The Behavioral Psychology of Elite Decision Making: Implications for Political Science

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Abstract

This article examines the current state of knowledge about elite behavior and considers its implications for the field of political science – notably the fields of comparative politics and international relations. We present, first, literature in behavioral economics and cognitive psychology on human reasoning and decision-making. We start with the classics and pay particular attention to those behavioral theories that have gained most attention in international relations – such as Herbert Simons optimization under cognitive constraints and the prospect theory of Kahneman and Tversky. We then focus on some new ideas emerging in the same tradition that have not yet attracted much attention in political science yet could have large implications. Examples include growing sophistication in understanding how players in strategic games assess the skills of the other players in the same game. This new work also makes it possible to measure the ability of different individuals to assess dominant strategies in games and to iterate rounds of play. These behavioral theories have been developed and tested mainly by studying populations of undergraduate students. Next, we examine the evidence for whether elites behave similarly to undergraduate populations, and we suggest that elites are different in many ways. Finally, we consider the implications of the evidence on elite behavior for political science.

Key words: K-Level, Heuristics, Veto Bargaining, Crisis Bargaining

1. Introduction

Social and cognitive scientists have long known that human decision-making follows patterns and is not perfectly rational. Yet much of the evidence about human behavior has come from experimental studies on university students and other masses that are readily available to university professors in large numbers. Such studies have immediate relevance for understanding some kinds of political behavior, such as voting, that involves analogous populations.\footnote{See, for example Gerber, Gimpel, Green and Shaw (2011) which tests the effects of campaign advertising on the mass electorate. Additionally, see Feddersen, Gaimard and Sandroni (2009) that tests moral bias in the electorate; Tomz (2007) which tests domestic audience costs; Levine and Palfrey (2007) which tests participation predictions proffered by Quantal Response Equilibrium.}

For many political matters, however, what really matters are decisions by elites, such as politicians and bureaucrats who run national governments and international organizations. They make decisions to craft and adopt legislation, to wage war, offer foreign aid, or join international treaties. The question of whether elites and the masses differ fundamentally in how they make decisions has long been pondered by political philosophers from Thomas Hobbes to Edmund Burke.\footnote{Hobbes (1651); Burke (1854) Thanks to Josh Gabler for very helpful comments on drafts of this paper.}


Empirical research on this question has been scant, although a series of experimental studies over the last two decades suggest that elites, indeed, are different.\footnote{For exceptions, see a recent review of experimental research in International Studies Quarterly: McDermott (2011); Mintz, Yang and McDermott (2011); Tingley and Walter (2011a); Grecco et al. (2011); Gartner (2011). See also Tomz (2007) and the extension by Trager and Vavrek (2011) as well as Tingley (2011).}

Meanwhile, there has been an explosion of scholarship in cognitive psychology and behavioral economics that offers the potential for more robust theories of decision-making, including decision-making by political elites.

This article examines the current state of knowledge about elite behavior and illustrates some possible implications in two fields of political science—comparative politics and international relations. Neither of these fields has made much use of experimental research yet both are primed to make advances using experimental methods;\footnote{For exceptions, see a recent review of experimental research in International Studies Quarterly: McDermott (2011); Mintz, Yang and McDermott (2011); Tingley and Walter (2011a); Grecco et al. (2011); Gartner (2011). See also Tomz (2007) and the extension by Trager and Vavrek (2011) as well as Tingley (2011).} existing insights from experiments in
cognitive psychology and behavioral economics suggest that major theories in comparative politics and international relations might merit revision.

We present, first, literature in behavioral economics and cognitive psychology on human reasoning and decision-making. This work includes classic concepts—such as “bounded rationality” and the “loss aversion” of prospect theory—of how people process information typical of crises in ways that are likely to use decision heuristics for processing the complex, uncertain information. 6

14 For Bounded Rationality, see Simon (1955); Deutsch et al. (1967); Axelrod and Hamilton (1981); Beer et al. (1995); DeNardo (1995); Goemans (2000); Popkin and Dimock (2000); Alvarez and Brehm (2002); Mercer (2005); Tingley and Walter (2011a). For Prospect Theory, see Kahneman and Tversky (1979); McDermott (1992); Farnham (1992); Richardson (1991); Talliaferro (1994); Weyland (1996); Levy (1997); Farnham (2004); McDermott (2004b). See also, Allison (1969) and Jervis (1976) on the role of misperception in decision making.

7 Plotz and Zeiler (2005); Haugh and List (2005)
8 Glaser and Chi (1988); (Zimmerman and Campillo, 2003, pp. 55); Feltochv, Priestula and Ericsson (2006)
9 Camerer (1997)
10 Romer and Rosenthal (1978); Tsebelis (1990)
11 Jervis (1978); Rubinstein (1982); Williamson (1983); Morrow (1989); Fearon (1994); North (1994); Fearon (1995); Powell (1996, 1999); Gintis, Smith and Bowles (2001); Slantichev (2003); Tomz (2007)
12 For experimental work see Knetsch (1989).

2. The Science of Strategic Decision Making

The questions surrounding how people process information and make decisions are durable ones in western political thought, but since the 1950s they have been the subject of systematic scientific research rooted in cognitive psychology. Cognitive psychology was anchored in the hypothesis that an understanding of brain structures (today called "neurophysiology") and mental states made it possible to develop a science of testable hypotheses about how particular individuals make decisions. 7 From today's vantage point, for social scientists the most memorable insights from the cognitive turn are rooted in the work of Herbert Simon who showed that in complex information environments humans do not make choices through optimization. Instead, humans "satisfice"—they use simple heuristics to capture the important contours of a decision. 8 Rather than evaluate all options simultaneously, humans make choices in sequential order. 9 They stick with their choices and decision methods so long as they continue to perform adequately. These ideas have spread widely in the social sciences, including political science, although a grand, single behavioral theory of choice has been elusive. 10 Since Simon, only one other major set of insights from cognitive psychology has diffused widely into political science: Kahneman and Tversky's prospect theory, which explains why decision makers do not manage risk symmetrically. 11 Prospect theory is based on the observation that people value gains and losses by assessing changes from the status quo. Individuals dislike negative movements from the status quo much more than they cherish an identical gain, 12 perhaps through evolutionary mechanisms and wiring in the brain. 13 In addition to this loss aversion, individuals also respond to uncertainty in different ways depending on whether decisions are in the domain of gains or losses. When compared with actuarial values, decision makers place heavy emphasis on certain gains while under-valuing certain losses. 14 Because the status
quod is the reference point, even small changes tend to be over-weighted relative to large ones. This work is now widely familiar and used in political science. Recently, a resurgence of interest in prospect theory has been driven by advances in cognitive psychology that are helping scholars to develop more precise formulations of how prospect theory influences behavior in politically relevant situations.

The loosely connected fields of cognitive psychology, neurophysiology, and experimental economics have elaborated and tested new theories that move far beyond the classics of bounded rationality and prospect theory. These new branches of research include studies that focus more squarely on the factors that affect individual behavior in strategic situations – developments that make this research of special relevance to fields within political science where political behavior centrally involves strategic choice, such as international relations. This new literature is large, but three branches offer particularly interesting insights for political science.

2.1. Decision making in iterated games: d-times Backward Induction and Iterated Dominance

Since the late 1990s a body of experimental research has amassed to suggest that individuals vary in the sophistication with which they approach strategic games. Here we focus on those variations as they apply to iterated games; later we look at how individuals vary in how they assess the decisions that other players in the game are likely to adopt.

Individuals differ on the number of rounds they consider when presented a decision situation known in the behavioral economics literature as “d-times backward induction.” The score “d,” which is measurable in experimental settings, reflects the number of rounds of iterated choices over which the individual reasons before making his own choice for the first round; it thus holds the meaning of “differential” backward induction. The scholarship has centered on three explanations for variation in people’s “d” scores.

One explanation is rooted in variations in time preferences. Even when individuals are aware of the full extent of game rounds their time preferences may vary. Countries considering signing an agreement to limit emissions may be fully cognizant of the long-term benefits of reducing carbon emissions yet vary in how they weigh present-value benefits against the costs of policy action. A second perspective is rooted in differences in perception about the structure of a game. For example, one player may imagine the emissions reduction game to be iterated annually ten times – as in a typical long-term treaty – while others think that rounds of iteration are much shorter before the game is restructured. In effect, the two players’ revealed preferences suggest they are playing different games. A third perspective focuses on the variations in individuals’ abilities to comprehend and apply concepts of iterated dominance. Subjects who can more efficiently process structural information about the game are better able to perceive of the whole game, eliminating strictly dominated strategies and choose strategies that perform well. Those perceptions may depend on experience and on the choice of decision-making heuristics and to differences in how people process information – topics we address in more detail below.

2.2. K-Level Awareness

The second strand of new research, known as “K-level awareness,” addresses individual-level differences in the projection of rationality of the other agent. Although the idea that perceptions of others are an important part of strategic decision making was originally raised by Keynes in his famous “beauty contest” game, the idea has been modernized and rooted in experimental research by a host of recent scholars. Keynes’s formulation had a group of subjects seated at a table perusing a series of six photographs of college students. Their task was to select two photographs from the six that the majority of the group will identify as the most beautiful. The optimal strategy, as Keynes demonstrated, depends critically on beliefs about modes of reasoning of the other players. If all players are fully rational, and know that all other players are equally rational, then the beauty contest game becomes a focal-outcomes game.

In a flurry of articles starting in the 1990s economists undertook the first serious treatment of the reasoning underlying the original beauty contest game. Stahl and Wilson asked individual subjects within a pool of subjects to select the number between 0 and 100 that would be closest to some multiplier of the average number selected by everyone else in the pool of subjects. A level-0 player chooses a number at random without considering what others will do. If the multiplier is one-half then a level-1 player assumes that his peers are all level-0 randomizers who, on average choose 50. The level-1 player therefore selects 25 (one-half of 50). A level-2 player thinks one more round of logic further. He assumes that his peers are L1 responders who each select 25, and therefore selects 12.5 (one quarter of 50), and so on. Players with high k-level reasoning

21 Pioneering work to bring the language and insights of prospect theory to international relations, and political science broadly, was undertaken notably in McDermott (1992). For applications and elaboration see Koopman et al. (1995, 1998); McDermott, Cowden and Koopman (2002); de Mesquita, McDermott and Cope (2001); de Mesquita, McDermott (2004); McDermott (2004a, N.d.); McDermott, Fowler and Smirnov (2008)

22 Notably, see Laibson (1997). See also Ainslie and Haslam (1992); Laibson (1996); Rubenstein (2003); Thaler and Sunstein (2008).
are able to evaluate how other players are likely to reason and also think that other players are also responding in comparable ways. Although a bit cumbersome to explain, this assumption is an important aspect of the high level of rationality that is often assumed in strategic bargaining models widely used in political science. Full rationality does not just assume that participants have well-ordered preferences but also, more onerously, assumes all participants have high k-levels, a phenomenon also known as Common Knowledge Rationality (CKR).

Experimental measurement of k-levels in undergraduate populations has revealed high variations. Stahl and Wilson found that approximately 24 percent of the undergraduate subjects in their study were L1, which suggests the subjects believe others are choosing numbers at random; 49 percent were L2 and just 27 percent played the equilibrium associated with CKR.31 Put differently, only about one-quarter of this population behaved in ways that are consistent with standard assumptions of full rationality. Some recent research has linked k-level reasoning to the physiology of the brain, which is wired in different ways. Although a bit cumbersome to explain, this assumption is an important aspect of the high level of rationality that is often assumed in strategic bargaining models widely used in political science. Full rationality does not just assume that participants have well-ordered preferences but also, more onerously, assumes all participants have high k-levels, a phenomenon also known as Common Knowledge Rationality (CKR).

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2.3. Processing of Complex Information

The third new branch of research relates to understanding how individuals process complex information. Although the conceptual details vary, many of these studies point to dual process modes of reasoning: relatively low-cost (subconscious) processing and more taxing (conscious) cognitive functions.33 To simplify the discussion, here we summarize just one of the models whose terminology is the most accessible — known as the “Heuristic-Systematic” dual process model. This work is important because it suggests people vary in how much they think systematically.34 Moreover, it suggests that when people do, in fact, use heuristics, they vary in the types of heuristics they use.35

“Systematic” processing is the making of decisions through close and thorough analysis of information. It is most akin to the CKR decision-maker who is fully informed and responds to new facts with full, new analysis. It requires a full devotion of cognitive ability and capacity — resources that decision-makers devote, especially, when they face a novel environment with few constraints on resources such as time. Driving a new route on an unfamiliar road at night is an example. By contrast, heuristic processing is the activation and application of judgment rules — heuristics — that at are learned and stored in memory and tested through experience. This mode of decision-making, which is typical when subjects encounter familiar situations, relies on easily processed judgment cues rather than a full blown analysis.37 Experiments suggest that even when subjects face relatively complex, novel judgments under binding time constraints they rely on this low-cost mode of processing by identifying some applicable heuristic.38

The insight from this research is that individuals as cognitive misers who seek the highest cognitive task rewards for the lowest cognitive effort, and efficiency depends on the availability of adequate heuristics. Novices who face unfamiliar circumstances hunt for the right heuristic; individuals with more experience can select much more quickly a reasonably well functioning heuristic.39 For political scientists this strong incentive for cognitive efficiency may help explain how historical models become selected as heuristics — a topic that was popular long ago among historians of foreign policy — and may also explain detailed decision-making, especially during crises when resources such as time and information are scarce.40

3. How Do Elites and the Masses Differ?

Most of the experimental research on how individuals process information and make decisions has relied on university students and other non-expert populations drawn from the “masses.” Yet much of politics depends on decisions that elites make, such as to start or terminate wars, threaten the use of force, or craft treaties. Only a few studies have focused on elite decision-making in politically relevant areas. The exceptions include survey experiments by Herrmann and colleagues that reveal the roles that images and perceptions — such as aggressiveness — play in decision-making related to troop deployment and other aspects of international conflicts.41 Using similar techniques, Herrmann, Tetlock and Diascro have also compared elite and mass attitudes about international trade policy.42 Other studies include survey research on a large sample of American opinion.

31 Stahl and Wilson (1994, 1995). In confirmatory experimentation, (Costa-Gomes and Crawford, 2006, pp. 1767) repeated a similar experiment, and found an upper bound on the levels individuals reasoned: L3, “Large numbers of L1, L2, Equilibrium, and L3 and/or Equilibrium hybrid subjects, indicates the absence of significant numbers of other types.”

32 Bhatt and Camerer (2005); Camerer (2007) (Coricelli and Nagel, 2009, pp.9164-9165)

33 For experimental and physiological research broadly on the “two modes” see Schneider and Shiffrin (1977); Shiffrin and Schneider (1977); Bargh (1984); Jansma et al. (2001); Lieberman, Jarcho and Satpute (2004); Alter et al. (2007); Cokely, Parpart and Schooler (2009).

34 Cacioppo et al. (1996)

35 Bullock (2011)

37 (Chen and Chaiken, 1999, pp. 83)

38 Gick and Holyoak (1980, 1983); Rothman and Hardin (1997); Hardin and Rothman (1997). Furthermore, Jansma et al. (2001) and Lieberman, Jarcho and Satpute (2004) demonstrate using fMRI studies, when subjects are primed with experimental prompts known to be processed heuristically, the ventromedial prefrontal cortex, nucleus accumbens, amygdala, and lateral temporal cortex, all associated with effortful cognition (they are part of the C-system, where “C” is for reflective) is significantly more activated; in contrast, when primed with experimental prompts known to be processed heuristically, the ventromedial prefrontal cortex, nucleus accumbens, amygdala, and lateral temporal cortex, all associated with low-effort processing (they are part of the X-system, where “X” is for reflexive) is significantly more activated.

39 Gick and Holyoak (1983)


41 Herrmann and Shannan (2001) For related work, see Herrmann et al. (1997) and Herrmann, Tetlock and Visser (1999) on the factors that influence public support for military intervention.

42 Herrmann.2001a
leaders on foreign policy as well as studies of whether elites are actually good at making predictions for which their elite expertise is valued.\textsuperscript{43}

Much of the research on elites focuses on areas where the experts are relatively easy to identify and enlist. Chess is frequently studied — so, too, is piloting aircraft and listening to music. The insights generated by this type of “elite” study are suggestive but difficult to generalize. Nobody has yet connected the Secretary General of the UN or the President of the United States to a brain scanner in the midst of a geopolitical crisis. While elites are hard to study because they are busy, secretive and wary of clinical poking, the existing research points to six major differences between elite and mass populations that have implications for decision making in IR. Before turning to those six differences, we note that the concept of “elite” is remains poorly defined and contentious. Eliteness depends on the role being studied and the skills specific to that role. The skills of chess are not readily portable to many other tasks. Even as the literature on elites is small, only a very small fraction of that concerns senior policy makers of the type relevant for most political science research in comparative politics and international relations.

It is also useful to consider how selection and experience influence who becomes an elite. Besley and Reynal-Querol discuss the relationship between democracy and leadership selection, and find democracies are twenty percent more likely to select leaders who hold a graduate degree than are non-democracies. While selection surely plays a large role, recent experimental work involving actual scanning of brains is consistent with the idea that the many differences between elites and masses — which we discuss below — are related to experience. Experts acquire skills to develop complex representations of tasks — such as heuristics — that allow them to make decisions in ways that are less than cognizant. Experts may sometimes overlook surface features and details to instead focus on paradigmatic reasoning.\textsuperscript{52} While elite actors may understand deep logic that undergirds decision circumstances, they may focus on this deep logic at the expense of influential surface facts — for example, when asked to describe a simple task, computer programmers were less successful than were recreational computer users.\textsuperscript{53} Indeed, Philip Tetlock argues that expert political analysts fare little better than novices in predicting political outcomes. In predictions about prospective students’ success in graduate and medical school, novices predict success at equivalent levels as experienced counselors.\textsuperscript{54} This suggests there is some level of uncertainty about outcomes beyond which expertise is unable to generate superior outcomes.

Our read of the literature suggests that elites and the masses differ in at least five major ways.


44 Besley and Reynal-Querol (2011), but see also Galasso and Nannicini (2011) and Besley (2005).

45 Feltovich, Prietula and Ericsson (2006)


47 Schreiber (2005); Fowler, Baker and Dawes (2008); Schreiber and Jacobson (2011)

48 Schreiber (2005)

49 Eisenstadt and Kareev (1979)

50 Voss, Greene, Post and Penner (1983); Voss, Tyler, Yengo et al. (1983)


52 Voss, Vesonder and Spilich (1980)

53 Adelson (1984)

54 Tetlock (2005)

55 Our list is distinct from personality research’s “Big Five,” which include
3.1. Difference #1: Elites Are Less Prone to Loss Aversion

One of the central findings from prospect theory is that people are asymmetrical in how they perceive and manage risks. Experience leads to more symmetrical decision-making; notably, elites are less prone to loss aversion, which makes them better gamblers. Much of politics – such as managing international crises – is about the calculus of risk, and elites might manage those risks differently from decision makers selected randomly from the phone book.

John List pitted experienced traders against amateurs in a real-world market by randomly assigning each an initial endowment of cards and letting them trade. If loss aversion were nonexistent then one would expect that 50 percent of the cards should be traded. As loss aversion rises trading activity should decline. List found that experienced traders traded their endowment in roughly 44 percent of cases, whereas novice traders traded between 20 and 25 percent of their endowments. He found that trading activity wasn’t due to superior knowledge or recall of trading positions; nor was it due to negotiating skills. Instead, it was the result of reduced loss-aversion when trading involved uncertainties. Compared with amateurs, when trading was uncertain the experts traded in higher volumes and were more symmetrical in how they treated potential gains and losses.

(While experience lessens loss aversion and leads to more active and accurate decision-making about risky choices, we note that a decline in loss aversion might also amplify the tendency for people to overestimate their abilities. Indeed, there is suggestive evidence that experts are overconfident in their domains. Chess grandmasters more frequently overestimated the number of moves they could recall compared to novices who were generally more accurate. Studies of negotiations show how two parties can systematically overestimate their skills, raising the prospects for deadlock in strategic situations such as zero sum bargaining. These insights could have relevance in international politics, such as crisis bargaining. What looks like bombastic nationalistic pride – for example, the refusal of a leader to back down in the face of overwhelming odds of failure – might simply be the result of improper self-assessment.)

3.2. Difference #2: Elites Are More Cooperative

Many tasks in politics require cooperation, such as building and sustaining governing coalitions or forging alliances with other countries. Elites, perhaps because they are less averse to losses, also appear to be more cooperative than the masses. In a variant of the trust game, Hedinger and Götte ran a series of experiments that asked each participant to divide an endowment into two: one parcel for keeping and another that is “passed” to a game partner who then, in turn, divides the endowment and returns a portion back to the original player. At each exchange the amount passed was multiplied, creating the prospect for gains if the players trust each other. Comparing the outcomes from a pool of highly-trained Swiss airline pilots and a group of university students, researchers found that pilots are significantly more trusting when they knew that other participants in the game were fellow pilots – they passed forward a larger portion of the original endowment and also received a larger share in return. This result is familiar in the literature that has examined “permissive” strategies for cooperation in iterated games, but the innovation in Hedinger and Götte is evidence that cooperation-prone decisions are a result of shared, expert experience. When pilots played these games with students, or students amongst themselves, trust was lower.

3.3. Difference #3: Elites Select Better Heuristics When Processing Complex Information

Physiologically, all people search for low-cost ways to process complex information and make decisions. Heuristics plays a central role in that simplifying effort, and some evidence suggests that elites are better at selecting the “right” heuristics. For example, in a series of game experiments in China, Cooper et al. compared the performance of production managers (including both novice and seasoned managers) chosen by the Communist Party for participation in the experiment and a group of university students who had no management experience. In a game designed to replicate the dynamics between firms and central planners command economy, the authors found that experienced managers behave more strategically and their choices align with equilibrium predictions. While the experienced managers performed more strategically in all cases than the students, the managers performed especially better when making decisions most akin to the functions they performed in the real world. Similarly, studies of medical clinicians have shown that when confronted with routine cases, expert clinicians make data-driven diagnoses by applying a small set of rules to the data and sorting for the right decision pattern. By contrast, novice clinicians tend to use hypothesis-driven approaches that

1.) Extraversion; 2.) Agreeableness; 3.) Conscientiousness; 4.) Emotional Stability; and 5.) Openness to Experience. A separate research program examines how these Big Five influence political behavior, but is agnostic about how such traits may contribute to “eliteness.” For a good review, see Gerber, Huber, Doherty and Dowling (2011).

List (2003). See also List and Mason (2009) comparing expert Chicago Board of Trade (CBOT) traders and students from the University of Maryland, finding that students were more loss-averse and prone to over-act to bad news.

In an experiment with Costa Rican coffee traders List finds that the differences between elites and students diminishes and reverses when the decision game focuses on real world, extreme negative outcomes such as terrorism – a pattern yet to be explained; List and Mason (2009). For additional work see Engelmann and Hollard (2010).

Chi and Glaser (1978)

keep open a wide range of possible diagnoses, and are therefore less efficient in processing information and fail to deliver superior results to patients.\textsuperscript{64}

A key asset that experienced experts bring to tasks is the ability to make choices with greater automaticity.\textsuperscript{65} Slow and serial decision-making processes require sustained, conscious attention; with experience these tasks can become faster and less deliberate, allowing for parallel processing with other decisions.\textsuperscript{66} Put differently, heuristics and parallel processing allows decisions makers to focus cognitive energy on aspects of performance where control is desirable. It concentrates attention on key facts while ignoring those that are not material to outcomes.\textsuperscript{57}

3.4. Difference #4: Elites Update their Heuristics More Effectively

In addition to relying more on heuristics and choosing the “right” heuristics at the outset, experimental research suggests that elites also revise (or even jettison) their heuristics more efficiently than non-elites. They are more likely to know when their heuristics don’t work. The key concept is “metacognition” — that is, the knowledge an individual has about his own cognitive performance. Metacognition helps condition the mechanisms for efficient retraining or even restarting when an individual learns that lines of reasoning and heuristics are not performing satisfactorily.\textsuperscript{68} While there is also a literature on over-estimation of cognitive skills, there is suggestive evidence that for experts this metacognition may be automatic — a skill learned from years of awareness of their own performance.\textsuperscript{59}

For example, Alevy et al. measure the rate and effectiveness at which distinct population samples update their beliefs by comparing the performance of university students with professional traders from the Chicago Board of Trade (CBOT) in a laboratory experiment. In a task that involved drawing balls from different urns and rewards based on the value of each ball, each subject drew a ball and watched her peers do the same and then drew again. With each draw the subject learned more about the possible contents of each urn.\textsuperscript{70} The market professionals updated on public information (what they observed players draw from the urns) only when they were confident of its quality, but they ignored that information and relied on private sources (their own draws) when the public signal was of unknown or dubious veracity.\textsuperscript{71} By more effectively updating their heuristics — updating when appropriate but not updating when inappropriate — experienced traders were less likely to become victims of what Alevy et al. call “reverse cascades” — cases where small amounts of information at the beginning of a sequence, such as a string of unlucky draws, led individuals to draw from the less lucrative urn over the long term.\textsuperscript{72}

The sum of this research suggests that when elites are asked to process task in which they have domain specific knowledge (so they can work heuristically), they are more likely to choose the right way to reason about the task. However, should they choose the wrong method for reasoning they are more likely to automatically deploy the metacognition that is necessary to be aware of the need for change.\textsuperscript{73}

3.5. Difference #5: Elite May be More Aware of their Strategic Interactions

K-level reasoning could find a home, especially, in political theories about strategic interactions. For example, long ago, international relations scholars focused on misperception as one explanation for international politics — including misperception of the decision-making systems and goals of adversaries in strategic situations — and k-level analysis offers the prospect of measuring and explaining this type of misperception systematically.\textsuperscript{74} Indeed, a few studies that look at elite (or semi-elite) populations suggest that elite status, experience and training could affect k-level reasoning. Comparing Caltech Undergraduates and Economics Ph.D students, members of the Caltech board of trustees, and a sample of 20 CEO, corporate presidents, and board chairmen, a study by Camerer found that subjects highly skilled and trained in game theory scored about one k-level closer to the equilibrium.\textsuperscript{75}

4. Implications for Political Science: Two Illustrations

Now we turn to exploring how these insights from cognitive psychology and behavioral economics might affect political science. This is not a new dialogue between these fields,\textsuperscript{76} although new branches of cognitive science along with suggestive research on elites offer especially interesting possibilities for application in political science. Table 1 summarizes the main ways that elites might differ from the masses, and next we apply those differences to two leading theories in political science.

\textsuperscript{64}Patel, Kaufman and Arocha (1995)\textsuperscript{65}Ackerman and Schneider (1985)\textsuperscript{66}Schneider and Shiffrin (1977); Feltovich, Prietula and Ericsson (2006)\textsuperscript{67}Adelson (1984); Schmidt and Boshuizen (1993); Ericsson (2006)\textsuperscript{68}Glaser and Chi (1988); Feltovich, Prietula and Ericsson (2006)\textsuperscript{69}Reder and Schunn (1996)\textsuperscript{70}Alevy, Haigh and List (2007)\textsuperscript{71}The authors employ two experimental conditions, in one denoted symmetric, the urns contain symmetric distributions of balls: Urn A contains two type-\textit{a} balls and one type-\textit{b} ball, while urn B contains two type-\textit{b} balls and one type-\textit{a} ball. The other condition, denoted asymmetric, four additionally type-\textit{a} balls are added to each Urn (both Urn A and Urn B). In this fashion, Urn A (Urn B) contains 6 (5) type-\textit{a} balls, and 1 (2) type-\textit{b} balls. This modification decreases the meaningfulness of a type-\textit{a} signal, whether public or private.\textsuperscript{72}The authors also found that these traits were the result of skills obtained on the job, not merely the selection of trading as a profession. Neophyte traders – day-traders and traders with low trade-volume or low trade-intensity – behaved more like the students than do the more established elites; Alevy, Haigh and List (2007).\textsuperscript{73}Alevy, Haigh and List (2007)\textsuperscript{74}Jervis (1968); Allison (1969); Jervis (1976)\textsuperscript{75}(Camerer, Ho and Chong, 2003, p. 217), citing an unpublished 1998 Camerer manuscript. In a different study Plott (1996) noted that undergraduate students were better attuned to how other members of the same sample would play the game – a larger proportion of the undergraduate sample believed (correctly) the others would behave at random. See also (Bosch-Domenech et al., 2002, pp. 1694).\textsuperscript{76}Simon (1985)
4.1. Illustration: Veto Players

A veto player is “an individual or collective actor whose agreement is required for a change in policy.”\footnote{Tsirulik (1995)} The original roots of the veto player concept lie in studies of public policies that require long chains of decisions – such as from the adoption of legislation to the final implementation of an urban renewal program on the street – with the prospect of decision failure at any link in the chain.\footnote{Pressman and Wildavsky (1984)} The veto players concept is an important illustration of questions that political scientists address, for it has a central role for elite decision makers (for example, politicians and bureaucrats who can veto policies) as well as institutions that determine which individuals matter as well as the costs and benefits that accompany veto decisions. In the field of comparative politics the veto players concept has emerged as an alternative categorization to democracy/autocracy paradigm, for systems can be categorized by the number of veto points that must be cleared to pass policy.\footnote{See for example Tsebelis (1999, 2000).} The more veto points, the more stable and predictable the system of governance; by contrast, when veto points are fewer then instability rises along with the potential for single actors or institutions to assume control.

All veto models share at least two core assumptions and one core prediction. The first core assumption is that policy outcomes depend on decisions at veto points. Usually those decision points are occupied by a single individual, or by small number of individuals. Thus many of the modifications to our understanding of individual decision making that we have reviewed in this essay could be relevant to decisions of this type.

The second core assumption is the defining characteristic of veto bargaining. In all its forms, veto bargaining is the take-it or leave-it offer where a “not-take” by any party to the process ends the game.\footnote{Matthews (1989); McCarty (1997)} One decision maker offers a policy; another accepts or rejects the proposal. The current position of policy is denoted as the status quo (SQ) and policy movements are described relative to the SQ. When there are no vetoes, the policy passes and the SQ changes to reflect the new policy position.\footnote{See a good review by Fearon (1998). See also Farnham (2004); Goldsmith, Chalup and Quinlan (2008).} In more complex constructions, proposals may be repeated several times, passed through domestic or international structures – such as “two-level” models in which domestic and international decisions are separated.\footnote{Romer and Rosenthal (1978)} Nearly all veto models involve chains of decisions in which choices at one veto point interact with others – such as long chains of decisions, each of which is needed to change a policy from SQ.

The earliest, formally structured veto player models were developed in the late 1970s by Romer and Rosenthal.\footnote{Camerino (2000); Primo (2002) demonstrate the behavior of proposers and receivers is identical in both finite and infinitely repeated games.} Since then there have been a series of refinements and the addition of many new complexities, such as formal models of sequential veto bargaining with incomplete information.\footnote{Cameron (2000); Primo (2002) demonstrate the behavior of proposers and receivers is identical in both finite and infinitely repeated games.} Models with incomplete information are of special interest because they are reveal the importance of trust, loss aversion, and the adjustment of heuristics.\footnote{Matthews (1989); McCarty (1997)}

Essentially all formal veto player models show that when all participants have full information that vetoes don’t happen because advocates for particular policies find ways to avoid veto decisions in advance. When vetoes are observed the standard explanation is rooted in some form of misperception, such as lack of information or awareness of the structure of the game. Now we turn to how these models might vary in light of the insights of cognitive psychology and behavioral economics. We focus on two – the extent to which experience influences loss aversion and also cooperativeness. Elsewhere we have also examined how elite choices and updating of heuristics might affect veto player models.\footnote{Cite Long Version}

4.1.1. Variations in Key Assumptions: Inexperienced Decision-Makers are More Prone to Loss Aversion

The central implication of prospect theory for veto player models is that decisions are made with reference to the status quo. If a move from the status quo is viewed in the domain of gains, the individual considering it should be relatively risk averse: experimental subjects prefer sure gains to risky gains. In contrast, if a move from the status quo is seen as a loss, the individual considering it should be relatively risk acceptant: subjects prefer larger risky losses to smaller certain losses. If decision-makers are amateurs then this asymmetry in how losses and gains are viewed relative to the status quo could be quite large while experienced elites are more symmetrical.

Two sets of stylized facts help illustrate how a new perspective on the symmetry of gains and losses might lead to outcomes

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\textbf{Table 1: Veto Players and Crisis Bargaining Illustrations}

<table>
<thead>
<tr>
<th>Elites are Relatively...</th>
<th>Veto Players</th>
<th>Bargaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1: Less Prone to Loss Aversion</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>#2: More Cooperative</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>#3: Better Heuristics Selectors</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>#4: Better Heuristics Updaters</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>#5: More Strategically Aware</td>
<td>✔</td>
<td>✔</td>
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</tbody>
</table>

Each row compares Elites to the base category of mass competency.
that are different from standard full information, symmetrical veto bargaining situations. First, consider the recent debate over the U.S. debt ceiling. New House “Tea Party” Republicans viewed the SQ (relatively liberal fiscal policy, Democratic President, Democratic Senate) as being squarely in the domain of losses. They were therefore risk acceptant and used a potentially very costly (politically and/or economically) veto gambit to force a move from the SQ. Because no single coalition—traditional Democrats, traditional Republicans, and new Tea Party Republicans—had a working majority on its own the faction that was most likely to view a shift from SQ as a loss had the strongest incentive to veto. The other, traditional political factions all viewed the SQ in the domain of gains and were much more risk averse.

Second, consider negotiations over the future of Gaza, which cease whenever one of the negotiating parties leave the table—a form of mutual veto authority. Palestinian negotiators, especially from Hamas, view shifts from the SQ in the domain of losses, which may explain why they are more willing to take riskier moves—such as rocket attacks—that are more likely to result in veto behavior.

4.1.2. Variations in Key Assumptions: Elites are More Cooperative

If elites displayed more cooperative behavior—especially toward other elites—then the predicted outcomes from veto player models would change in two ways. First, in iterated games, a propensity to cooperate suggests that more experienced participants should propose more fair modifications to the SQ than less experienced participants because they expect their partner to acquiesce if the proposal is reasonable. Additionally, the decreased loss aversion mechanism also predicts that decision makers should be more willing to veto unattractive proposals accepters in hopes of gaining a better deal in future rounds. Taken together, experience should generate a greater number of attractive proposals that are accepted; however, of the unattractive proposals that are made, this logic predicts that a greater number will be vetoed. Second, when decision makers in a veto game contemplate interactions with decision makers that are less experienced they will be less certain of the novice’s behavior. The proposer then holds beliefs that are unconditioned by the fairness of the proposal—the proposer believes the fate of any proposal will be determined by a coin-toss with the probability of acceptance determined by prior beliefs about the player, independent of how fair the proposal is. This logic predicts that a greater number of unattractive proposals will be made, and that the attractiveness of the proposal should be relatively less important.

The tendency toward cooperation among elites may help explain why advanced countries generally have highly cooperative bureaucracies and are generally able to craft and implement policy despite large numbers of veto points in modern bureaucratic institutions. By contrast, across a gamut of policy issues, emerging countries with bureaucratic roles that have high turnover may have key veto players who are less experienced and more risk-averse—and less cooperative—than more experienced veto players. For example, consider some stylized facts related to the recent case of the Egyptian transition following the mass uprising in spring 2011. The military leadership who assumed stewardship of the nascent democracy were certainly among the most elite members of Egyptian society; many were western trained, and all were highly experienced in the administration of a long-standing army. However, it quickly became clear that these individuals were inexperienced in maintaining a functioning state; they were highly risk averse, and in veto-prone settings such as the negotiation over a new constitution this risk aversion leads to gridlock.

4.2. Crisis Bargaining: Signaling and Commitment

Now we turn to a second illustration that is particularly familiar in international relations studies scholarship on national security. Often called “crisis bargaining,” these models are structured to approximate the strategic interactions that arise when decisions occur quickly (and thus concentrate on a few individuals) and concern matters of central interest to national security or economic prosperity. Actors bargain over how to allocate an asset and where failure leads to costly outcomes. Usually the negotiation is zero sum—a gain for one is necessarily a loss for the other.

Bargaining in these settings depends on two closely related attributes: uncertainty and communication. These models usually make the assumption that uncertainty is high. Knowledge of the preferences of other players is imperfect, and final outcomes are uncertain—if the parties fail to agree on an outcome then the exact consequences are drawn from a lottery that is populated mainly with costly outcomes. Many national security crises have this kind of structure—one party challenges the status quo by invading another’s turf, a crisis emerges as both contemplate whether to back down, and failure to find an accommodation could yield possibly terrible consequences for both sides.

Second, because preferences are uncertain the outcome of these models usually hinges on the credibility of communications between the players. Both sides listen and watch the other, trying to discern true preferences from bluffing. Usually these models focus on the cost of signaling and other forms of communication, and the standard conclusion is that communication must be costly to carry a credible message. If costless communication—“cheap talk”—could affect the actions of the other, each would misrepresent his position and signal he was stronger than in actuality to elicit concession from the other.

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87 For simplicity, we do not look at strategic skills in this discussion, but the logic plays out in a similar fashion. As social distance increases the ability to predict the behavior of other actors decreases; see La Porta et al. (1997); Bernhard, Fischbacher and Fehr (2006). In other words, as social distances rise level-k probably declines—a proposition that would lead to similar outcomes in veto player models although one that nobody has yet examined experimentally.


Just what the level of cost that unambiguously sends this signal, however, is not known to either party before bargaining begins.90

The insights from cognitive psychology suggest that experience and expertise could affect crisis bargaining models in at least two ways – though strategic bargaining skills such as measured with k-level and through the choice and use of heuristics. Elsewhere we have also examined a third – how the insights of prospect theory on loss aversion might influence crisis bargaining models.91

4.2.1. Variation in Key Assumptions: Strategic Skills and “K-Level” Reasoning

In crisis bargaining situations, the actor needs to send credible signals, and how the viewer responds also matters. When each player makes decisions based on sent and observed signals, those decisions depend on the attributes of the elite. They include loss aversion (which we address in the next section), possible overconfidence, and the battery of other ways that people (and elites in particular) reason. Here we focus on one aspect: the interaction between decision-makers. Each player’s decision depends on the level of rationality that it assumes for the other. That is a matter that the level-k literature has addressed squarely.

Determining the level of signal to send is one of several interactions that is amenable to level-k analysis. If the others in the game interpret the credibility of signals at random (L0), the sender can just send a signal at the mean of this distribution of credibility. His signal will be credible as frequently as it is not, and the outcome of the crisis bargaining situation will depend heavily on the lottery of outcomes since the communication signals, themselves, don’t carry much meaning. However, if the others have higher k-levels then they will look for costlier signals. In a crisis bargaining situation with low k-levels then finding costly ways to send a signal is a waste of resources. (Put differently, high k-levels and extensive information – the attributes often called “common knowledge rationality” – leads to the equilibrium outcome of costly signaling.)

K-level reasoning suggests an extension of crisis bargaining models that might explicitly link observed k-levels to model outcomes. Imagine an example with two commanders, and each wants to intimidate the other to gain a concession. To do so, he and she must demonstrate just how serious each is about going to war. Actually going to war is an outcome that both want to avoid, for it is probably costly. To signal his preferences he must move troops to the border of the territory in question, but how many should he send? The equilibrium answer, which depends on common knowledge rationality, makes huge demands on the skills of the bargainers. Moreover, there exists a signaling game around level-k itself. In an attempt to elicit rents – such as excessively costly signals by the other and the need to pay lower cost for useful signals by the original signaler himself – each actor has an incentive to signal a lower level-k than in actuality. Whereas political scientists have focused on the “tying of hands” as a mechanism for limiting the cost of signals that must be sent, feigning stupidity may be important as well. If other players in a crisis game hold beliefs that you are unsophisticated then the signal you must send to create a credible risk of high cost outcomes is much lower. This outcome mirrors the “madman” theories of international relations – where madmen are better able to get their way because their behavior is unpredictable – but roots it in the psychology of strategic interaction.

As an example, consider the popular uprising and insurgency in Libya in 2011. In the wake of other Arab Spring uprisings, many in the international community sought a cessation of hostilities directed against the Libyan peoples along with a transition of power away from Gaddafi. Mindful of the political damage created when the U.S. unilaterally intervened in Iraq starting in 2001, the Obama administration was reluctant to pursue political goals unilaterally. The Administration was faced with a two-tiered signaling challenge: How could it signal to Gaddafi and his military leadership that the US was willing to use force adequate to achieve its goals in Libya while also signaling (at home and to potential allies) that it would not act without support of the international community? As often observed in real crisis bargaining, the Administration began with low cost cheap talk signals such as travel prohibitions and freezing of assets but these signals had little effect on Gaddafi’s behavior. Signaling costs rose with air strikes and direct assistance to the Libyan rebels. But Gaddafi did not alter his behavior even as the U.S. and other members of the international community signaled more credibly their preferences.92

Put differently, the Libyan regime was operating at a level of strategic sophistication that was lower (lesser k-value) than the senders of the signals. Thus signaling was less effective and the strategic interaction costlier for both sides — although the senders costs were incurred in the signaling itself (more airplanes and interventions were needed for longer) while the Gaddafi’s regime paid its cost through the endgame of the crisis that extinguished them from power. Interestingly, at the outset of the crisis the U.S. indicated that it believed Gaddafi to be a highly skilled leader – adroit not only at manipulating the power forces around him but also sending and receiving signals. The U.S. (and likely other countries that comprised the “international community”) thought it was interacting with a high k-level player while Gaddafi, himself, may have been operating at a much lower level.93

90 However, recent important experimental work shows that that a pool of undergraduates don’t actually play crisis bargaining games this way and do respond to cheap talk. See, for example Tingley (2011); Tingley and Walter (2011b). An empirical question – so far, untested – is whether a sample of more elite decision-makers would behave more in line with the conventional theory by ignoring cheap talk.
91 See Long Version

92 Seeking to heighten the signal level, the United Nations passes UN Security Council Resolution 1973 (United Nations Security Council, 2011) to establish the legal basis for military intervention. This action clearly increased the signal strength, a move signal Western states took clear note of, but failed to deter the actions of the Gaddafi regime.
4.2.2. Variations in Key Assumptions: The Choice and Use of Heuristics

In empirical crisis bargaining situations, the information environment is fantastically rich. Strategic placements of troops, information generated by intelligence, considerations about valuation of the object being bargained over all weigh into calculations about likelihood of victory in a possible conflict situation. Such considerations are surely complex enough to generate heuristic processing. Added to that, many of key decisions are implemented through bureaucratic rules – such as military structures – that are designed to manage tasks in systematic, rule-based fashion. Those rules are learned and taught through professional academies and rotations throughout the bureaucracy that create on the job experience. During a crisis these factors – large amounts of complex information and management of key decisions through bureaucratic rules – point to a large role for heuristics. If the heuristic applied is inappropriate, they will generate inaccurate beliefs that they will carry into the signaling process. If experience leads to the better selection and use of heuristics, the construction of the information environment that surrounds the crisis bargainer might be expected to change. Inexperienced bargainers might be slow to make decisions, leading to greater uncertainty about the true signals being sent. By contrast, a relatively experienced bargainer is predicted to focus much less on the details and focus, instead, on the structure of the bargaining. The novice, unable to focus on which facts are most important, will concentrate on the trees but the master on the forest.

Consider the bargaining problem that a firm faces when it considers whether to invest fixed capital in a country where the presence of the firm may have a large impact on local welfare (positive or negative). Once the capital is deployed it is extremely costly to exit. International Oil Companies (IOC) are frequently presented just this scenario. IOCs must make large capital investments in oil fields located in countries that have few local institutions; thus they face acute concerns about the impact of the investment on human rights and the environment. In countries with well-functioning institutions they can defer to the state and other established bodies to manage broad public concerns. But where those institutions are immature the IOC, itself, is often the most visible organization and expected to provide a wide range of public goods. An IOC is highly experienced with this calculus for it makes similar investments across a portfolio of countries where the local details vary but the general challenges are common. In bargaining about the investment the IOC engages with the host government as well as a variety of other stakeholders, and the terms of the bargaining concern factors such as rights, wages and protections all parties to the negotiation find satisfactory. Failing to reach an agreement causes a variety of uncertain outcomes that are, to different degrees, catastrophic for each party – rights violations, work stoppages, environmental damages, or failed investments.

The complexity of the bargaining task makes heuristic information processing likely to play an influential role in the shaping the outcome of the process. The IOC – experienced in the negotiation process in a variety of similar settings, is perhaps the most symmetrical in how it analyzes risk – will use learned heuristics from other settings to guide its processing. For example, having faced similar challenges previously, the IOC can readily implement a “corporate social responsibility” package of measures – the creation of local human rights councils, review boards, and other development projects. In contrast, the other stakeholders local organizations with relatively limited experience in the negotiation process, are perhaps more prospect in how they analyze risk: they are more likely to focus on narrow violations concerns and mechanisms and methods of redress.

In this example, heuristic reasoning processing not only frames this form of negotiation, it may also explain the gridlock that frequently occurs. The mismatch of issue and solution considerations on the parts of local stakeholders and IOC may not allow for bargaining to reach common ground. The local stakeholder concerned about a specific, salient concern may be unswayed by a large readily implemented portfolio of institutions if that portfolio fails to address the salient concern. This may help explain why some of the world’s richest oil and gas resources are, in effect, unavailable for IOCs to tap and why oil prices are a lot higher than would be expected if this commodity exhibited normal dynamics in supply and pricing.

5. Conclusions

The cognitive revolution has led to a series of theories that help explain how humans process information and make decisions. Since Herbert Simon’s work on “satisficing” in the 1950s this work has explained why humans use heuristics in decision-making – a phenomenon that recent physiological research has now explained by observing how routine, heuristic decisions are more efficient. Cognitive science also helps explain asymmetries in risk management and endowment effects – concepts rooted in prospect theory of the 1970s. The most recent research in this vein has not only offered much stronger physiological and evolutionary explanations for these traits but has also helped explain human attributes of special interest to political scientists – such as how individuals perform in strategic

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94Vernon (1980); Woodhouse (2005)
95Indeed, the symmetry in risk management is why IOCs invest in a large portfolio of similarly structured projects around the world; Nolan and Thurber (2010).
96The differences in heuristics used lends to a further implication, a result of k-level reasoning. The sage bargainer is aware of her own cognitive processes, as well as the cognitive processes of the bargaining partner (metacognition). We earlier argued this ability is more readily available in experienced individuals, because automatic processing of details allows for freed cognitive resources to be expended on performance evaluation. Then, as the level-k logic suggests, the optimal strategy is one informed by beliefs about the processing of the bargaining partner; beliefs about the heuristic/systematic reasoning capability certainly are in this domain. Because the more experienced the individual at the bargaining table, the more capable she is to undertake sophisticated metacognition tasks, we should expect the more experienced negotiators to be successful relatively more frequently than less experienced negotiators.
97For more, including on the interaction between IOCs and national oil companies (NOCs) see Victor, Hults and Thurber, eds., in press.
games when their actions depend on awareness of how others will behave (so-called “k-level”).

There is thinner but suggestive evidence that elites differ from masses in systematic ways. Looking across that thin literature we have suggested five ways that elites differ, such as in their experience and their choice and revision of heuristics. Elites are more cooperative than non-elite samples of decision makers. They rely more heavily on heuristics (and thus are more efficient at processing information), choose the right heuristics and update those heuristics more efficiently (if not quickly).

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