buyer	Seller	Options	Buyer	Seller	Options	Buyer	Seller
A	1600	0	A	6400	0	A	4800	0	A	3200	0
B	1200	1600	B	4800	400	B	3600	800	B	2400	1200
C	800	3200	C	3200	800	C	2400	1600	C	1600	2400
D	400	4800	D	1600	1200	D	1200	2400	D	800	3600
E	0	6400	E	0	1600	E	0	3200	E	0	4800
<i>Hamsanium</i>			<i>Sittanium</i>			<i>Sebanium</i>			<i>Ghaxarnium</i>		
Options	Buyer	Seller	Options	Buyer	Seller	Options	Buyer	Seller	Options	Buyer	Seller
A	3200	0	A	6400	0	A	1600	0	A	4800	0
B	2400	1600	B	4800	800	B	1200	1200	B	3600	400
C	1600	3200	C	3200	1600	C	800	2400	C	2400	800
D	800	4800	D	1600	2400	D	400	3600	D	1200	1200
E	0	6400	E	0	3200	E	0	4800	E	0	1600

*Notes.* Option A represents a high quality option regarding the materials to be delivered from the seller to the buyer while Option E represents a low quality option.

**Table 2.**

*Experiment 3: Exemplary illustration of the payoff structures of the negotiation task (Taken from the 4-issue-account condition with integrative vs. non-integrative mental accounts)*

4-issue topical accounts condition with integrative potential												
Mental account	<i>Plant options</i>			<i>Schooling</i>			<i>Delivery modalities</i>			<i>Delivery date</i>		
	Options	Buyer	Seller	Options	Buyer	Seller	Options	Buyer	Seller	Options	Buyer	Seller
“technique & delivery”	<b>Version</b>	<b>0</b>	<b>3600</b>	<b>Quarterly</b>	<b>3600</b>	<b>0</b>	<b>Plan A</b>	<b>4800</b>	<b>0</b>	June 1	1200	0
	Version	400	2700	Semi-annually	2700	400	Plan B	3600	300	July 1	900	1200
	Version	800	1800	Annually	1800	800	Plan C	2400	600	August 1	600	2400
	Version	1200	900	At new releases	900	1200	Plan D	1200	900	September 1	300	3600
	Version E	1600	0	Once at delivery	0	1600	Plan E	0	1200	<b>October 1</b>	<b>0</b>	<b>4800</b>
Mental account	<i>Warranty</i>			<i>Price</i>			<i>Early payment discount</i>			<i>Payment terms</i>		
	Options	Buyer	Seller	Options	Buyer	Seller	Options	Buyer	Seller	Options	Buyer	Seller
“price & payment”	<b>6 years</b>	<b>4800</b>	<b>0</b>	<b>€9,000,000</b>	<b>0</b>	<b>4800</b>	<b>5%</b>	<b>1600</b>	<b>0</b>	90 days	1200	0
	5 years	3600	900	€8,800,000	900	3600	4%	1200	300	75 days	900	400
	4 year	2400	1800	€8,600,000	1800	2400	3%	800	600	60 days	600	800
	3 years	1200	2700	€8,400,000	2700	1200	2%	400	900	45 days	300	1200
	2 years	0	3600	€8,200,000	3600	0	1%	0	1200	<b>30 days</b>	<b>0</b>	<b>1600</b>

4-issue topical accounts condition without integrative potential

	<i>Plant options</i>			<i>Schooling</i>			<i>Delivery modalities</i>			<i>Delivery date</i>		
	Options	Buyer	Seller	Options	Buyer	Seller	Options	Buyer	Seller	Options	Buyer	Seller
Mental account	<b>Version</b>	<b>3600</b>	<b>0</b>	<b>Quarterly</b>	<b>4800</b>	<b>0</b>	<b>Plan A</b>	<b>4800</b>	<b>0</b>	<b>June 1</b>	<b>1600</b>	<b>0</b>
“technique &	Version	2700	400	Semi-annually	3600	900	Plan B	3600	300	July 1	1200	300
delivery”	Version	1800	800	Annually	2400	1800	Plan C	2400	600	August 1	800	600
	Version	900	1200	At new releases	1200	2700	Plan D	1200	900	September 1	400	900
	Version E	0	1600	Once at delivery	0	3600	Plan E	0	1200	October 1	0	1200
	<i>Warranty</i>			<i>Price</i>			<i>Early payment discount</i>			<i>Payment terms</i>		
	Options	Buyer	Seller	Options	Buyer	Seller	Options	Buyer	Seller	Options	Buyer	Seller
Mental account	6 years	1600	0	<b>€9,000,000</b>	<b>0</b>	<b>4800</b>	5%	1200	0	90 days	1200	0
“price &	5 years	1200	900	€8,800,000	900	3600	4%	900	1200	75 days	900	400
payment”	4 year	800	1800	€8,600,000	1800	2400	3%	600	2400	60 days	600	800
	3 years	400	2700	€8,400,000	2700	1200	2%	300	3600	45 days	300	1200
	<b>2 years</b>	<b>0</b>	<b>3600</b>	€8,200,000	3600	0	<b>1%</b>	<b>0</b>	<b>4800</b>	<b>30 days</b>	<b>0</b>	<b>1600</b>

*Notes.* In the two payoff tables, the four issues on top belong to the mental account “technical issues and delivery,” whereas the four issues in the bottom belong to the mental account “price & payment.” The values in bold indicate the integrative win-win solution for the two parties.

## Chapter 6: Settlement without Sacrifice: Un-Compromising!

[Einigung ohne Einbußen: Kompromiss-los!]

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„Ein Kompromiss ist dann vollkommen, wenn alle unzufrieden sind“ – so der französische Politiker und Friedensnobelpreisträger Aristide Briand (1862-1932). Sind Kompromisse nicht etwas Gutes? – Von klein auf werden wir zu Kompromissen angehalten und für gütliche Einigungen gibt es scheinbar keine Alternative. Oder doch? Ein Kompromiss bedeutet, dass alle Zugeständnisse machen müssen – das kann geradezu schmerzhaft sein. Daher steckt in der Aussage von Briand ein wahrer Kern. Ist der Kompromiss trotzdem die bestmögliche Lösung? Die Forschung spricht dagegen: Kompromisse führen häufig zu suboptimalen Lösungen. In den meisten Verhandlungen gibt es eine für alle Parteien bessere Lösung. Warum lassen wir uns dann mit faulen Kompromissen abspeisen? – Weil der Mehrwert oft versteckt ist und es Strategien braucht, ihn zu finden.

Svea ist Software-Entwicklerin und verhandelt ihre neue Stelle mit Ulrike, der Personalchefin eines IT-Dienstleisters. Mehrere Themen stehen zur Disposition: Die Anzahl der Home-Office- und Fortbildungstage, das Startdatum und natürlich das Gehalt.

Zu Beginn liegen die Vorstellungen weit auseinander: Svea will drei Tage in der Woche Home-Office, Ulrike bietet einen Tag. In Sveas letzter Firma gab es zehn Fortbildungstage pro Jahr; Ulrike orientiert sich an den internen Standards von vier Tagen. Auch beim Startdatum scheint es unterschiedliche Vorstellungen zu geben – klar ist nur, dass es zwischen dem 1. März und 1. April liegen soll. Und beim Gehalt wird es ganz schwierig: Ulrike liegt mit 54.000 € deutlich unter Sveas Forderung von 60.000 €. Ein Kompromiss scheint in vielen Bereichen möglich: Beide könnten sich auf zwei Home-Office- und sieben Fortbildungstage einigen; als Startdatum können sich beide den 15. März vorstellen. Nur beim Gehalt hakt es: Der Kompromiss von 57.000 € ist für beide inakzeptabel. Die gesamte Verhandlung droht daran zu scheitern.

Doch was bewegt die beiden eigentlich? Welche Interessen verbergen sich hinter ihren Forderungen? Gibt es Lösungen, die beiden besser „schmecken“ würden als die – angeblich „goldene“ – Mitte?

### ***Prioritätenprojektion – Von sich auf andere schließen?***

Wenn mehrere Themen zur Verhandlung stehen, haben die Parteien fast immer unterschiedliche Prioritäten. In unserem Beispiel könnte das so aussehen: Für Svea ist das Home-Office entscheidend – sie braucht die Flexibilität für die Betreuung ihrer Tochter; die Fortbildungstage sind in den nächsten Jahren dagegen weniger wichtig. Ulrike hat vermutlich auch unterschiedliche Prioritäten, was die verschiedenen Punkte angeht – und womöglich ganz andere als Svea. Das ist kein Einzelfall, sondern eher die Regel: Die Prioritäten unterscheiden sich häufig zwischen den Verhandlungsparteien (Thompson, 2014). Nur leider merken wir das oft nicht. Schuld daran ist die Neigung zur *Konsensüberschätzung*: Wir gehen von uns selbst aus und nehmen an, dass andere unsere Einstellungen, Werte und Prioritäten teilen (Ross, Green & House, 1977). In unserem Beispiel geht Svea davon aus, dass die für sie relevanten Themen auch für Ulrike entscheidend sind – sie projiziert ihre eigenen Prioritäten auf die Gegenpartei. Das kann suboptimale Kompromisse zur Folge haben. Zum Beispiel wenn das Thema Home-Office für Ulrike weniger wichtig ist als es die Fortbildungstage sind – für das Unternehmen sind Fortbildungstage teuer, während Home-Office-Tage die Kosten senken. Einigen sich Svea und Ulrike jeweils auf die „goldene“ Mitte, gehen sie womöglich davon aus, dass sie sich bei Themen entgegengekommen sind, die für beide Seiten gleich wichtig sind. Eigentlich ist es aber ein fauler Kompromiss, da Home-Office und Fortbildungstage für Svea und Ulrike eben *nicht* gleich weit oben auf der Prioritätenliste stehen. Für den Kompromiss machen beide Zugeständnisse und die Mitte ist nicht golden, sondern suboptimal.

Diese *Prioritätenprojektion* wird in der Verhandlungsforschung auch als *Nullsummenannahme* bezeichnet: Wir nehmen an, dass der Gewinn einer Partei automatisch einen gleich großen Verlust der anderen Partei bedeutet. Dann ist eine Verhandlung ein Ringen um Zugeständnisse, bei denen es am Ende eine\*n Gewinner\*in und eine\*n Verlierer\*in gibt. Gewonnen hat, wer weniger Zugeständnisse gemacht hat. Solche Nullsummenannahmen wirken sich negativ auf Verhandlungsergebnisse aus (Thompson & Hastie, 1990).

***Illusorischer Konflikt – Konflikte sehen, wo gar keine sind***

Betrachtet man Verhandlungsthemen einzeln, scheint die *Nullsummenannahme* naheliegend: Was die eine Partei will, steht tatsächlich oft im Gegensatz zu dem, was die andere Partei will. Käufer\*innen wollen möglichst wenig Geld ausgeben, Verkäufer\*innen wollen möglichst viel Geld einnehmen. Die Parteien haben ganz offensichtlich einen *Interessenkonflikt* (Pruitt & Carnevale, 1993). Nicht selten nehmen die Parteien einen solchen Konflikt allerdings an, obwohl es ihn eigentlich nicht gibt – dann haben sie einen *illusorischen Konflikt* (Pruitt & Carnevale, 1993). In unserem Beispiel könnte das beim Startdatum so sein: Die Stelle war zum 1. März ausgeschrieben, ein späterer Start scheint aber möglich; Svea geht davon aus, dass Ulrike einen frühen Start bevorzugt – wieso hätte sie sonst die Stelle zum 1. März ausgeschrieben? Für Svea wäre April viel besser, um den Umzug an den neuen Arbeitsort zu bewältigen. Sie schlägt den 15. März vor, was für sie bereits ein Zugeständnis ist. Was Svea nicht weiß: Ihre Vorgängerin ist in ein Projekt involviert, das sich verzögert, und wird die Stelle noch über den 1. März hinaus besetzen. Für Ulrike wäre deshalb mittlerweile ein späterer Beginn ebenfalls ideal. Ulrike denkt aber, dass Svea lieber früher starten möchte – schließlich hat sie sich auf eine zum 1. März ausgeschriebene Stelle beworben. Stimmt Ulrike dem 15. März zu, macht sie ebenfalls ein Zugeständnis. Eigentlich wollen beide dasselbe – Startdatum 1. April –, merken es aber nicht. Sie unterliegen dem Irrtum eines *illusorischen Konflikts* und einigen sich womöglich auf einen suboptimalen Kompromiss.

***Fixe Verhandlungsmasse – Ist der Kuchen wirklich nur so klein?***

In vielen Verhandlungen liegt der Fokus darauf, ein möglichst großes Stück vom Kuchen abzubekommen, d. h. die Gegenpartei zu Zugeständnissen zu bewegen (z. B. Galinsky, Maddux, Gilin & White, 2008). Über den Tellerrand schaut dabei keiner. Es wird über den Kuchen verhandelt und damit basta. Die Verhandlungsforschung spricht von der *Annahme einer fixen Verhandlungsmasse*: Wir beißen uns an dem vermeintlich einzigen Verhandlungsthema fest und übersehen Möglichkeiten zur Einigung, wenn *weitere* Themen einbezogen würden. In unserem Beispiel sind weder Svea noch Ulrike bereit, beim Gehalt Zugeständnisse zu machen: Svea hat höhere Lebenshaltungskosten zu decken und Ulrike muss die Fixkosten für die Firma niedrig halten. Die ganze Verhandlung droht daran zu scheitern.

Die Verhandlungsliteratur bemüht hier oft den Streit um eine Orange (Follett, 1940); am Ende wird die Orange halbiert und jede Partei bekommt – als Kompromiss – eine Hälfte.



Die eine Partei verwendet die Schale zum Kuchenbacken und wirft das Fruchtfleisch weg; die andere isst das Fruchtfleisch und entsorgt die Schale. Was ist hier passiert? Die Orange wurde als „fixe Verhandlungsmasse“ angenommen – dabei lässt sie sich mindestens in die Aspekte Schale und Fruchtfleisch aufteilen. Dann wäre nicht nur der Kuchen größer geworden, sondern auch die Fruchtfleisch-Fraktion hätte das Doppelte für sich herausholen können. Hätte man das mal vorher gewusst ... Aber wie?

***Mehrwert schaffen in Verhandlungen – Aber wie?***

Selbst die Verhandlung um eine Orange wird manchmal zum Wettstreit um Zugeständnisse. Dann wird es schwierig herauszufinden, dass man eigentlich über Fruchtfleisch und Schale verhandelt – und damit die Verhandlungsmasse deutlich größer ist. Und das ganz ohne Konflikt. Solche Lösungen mit Mehrwert finden sich leichter, wenn die Parteien nicht auf Wettbewerb getrimmt sind, sondern auf *Problemlösen*: Wenn sie Verhandlungen als Chance ansehen, gemeinsam eine Lösung zu finden mit größtmöglichem Nutzen für alle (Pruitt & Carnevale, 1993). Aber wie macht man das? Die Verhandlungsforschung wartet mit drei Strategien auf: *Logrolling* oder *prioritätenorientierter Austausch von Zugeständnissen* (Froman & Cohen, 1970), die *Befriedigung von zugrundliegenden Interessen* (Fisher & Ury, 1981) und die *Vergrößerung des Kuchens* durch *Hinzunahme weiterer interessensrelevanter Ressourcen* (Sebenius, 1992).

***Prioritätenorientierter Austausch – Das kannst Du (gerne!) haben!***

Svea ist das Home-Office wichtiger als die Anzahl der Fortbildungstage; bei Ulrike ist es umgekehrt. Zwei Verhandlungsthemen, unterschiedliche Prioritäten. Ein Tauschhandel ist möglich: Svea kann die von Ulrike vorgeschlagenen vier Fortbildungstage akzeptieren, wenn Ulrike drei Home-Office-Tagen zustimmt. Beide würden bei ihren *Prioritäten* gewinnen und Abstriche nur bei den individuell weniger wichtigen Themen machen. Schmerzhaftes Zugeständnisse bei den wichtigen Themen würden vermieden und alle wären vermutlich zufrieden(er). Alles schön und gut, aber dafür muss man die Prioritäten der anderen Partei erstmal *kennen*. Dazu muss mindestens eine Partei ihre Prioritäten offenlegen, idealerweise tun das beide (Thompson, 1991). So auch in unserem Beispiel: Svea merkt irgendwann an, dass ihr das Home-Office wichtiger ist als die Zahl der Fortbildungstage. Ulrike steigt sofort ein, dass das auch im Interesse des Unternehmens ist. Und schon ist sie zum Greifen nahe, die „prioritätenorientierte Einigung“. Offenheit ist hilfreich – vorausgesetzt, man will sich nicht gegenseitig über den Tisch ziehen. Hat man es mit einem Gegenüber zu tun, das nur am

eigenen Vorteil interessiert ist, ist Vorsicht geboten: Gibt man hier einseitig Informationen über die eigenen Prioritäten preis, wird das womöglich ausgenutzt (Loschelder, Swaab, Trötschel & Galinsky, 2014). Zunächst verschafft man sich also am besten einen Eindruck von der anderen Partei, insbesondere, ob diese auch eigene Prioritäten offenlegt.

### ***Interessen erkennen – Was willst Du eigentlich?***

Oft sehen wir Konflikte, wo gar keine sind. Das passiert vor allem, wenn wir uns auf die *Forderungen* der anderen Partei konzentrieren. Die (illusorischen) Konflikte lösen sich erst auf, wenn die hinter den Forderungen verborgenen *Beweggründe* und *Interessen* ans Tageslicht kommen. So schlägt Svea den 15. März als Startdatum vor – sie will sich schließlich mit ihrem zukünftigen Arbeitgeber einigen. Gleichzeitig will sie ihren Wohnortswechsel vor dem Antritt der neuen Stelle abschließen. Ulrike will einen nahtlosen Stellenübergang, muss aber mit der unvorhergesehenen Verlängerung von Sveas Vorgängerin umgehen. Wüsste mindestens eine Partei um das Interesse der anderen, wäre der illusorische Konflikt ruck-zuck gelöst: Beide könnten sich problemlos auf den 1. April einigen. Aber wie erfahren die Parteien etwas über die gegenseitigen Beweggründe und Interessen? – Ganz einfach: Man beschreibt die eigenen Interessen im Sinne eines *Informationsaustausches* (Thompson, 1991) und stellt gezielt *interessenbezogene Fragen* (Hüffmeier, Zerres, Freund, Trötschel, Backhaus & Hertel, im Druck) – am besten, wenn man vorher geklärt hat, dass man es nicht mit einem rein egoistisch motivierten Gegenüber zu tun hat.

Oft reicht es auch schon, sich gedanklich in das Gegenüber hineinzusetzen (Trötschel, Loschelder, Hüffmeier, Schwartz & Gollwitzer, 2011). Ulrike könnte durch *Perspektivenübernahme* darauf kommen, dass Svea vor Antritt der neuen Stelle noch Vorbereitungen treffen möchte. Und daraus schließen, dass ein späterer Start auch für Svea ideal wäre.

### ***Den Kuchen vergrößern – Worüber könnten wir sonst noch reden?***

Das Orangenbeispiel macht es deutlich: Wenn die Parteien die Verhandlungsmasse als fix und unveränderbar wahrnehmen (eine ganze Orange), übersehen sie leicht, dass sich durch die Hinzunahme weiterer Verhandlungsthemen neue Lösungen ergeben (Schale einer ganzen Orange *plus* Fruchtfleisch einer ganzen Orange). In unserem Beispiel droht die Verhandlung am Gehalt zu scheitern. Beide Parteien sind nicht bereit, von ihren Forderungen abzuweichen – Svea will 60.000 €, Ulrike kann nicht mehr als 54.000 € anbieten. Was tun? Bis jetzt haben Svea und Ulrike nur über das Fixgehalt gesprochen; sie könnten Boni und Aufgaben mit

einbeziehen. Durch das Einbringen anderer Themen wird der sprichwörtliche „Kuchen“ vergrößert und neue Möglichkeiten zur Einigung entstehen (Sebenius, 1992). So könnte Ulrike beim Fixgehalt von 54.000 € bleiben, aber zusätzlich einen leistungsabhängigen Bonus anbieten. Die Vergütung zumindest teilweise von der Leistung abhängig zu machen, ist aus Unternehmenssicht attraktiver als ein hohes Fixgehalt zu zahlen. Wenn Svea davon ausgeht, gute Leistungen zu erbringen, ist das für sie ebenfalls attraktiv – erst recht, wenn sie bei guten Leistungen sogar über die von ihr anvisierten 60.000 € kommen könnte. Alternativ könnte Svea bei ihrer Gehaltsvorstellung von 60.000 € bleiben und dafür mehr Verantwortung übernehmen als ursprünglich geplant.

### ***Fazit***

Die fiktive Jobverhandlung zwischen Svea und Ulrike ist exemplarisch für viele Verhandlungen im echten Leben: Parteien schließen Kompromisse, die allenfalls im Briand'schen Sinne vollkommen, aber nicht optimal sind. Dass wir immer wieder mehr oder weniger faule Kompromisse eingehen, hat psychologische Ursachen: Wir schließen von uns auf andere und gehen irrtümlich von gleichen Prioritäten bei der Gegenseite aus; wir sehen Interessenkonflikte, wo keine sind, und vor lauter Wetteifern, wer die Orange bekommt, sprechen wir nicht über Fruchtfleisch und Schale – und verpassen die Möglichkeit einer für alle Seiten höherwertigeren Lösung. Ineffektives Verhandeln ist menschlich, schmerzhaft und – häufig vermeidbar. Wenn wir Verhandlungen als Chance begreifen, Vorteile für alle zu erarbeiten, ohne dass schmerzhafte Einbußen in Kauf genommen werden müssen. Kompromiss-los.

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