Commitment and evolution
Back, István

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Document Version
Publisher's PDF, also known as Version of record

Publication date:
2007

Link to publication in University of Groningen/UMCG research database

Citation for published version (APA):

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Chapter 7

Conclusions

The present work addresses a fundamental issue about human sociality: Why are human behavior and emotions towards long-term partners and relationships so often seemingly out of tune with rationality? Is there something fundamentally rational behind seemingly irrational commitment? These overarching questions are motivated by a vast and growing body of empirical evidence about the way people make decisions in long-term relationships. The evidence points to a mismatch between predictions of simple self-interested rationality and actual behavior that is influenced by a complex interaction between emotions and rational reasoning. To find an answer for these questions, we point to a common explanatory framework, evolutionary theory, which is capable of integrating theories about emotionality and rationality that would otherwise individually lead to different predictions about behavior in interpersonal relationships.

In line with an important distinction in the evolutionary approach, we provided explanations on two levels of causality. First, building on existing research about conditions of the human ancestral environment, we advanced a computational model (Chapters 2-4) to test how a preference for interpersonal commitment could have evolved and out-competed various alternative preferences of opportunism and calculative rationality (ultimate explanation). Second, we turned to empirical examination of the ultimate explanation. We referred to existing evidence and then added to it our own cross-cultural findings. Together these suggest the existence of a direct emotional-cognitive mechanism (proximate explanation) producing commitment behavior, which is most easily explained as a remnant from a long gone era of evolutionary adaptation (Chapter 5). After this, we explicitly focused on exchange theoretic (non-evolutionary) explanations of commitment (Chapter 6) and resolved an empirical puzzle about uncertainty that arose from the contradiction between our cross-cultural findings and existing literature.
Chapter 7. Conclusions

7.1 Summary of results

To show that commitment could have been an evolved strategy, we simulated human interactions under assumed conditions of the human ancestral environment (Chapters 2-4) and found that strategies that possess a tendency for commitment outperform other strategies, such as fair reciprocation. Our results were stable across simulations, where individual strategies were matched against each other in an ecological competition, as well as in genetic simulations, where genotypes of mutating strategies contested their strengths under evolutionary selection pressures.

In the ancestral environment people lived together in relatively small groups. Constant threats from a harsh natural environment led to a much higher frequency of life-threatening situations than today (Sterelny, 2003). In such an unpredictably “unfair” environment, imbalances between exchange partners cannot be avoided due to the uneven occurrence of hazards. Consequently, fair strategies suffer from their lack of tolerance when they interact with their own kind. A more lenient strategy of commitment avoids this pitfall, without being overly tolerant. Another reason behind the success of commitment lies in the structure of the exchange networks that it spontaneously causes to emerge. In a network of committed people, usually each person can easily decide whom to help and everyone is accounted for. Committed agents thus avoid overloading a few designated individuals with interaction requests and instead spontaneously create a structure that ensures an efficient coordination of help requests and help provision. Fair strategies on the other hand are inclined to keep their relationships strictly in balance, which results in spreading interaction requests evenly across the population. During times of need, this structure is inefficient because fair agents in small groups generate overlapping personal networks so that often too many ask help from the same agent at the same time. We also showed that the disadvantage of fair reciprocity increases as the environment becomes harsher (Chapter 3).

But could it really have been viable in a harsh and unpredictable ancestral environment to stay committed to people with lower helping capability, instead of investing in relationships with more attractive others? In Chapter 4 we show that even when there are large differences between individuals in helping capability, it is still better to have a preference for helping old friends (commitment) than a preference for helping the most attractive others. Nevertheless, Chapter 4 also emphasizes the importance of fairness, which is probably another strong and cross-culturally stable preference (Fehr and Schmidt, 1999; Heinrich et al., 2001; Fehr et al., 2002). We found that under large inequalities in the population, a preference for fairness is more important for viability than commitment.

In lack of a time machine, evolutionary (ultimate) theories are troublesome
to test directly. The next best solution is to derive proximate mechanisms from the ultimate theory, and test the existence of these proximate mechanisms. In addition, such a complex theory based on human evolution will only be attractive if it is able to explain more empirical anomalies than simpler theories that make fewer assumptions.

We followed this path with regard to the ultimate theory of interpersonal commitment. If interpersonal commitment indeed evolved and stabilized through selection during countless years of ontogeny, we should be able to detect the resulting proximate mechanisms in contemporary societies. Is there a cross-culturally observable tendency to remain committed to previous partners? Does this tendency remain relatively stable across different situations where rationality would prescribe different behaviors, i.e. is it hardwired? In Chapter 5, we uncovered support for the notion that people possess such a commitment bias: they hold on to their partners simply as a result of exposure, not only as a result of instrumental benefits. We created an experiment where a rational actor would be indifferent between two interaction partners: one that cooperated in a large interaction, and another that cooperated in multiple small interactions over time. The total cost incurred by either partner is equal, therefore there is no reason to rationally suspect better intentions behind one than the other. Still, we found that people were more likely to choose the partner that cooperated over a period of time, suggesting that extended exposure in itself creates a force toward stabilizing a relationship, independently from the size of the benefit.

Note that this exposure explanation for commitment might appear to be reducible to a simpler cognitive mechanism that is already proven to be universal among humans and many animals, reinforcement learning (Thorndike, 1911; Homans, 1961; Macy and Flache, 2002). Is it not so that people simply connect a stimulus of being exposed to another person with positive outcomes, and thus reinforce the need for further exposure? Not necessarily. The idea behind our exposure explanation is not that people are more likely to become committed to attractive/valuable partners but that repeated encounters, per se, increase the positive perception of the partner and this is what leads to increased commitment.

Another finding of our experiment, reported in Chapter 5, was that uncertainty decreased commitment. This is largely in contradiction with another well-established mechanism that predicts more commitment (Kollock, 1994; Yamagishi and Yamagishi, 1994; Yamagishi et al., 1998). What is the reason for this opposite effect? This was the main question motivating our study reported in Chapter 6. The puzzle also leads to another question: is there an alternative reason based on uncertainty reduction for why people become committed, if not to avoid untrustworthy strangers? We found empirical support that social uncertainty has a much less universal effect on commitment than previously suggested (see Kollock, 1994; Yamagishi and Yamagishi, 1994; Ya-
magishi et al., 1998), because it only affects people who themselves wish to be cooperative, and have an opportunity to meet fellow cooperators. Moreover, we also found that there is at least one other important source of uncertainty that has been neglected in the exchange-commitment literature: resources. Similarly to social uncertainty, resource uncertainty increases commitment, especially when one has an opportunity to meet a high-resource partner.

Why are some people more committed than others? In order to explain some of the individual differences in commitment behavior, we linked the effect of resource and social uncertainty to psychological mechanisms. Building especially on Yamagishi’s works, we confirmed that general trust in people has a negative effect on the tendency to become committed to steady partners. Furthermore, we also showed that while general trust decreases commitment, optimism in a more general sense has a similar negative effect. Those who are generally optimistic are more likely to dissolve existing relationships and venture interaction with strangers.

In sum, Chapters 2 to 6 answered each research question raised in Chapter 1. When taken together, these answers provide an answer to our overarching questions. Theoretical results from the agent-based computational models, as well as empirical results from the cross-cultural laboratory experiments, give support to the conjecture that humans possess an innate trait for commitment (or attachment) to relationship partners. This trait most likely evolved in the human ancestral environment where it served as an even stronger factor of success (and survival) than in contemporary societies.

Although the balance of evidence tips toward an evolutionary explanation for commitment that integrates emotional mechanisms next to rational motives, it must be pointed out that (1) there are other, possibly evolved, preferences, which influence behavior in long-term relationships, and (2) an evolutionary framework is not always necessary to understand or predict commitment behavior. In Chapters 2 to 4 we found that other preferences, such as calculative reciprocity (fairness) have certain advantages compared to commitment, and under certain conditions outcompete it. Then, in Chapter 6 we specifically focused on advancing the rational (exchange theoretic) explanation for commitment, related to uncertainty. We could do so, because in the case of uncertainty reduction, fewer assumptions are sufficient to explain differences in commitment behavior.

### 7.2 General discussion

Does evolutionary theory help to explain aspects of contemporary human behavior, and commitment behavior in particular? If so, how does our work fit into the broader field of commitment research? What have we added to existing knowledge, and what are the novel aspects of our work? Finally, where do
7.2. General discussion

the limits of our theorizing lie? These are the questions covered in this section.

7.2.1 In defense of evolutionary theory in the social sciences

This dissertation advances an evolutionary explanation for why people make seemingly irrational decisions, based partially on emotions, about relationships. There is disagreement within the social sciences, especially in sociology, whether human behavior can at all be explained from an evolutionary perspective. While sociobiology has had great success in explaining seemingly irrational behaviors, such as altruism, among animals (Hamilton, 1964, 1972; Trivers, 1971, 1974; Maynard Smith, 1974), attempts to extend the same arguments to humans attracted fierce scientific debate (see Holcomb, 1993).

Introducing a domain-specific approach in addition to the domain-generality of sociobiology, a new field, evolutionary psychology, has created new momentum in this debate. Evolutionary psychology has proved successful in using evolutionary theory to derive and empirically corroborate a range of hypotheses about human preferences and behavior, such as cheater detection, mating preferences, language acquisition, incest avoidance, etc.

One of the strengths of evolutionary psychology is its elegance in explaining many types of human behaviors that were previously thought to be simply irrational or erroneous. Examples range from explanations for cognitive biases (e.g. Error Management Theory, see Haselton and Buss, 2000; Haselton and Nettle, 2006) to sensory illusions (e.g. Evolved Navigation Theory, see Jackson and Cormack, 2006). These seemingly irrational tendencies are explained within a clear functional framework that is increasingly well supported by empirical evidence.

Functional (or holistic) theories have been heavily criticized, leading many to argue that they are not real theories at all, failing to meet standards of the logical positivist philosophy of science. The root of the criticism is that a function, intention or goal, on which these theories are based, becomes manifest only at a later point in time. And as future things cannot be considered antecedent conditions, functional explanations cannot be considered causal ones (Looijen, 1998).

It is important to realize that evolutionary theory, which modern biology is based upon, is not the usual kind of functional theory. In fact, arguments based on evolutionary selection only appear to be functional but in fact they are perfectly acceptable, causally adequate theories. To understand why, consider the following simple idea:

Putting aside the question of how life originally appeared, we can formulate two basic assumptions:

1. Living organisms can only be created by other living organisms, through
reproduction$^1$.

2. When organisms (parents) reproduce, the new organism (offspring) will resemble the original organism to a high degree (inheritance).

Now, an argument, for example, that an offspring has an eye in order to see and thus better be able to survive, appears to be a functional explanation, since the offspring had to have an eye before the function of seeing came into existence. But taken together with the previous two assumptions, the argument can easily be turned into a perfectly valid, causal explanation: an eye served the parent well, so much that it managed to stay alive and reproduce, creating an offspring, which then inherited the eye. This explanation is not only causally correct but benefits from the additional credibility it gains from the functionalist aspect.

This evolutionary functionalism becomes a substitute for the optimality (e.g. maximal utility) that rational choice theories usually require to explain behavior. Our explanation of interpersonal commitments draws on the increased functional value that committed relationships had in our evolutionary past, in order to explain their existence in situations when immediate rational optimality is missing.

### 7.2.2 Placing our work

How do our model and findings fit into a theoretical framework of interpersonal relationships in the ancestral environment? Table 7.1 shows a rough classification of important interpersonal relationship types that are likely to have been present in the ancestral environment, along with the ultimate challenge they addressed (i.e. adaptive benefit) and some of the underlying emotions they are associated with (proximate mechanisms). Notice that the type of commitment that our simulations most closely resemble is friendship. A specific adaptation for commitment is especially important in the case of this non-kin, non-reproductive type of relationship. However, note also that once a trait for interpersonal commitment is in place it has a stabilizing effect on all types of relationships listed. This notion is indeed supported by research arguing that interpersonal experiences in infancy with close kin act as a foundation for the capacity for stable relationships with non-kin in adults (Lundeen, 1999).

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$^1$Note that cloning constitutes a special exception from this argument, and shows that technology clearly has the potential to disrupt the natural dynamic of evolutionary selection. Nevertheless, this in itself does not invalidate the subsequent argument about our prehistoric evolutionary past.
### Table 7.1: Typical relationship types in the ancestral environment, their adaptive benefit and proximate mechanisms

<table>
<thead>
<tr>
<th>relationship type</th>
<th>adaptive benefit</th>
<th>proximate mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>sexual partner</td>
<td>creation of offspring</td>
<td>sexual desire</td>
</tr>
<tr>
<td>spouse</td>
<td>creation of offspring with increased fitness&lt;sup&gt;a&lt;/sup&gt;</td>
<td>passionate love, sexual desire, attachment</td>
</tr>
<tr>
<td>kin</td>
<td>increasing fitness for a subset of own genes&lt;sup&gt;b&lt;/sup&gt;</td>
<td>familial love</td>
</tr>
<tr>
<td>friend</td>
<td>increase own fitness through unconditional exchange, especially high-value exchange such as saving one’s life</td>
<td>bonding, attachment and uncertainty reduction</td>
</tr>
<tr>
<td>acquaintance</td>
<td>increase own fitness through reciprocal exchange, especially repeated, accountable exchange</td>
<td>sense of fairness</td>
</tr>
</tbody>
</table>

<sup>a</sup>There is mounting evidence that long-term reproductive relationships increase the survival chances of offspring not only when they are young but even before they are born. Research on contemporary hunter-gatherer societies shows that children between 1 and 5 years of age are 2.6 times more likely to die if their fathers are dead than if their fathers are alive, and 2.9 times more likely to die if their parents are divorced than if they are together (Hurtado and Hill, 1992). Moreover, it has been found that sexual cohabitation prior to conception reduces the chance from 40% to less than a 5% of preeclampsia, a condition that could even lead to the death of the fetus (cf. Pillsworth and Haselton, 2005).

<sup>b</sup>This happens through the a mechanism known as *kin selection* (see Hamilton, 1964, 1972).
There are two perspectives in the existing literature about the seemingly irrational tendency to hold on to long-term partners. One is to regard it as a devotion or promise to stay in a relationship, that is kept beyond rational incentives, being internally enforced by a host of emotions such as love, attraction or a desire to keep a clean conscience. This line is apparent in the works of Frank (1988) and Nesse (2001a).

The other approach is to regard this seemingly irrational tendency as a basic emotional attachment that is a fundamental characteristic of humans, extended not only towards other people but also toward objects and abstract ideas. This line is advocated in particular by Depue and Morrone-Strupinsky (2005) and Pedersen (2004). Note that while we tried to give credit to both approaches throughout this work, the use of the word “commitment” unfairly biases attention toward the first approach.

The argument for the evolutionary origins of interpersonal commitment is increasingly credible and convincing, being able to rely on findings from other disciplines. Outside the social sciences there are at least two important disciplines that provide a synergy for the evolutionary argument: primatology and the cognitive neurosciences.

Although several animal species, especially birds and some mammals, exhibit long-term relationships among kin or monogamous sex partners (Hrdy, 1999; Carter, 1998), it is among primates that emotionally attached relationships are especially prominent. Friendships and other alliances between individuals who are not relatives or sexual partners have been identified and found to increase social complexity (De Waal, 1996). Studies suggest that early human language evolved in order to facilitate long-term cooperative interpersonal relationships. Researchers found a clear positive association between group size and the call-repertoire of primates, as well as between grooming and call-repertoire, suggesting that the original purpose of language was to efficiently groom multiple individuals at the same time (McComb and Semple, 2005). Proliferation of facial expressions, gestures, vocalizations and other types of social communication created a need for increased cognitive capabilities, and possibly led to the increase of intelligence in human ancestors (Pedersen, 2004).

Fortunately, the cognitive neurosciences are also increasingly interested and capable of uncovering mechanisms in the brain related to sociality in general, and bonding and attachment in particular. Studies found that when people fall in love, serotonin levels plummet and the brain’s reward centers are flooded with dopamine. This gives an emotional high similar to an addictive drug, creating powerful links in our minds between pleasure and the object of our affection, making people addicted to the loved one (Aron et al., 2005).

Other hormones, such as oxytocin and vasopressin, express their effect later in the relationship, and are crucial in forming long-term partnerships. Researchers found that couples that have been together for several years show
increased brain activity associated with these chemicals, when they looked at pictures of their long-term partner (Aron et al., 2005). When administering oxytocin to experimental subjects, researchers were able to artificially increase trust in social interactions (Kosfeld et al., 2005). Oxytocin is also known to be produced when couples have sex and touch, kiss and massage each other.

There is also evidence that similar biological mechanisms are triggered in the absence of a romantic partner as in infants who are separated from their mother, leading to various levels of separation anxiety (Carter, 1998). A consensus is starting to emerge that our neural systems exhibit built-in functions that are designed to respond to the presence or absence of social bonds (Depue and Morrone-Strupinsky, 2005).

7.2.3 Innovations of the present work

This work is an attempt to reconcile existing models of rationality with people’s seemingly irrational, emotionally based tendency to keep existing relationships going. As such, it is among the first attempts to combine deep-seated emotional preferences and rationality into an evolutionary argument that explains interpersonal commitments.

While there have already been forceful attempts to argue for the evolutionary origins of a more general form of commitment, the tendency to uphold promises and threats (Frank, 1988; Nesse, 2001a), interpersonal commitment has received surprisingly little attention. This is even more surprising, when one looks closer at Frank’s and Nesse’s work. In one of their key examples they both argue that humans have evolved a capacity that facilitates keeping promises through emotions, which explains why people remain committed to their spouses, despite more “rational” alternatives. But is it not more plausible that humans have evolved the capacity to remain in relationships directly, not as a bi-product of honesty, avoidance of guilt, etc.?

Our work is also pioneering in testing competitive advantages of commitment and calculative reciprocity under different conditions of social inequality. Our simulation studies (Chapters 2-4) outline a possible evolutionary pathway for the emergence of commitment behavior under minimalistic assumptions about the human ancestral environment, strengthening the ultimate answer for our original overarching research question.

To our knowledge, the mere exposure effect has not been linked to interpersonal commitment before, despite their very obvious connection. Our core argument is that (1) repeated exposure to the same person increases positive evaluations and trust toward the person, holding actual positive experiences and uncertainty about trustworthiness constant; (2) this necessarily leads to becoming more committed to the person; and (3) such behavior was especially adaptive in the ancestral environment where people were much more reliant on the help of other individuals. To strengthen the leap from (2) to (3)
we also rule out cultural explanations for the existence of such a tendency by replicating our experiments in three countries, the Netherlands, China and the USA.

Our main endeavor to reconcile emotionality with rationality concentrates on describing and examining the emotional aspects of decision-making. In addition, we also advance existing explanations for the instrumental rationality of interpersonal commitment by refining its link with uncertainty. Previous literature concentrated exclusively on the positive effect of social uncertainty on commitment. We argue that the effect of social uncertainty is less general than previous literature suggested and point to another form of uncertainty, about resources, that similarly leads to commitment behavior.

### 7.2.4 Possible criticism

A key source of criticism of our work is that we advocate an evolutionary explanation for social behavior. This stems from two more specific problems, one methodological and one substantial. First, evolutionary explanations, including the original ones by Darwin (1859), are difficult to empirically test because we are short of direct evidence about actual evolutionary trajectories. The strength of the evolutionary framework itself lies in the countless sub-theories that are all based on the simple but powerful dynamics of reproduction, mutation and selection and manage to give a coherent explanation for what we see in the biological world around us today.

Another, more specific problem is that by explaining human behavior through evolved preferences we implicitly refer to underlying biological mechanisms. This is bound to draw fierce criticism, especially from those who argue for the primacy of culture and society as determinants of human behavior. But the idea that behavior is biologically determined to a certain extent, is receiving increasing support from research in the cognitive neurosciences. Whenever relevant, we pointed out such links throughout preceding chapters and in Section 7.2.2 above.

One related epistemological problem is that we argue for the existence and relative strength of a universal human characteristic. Research in the social and behavioral sciences usually tries to pinpoint and explain differences between individuals. In our case, we argue about a difference between the entire population and a fictive reference group. More precisely, we need to argue that everyone is universally more committed than would be rational, but there is no real "rational population" to compare to.

Therefore, what we tried to test (in Chapter 5) is whether people behave differently under different conditions that otherwise do not differ when viewed from a purely rational perspective. We found support for the idea that this difference in behavior is cross-culturally stable. An explanation based on natural selection does not posit that every member of the population
necessarily possesses the evolved trait, nor that the trait is equally manifest in each individual. Rather, it argues about the population mean or frequency of the trait, which itself is subject to selection, leaving ample room for individual differences. Although showing such individual differences was not our main focus, we uncovered support in Chapter 6 that commitment is systematically related to individual personality characteristics, such as trust and optimism.

Another major point for criticism is that interpersonal commitment, as a collective concept for many types of relationships that people may have, is too general. It could be argued that an explanation for friendships should have little or nothing in common with an explanation for marriage. This is, however, precisely what we propose. Although different types of relationships have different purposes, there are many common features that make them inherently similar. First, relationships by definition comprise repeated interaction. Second, there is always a trust issue between partners. Third, many relationships require exclusivity, which leads to a dilemma of choice between alternative partners.

The fact that our proposed mechanisms, emotional commitment, mere exposure, and uncertainty reduction are assumed to exist across most interpersonal relationships makes them very general. Therefore, it is important to note that we do not argue for the exclusivity of these mechanisms in producing each of these relationship types but regard them as a few of many factors that create and stabilize interpersonal commitments. Indeed, there is indication in the literature that our concept of emotional commitment is not broad enough. Recent work argues that humans have evolved a general emotional attachment drive, which in itself helps to develop a bond not only to children, sexual partners and groups, but also to cultural ideas and abstract concepts as well, resulting in the evolution of love and increased human intelligence (Pedersen, 2004). Moreover, recent laboratory experiments show that children develop strong emotional preference for objects they have become attached to, independent of the objects’ physical characteristics, and are unwilling to substitute them for perfectly identical duplicates (Hood and Bloom, 2007).

7.2.5 Limitations

A general limitation of the theoretical part of our work is that although our evolutionary simulations were capable of examining and comparing millions of different strategies that randomly emerged and competed, we still assumed a mental model only along the dimensions of commitment, fairness, cooperation and attractiveness. We had to do so in order to reduce the complexity of our model, and to retain the interpretability of the results. However, this also reduced the complexity of strategies explored, and could have inflated the success of commitment strategies. Moreover, the simulations do not tell us much about how feasible it was to initially invent the idea of commitment.
A second limitation lies in the difficulty of separating mere exposure from uncertainty reduction. There are two components that create uncertainty reduction in committed relationships, one is instrumental, the other is temporal. Displaying one’s trustworthiness through sacrificing one’s own immediate interest for the sake of the relationship is the instrumental component. Reiterating the display of trustworthiness over an extended period of time is the temporal component. While we argued for the effect of mere exposure on commitment by separating it from the instrumental component of uncertainty reduction (Chapter 5), we did not separate it from the temporal component. This raises the question whether mere exposure is an independent factor or simply an aspect of uncertainty reduction.

### 7.2.6 Avenues for future research

To address the first of the above limitations, the simulation model can be further extended by making the model of the individual agent less specific and more flexible. A more realistic model based on our current understanding of how the human brain functions is perhaps the most attractive direction. One of the currently applied paradigms for this approximation is neural networks (see, for example Haykin, 1994). Its drawback is an exponential increase in required computational power compared to our existing models.

The second limitation is more difficult to address. In order to separate the effect of mere exposure and the temporal component of uncertainty reduction, a more precise, controlled measurement or manipulation of uncertainty is required. Alternatively, the examination of uncertainty reduction from an evolutionary perspective seems desirable. Our current theory classified the effect of uncertainty on commitment under the rational motives. It is possible, however, that the avoidance of uncertainty itself is an evolved preference. Further examination of its theoretical viability and empirical characteristics could shed light on the credibility of this conjecture.

Our volume is among the initial attempts (see also Baumeister and Leary, 1995; de Vos et al., 2001; Pedersen, 2004) to provide an evolutionary account for interpersonal commitment. It outlines an ultimate theory and at least one proximate mechanism for how natural selection might have shaped a capacity and willingness to become committed to long-term partners. To make the evolutionary claim stronger and more credible, much further research is needed.

One promising direction is to study how people cooperate in different types of relationships, such as kinship, friendship and acquaintance. For example, it is likely that each type of relationship is designed to solve cooperation problems of a different size. Such work would help to further our understanding of the relative importance and place of interpersonal commitment among other arguably cross-culturally stable tendencies of fair reciprocity, and attachment toward kin. At the same time, it could provide further evidence
for the evolutionary account of social bonding.

An important issue that we have not explored in this volume is the counter-mechanism of mere exposure: satiation. Although mere exposure to a stimulus creates a positive disposition, it can also lead to boredom or even aversion from the stimulus. The same could probably be argued for interpersonal relationships in some contexts. Thus it is likely that there is a mechanism that acts in the opposite direction as our commitment bias. Deriving such a mechanism from the evolutionary theory of interpersonal commitment requires further theoretical work and empirical examination.

Despite these limitations and given the potential criticism against our approach that we discussed above, we believe that our work has made a contribution to the comprehension of seemingly irrational decisions in durable relationships. We found support for the notion that people instinctively stick to their existing interpersonal relationships, more so than would seem rational given the circumstances. We argued that this tendency could be the result of a long-term evolutionary process. Furthermore, we advanced previous research on the relationship between commitment and one of its key rational sources, uncertainty.

Our efforts also testify to the importance of interdisciplinary research. Without combining previous research and insights from psychology, sociology, economics and evolutionary theory, most alternative explanations of commitment remain limited in their power and scope. Together, they promise to further our understanding of the wonderful and mysterious complexity of human nature.