



Foreign policy decision making: rational, psychological, and neurological models

JANICE GROSS STEIN

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Reader's guide

This chapter looks at the contribution that rational models of choice can make to foreign policy analysis. It then examines cognitive models which identify the boundaries to rationality in decision making. The chapter then looks at new research in neuroscience which recasts the role of rational models and highlights the importance of emotions. It concludes with suggestions for system design that can improve foreign policy decision making.

Introduction

In early 2007, the Munk School of Global Affairs at the University of Toronto assembled a group of scholars to think broadly about the meaning of rationality in foreign policy and conflict resolution. Among them were two recent Nobel Prize laureates and a distinguished philosopher. We asked our colleagues to wrestle with a practical problem, that of 'applied' rationality. They followed in the footsteps of scholars and policy makers, who for thirty years have debated the elements of a solution to the Israel-Palestine conflict. The outlines of a 'rational' solution are broadly known on both sides of the divide: two independent states and a shared Jerusalem. Yet the conflict is still raging and people are still being killed. What stands in the way of a rational solution to this enduring conflict? Why can the governments on both sides not move towards a rational compromise that is known to the participants as well as outsiders? If analysts and political leaders on both sides know the broad outlines of a rational solution, why can't they get there?

This deceptively simple question masks a host of complex issues. What does it mean to ‘know’ a rational solution? What is a ‘rational’ solution in a real-world setting? Rational by what criteria? From whose perspective? If one or more of the parties to the conflict rejects the solution, are they necessarily ‘irrational’? Are there good reasons why solutions that scholars might consider ‘rational’ are not chosen by government leaders? All these questions point to even bigger questions. How rational are political leaders when they make big and important foreign policy decisions? How well do concepts of rationality, as developed by philosophers or economists, travel into the world of politics and foreign policy making? The short answer: not very well at all.

Commonsensical understandings of rationality

This chapter could get badly off track by investigating the many meanings of rationality. The focus of this chapter is much narrower—how we understand foreign policy decision making. I put forward two commonsensical models of rationality in decision making. In the first, **rational decision making** refers to the process that people *should* use to choose. In a rational decision-making process, people should be logical and orderly. Their preferences should be ranked, at least intuitively, in such a way that if I prefer A to B, and B to C, then I prefer A to C. If I prefer peace to all-out war, and I prefer all-out war to low-level insurgency, then I should prefer peace to insurgency. If I violate this requirement of ‘transitive’ preferences—if I prefer C to A, or insurgency to peace—then I am ruled out as a rational decision maker. We need to look elsewhere—and we will in this chapter—to explain choices that violate the axioms of rationality.

As part of the process of making informed choices, rational decision makers should be good at attending to new information that comes along as they are making their choices; they need to ‘update’ their estimates in response to new reliable information that contains significant evidence. The attentive reader may notice all sorts of caveats here: ‘reliable’ information that comes from a ‘trustworthy’ source, ‘new’ information or information that the decision maker did not previously have, and ‘significant’ or diagnostic evidence that speaks to the likelihood of some of the consequences the policy maker is considering. When President Bush was considering whether or not to go to war against Iraq, he was told that Saddam Hussein had sought to buy yellow cake uranium from Niger. This information was new to the President—he had not heard it before—and it was diagnostic: it signalled that Saddam was probably seeking to develop unconventional weapons. What the information was *not*, however, was reliable or trustworthy, and at least one official quickly identified it as unreliable; therefore it should have been discounted or excluded from any kind of consideration. The reliability of information is a threshold barrier that any piece of evidence should cross on its way into the decision-making process. However, determining the trustworthiness of any piece of information is often very difficult to do. Indeed, ‘rational’ processes of information management are often swamped by the quick intuitive processes and deep cognitive biases that political leaders use to interpret evidence.

So far, this picture of a rational decision maker approximates common sense. People who make important choices about foreign policy need to be logical, discriminating while open to new evidence, and ‘coherent’ and ‘consistent’ in responding to logical arguments.¹ Rational decision makers are those who are open to arguments and evidence, free of serious blinkers as they weigh the evidence and think about the likely consequences of options. The minimal commonsensical requirements of rationality in foreign policy decision making expect that

policy makers can learn from history, and that they can draw some propositions from the past and apply these propositions in an appropriate way to the future as they weigh the likely consequences of the options they face (Jervis 1976; Vertzberger 1990; Tetlock and Breslauer 1991; Levy 1994; Tetlock 1998a).

The second, more demanding, models of rational choice expect far more from decision makers. Borrowing heavily from micro-economics, they expect decision makers to generate **subjective probability estimates** of the consequences of the options that they consider, to update these estimates as they consider new evidence, and to maximize their subjective expected utility. Rational decision makers choose the option that promises to give them what is likely of greatest value to them. In other words rational choosers are reasonably good estimators of probability and efficient in the choices that they make.²

To put these requirements more formally, theories of rational choice in foreign policy treat both initial preferences and expectations as given and exogenous. Models of rational choice are powerful because they can identify the strategy that leaders should choose, given their preferences and expectations. They take original preferences as given and specify the optimal choice. In so far as formal models of rational choice discuss the process of choosing, they assume that people are 'instrumentally rational'. Given their existing preferences, people are expected to engage in an appropriate end-means calculation. Formal models of rational choice do not claim to explain the beliefs and expectations which *lead* to choice, and therefore, in a fundamental sense, leave out most of what is important in explaining foreign policy. Rational decision makers resolve the conflicts they face in multi-attribute problems by measuring along a single attribute—that of subjective utility—and simply trading off to find the best outcome. Rational choice appears to do away with the conflict of choice by measuring along a single dimension. They assume a common yardstick which makes complex measurements simple.

How well do these models mirror processes of choice in foreign policy? Not well at all. There is by now abundant evidence that foreign policy decision makers, and people more generally, rarely meet these standards. This evidence will surprise some readers because, as a species, we are intuitive causal thinkers and like to think of ourselves as rational; in many ways, a discussion of the deep limits to human rationality goes against the grain. The most important evidence of the limits to rationality comes from well-established work in psychology, specifically from the new, still tentative, research results in neuroscience which are challenging the most fundamental tenets of the rational model. The work of neuroscientists is important for the analysis of foreign policy because it is re-introducing conflict as a key feature in the choices made by decision makers. What makes the work of psychology and neuroscience even more important is that the two tend to converge, a factor of real importance in analyses of foreign policy.

Psychological models: the 'cognitive revolution'

Forty years ago, psychologists began a 'cognitive revolution' as they rejected simple behaviourist models and looked again at how people's thought processes shaped the choices they made. They brought the 'mind' back into psychology. Although this was not its main purpose, the cognitive revolution can be understood largely as a commentary on the limits of rationality. Much of the work accepts rational choice as the default position and then demonstrates its boundaries. Research has now accumulated to show that people rarely conform to the

expectations of the rational model (Kahneman *et al.* 1982; Hogarth and Goldstein 1996; Dawes 1998). The grounds for pessimism are twofold: the difficulty of making inferences (as models of rational choice anticipate), and the limitations of the human mind.

Cognitive psychology has demonstrated important differences between the expectations of rational decision models and the processes of attribution, estimation, and judgement people frequently use. It explains these differences by the need for simple rules of information processing and judgement that are necessary to make sense of uncertain and complex environments. Human beings have a preference for *simplicity*. They are also averse to ambiguity and want *consistency* instead. Further, they misunderstand fundamentally the essence of probability (Dawes 1998; Tetlock 2006), making them intuitively *poor estimators*. Lastly, humans have risk profiles that depart from models of rational choice; as a result, we are far more *averse to loss* than we are gain-seeking. Together, these four attributes compromise the capacity for rational choice and affect the decision-making abilities of leaders and officials who are responsible for foreign policy.

Simplicity

Political leaders making decisions about the world need to order that world, making its complexities somewhat simpler. To do so, they unconsciously strip the nuances, context, and subtleties out of the problems they face in order to build simple frames. When they look to the past to learn about the future, political leaders tend to draw simple one-to-one analogies without qualifying conditions. In 1991, President George Bush called Saddam Hussein 'another Hitler', with little attention to what was different either about the two men or about Iraq in 1990 and Germany in 1938. Yet fitting Saddam into an existing frame through use of **analogical reasoning**—reasoning based on analogy—gave the President a readily accessible script about how to respond to Iraq's invasion of Kuwait (Khong 1992).

Drawing arguments from a complex historical past is even more challenging. When NATO leaders decided to take over responsibility for military operations in Afghanistan from the USA in 2005, there was a relatively straightforward discussion about the importance of preventing 'terrorists' from regaining control of southern Afghanistan. Policy makers were partly correct. al-Qaeda, now in its third generation, was certainly one element, but what made Afghanistan so challenging to outside forces was its own indigenous insurgency and strong warlords who coexisted with al-Qaeda. Global terror, local insurgency, local warlords, and a local economy fuelled by narcotics interacted together to create an environment of far greater complexity than the simple one-dimensional construction of the challenge that policy makers used. Their simplified definition of the problem limited the options that policy makers then considered—it both pushed other options off the table and blinded decision makers to some of the likely consequences of the option they chose to 'fight terror'. We all need to simplify a noisy, distracting, and complex environment in order to see patterns, but typically we oversimplify badly. Political leaders are no exception.

Consistency

Cognitive psychologists have produced robust evidence that people strongly prefer consistency, that they are made uncomfortable by dissonant information, and that they consequently deny or discount inconsistent information to preserve their beliefs. This drive for

consistency impairs the processes of estimation and judgement. The well-established tendency to discount inconsistent information contributes significantly to the persistence of beliefs. Indeed, exposure to contradictory information frequently results in the strengthening of beliefs (Anderson *et al.* 1980; Anderson 1983; Hirt and Sherman 1985). People, it seems, are hard-wired to be conservative.

The lengths to which policy makers will go to defend policy forecasts gone wrong are quite remarkable (Tetlock 1998b). For example, some of the strongest proponents of regime change in Iraq during 2003, when confronted with the steep violence four years later, insisted that they had been right but that Iraq's leaders simply had not risen to the challenge. Others insisted that they had been right to support the invasion, but that they had underestimated the gross incompetence of the Bush administration. Politicians on both sides of the argument did not revise their fundamental arguments when confronted with strongly discrepant evidence, but shifted responsibility to the incompetence of others which, they insisted, they could not have been expected to foresee. Why they should not have been expected to see the sectarian divisions among a brutalized population or the hubris which infected planning for the war remains unexplained.

Much of the work of cognitive psychology has been done in the laboratory with students; experts have questioned how well such results travel into the political world. That question has been largely put to rest by a remarkable study of political forecasts in different cultures, where experts on foreign policy generally continued to defend their forecasts even though what they expected did not happen (Tetlock 2006). Tetlock identifies seven categories of belief-system defences: challenging whether the local conditions required by the forecast were satisfied; invoking the unexpected occurrence of a shock; invoking a close-call counterfactual—'I almost got it right'; using an 'off-on timing' argument—'I'm ahead of my time, history will prove me right'; declaring that international politics is hopelessly indeterminate and consequently unpredictable; defiantly asserting that they made the 'right mistake' and would do it again; and insisting that unlikely things sometimes happen (Tetlock 2006: 129).

Conservative foreign policy makers in the Bush administration implicitly argued that local conditions were not satisfied when they blamed Iraq's leaders for failing to seize the opportunity that they had been given. The problem was not with their forecast (i.e. that the removal of a regime by force would open the door to democracy) but with the would-be democrats. A defence that 'all things were not equal', that an unexpected shock changed the direction, is also a comforting defence against error. NATO officials acknowledge that they did not expect the ferocity of the Taliban insurgency in 2005, but insisted that their fundamental forecast of accelerating reconstruction and stability in Afghanistan would be proved correct over the longer term. This defence combines the unexpected shock with an argument about timing to rescue the forecast.

Some of the most intriguing defences by experts claimed that they were almost right. Who could have expected Saddam to have got rid of his weapons programmes, experts insisted, when they failed to uncover unconventional weapons programmes in post-invasion Iraq. But, they insisted, had the USA not invaded, he undoubtedly would have forged ahead with nuclear weapons as the international sanctions weakened. They would have been vindicated with the passage of time, they insisted, had the USA not removed Saddam from power. Here too, experts draw on 'close-call counterfactuals' and arguments about timing to preserve their belief systems. Closely related was the argument by those who got it wrong that it was better

to have overestimated than underestimated his weapons programme. Better safe than sorry, they said.

Tetlock confirms the same kind of self-serving bias in argumentation among political experts that cognitive psychologists have documented in the laboratory. He also finds a relationship between the size of the mistakes and the activation of defences. The more confident experts were in their original forecast, the more threatened they were when they were faced with disconfirming evidence, and the more motivated they were to use one or more of the seven defences to preserve their beliefs. '**Defensive cognitions**', Tetlock argues, 'are activated when forecasters most need them' (Tetlock 2006: 137). When political experts most needed to revise their judgements, they were least open to revision. This same pattern was also very much present among American decision makers during the Vietnam War.

The evidence we have reviewed thus far suggests that belief change is very difficult. Yet at times belief systems or schemas do change, at times dramatically. Theories of **cognitive consistency** expect that the least central parts of a belief system, i.e. those with the fewest interdependent cognitions, will change first. People will also make the smallest possible change; they will change their beliefs incrementally, generate a large number of exceptions and special cases, and make superficial alterations rather than rethink their fundamental assumptions. Political leaders in the USA were generally resistant to changing their beliefs about the Soviet Union after Mikhail Gorbachev came to power. In the face of counter-evidence, three years after he became General Secretary, senior policy makers in Washington were arguing that Gorbachev's strategy was to lull the West while the Soviet Union recovered, and therefore the USA should continue to be both sceptical and cautious.

Cognitive psychologists suggest some conditions that facilitate change (Jervis 1976: 288–318; Tetlock 2006). There is evidence that greater change will occur when information arrives in large batches rather than bit by bit. Cognitive models suggest that when people are confronted with overwhelmingly discrepant information, when there is no other way to account for large amounts of contradictory data, beliefs can change dramatically (Jervis 1976: 288–318). When central beliefs do finally change, they generally trigger far-reaching changes in related peripheral beliefs.

Change in belief is also related to content. Not all beliefs or expectancies are equivalent; they vary in strength and in the person's commitment to them. The most common distinction is between long- and short-term beliefs. Beliefs that have relatively short-run consequences are less resistant to change, while beliefs with longer-term consequences tend to persist. In foreign policy, the 'inherent bad faith model' is an example of a long-term belief that is impervious to new information (Jervis 1976; Stuart and Starr 1982). Long-term belief in another's hostility is easy to confirm and difficult to disprove almost regardless of the objective circumstances. That kind of dynamic is obvious in the enduring conflict between Israel and Palestine. It is difficult to persuade Israelis, short of a dramatic gesture that is irrevocable and self-binding in the way that President Sadat's visit to Israel in 1979 was, that Palestinian intentions have changed. It is impossible to persuade Palestinians, confronted daily by occupation, that Israel's intentions could change. Any disconfirming evidence is discounted to preserve the consistency of long-term inherent bad-faith images on both sides. In foreign policy, conflict persists because images are so difficult to change. Deeply rooted cognitive processes systematically work against rational expectations of appropriate, diagnostic updating. When beliefs and arguments do change, they generally change in uneven ways that reflect the

somewhat arbitrary patterns in the information and basic processes of attribution. Neither of these has very much to do with rational expectations. However, there is some evidence that is more encouraging. It comes from the close analysis of differences among foreign policy experts in their willingness to entertain the possibility that they were wrong. Not all experts are resistant to change all the time.

Drawing on a well-known distinction made by Isaiah Berlin, Tetlock classified foreign policy experts as 'foxes' or 'hedgehogs'. Hedgehogs know 'one big thing' extremely well and extend what they know into other domains of foreign policy analysis. Foxes, on the other hand, know many small things, are generally sceptical of grand overarching schemes, stitch together explanations with different threads of knowledge, and are sceptical of prediction in world politics (Berlin 1997; Kruglanski and Webster 1996: 263–8; Tetlock 2006: 73–5). Applying this to the realm of foreign policy analysis, one could suggest that hedgehogs tend to be deductive generalists in confronting evidence, while foxes are more likely to be inductive pragmatists, more likely to search for new information, and more open to new information.

The evidence shows that the foxes do much better at short-term forecasting within their broad domain of expertise than do hedgehogs. The worst performers were hedgehogs who made long-term predictions, usually with considerable confidence. Hedgehogs are generally people with strong needs for structure and closure, who are most likely to discount and dismiss inconsistent evidence when it contradicts their preconceptions. The more knowledge hedgehogs have, the better equipped they are to defend against inconsistency. Foxes, however, are sceptical of deductive approaches, more likely to qualify analogies by looking for disconfirming information, more open to competing arguments, more prone to synthesize arguments, more detached, and, not surprisingly, more likely to admit they were in error and move on. The hallmark of the foxes is their more balanced style of thinking about the world. Foxes have 'a style of thought that elevates no thought above criticism' (Tetlock, 2006: 88, 118). It is this capacity for critical sceptical thinking that enhances their capacity to learn. When foxes are in positions of political responsibility, foreign policy is likely to be more adaptive over time. Hedgehogs are far more likely to drive policy in a consistent direction.

Poor estimators

People are not intuitive probability thinkers. They depart systematically from what objective probability calculations would dictate in the estimates they make. 'Human performance suffers,' argues Tetlock, 'because we are, deep down, deterministic thinkers with an aversion to probabilistic strategies that accept the inevitability of error' (Tetlock 2006: 40). Foreign policy experts are no exception. Where we can compare their estimates with those that would be generated by objective calculations of probability, experts do surprisingly poorly. Highly educated specialists in foreign affairs approached only 20% of the ideal across all exercises (Tetlock 2006: 77). This is so because they think causally rather than pay attention to the frequencies with which events occur. Experts tend to overestimate the likelihood of war, for example, because they can easily imagine the causal pathways to war, a highly salient occurrence that they have likely studied. They pay less attention to the frequency of wars over an extended period of time (Tversky and Kahneman 1983; Koehler 1996: 1–53: 293–315).³

To make matters worse, probable states of the world are very difficult to estimate because we do not have repeated trials with large numbers in world politics. Foreign policy analysts generally do not live in a world of risk, where the probability distributions are known and they only have to estimate the likelihoods. Perhaps in international economics and finance and in global health, analysts know the probability distributions of recessions, deflation, and epidemics. Analysts, even the best informed, do not know the probability of another attack by militants against civilian infrastructure in the USA or the UK. There have been too few such attacks to generate any reasonable estimate of likelihood. Here foreign policy analysts work in a much tougher environment, one of uncertainty where they have no access to probability distributions. This world of uncertainty is one they particularly dislike, and it is under these conditions that experts, just like other people, seek the certainty, the false certainty, of order and control.

In this world of uncertainty, experts search for the relevant categories in which to anchor their judgements. Cognitive psychology has identified a number of **heuristics** and biases that people use in environments of risk and uncertainty that can impair processes of judgement (Nisbett and Ross 1980; Kahneman *et al.* 1982; von Winterfeldt and Edwards 1986). Heuristics refer to the rules or indicators which leaders use in order to test the propositions embedded in their own schemas. Heuristics help describe how decision makers actually process information, using convenient short cuts or rules of thumb. Three of the best-documented heuristics are availability, representativeness, and anchoring. The *availability heuristic* refers to people's tendency to interpret present information in terms of what is most easily available in their cognitive repertoire (Tversky and Kahneman 1973). *Representativeness* refers to people's proclivity to exaggerate similarities between one event and a prior class of events (Jervis 1986: 483–505). *Anchoring* refers to the estimation of a magnitude by picking an 'available' initial value as a reference point and then making a comparison (Fiske and Taylor 1984: 250–6, 268–75). (See Box 7.1)

In all three cases, what is available in a cognitive repertoire has an undue influence on how an individual influences the likelihood of a future event. What we know, and what we can access, has a disproportionate impact on our forecasts. Anchoring, availability, and representativeness were all at play for years in Britain, where policy makers were likely to forecast negative consequences from 'appeasement' because of the salience of Munich in British history. British decision makers paid correspondingly less attention to the unwanted escalation that could come from the threat of force. 'Hedgehogs' who are expert on what happens 'when we knuckle under to dictators' are especially likely to discount any negative consequences from the threat of force.

Cognitive biases also lead to serious errors in attribution which can confound policy making. People exaggerate the likelihood that other's actions are the result of their own prior behaviour and overestimate the extent to which they are the target of those actions; cognitive psychologists call this pattern of attribution the 'egocentric bias'. One of the most pervasive biases is the **fundamental attribution error**, where people exaggerate the importance of dispositional over situational factors—in other words, explaining the disliked behaviour of others as a result of their disposition, while explaining their own behaviour based on the situational constraints that they face (Fiske and Taylor 1984: 72–99). When explaining behaviour that they like, people simply reverse the pattern of inference. When the government of North Korea makes a concession in the talks about its nuclear programme, analysts in Washington see that concession as a function of the constraints Pyongyang faces, but explain their own willingness to participate in the talks as evidence of their search for a peaceful compromise.

BOX 7.1 Heuristic processing

Heuristics, those rules or indicators that serve as cognitive 'short cuts' or 'rules of thumb', often play into decision making without us being aware of it. The following study by Kahneman and Tversky (1983) revealed the common use of heuristic processing. How would you answer this questionnaire?

The Linda problem

Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in antinuclear demonstrations.

Please rank the following statements by their probability, using 1 for the most probable and 8 for the least probable.

- (a) Linda is a teacher in a primary school.
- (b) Linda works in a bookstore and takes yoga classes.
- (c) Linda is an active feminist.
- (d) Linda is a psychiatric social worker.
- (e) Linda is a member of Women Against Rape.
- (f) Linda is a bank teller.
- (g) Linda is an insurance salesperson.
- (h) Linda is a bank teller and is an active feminist.

The results of the study revealed that 85% of respondents indicated that Linda was less likely to be a bank teller than both a bank teller and a feminist. According to the representativeness heuristic, subjects make their judgements according to the perceived similarity between the statement and the description of Linda.

Kahneman, D. and Tversky, A. (1983), 'Extensional versus Intuition Reasoning: Conjunction Fallacy in Probability Judgment', *Psychological Review*, 90: 293–31. Reprinted with permission.

When North Korea cuts off the talks, it is doing so, analysts argue, because of its determination to acquire nuclear weapons in violation of the rules. A tough response to North Korea is dictated by the constraints that Western powers face. The double standard in reasoning is glaringly obvious.

To make matters worse, foreign policy experts suffered from the classic **hindsight bias**, in which they systematically misremembered what they had predicted. They claimed that they had assigned a higher probability to outcomes that did happen, and gave less credit to their opponents for getting it right than they deserved. The strength of the 'hindsight bias' was striking because these experts knew that their original judgements had been recorded and that these records were accessible. How can we explain this kind of bias in the face of evidence that these experts knew existed? Tetlock argues as follows:

A fuller explanation must trace hindsight bias to a deeper cause capable of producing genuine self-deception: the largely unconscious cognitive processing that is automatically activated . . . that allows us to rapidly assimilate the observed outcome into our network of beliefs about what makes things happen. People manage to convince themselves, sometimes within milliseconds, that they 'knew it all along' (Tetlock 2006: 139–40).

Loss aversion

Foreign policy decision makers, like people generally, are not neutral about risk. Cognitive psychology has generated robust evidence that loss is more painful than comparable gain is pleasant, and that people prefer an immediate smaller gain rather than taking a chance on a larger longer-term reward (Kahneman and Tversky 1979, 2000; Tversky and Kahneman 1992). People systematically overvalue losses relative to comparable gains. These propositions about risk have held up across a wide variety of cultures and situations.

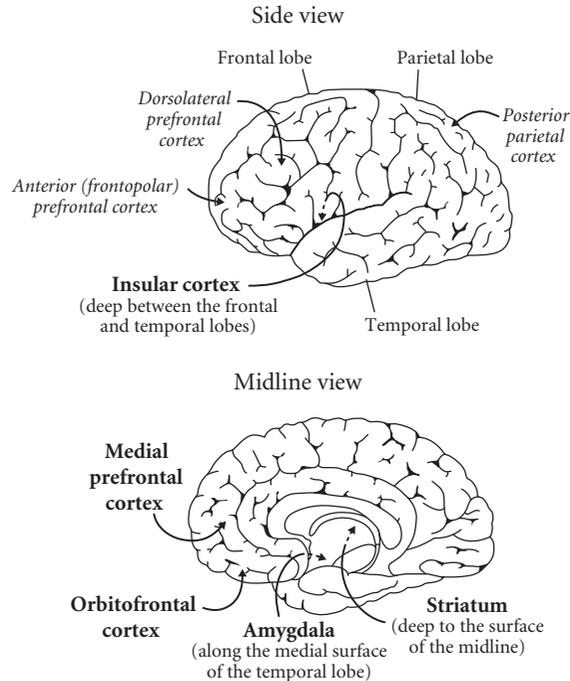
The impact of loss aversion on foreign policy decision making is considerable. Leaders tend to be risk averse when things are going well and relatively risk acceptant when things are going badly—when they face a crisis in which they are likely to lose or have lost something that matters to them. Leaders are also likely to take greater risk to protect what they already have—the ‘endowment effect’—than to increase their gains. They are also likely to take greater risk to reverse losses, to recapture what they once held, than they would to make new gains. And when decision makers suffer a significant loss, they are far slower to accommodate to these losses than they would be to incorporate gains. Finally, leaders reverse their preferences and make different choices when problems are reframed as losses rather than gains.

These general findings apply directly to foreign policy choices. President Sadat of Egypt, for example, never ‘normalized’ for the loss of the Sinai to Israel in 1967. Even though Israel had an obvious advantage in military capabilities, Sadat was undeterred and, highly motivated to recapture the Sinai, he designed around Israel’s military strengths and launched a war in 1973 (Stein 1985, 1996). Under these kinds of conditions, theories of rational deterrence which do not systematically build in aversion to loss are likely to mislead foreign policy decision makers by generating undue confidence.

This review of the need for simplicity and consistency, the impediments to probabilistic thinking, and the predisposition to loss aversion are often treated, as we saw earlier in this chapter, as *deviations* from rational models of information processing, estimation, and choice. Rational choice remains the default and these ‘deviations’ are treated as limiting conditions. I disagree. These ‘deviations’ are so pervasive and so systematic that it is a mistake to consider rational models of choice as empirically valid in foreign policy analysis.

Neuroscience, emotion, and computation

We are at the edge of an exciting revolution in our understanding of the human brain and how it works. New imaging technology is allowing scientists for the first time to ‘watch’ the brain as it thinks, feels, remembers, and chooses; the pictures they are seeing are revolutionizing understandings of thought and decision. Even though the experimental results are still far from definitive, two results stand out. First, many decisions seem not to be the result of a deliberative thought process, but preconscious neurological processes. The brain can absorb about eleven million pieces of information a second, but can only process forty consciously. The unconscious brain manages the rest. Second, many decisions seem to be the product of strong emotional responses. (See Figure 7.1.)



Notes: Lateral (side) and medial (midline) views of the human cerebrum, identifying areas critically associated with decision making. Areas in bold have consistently been associated with emotional processing, while areas in italics have consistently been associated with higher-level cognitive processes

Figure 7.1 The human cerebrum

Source: Cohen, J. (2005), 'The Vulcanization of the Human Brain: A Neural Perspective on Interactions Between Cognition and Emotion', *Journal of Economic Perspectives*, 19: 9. Reproduced by permission of Jonathan D. Cohen, Department of Psychology and Princeton Neuroscience Institute, Princeton University.

Scientists now make a very strong, and startling, claim. There is growing consensus that emotion is 'first', because it is automatic and fast, and that it plays a dominant role in shaping behaviour. We know now that emotion operates in part below the threshold of conscious awareness (LeDoux 1996; Winkielman and Berridge 2004). Contrary to conventional wisdom, we generally feel *before* we think and, what is even more surprising, we often act *before* we think. There is widespread consensus that the brain implements 'automatic processes' which are faster than conscious deliberations with little or no awareness or feeling of effort (Bargh *et al.* 1996; Bargh and Chartrand 1999). Not surprisingly, the conscious brain then interprets behaviour that emerges from automatic, affective, processes as the outcome of cognitive deliberations (Camerer *et al.* 2005: 26).

A useful way of thinking about emotion and cognition is to see affective processes as those that address the go–no-go questions, the questions that motivate approach–avoidance, while cognitive processes are those that answer true–false questions (Camerer *et al.* 2005: 18 Zajonc 1980, 1984, 1998). Choice clearly invokes both kinds of processes. Establishing truth claims about states of the world is usually not enough for people to make a choice. What matters to

me, what I value, is an emotional as well as a cognitive process, and is important in what I decide to do, whether I go, or I don't go, whether I approach or I avoid. Whether or not I am treated fairly is an emotional as well as a cognitive judgement and, in this sense, emotion carries utility.

How do neuroscientists analyse emotion and cognition? Some conceive of two separate operating systems in the brain: emotion and reason.⁴ 'Emotions influence our decisions,' argues Jonathan Cohen. 'They do so in just about every walk of our lives, whether we are aware or unaware of it, and whether we acknowledge it or not' (Cohen 2005: 1). Emotions are automatic processes associated with strong positive or negative response. The brain, Cohen explains, has different kinds of mechanisms: one, which includes emotional responses, can respond automatically, quickly, and definitively but is relatively inflexible; cognition is less rapid and has limited capacity but is more flexible. There is a trade-off between the speed and specialization of emotions and the generality of reflection. In the circumstances of modern life, these systems may prescribe different responses and the outcome of this competition determines choice (Camerer *et al.* 2005). This branch of neuroeconomics has explicitly brought conflict back into decision making. Choice is a conflict between emotion and computation. (See Box 7.2.)

Kahneman calls the first, emotion-based, system of decision making 'intuitive' and 'associative', and the second system of cognitive decision making 'reasoned' and 'rule-governed'.⁵ The first system is preconscious, automatic, fast, effortless, associative, unreflective, and slow to change. The second system is conscious, slow, effortful, reflective, rule-governed, and flexible. The vast majority of decisions are made through the first system, which draws heavily on emotions and in a competition between the two always trumps the rule-governed reasoned system. It is extraordinarily difficult, Kahneman concludes, for the second system to educate the first.

The well-known 'ultimatum game' highlights the computational, cognitive, and emotional elements at play in decision making (Figure 7.2). The game comes out of economics but has relevance to international politics as well. One partner has access to a given resource—wealth,

BOX 7.2 Scientists create 'trust potion'

Scientists create 'trust potion'

A key hormone helps determine whether we will trust lovers, friends, or business contacts, scientists claim. Exposure to an oxytocin 'potion' led people to be more trusting, tests by University of Zurich researchers found. They report in the journal *Nature* that the finding could help people with conditions such as autism, where relating to others can be a problem. But one expert warned it could be misused by politicians who want to persuade more people to back them.

'Some may worry about the prospect that political operators will generously spray the crowd with oxytocin at rallies of their candidates' (Dr Antonio Damasio, University of Iowa College of Medicine).

Oxytocin is a molecule produced naturally in the hypothalamus area of the brain which regulates a variety of physiological processes, including emotion.

Story from BBC NEWS:

<http://news.bbc.co.uk/go/pr/fr/-/1/hi/health/4599299.stm>

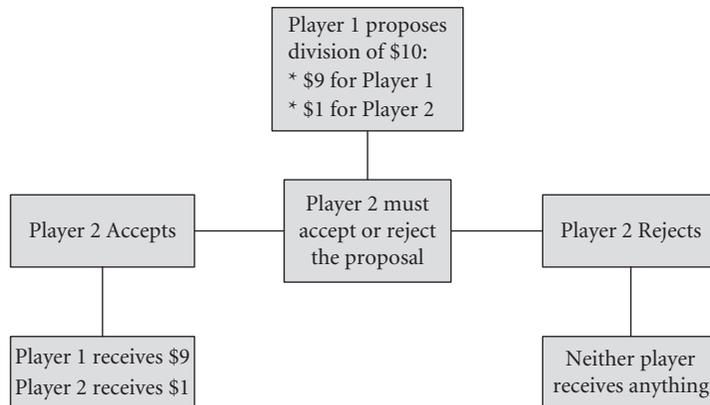
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vast natural resources, highly sophisticated military technology—and can propose how the resource should be split. If the other party accepts the proposal, then the resource is divided as they have agreed. If the split is rejected, neither receives anything and the game is over, and conflict probably follows.

Rationally, the second party should accept anything that is offered, because anything is clearly better than nothing. And again, the first party, knowing that for the other anything is better than nothing, should rationally offer as little as possible. The game has been played across a wide range of situations and cultures, with a remarkably consistent outcome. Contrary to what rational models would expect, offers of less than 20% of the total are generally rejected out of hand. Why? Perhaps those who rejected the offer were worried about their bargaining reputation for the next round, as rational deterrence theory says they should. But players responded the same way even when reputational effects were removed from consideration, when they were told that they would play the game only once. When asked why they rejected an offer that would give them something, players responded that the offer was humiliating, insulting, patently unfair. They responded quickly and intuitively to an offer which gave them something, but humiliated them in the process.⁶ Their rejection was driven by a strong negative emotional response.

According to this experimental economics game, first studied by Güth et al. (1982), two players interact anonymously and only once, so reciprocation is not an issue. The first player proposes how to divide a sum of money with the second player. The second player can either accept or reject the proposed division: if the second player accepts the division, the first player gets his demand and the second player gets the rest; on the other hand, if the second player rejects the division, neither player receives anything.

Illustratively this game can be demonstrated by the example below:



Rationality would suggest that the second player accept whatever division is proposed, because anything is better than nothing. However, consistently, the second player rejects the proposed division when offers are less than twenty per cent of the total. Why? Emotional reasons: the second player tends to find such low offers ‘humiliating’, ‘insulting’, and ‘unfair’, thereby denying both players anything (Cohen 2005: 13–15).

Figure 7.2 The ‘ultimatum game’: how would you choose?

Source: The negotiation style known as the ‘ultimatum game’ was introduced by experimental economists Güth, W., Schmittberger, R., and Schwarze, B. (1982), ‘An Experimental Analysis of Ultimatum Bargaining’, *Journal of Economic Behavior of Organization*, 3: 367–88, © Elsevier 1982.

Emotion is an individual embodied experience. How can the study of emotion be extended to the analysis of foreign policy and to decision making which, even when decisions are made by individual leaders, takes place in a collective context on behalf of others? Emotions are meaningful in a social context (Saurette 2006: 507–8)? It is only with a shared sense of what constitutes appropriate social behaviour, for example, that a person, a people, or a government feels humiliated at all. When the flag of one nation is burned by another, the humiliation and anger that follows flow from a shared understanding that the burning of a flag is a deliberately insulting and hostile act. Physiological processes are layered by social knowledge which shapes the appropriateness of anger, fear, and happiness. It is in this sense that emotions need to be conceived as not only an individual but also a social process (Ross 2006).

Scholars in international relations are now beginning to look carefully at the neuroscience of emotion. Research on emotion is having a significant impact on the analysis of a wide range of global issues: the logic of deterrence (Mercer 2005, 2010), cooperation and the solution of collective action problems (Rilling *et al.* 2002; Mercer 2005), nuclear proliferation (Hymans 2006); the War on Terror (Bennett 2002; Saurette 2006; Bleiker and Hutchison 2008; Crawford 2009), revenge, anger, and humiliation as motives for war (Gries 2004; Saurette 2006; Löwenheim and Heimann 2008), and patterns of ethnic and civil conflict (Kaufman 2001), conflict resolution, and post-conflict reconciliation (Edkins 2003; Hutchison and Bleiker 2008)—all issues that are central to foreign policy decision makers in the twenty-first century.

Psychological models have long informed the study of deterrence (Jervis *et al.* 1985; Lebow and Stein 1994), but building emotions into the explanation is shedding new light on old problems. The credibility of signals, an essential component in theories of deterrence, compellence, and bargaining, is not only a property of the sender, as some formal models of signalling suggest, but also a function of the beliefs of the receiver (Mercer 2010). These beliefs are not only cognitive but are emotional as well. The emotional cues that signals evoke—fear, anger—matter in so far as these emotions then prompt beliefs and action in turn. Research demonstrates that fear prompts uncertainty and risk-averse action, while anger prompts certainty and risk acceptance. Threats that evoke fear, unless they evoke loss avoidance, are likely to prompt hesitancy and a risk-averse response; indeed, that is the purpose of most deterrent threats. However, frightening threats are less likely to be successful when they are designed to compel adversarial leaders to act.

Conclusion

We are at a hinge moment in the development of theory and evidence on decision making. Much that has been taken for granted is now being questioned as new avenues of research and theory open. The work that this chapter has reviewed looks largely at individual decision making, and it is a big step from individual to collective decision making. We need to be very careful in generalizing from the individual to the collective; indeed many believe that it is inappropriate to do so.

It is a well-established fallacy to give the properties of an individual to a collective entity. Bureaucracies and states do not think or feel—the individuals within them do. A government, as a collective entity, does not calculate and make rational choices—policy makers do. It is impossible to aggregate individual preferences without significant distortion. As other chapters in this volume look explicitly at models of collective decision making (see Chapters Six and Fourteen), it remains to ask here: How important are *individual* models of choice in foreign policy analysis?

Presidential systems often give great scope to the choice of the president who seeks advice and delegates authority, but reserves to him/herself the central decisions in foreign policy. Here, individual models of choice are very relevant. Even in parliamentary systems, prime ministers increasingly make decisions after consulting a handful of advisers, and only after they have decided do they bring the issue to cabinet (Stein and Lang 2007). Here too, individual models of decision making are relevant. It is in the framing of decisions and in the implementation phase that more complex models are necessary. In other words, what comes before and after choice often constricts the space for decisions.

A second question grows out of the research this chapter has examined. There is strong robust evidence that most human choice is preconscious and strongly and quickly influenced by emotion. How relevant is this evidence to public choice in foreign policy? We cannot yet answer this question with confidence, but the survey of foreign policy analysts suggests that the more general patterns we have identified are present in foreign policy decision making as well (Tetlock 2006). Despite their expertise, foreign policy makers are no less biased than other people.

If we assume that foreign policy makers do not deviate significantly from these general patterns, then we face a third question. Does this new evidence about choice constrain what we can do to improve the quality of decision making in foreign policy? That is the power of models of rational choice—they set norms and standards. The new research should not discourage foreign policy analysts from efforts at improving decision making, but these efforts might need a different focus.

The pioneering work of Damasio (1994), LeDoux (1996), and Panksepp (1998) joined together emotion and reason. The revolutionary impact of Damasio's research was to make it clear that people with impaired emotional capacity cannot make rational choices. Reason presupposes emotion. At the same time, the conscious brain can condition preconscious choices after the fact. In other words, there is an opportunity to prime neural responses, to educate our brains for the next time. Cohen argues that the brain has been 'vulcanized'; just as rubber is treated with a substance to improve its strength, resiliency, and usefulness, so neurological systems leave room for reason over time (Cohen 2005: 19). The capacity to reason and reflect protects people against impulsivity over time. When these protections are not adequate, social and technological innovations can help to protect people against themselves. For example, people discount the future badly and consequently do not save enough for their retirement. When the default was changed so that people needed to opt out of enforced savings which were deducted from their monthly pay, savings for retirement grew dramatically. Neuroeconomists call this 'libertarian' or 'asymmetric' paternalism; libertarian because people still have choice, but paternalistic because default options are set to produce individual and collective benefit (Camerer *et al.* 2003). It is not hard to imagine extending these kinds of options to foreign policies which deal with the environment, health, and arms control.

The new research emerging from neuroscience does not eliminate the possibility of learning and change. Reflection may come after choice, but it prepares decision makers for the next decision. The challenge is to understand far better how and when emotions are engaged, when they improve decisions, and how emotions engage with reflection and reasoning (Ochsner and Gross 2005). Neuroscience research on choice certainly does not preclude priming the unconscious mind through both repetitive patterning and systems design, what some of have called the 'free won't' (as distinct from 'free will'). In this context, research on learning and

change, largely neglected, becomes especially important in foreign policy analysis (Tetlock and Breslauer 1991; Levy 1994; Stein 1994).

Rational models of decision making can be used in three important ways. First, they are useful as an aspiration, or a norm, but only with the full realization that foreign policy decision makers are unlikely ever to meet that norm. They are not descriptive theories of choice (Elster 1986: 1). Second, the creative use of rational choice models has uncovered many counter-intuitive and non-obvious paradoxes and traps that can be very instructive to those who make decisions. Knowing the traps of games of Prisoner's Dilemma and the risks of Chicken can serve as salutary warnings for those who, for example, must make life-and-death decisions about when and how to use military force. Finally, rational choice models can be designed into the small cracks that neuroscience opens up and highlights as spaces that can be used to correct some of the worst biases in decision making.

Leaders who are aware of the dynamics of choice can build in compulsory delays and waiting periods which leave time for reflection and analysis. They can design the equivalent of automatic check-offs in foreign policy by putting in place systems of checklists before decisions are finalized. They can seek out their critics and expose themselves, quite deliberately, to counter-arguments. They can demand worst-case scenarios and anticipate how they would respond were the worst to happen. They can insist on verification of the information that they think is most important to their decision. Leaders can design the open spaces that they need for deliberation, reflection, and analysis once they acknowledge their impulsive emotion-driven choice. It is precisely in these open spaces that foreign policy analysis, working with the dynamics of choice, can make its most significant contribution.



Key points

- Rational models have poor empirical validity. People rarely conform to the expectations of a rational model, which suggests there is something beyond rationality that explains human choices.
- Cognitive psychology reveals that people prefer simplicity and consistency, making them poor estimators; people are also more averse to loss than they are gain-seeking.
- Political leaders unconsciously make use of analogical reasoning to simplify a complex environment, at the risk of oversimplifying the situation.
- Foreign policy experts have been classified as 'foxes' or 'hedgehogs'. Hedgehogs know 'one big thing' and are poor at making long-term predictions; they are more likely to drive policy in a consistent direction even when they are wrong. Foxes, on the other hand, know 'many small things' and are particularly strong at providing short-term forecasts; they are more likely to drive policy in a more dynamic, adaptive direction.
- Many decisions seem to be the result of strong emotional responses. Neuroscience enables us to 'see' how the brain reaches certain forms of behaviour, therefore making the work of neuroscientists an important resource for the analysis of foreign policy.



Questions

1. When are rational choice models inadequate?
2. What does cognitive psychology tell us about human behaviour that is relevant to foreign policy analysis?

3. Do you knowingly engage in heuristic processing? Give examples of how heuristics affects your decision making.
4. Do you consider yourself to be a 'hedgehog' or a 'fox'? What are the advantages of being one or the other if you are in a position of political leadership? Can you identify 'hedgehogs' and 'foxes' among today's leaders?
5. Why are analysts of foreign policy looking to the work of neuroscientists? What does the physiology of the brain reveal about decision making?
6. How does human emotion affect foreign policy decision making? Give examples of how emotion can positively and negatively determine response in decision making.
7. How can we proceed in foreign policy analysis knowing that decision making is often done at a pre-conscious level?
8. What can we do to improve the quality of decision making in foreign policy?



Further reading

Goldstein, E.B. (2007), *Cognitive Psychology: Connecting Mind, Research and Everyday Experience* (2nd edn) (Belmont, CA: Wadsworth).

This book introduces cognitive psychology and the theories of cognition, with a final chapter on 'reasoning and decision-making'.

Hudson, V. and Singer, E. (1992) *Political Psychology and Foreign Policy* (Boulder, CO: Westview Press).

This book discusses the impact of psychological processes on foreign policy decision making.

McDermott, R. (2004), 'The Feeling of Rationality: The Meaning of Neuroscientific Advances for Political Science', *Perspectives on Politics*, 2: 691–706.

This article discusses the uses of neuroscience in understanding decision making in politics.

Mintz, A. (ed.) (2003), *Integrating Cognitive and Rational Theories of Foreign Policy Decision-Making* (Basingstoke: Palgrave Macmillan).

This edited volume draws from both cognitive and rationalist ideas to examine how foreign policy decisions are made, using case studies and experimental analysis.

Yetiv, S.A. (2004), *Explaining Foreign Policy: U.S. Decision-Making and the Persian Gulf War* (Baltimore, MD: Johns Hopkins University Press).

In this book a theoretical framework on foreign policy decision-making is presented and tested using the Persian Gulf War of 1991 as a case study.

Zak, P.J. (2004), 'Neuroeconomics', *Philosophical Transactions of the Royal Society of London (Biological Sciences)*, 359: 1737–48.

This paper introduces the emerging transdisciplinary field known as 'neuroeconomics', which uses neuroscientific measurement to examine decision making. The role of emotions is examined in social and strategic decision-making settings.



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