

# On Randomness, Uncertainty, and Rare Events in Political Science



# Abstract

This essay examines the implicit relationship between political science and rare events, or so called Black Swans. The purpose is to analyze Black Swan weakness by evaluating the nature of political analysis and political theories. The key to this assessment is the analysis of the predictive powers of political analysis and theories. This essay claims, on the basis of Karl Poppers historicism critique, that such predictions are impossible.

The theoretical foundation for the analysis is divided in one part to the statistical properties of rare events. Here, a distinction is made between known uncertainties and unknown uncertainties. The other part of the theoretical foundation of the analysis is the experimental evidence of empirical psychology.

The analysis reveals a Black Swan weakness, both in political analysis and political theories. Political analysis has a great exposure to Black Swan weakness, no matter whether the analyst is a hedgehog or a fox. Political theories have a tendency for post hoc rationalization, and display a weakness in understanding the true randomness of events and therefore underestimate the randomness of Black Swans.

*Keywords:* Randomness, Uncertainty, Black Swans, Political Analysis

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# 1 Introduction to the Essay

Political science is often associated with theories and analysis about the real life of everyday political interactions. But when interpreting and theorizing about the past and the present, predictions about the future could be tempting to make.

In fact, one way to evaluate theories and analysis is to evaluate their predictive powers. But by doing so, one walks into a veritable minefield of subjective opinions and probabilities. Political science is not a natural science, so predictions are, in the strictest sense, impossible to make. Yet this fact has not trickled down to all of the practitioners of political science, whether they theorize or analyze.

The predictive inability of political science also includes rare events. Rare events are events that happens infrequently, seldom and that strike down with a great impact.

This essay is about our understandings of rare events, or rather, our inability to understand. It is also about rare events in politics, and how political science tackles with this issue. The subject is simple to understand, but difficult to grasp when confronted with the issue in real life situations. Yet it affects us all, and affects policy decisions and political theories. Therefore, it is motivated to analyze the phenomenon if rare events; the concept, in politics and in theories.

## 1.1 Purpose and Limitations

The goal of the education in political science is to give students the ability to analyze political phenomena in a changing world. This is the purpose stated by the department of political science at Lunds Universitet (Lund University web page). The description stresses the importance of political decision making and its complexity. However, little is mentioned about the nature, and our understanding, of rare political events. This is counterintuitive to the goal of the education, if the true purpose of the education is to teach students to make more informed decisions and to better interpret political events. To understand this, one must understand that the events that have the greatest impact to the society are often the least likely ones, i.e. the rare events.

Hence, the purpose of this essay is to give an account of the understandings of rare events in politics, and the mental heuristics that lies behind our perception of these rare events. This is done in order to be able to make some connections between our perception of rare events and our perceptions concerning political

systems and behavior. If political scientists see themselves engaged in revealing the relationships underlying political events and conditions<sup>1</sup>, a not to unreasonable proposition for the scholars of political science and political analysts, the study of the concept of rare events should be important.

Naturally, there are many limitations in this essay. The description of rare events, and their implications, can naturally become very large, and so can the subject of its statistical properties. Furthermore, there are a lot more mental heuristics at play when it comes to decisions under uncertainty, but not all are equally important for the concept of rare events. The aim of this essay in respect to these questions is to give an account of the important and necessary concepts in order to understand its implications for forecasts and analysis of political theories and events.

Moreover, the description of different political processes in where this kind of reasoning is important is naturally capped to be very brief. But in order to understand the effects caused by misperceptions of rare events, as well as the limitations ignorance causes, different examples will be discussed.

## 1.2 Theory

The theories used in this essay are a blend of probability theory and a selection of psychological theories within the field of empirical psychology. The selected psychological theories are chosen due to their way of interfering with people's perception of probability. Therefore, due to the nature of the interactions between probability theory and psychology, the essay does not rely on any specific theory within the field of political science. Instead, the essay derives its theoretical strength from outside the domain.

One way of looking at the angle of the essay is to say that the essay has an interdisciplinary outside approach to political science.

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<sup>1</sup> This description comes from the Wikipedia.

## 1.3 Method

In order to answer the research question outlined in section 1.1, this essay employs a step by step approach to gradually answer the research question. That approach makes it easier to identify possible flaws in the examined material. This is a question of the validity of political analysis and political predictions. The literature normally defines validity in one of the three following ways:

- 1) Congruence between theoretical definition and operational indicators
- 2) Absence of systematical errors
- 3) We investigate the things we claim to investigate

These three definitions are normally used interchangeably (Esaiasson *et al.*, 2004:61). The core of this essay is to evaluate if there is any systematical errors in the way political scientists think about analysis and predictions. Due to the complexity and vastness of the topic, the chosen method has been to subjectively identify only a few political theories and analysis.

The inherent problem with case studies can be said to be its explanatory power. Some methodological schools mean that due to the limited scope of the research, generalizations are impossible to do due to a lack of reference points (Esaiasson *et al.*, 2004:120). But only part of this essay does such generalization claims. On the other hand, the essay do claims that if systematical errors do exist in political theories, the foundation of these political theories is imperfect.

This essay employs mainly empirical analysis to answer the research questions. But it is also normative. The essay describes the analytical pitfalls that we tend to fall into, as well as the mental fallacies causing it, and with it comes the explicit assumption that we ought to do something about it in order to improve our explanatory and adaptive abilities. This essay is striving to have as clear argumentation as possible, in order to increase the validity and the intersubjectivity of the empirical and normative methods.

## 1.4 Outline of the Essay

This chapter has been an introduction to the essay. The research question, its limitation and the method has been described. The reminder of this essay is organized in the following way.

The second chapter introduces the concept of rare events. Here, a distinction is made between rare events encountered in conventional statistics and those encountered in real life. Therefore, section 2.1 describes tail events in statistics while section 2.2 dig into rare events in real life, and how people creates mental shortcuts that affect our perception and interpretation of rare events.

Chapter three is designed to use the findings of the second chapter and to see how these theories affect political analysis and theories. In order to do so effectively, the first part of the chapter introduces real world asymmetries in probabilities as well as inconsistencies in the interpretation of the human decision making process.

The fourth chapter gives a brief account for our perception of volatility and randomness. This chapter is short, but important. The previous two chapters discuss whether or not people are designed to suffer from rare events and how well political science is equipped to handle this issue. This final chapter continues on this thread to find out how people react to randomness and volatility in the real world.

Finally the last chapter, chapter five, contains a brief discussion on the general topic and the findings of this essay.

## 2 Introduction to Rare Events

The aim of this chapter is to give an introduction to the concept of rare events, and how we normally respond to, and perceive them. In statistics, they are called tail events due to the implicit relationship with any specified probability distribution. The most commonly used is the Gaussian normal distribution. As will be explained below, these tail events occur on both sides of the distribution. That is, when speaking of tail events we could either be speaking of events that have happened or of events that have not happened, positive versus negative events etc.

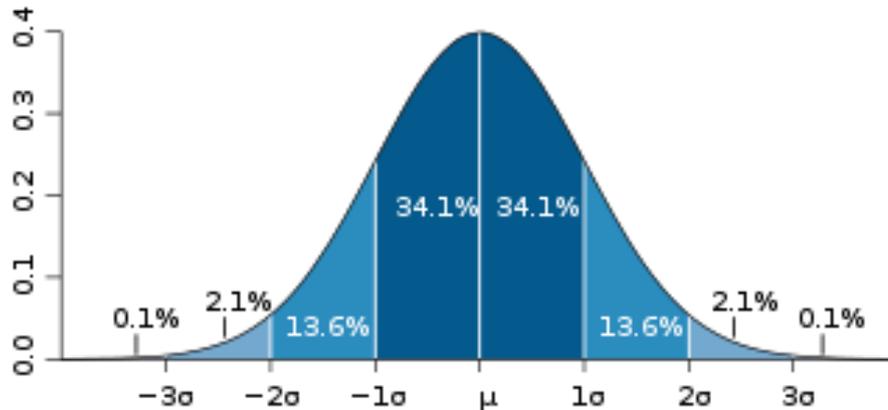
Besides from the statistical properties of tail events it is also important to understand how humans are prone to think of, and analyze rare events. Most humans are biased to the use of different mental heuristics, which can underestimate the effects of rare events as well as totally ignore it. Furthermore, some of the more central problems when it comes to the failure of recognizing rare events are both the problem of induction and the quite different problem of a false deductive reasoning. Section 2.2 is dedicated to give a brief introduction to these elements of human psychology. The final section, section 2.3, provides a summary of this chapter along with its connection to political analysis. This is motivated since this the chapter that lays the theoretical foundations of this essay. Therefore, its connection to political analysis needs to be explored.

### 2.1 Tail Events in Statistics

This section gives a short description of the univariate normal distribution. The normal distribution is the most commonly used probability distribution, mainly due to the central limit theorem (CLT), and for its user friendly symmetric shape. It is a continuous probability distribution, which means that the random variable can have infinite number of different values. Hence, it is possible to assign a probability density function (pdf) to the variable that describes the relative likelihood that the value of the random variable falls within a certain range, or at any given point.

The CLT state certain conditions under which independent and identically distributed random variables, with finite mean and standard deviation, are approximately normally distributed. The most famous example of this is the rolling of a dice. Under the CLT, the distribution of the average of many groups of dice rolls has been shown to be normally distributed. This property of the CLT has made the normal probability distribution the most commonly used in different branches of statistics. In Figure 1, below, the pdf of the normal distribution is shown.

**Figure 1**



*(Source: Wikipedia)*

One important property of the pdf of the normal distribution is that it is asymptotic. That means that probabilities never really reaches, but only comes infinitely close to zero. In the figure above, the different shaded fields illustrate the probabilities that the values drawn from the normal distribution are within one, two, or three standard deviations from the mean. As can be seen, it is around 95 per cent chance that any value is within two standard deviations from the mean, and around less than 0.3 per cent chance that any value is more than three s.d. away from the mean value.

A standard deviation (s.d.) is a measure of the variability away from the mean (or expected value). That is, how much the observations disperse itself around the mean. Therefore, samples with a high s.d. tend to have more observations with values much larger (or smaller) than the mean, compared to samples with lower s.d. Translated to the real world, events that happens very rarely, or events that by all logical sense should have happened but never did, can be viewed upon as tail events, lying in the negative and positive side of the tails. That is, these tail events are very rare, but when they occur, they strike down with a great impact. (Gujarati, 2006:54ff., 78ff.).

## 2.2 Black Swans and Mental Heuristics

The expression “a Black Swan” represents a case of mental outlier. An outlier is any event or any observation that is very improbable and lies outside the realm of traditional expectations. That is, it lies far out in the tails on any side of the probability distribution, for example the normal distribution in figure 1 above.

In the past, before the Dutch exploration of the western parts of Australia, Europeans were convinced that all swans were white. This belief sprung from centuries of empirical observations of the existence of only white swans in Europe, leading to the conclusion that all swans must be white. But herein lays the

great problem of empiricism, which is that thousands of observations may lead to a false conclusion since just one single observation or outcome can invalidate a belief. In such a case, our estimation of the probabilities of such rare events may be completely off the chart. Taleb uses thanksgiving turkeys as an example of such a scenario. In one thousand days before thanksgiving are the turkeys being fed, so the trust and feeling of safety is likely to be at its peak on the day before the thanksgiving, when the turkeys are being slaughtered (2007:41). A more relevant example is the near discovery of faster than light speed particles (Sample, 22.09.2011) that would, if proven true, invalidate decades of research and common beliefs in physics.

In economics, more and more attention is given to the psychological foundations of many economic decisions, and behavioral economics is a growing field (Wilkinson, 2008:30). But when it comes to the effect of mental heuristics in political analysis the subject is less debated even though the mental decision making processes are the same. Observations, with the benefit of hindsight, can for the well-informed reveal that forecasts of rare events fail miserably no matter if they are of economical or political nature. For example, political scientists were just as bad at predicting the turmoil of the Arab spring as economists were in predicting the latest financial crisis.

In the book *The Black Swan* (2007), Taleb discusses a few heuristics that challenge our ability to perceive and understand rare events, independent of the nature of the rare event itself. Below follows a brief description of these heuristics, as they are important to understand the Black Swan syndrome and its implications for the interpretation and understanding of certain political forecasts.

### 2.2.1 Decision Weighting

However, before discussing the heuristics that Taleb identified, a brief explanation of decision weighting is necessary in order to lay the foundation for the heuristics discussed below.

The mechanism behind decision weighting is very simple. Namely, each outcome is given a subjective probability attached to it, giving the outcome a specific weight. Estimation errors occur in situations where the objective probabilities are unknown (Wilkinson, 2008:114). For example, people usually overestimate the probability of dying in a plane crash or winning in a lottery. These very rare, but known, events are usually highly overestimated. Estimation errors also occur when it comes to conditional probabilities. When several consecutive coin toss turning up tails, people usually overestimate the probability of the coin turning up head on the next coin toss (Ibid; 114f).

Another interesting find that is relevant for black swan events is that when events are merely probable, so called subcertainty, people tend to overweight outcomes that are considered certain. This is called the Allais paradox after the French economist Maurice Allais that found that people preferred the prospect of 2400 units with certainty compared to (2500, .33; 2400, .66). One implication is

that preferences are generally less sensitive to variations in probability than one would think. Another one is that events with very low probabilities or very near certainties, such as Black Swans, are ignored and given a zero weight (Kahneman and Tversky, 1979:265; Wilkinson, 2008:403). The final characteristic of decision weighting is the concept of subproportionality. Experiments have shown that people tend to judge the same set of probabilities as more similar when the probabilities are small compared to large probabilities (Wilkinson, 2008:117f; Kahneman and Tversky, 1979:282f).

The implication of decision weighting is that people are limited in their ability to comprehend and evaluate Black Swan events. Known Black Swans are overweighted while unknown Black Swans are ignored. The following sections will provide some insight as to how people deal with knowledge and uncertainties which generates the results above.

### 2.2.2 Confirmation Bias

As mentioned above, with the discussion about the thanksgiving turkey, there is a problem of induction when it comes to generalizations. At the thousand and one day, the generalization that turkeys are treated well is falsified. But as seen above, these small and unknown probabilities are ignored. So the statement that there is no evidence of mistreated turkeys is likely to be confused with the statement of evidence of no mistreated turkeys (Taleb, 2007:52).

This is called the confirmation bias, and refers to a tendency for people to ignore the true information in favor of their preconceptions and hypothesis. This results in a biased and selective interpretation of events that is very vulnerable to falsification. Furthermore, there seems to be belief perseverance making some opinions persist even while the initial evidence is removed (Nickerson, 1998:208f). There is also another aspect of the confirmation bias, namely that our way of thinking about these aspects are very domain specific. Our knowledge that flying is very safe may count for nothing when entering the cabin doors. We humans have an inability to automatically transfer our knowledge from one situation to another (Taleb, 2007:53; Kahneman and Tversky, 1972:443f).

### 2.2.3 The Narrative Fallacy and Mental Accounting

Peoples share a need of packaging most kinds of information into narratives that are easier to understand. To see this we only need to look at the current newspaper, or the television. You will never hear a news reporter report facts without a brief story or description attached to it. Similarly, you seldom hear an interesting fact or observation without trying to put it into a larger picture. A narrative is a constructive format that describes a sequence of events. People use narratives to try to derive some measure of unity and purpose to events and experiences that may seem to be incomprehensible (McAdams, 1996:305). Some

psychologists even believe that this is the basis for our happiness (Bauer *et al.*, 2008:81).

In this process of story building we summarize and simplify the reality, much like economists do when they build simplified models of the reality. The narrative fallacy occurs when we fail to correctly interpret the reality. People's need of narratives may lead to overinterpretation and biases towards simplified stories instead of reality (Taleb, 2007:63f). We may be prone to the use of false deductive reasoning. For example, we are inclined to draw false conclusions solely based on the ordering of events. This is called Post Hoc ergo Propter Hoc, or Post Hoc Rationalization. The reason for this is that temporal sequence seems to be integral in causality, but that does not necessarily mean that it is always true. Medicating for a cold does not necessarily mean that the medication is the true cause of the vanishing cold since other matters could be at play or the pills could be ineffective. Similarly, when asked to choose one object among an identical set of objects people are prone to invent reasons for their choice (Taleb, 2007:65).

There could be many other reasons for the narrative fallacy, and some explanations could be given by what is called mental accounting. As defined by its originator, mental accounting is the set of cognitive operations used by individuals and households to code and categorize and evaluate financial activities (Thaler, 1999:183). But mental accounting encompasses a broad range of human behavior, and is not only restricted to financial activities (Wilkinson, 2008:150). The mental accounting process is about how people perceive and evaluate situations when there are two or more outcomes, and the combination of these outcomes (Ibid). Basically, we assign mental accounts to different events and activities based on evaluation, estimation and previous experience. The key is that in the process of mental accounting, we are likely to fall victims of the narrative fallacy leading to false conclusions. The effect is that it creates Black Swan blindness. The rare events that we know of are overestimated due to oversimplification and mental accounting. They are the narrated Black Swans, present in the current discourse. Then, there are the rare events that we do not know of, and are ignored. This is a know effect called the availability heuristic, first reported by the psychologists Kahneman and Tversky (1972:207ff).

#### 2.2.4 Survivorship Bias

Another reason for the failure to identify rare events is that they are often forgotten, or ignored, or simply never known of to begin with. History, and the passage of time, has a way of hiding Black Swans.

The survivorship bias refers to a logical error of focusing on the survivors of an event/process neglecting those that died. Taleb describes a story by Cicero, in where a praying sailor later survived a subsequent shipwreck. The tempting implication was that praying protects you from drowning, but that neglects the numerous of worshipper that actually drowned (2007:100).

When it comes to rare events, the problem of such silent evidence is that it works in many ways. Concerning the popularity of stories and explanations of successful people, the narrative fallacy explains the need to describe the success in terms of, for example, determination, education, stubbornness etc. But this may cloud the randomness of events, as there are numerous people with these personal traits and not only the successful ones (Taleb, 2007:105).

### 2.2.5 The Ludic Fallacy

This term was coined by Taleb, as he observed that the probabilities of the real life were seldom the same as the probabilities in controlled experiments. Ludic derives from the Latin word for games. The Ludic fallacy describes situations in where uncertainties and odds created in controlled environments are mistakenly transferred to real life situations. It is a tendency to see a model as more than just a simplification of the reality. The structure defined therefore tends to replace the reality.

Rare events are somewhat different than tail events. This is because in the real world neither the probabilities are not known (i.e. not necessarily Gaussian) nor is the distribution. So in essence, it is impossible to know the odds of a rare event occurring, the only thing we can know is that something someday will occur (2007:129). So in the real world, the example with the rolling of a dice is somewhat misleading, as it portrays the probabilities as known while we in fact do not know the true probabilities.

Failure to avoid the Ludic fallacy can result in large miscalculations and lead to an inaccurate view of the world. Yet, this happens all the time whether it is in economics or politics. Risk analysts creates models and are hit with off-model Black Swans, and political strategists creates policy papers, strategy plans, and analysis that is continuously being revised due to occurring events that has not been modeled.

## 2.3 Chapter Summary

A Black Swan can be said to have three properties, as classified by Taleb (2007:xviii). These are rarity, extreme impact, and retrospective predictability. The above sections have discussed these properties, and how we perceive them.

Section 2.1 has discussed the statistical properties of tail events under the normal assumption. It has been shown that tail events are both rare and occur with great impact. But what are the common properties of the other sections dealing with the mental heuristics, and its connection to politics?

The major connection between the different heuristics is the perception of information. If it is too abstract, or too distant, we fall into mental traps that distort our handling with the information. Decision weighting distorts our perception of probabilities, and the information that gets through that filter gets narrated, in

where we are prone to belief perseverance and survivorship bias. We are prone to have Black Swan blindness.

So we tend to miscalculate the unknown, the things we do not know anything about. But we keep on doing it, since it is a deeply rooted habit to simplify and narrate. Hence, it is also about narrated and simplified predictions. And in social sciences, predictions play a major role, in the form of analysis and forecasts.

This is where the main criticism lies. It is about the use of narrated and simplified predictions as tools to predict future events that by themselves are unpredictable. Poppers central argument is that prediction of historical events are only possible if one could predict future changes and innovations. But this is in itself unpredictable. If history is controlled by specific historical or evolutionary laws then one would be able to prophesy the destiny of man (1945:4). To see this, consider that saying that if one expects tomorrow to know a fact with certainty, is the same as knowing today with certainty. In that case, one could act on the information (Taleb, 2007:171f).

This may sound like common sense, and it is. It is when we make predictions affected by mental heuristics and Black Swan blindness, and take them too seriously, that the problems start. The idea is once again not to stop learning from the history, but to be aware of the weaknesses of our thought. There are many political analysts that have made the mistake of falling into the traps of these mental heuristics. The notion of the end of history<sup>2</sup>, of neo-capitalism as the end station of economics, the surprise of the Arab spring (as if past dictators had better success). In the above examples, it is not only the above mentioned heuristics at play but another interacting effect.

In the book *This Time is Different*, Reinhart and Rogoff does an empirical investigation of over eight centuries of financial crises. Their main finding is that the only common denominator is that during any crisis, the contemporary thinking is that this time is different, in respect to past episodes of booms and busts. As the authors describe it, the essence of the this-time-is-different syndrome is simple. It is rooted in the firmly held belief that financial crisis are things that happen to other people in other countries at another times; crises do not happen to us, here and now (Reinhart and Rogoff, 2009:1). Once again, it is about the perception of information that blinds us, and makes us vulnerable to Black Swans.

Humans seems to have a talent for distorting information, and our predictions derail from the objective chain of events no matter how close or far we stand from it. Our predictions may be good only at predicting the ordinary and in situations when we stand relatively close to the event so that we have harnessed almost all available information. But what true value has such analysis, other than stating obvious facts? And how necessary are the predictions of the ordinary when we live in a mainly irregular world?

The next chapter will deal with the above questions, as well as describing the problems political analysis face when it comes to predictions and rare events.

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<sup>2</sup> Coined by Francis Fukuyama (1992) in his book *The end of History and the last man*.

### 3 Political Analysis and Rare Events

The purpose of this chapter is neither to criticize areas of political thought nor to invalidate its arguments, but to shed some light on how Black Swans are perceived by political theories and analysts. As such, it satisfies both purposes of the philosophical analysis as described by Beckman (2005:12). The method is quite straightforward, as it merely implies that the focus should be on the extreme consequences of an idea, instead of the most frequently occurring events. In a way it is a form of conceptual analysis, or thematic analysis, subject to certain constraints.

The problem is that all concepts could be essentially contested (Ibid:36), which means that analysis of contextual arguments is of vital importance if one is to assess the effects then tail events are considered. The purpose is not the collect pros and cons of an argument, as described by Beckman (2005:40), but to assess the implications of the concept of rare events in environments, theories and analysis that we populate and assess.

This kind of descriptive analysis is important as it could reveal missing pieces of an argument (Ibid:49), hence it could also reveal a concepts exposure to tail events. While the validity of some political theories may look sound on the surface, a predisposition to predict exposes contradictions to the underlying philosophy of science. Likewise, an inability to recognize tail events in any theory or analysis may affect the choice of action taken by its practitioners.

As validity is one of the cornerstones of political science (Beckman, 2005:58), the examination of possible neglect of rare events in political science, or a possible predisposition to predict, is well motivated.

The below sections examines the causes of such possible traits. Could it be that our mental heuristics and biases described above exposes us to a misleading sense of validity? Or that a failure to understand the concept of probability and rare events lead us to validate conclusions even when they are wrong? After all, reliability tests, such as the three questions described by Beckman (2005:65) exposes us to mental heuristics deluding us into believing that we uses what can be called the reasoning system while we in fact only uses the intuitive system described below (Taleb, 2007:81f).

## 3.1 Mediocristan versus Extremistan

In the beginning of chapter two, a brief description was made of tail events in statistics. Later in the same chapter, in section 2.2.5, the Ludic fallacy was introduced, and the distinction between two types of uncertainties can now be made.

This distinction concerns the scalability properties of the variables involved. For example, a non scalable variable could be a baker, or a doctor. It does not matter how many loaves of bread the baker can make, or how many patients the doctor can cure. The income is relatively fixed in relation to the amount of labor. Inequalities can always exist, but only mild ones. When you operate in environments like these, you operate with mild uncertainties. Taleb has coined this to be the land of Mediocristan (2007:32). In this domain, if you round up the weights of every citizen, even the skinniest and the most grossly overweight person will not make a big individual impact to the aggregate. In Mediocristan normal statistics apply, and events are uncertain but statistically predictable (i.e. we can predict the occurrence and magnitude of an event).

There is a big difference when it comes to scalable variables. If you occupy a profession in where you can capture enormous wealth without the contribution of additional labor, that profession is scalable. For example, bank executives with large bonus programs, movie stars, brilliant inventors etc. In many of these profession, there is a winner takes it all effect. But one should not only focus on the winners, but also on the silent evidence of all the losers. In this land, called Extremistan, a few observations can have a great impact on the sample properties (*Ibid*). Here, totally unpredictable and explosive events are possible.

Assume that there are 1000 Extremistan citizens, and you take their net worth. If this was Mediocristan, populated with bakers and doctors, you would still have a fairly normally distributed population. Hence there would be known probabilities of the chance that a few doctors work extremely hard and therefore earns one or two standard deviation above the mean (likewise, there could also be unemployed bakers that inhabit the left tail). But in Extremistan, part of the population consists of movie stars and bank executives, so the probabilities and the uncertainties are unknown.

So how do we sort out what kind of variables belonging to which domain? Variables like weight; height; IQ; etc. are all subject to gravity and belong to Mediocristan. Here, history crawls. But most of the aspects of modern life, as we know it, belongs to Extremistan, and as such are vulnerable to Black Swans.

In politics, one might think that there are some areas that may belong to Mediocristan. Like election participation in Sweden, that constantly seems to hover around 75-90 per cent. Or that the uncertainties of local politics are not scalable. Local schooling and elderly care can of course be taken aback by rare events, but not the rare events of Extremistan. But these variables can still be affected by other events happening in Extremistan, like for example a financial crisis that could melt away local communities pension plans, invested in financial

derivatives that overnight can become worthless. In Extremistan, the world is built up by complex processes.

In fact, almost the whole world of politics belongs to Extremistan. Therefore, politics can almost always be affected by Black Swans. In Mediocristan it is easy to make guesses about what you do not know, based on the information you have all around you. But this property is not transferrable to Extremistan. Here, you must be aware of the problem of induction and remember the thanksgiving (turkey) dinner. Furthermore, you must also avoid all the mental pitfalls described in chapter two that will lure you into thinking that you are actually in Mediocristan even though you still reside in Extremistan. In politics, you will always be the possible victim of the Ludic fallacy, as you are constantly exposed to these mental heuristics.

### 3.1.1 The Intuitive System and the Reasoning System

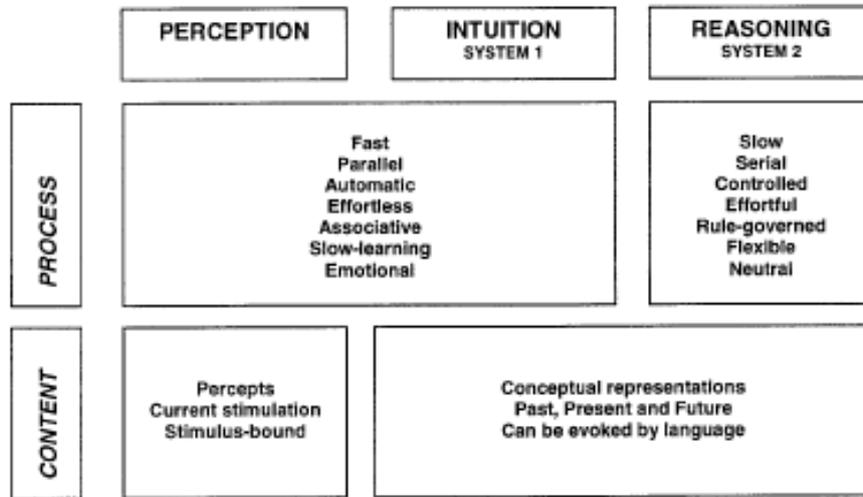
As can be seen above, it is very easy to be fooled by our way of thinking. Studies on decision making and in the way humans think and reason are very popular in the field of empirical psychology. Researchers have mapped our activities into a dual mode of thinking, where they separate between our intuition and reasoning (Sloman, 1996:3). The differences between the two systems of thought have been especially successful in trying to explain the bounded rationality when it comes to decision making under uncertainty (Kahneman, 2003:698).

The intuitive system, or system 1, is effortless and associative. Its operations are usually fast and automatic, but lack introspection. This is what we call intuition, and is often highly emotional. The nature of system 1 is governed by habit, resilient to change, and usually difficult to control (Sloman, 1996:4, Kahneman, 2003:698). Furthermore, since it is so quick it produces shortcuts, heuristics (Sloman, 1996:6; Kahneman, 2003:706f; Taleb, 2007:81). Some of these heuristics are described above, but the list is in no way exhausted.

On the other hand, the reasoning system, system 2, is the thinking system. Its operations derive from symbol manipulation, and it therefore is slower, systematic and effortful. This is the system that we can control, and is thus flexible and rule governed. Since we can monitor our results, it is also adaptive heuristics (Sloman, 1996:5f; Kahneman, 2003:698; Taleb, 2007:82).

Emotions, stimulus and intuitive judgments, are the main triggers of system 1 and forces quick actions. System 2 is, in contrast, always intentional and explicit. Therefore, system 2 is involved in all judgments whether it impressions or deliberate reasoning. Intuitive judgments are impressions that bypass system 2 (Kahneman, 2003:699). See Figure Two, below, for an overview of the two systems and the overlapping nature of system 1.

**Figure 2**  
*Process and Content in Two Cognitive Systems*



(Source: Kahneman; 2003:698)

Since we cannot use introspection as an evaluation process, we are very vulnerable to mental heuristics in cases when we think that we are using system 2 while we are in fact using system 1. In these cases, we are very vulnerable to Black Swans.

Chapter two showed that there are differences in the way we perceive and interpret knowledge, as our perceptions are shaped by mental heuristics. I.e. there are mental heuristics affecting both our collection of knowledge and its processing. As has been shown in 3.1 and 3.1.1, there is a similar difference between real world asymmetries (in the form of Mediocristan and Extremistan) and inconsistencies in our interpretation of the human decision making process. This is an important point, as it shows that there are natural pitfalls in the real world and humans are mentally prone to fall into them.

So what conclusions can we draw from this, when it comes to political analysis and forecasting? What do the above shortcomings mean for experts in different fields?

What the research reveals is that there is a big difference in performance of experts in different professions. The competence of experts is mainly associated with five factors. These are domain knowledge, psychological traits, cognitive skills, decision strategies and task characteristics (Shanteau, 1992:263). What Shanteau found was that there is a direct link between domains and decision performance, and that this performance can be attributed to the task characteristics and the way they are processed (Shanteau, 1992:259). Professions like Astronomers, chess masters, accountants, mathematicians etc. have a good track record. The common denominators of these domains are that they are fairly static,

contains repetitive tasks with objective analysis available. I.e they are rather stable professions.

In stark contrast stand the professions with a very poor track record. These include economists, psychologists, intelligence analysts etc (*Ibid*). So, as soon as the tasks become dynamic, with unique tasks and subjective analysis, the claim to be an expert falls short in empirical testing. These are also the domains in which Black Swans are the most prominent (Taleb, 2007:147). The following section will go further into the expert problem in political analysis and analyze the failure of prediction in common political analysis.

## 3.2 Analysts, both the Hedgehog and the Fox

If one of the purposes of political science is to give its students the ability to analyze political phenomena, then the political observers should not be insulated from the same standards of accuracy demanded in other professions (Tetlock, 2005:4). But while Tetlock demands a more professional approach to predictions made by political analysts, he does not deny that nuanced forms of relativism may be needed. This is unavoidable, since the study of politics and that of political judgment is both subjectively multidimensional (*Ibid*). The above sections have dealt with the fallacies humans may encounter when it comes to subjective relativism. The following section will discuss two different traits commonly encountered in experts.

To see how the performance of experts held up against chance, Tetlock sampled expert<sup>3</sup> predictions from a wide array of political, economic and military outcomes. With more than 5000 predictions in his database, Tetlock collected a subset consisting of predictions with available outcome evidence. What he found was that across all scenarios, experts were only slightly more accurate than the predictive powers of chance (Tetlock, 1999:351). Furthermore, the experts were in general overconfident. Those experts that got their predictions wrong did not blame their underlying analysis but were rather defensive about them and blamed their faults on external events. Most of the excuses boiled down to the argument that they were almost right (Tetlock, 1999:352).

In order to understand these errors, and to minimize our exposure to them, it is far more important to understand how experts think instead of what we think (Tetlock, 2005:2). Tetlock makes a distinction between hedgehogs and foxes, as the main types of predictors. The hedgehog knows one thing in detail while the fox knows a little bit of many things. Usually, it is very easy for the hedgehog to get married to his idea, which could explain why most prediction errors come from hedgehogs. (Tetlock, 2005:144ff,153ff). For the observer, hedgehogs are easier to understand as they are better in dressing their predictions in narratives,

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<sup>3</sup> All the experts in the sample had received graduate training in either social sciences or history and were specialized in the region under consideration.

using their deep knowledge about the subject (*Ibid*). Foxes, on the other hand, are better at self evaluation and to contemplate counterfactuals. They improvise ad hoc solutions to adapt to a changing world (*Ibid*, 21).

So it seems that, in order to be an successful analyst, one should be a fox. But is that enough? Recall what was written in chapter two, that one of the central criticisms about predictions is that future events by themselves are unpredictable. Predictions are mere guesses, and if Tetlocks results are to be believed, they are not even better guesses than randomness. It is, of course, foolish to think that any type of analysis is useless since they are mere guesses. The results from Tetlocks research indicate that foxes in the long run are better predictors than hedgehogs.

This raises the question of incentives. Kiel states that the incentives clearly work in favor of the hedgehog. It is easier to receive attention from the media with one memorable idea, and due to their special expertise on one single subject they radiate more confidence than those experts that focus on the uncertainties (2010:424).

But is it enough to be a fox, or is there a need for a more thorough self-evaluation when it comes to the difference between a foxy analyst predictions and guesses? As can be inferred from above, there seems to be two necessary traits for political analysts in order to minimize the risk of committing errors when dealing with the issue of Black Swans. The first is to become a fox. The second is to acknowledge that, even when you are a fox your predictions are still just guesses. The first trait has been briefly discussed above. The second will be discussed below.

There are two distinctions that are relevant in the context of Black Swans. The first is the distinction between a hedgehog and a fox. The more important distinction when it comes to the awareness of Black Swans is simply between those that claim to acknowledge the risk for the high impact but highly improbable event, and those that do not. In order to capture the whole group, this essay will give a brief evaluation of an example of the former group. If the former group fails to live up to their claim, the likelihood that any foxes are truly aware of the nature of Black Swans decreases.

Ian Bremmer is a political scientist and author and has specialized in global political risk. He arranges workshops on the subject, and has a well managed blog on global politics.

In his book, *The fat tail: the power of political knowledge and strategic investing*, he discusses political risk. His claim is to be a fox that is aware of Black Swans (Bremmer, 2009:11f). But in the same page where he acknowledges that there is much we cannot know, he also states that there is much that can be predicted.

Unless the above statement is a sales pitch for his workshops, that statement is exactly the reason for why Bremmer is not truly aware of the nature of rare events. If he truly understood the nature of rare events his workshops would either be quite short or extremely long. That is, either he tells the participants that it is better to be a fox than a hedgehog, and leave it to that, or he tries to educate them

to become foxes. But if he chooses the latter, he will only end up sharing his views on current and past events. He could of course share his predictions, i.e. his proprietary information. But as described in section 2.3, and above, these predictions would still be only guesses, with only slightly above chance probabilities of being right.

When a fox is making speculation after speculation, all the while claiming to know the future, he is probably fooled by randomness. He could of course be right one time, only to be fooled another time. The nature of a fox should not be to predict a multitude of events, but to observe, adapt and act. As Taleb puts it, it is better to be a fox of open mind (2007:154). Otherwise he is a victim of the Ludic fallacy (among other things).

Bremmers foxes are victims of the Ludic fallacy as they are still trying to make models that replaces unknown uncertainties in the reality with known uncertainties, it is just that their models are very large scaled. Making predictions under such circumstances could of course be made very reliable when made close to the present, but is in such cases nothing more than mere statements of the most likely turn of event. It is like consistently predicting that the civil unrest due to the Arab spring, and other similar events, is likely to continue for a while. But it is still not certainties, and I have never heard of anyone (neither a fox nor a hedgehog) consistently timely predicting the start of such an event.

### 3.3 On the Randomness of Democratization Theories

The above discussion touches an important point, namely the distinction of subject matter between natural sciences and social sciences. The natural scientists analytical attentions are independent of the analytical process in a way that is not possible for the social and political systems (Hay, 2002:252).

Hay, himself a political scientist, means that the social sciences are populated by dynamic and reflective agents capable of revising their behavior, sometimes in the light of- or as a response to theories advanced by political analysts (*Ibid*). This explanation may be another account for how political analysis and theories aimed at predict outcomes may be futile. Here, Poppers argument is used with a twist. Instead of only pointing to the impossibility of predicting future innovation, we also note that the political scientist will never be independent of the system he is set to analyze.

In this sense, it is important to evaluate political theories to see if they aspire to have any predictive powers. Where is the best place to start, if not in the textbooks for students of political science? The aim of this essay is not to evaluate all the theories of political science, just a few of them to see if there is a pattern. In the light of current events in the Middle East, theories of democratization could be extra interesting to analyze.

One theory of democratization is modernity. It links democratization with globalization and capitalism. The link is so strong, that it is also predictive. If a

non-capitalist society would be able to replicate the original transition to capitalism democracy would appear (Grugel, 2002:47).

Another strand of thought is the structuralism. The structuralists make no direct claim of predictive power in their theory. However, the democratization process of the former East Europe, that they with dissatisfaction failed to predict, spurred a development of the theory into incorporating new variables (Grugel, 2002:55f). The underlying notion in both modernists and structuralists is that without a set of assumptions, whether they are explicit or implicit, democratization will probably not occur. It seems that the aim is not to solely focus on the interpretation and explanation of events but also to predict. If the latter was not the case, then the theories would be able to exclude their own previous explanations when new democracies emerge instead of trying to fit the present with the past. Yet this is just another case of false deductive reasoning. Another point here is worth considering. When trying to explain the emergence of an event, using words like “must”, or “indispensable”, or “precondition” in relation to a belief and not a probability (Anderson, 1999:35ff.) this indicates a weakness and exposure to rare events in such explanations.

It seems that the very nature, and weakness, of political theories is that they want to be all encompassing. For example, transition theory has been criticized for being too narrowly constructed out of the experiences of southern Europe and Latin America. Therefore they do not fit the situations in East and Central Europe (Grugel, 2002:60). Instead of being the kind of open-minded and self-critical fox that Taleb (2007:154) visualizes, the engineers of political theories seem operates another type of fox.

Talebs fox was the kind of fox that realizes that he cannot know what the event will be, just that any event eventually will occur. But these foxes above are more like Bremmers fox, and believe that if they incorporate more variables into their subset they will eventually able to explain the universal emergence of democracy. If this is not the case, as the structuralists experienced, then the political theorists simply expand the number of variables believed to cause the emergence of democracy. They fail to recognize that they operate in the land of Extremistan, where Black Swans are unknown and unpredictable events. Here, the causes of events will not be explained as easily as in Mediocristan, where they think they are.

There is an interesting parallel in the world of finance. Theories and hypothesis concerning the direction of the financial markets are plentiful, and the most popular one is the theory with the latest and most accurate prognosis. But it is all about market timing. Just as in finance, where timing is everything while it is effortless and cheap to present economic analysis, analysis of the mechanisms of a democratization process could prove just as meaningless without accurate timing of events. Theories that fail to incorporate the future variable that will explain the next political event will either fall into oblivion or evolve, just as in the world of finance. But the hunt for the correct formula will continue.

## 4 Black Swans and Politics

In chapter three, the focus was on the randomness of political prediction. Section 3.1 outlined the differences between the real world and a controlled world, and how we humans are prone to believe that we can control our thinking and our environment. This creates mental fallacies apparent in both political analysis and political theories.

The aim of this chapter is to further explore how people react to political randomness and volatility and what we do to prevent it. It will try to show that politics are very similar to economics in the treatment of randomness. Therefore, along with political Black Swans come the same surprise and the same need to narrate the turn of events as in economics.

### 4.1 No Stability Without Volatility

As was shown in section 2.1, rare events occur on both sides of the distribution. But unlike tail events in controlled environments, the shape of the tails is unknown to us in many facets of the real world. If we think that we can control our environments and in that way reduce the risk, we may even risk the possibility of increasing our risk.

A good metaphor is that of the stair spring. If you want to reduce the volatility of the spring ends, you should compress the spring. But the purpose of this toy is to demonstrate that when you do that, the spring expands again as soon as the pressure is released. The paradox is that artificially suppressed volatility greatly increases the risk for even higher volatility. Political life can be viewed upon as a complex system. A complex system is composed of interconnected parts with different properties, in where the whole system exhibit properties not apparent from the properties of the individual parts (Rhee, 2000:487f). Due to these non-linear properties, policies that suppress low volatility in order to avoid tail events pushes the unobserved risks further out on the tails of the probability distribution. As described in section 3.1, these risks are apparent in the world of Extremistan. Due to the mental fallacies described in chapter two, such actions also create a false sense of belief in our predictive abilities. So, in a complex system, such as politics, artificially suppressed volatility increases the fragility of the system as well as the belief in our ability to predict (Taleb, 2011:33). These systems become inherently prone to Black Swans. This chain of events has been witnessed in the Middle East, where few people, if any, predicted the high-impact Black Swan of the Arab spring. Instead, people were seduced by the apparent stability of the

dictatorships, not realizing that it was systems inherently vulnerable to rare events.

Actually, stability seems to be in so great demand that we sacrifice stability in the system for the stability of the present. The nature of compressed complex systems is to eventually expand again, due to some rare event. But the need for stability often clouds our judgment. In economics, there are more and more companies that are too big to fail. These companies argue that there are unacceptable high costs associated with their potential failure which would create unnecessary market volatility. But the implicit state guarantee linked to these companies produces negative welfare costs and further spur the continues growth of the already too large companies (Kellermann, 2011:331). What we see is the suppression of volatility that results in increased vulnerability for Black Swans.

Similar policies are evident in global politics, where support for suppressive states in the name of stability is often a policy aim (Taleb, 2011:34). The irony is that those who seek to prevent small volatility paradoxically increase the probability that a Black Swan event will occur (*Ibid*).

According to what has been outlined in the text above, there is an inherent difficulty in controlling complex systems. But at the same time, this is exactly what many policies are aiming to do. There is a flip side to this as well. If we believe that we can control our environments we enter into the domains of Mediocristan, and so we trick ourselves into believing that we can predict the turn of events. There is another interesting metaphor relevant for this topic. Imagine a snow cornice at the top of a mountain. Sometimes these are visible, and sometimes they are hidden among the structure of the mountain. Skiers know that they are dangerous, but cannot predict when they will collapse. But it would be foolish to blame the collapse on the last snowflake, or on the latest wind gust, instead of on the structure of the cornice itself. Likewise, it would be even more foolish to try to predict which event that will be the true cause of collapse for the snow cornice. It is the nature of the system that is to be blamed, not its components (Taleb, 2011:36). Therefore, better knowledge of probabilities, of our inability to predict and of complex systems is needed.

This brief chapter has discussed the way people react to randomness. It has revealed some similarities between politics and economics. This may not be that strange since both are subjects of social science, as mentioned in section 3.3. Furthermore, people seem to display a tendency to iron out small visible volatilities at the cost of suppressed volatility. In light of chapter two and three, this may not be so surprising. These chapters have shown how we fail to recognize the reality in which we live in, and our perception of it.

In light of these discussions, humans seem to display a fear of randomness. In a linear world, such fears could increase the chance of survival. But in a complex world that we not fully comprehend, these traits hide the high-impact Black Swans (Taleb, 2011:39). When we suppress low levels of volatility, we lose the information such volatility would have given us, increasing the risk of getting surprised by Black Swan events. In short, by entrench ourselves in a false sense of security that this time is different, we increase our vulnerability of large Black Swans (Reinhart and Rogoff, 2009:290ff).

## 5 Summary and Discussion

The final chapter of this essay contains some concluding remarks around the topics discussed in the previous chapters, as well as some comments concerning some of the criticisms regarding the theories of Black Swan events. I call them theories because the theory of Black Swan events in reality consist of many different theories that rely on, and build upon, each other. For this purpose, I will first summarize the main threads that have been described in this essay.

Chapter two described the statistical properties of rare event, and provided a description of Black Swans and the mental shortcuts, heuristics, people are prone to take. To connect this chapter to the political aspect of this essay chapter three describes statistical properties of external events, as well as how we humans are programmed to answer to them. The second part of the chapter uses this knowledge together with the knowledge of our heuristics to analyze both the analysts and the theorists. For the theorists, the findings follow the simple logic with the turkey, outlined in chapter two. If theory precedes analysis, the findings that some theories in political science tries to predict the future are worrisome for the educational basis of political analysts. Indeed, the analysis of the analyst reveals that possibly the least likely analyst to fall into this trap do just that and assert his predictive powers.

Why is it so important whether political theory and analysis claims predictive power or not? The simple answer is because they cannot do that. It is simply wrong. The more complicated answer is that it reveals a tendency to become victims of our mental heuristics and shortcomings instead of being aware of them. But it does not mean that political science cannot produce analysis. Only that these analysis should not be predictive but only indicative at best, and be aware of peoples mental constraints as well as which environment it is that surrounds the subject. That is, be more aware of the randomness of events. For example, Nickerson argues that confirmation bias can affect reasoning in political contexts, creating biased conclusions favoring existing beliefs of oneself or of the government (1998:191f). This could also result in conflicting situations when situational analysis is biased in favor of oneself. This argument is strengthened by Tetlock, who blames the analytical failure of the hedgehog on confirmation bias (2005:145ff.).

Since rare events in politics cannot timely be predicted, but bears with it a great impact, political scientists that does not take this randomness into account all too often degrades itself to historians as they are trying to describe past events. Of course there are other purposes of political science, but when it comes to political decision making, and political analysis, the notion of rare events is of key importance. The reason is that there are theories, suffering from post hoc rationalizations, which try to explain either imminent situations, or produces

plentiful analysis about almost everything. But as soon as some event of real importance happens, for example the Arab spring, a new war, civil uprisings, major ideological shifts in politics etc, these events are almost exclusively unpredicted. When they occur, they are followed by yet another post hoc rationalization. The reasons for the event could be institutional, situational, personal, etc.

One of the reasons for the failure of ex ante explanations (apart from Poppers historicism critique discussed above) is that the possible number of explanations is very large. This is true even in the run up to a major rare event. Assume that we manage to isolate the multiple explanatory variables to the future event. Even then, there are so many possible outcomes that we still fail to predict either the event or the timing of it. The number of possible permutations in the set of possible explanatory variables are simply too large, and every combination yields a different theoretical prediction concerning the outcome of the events!

Critics of Talebs description of narratives as shortcuts that simplifies a complex and random world, point out that our narratives are important tools used in order to make sense of a complex world. Furthermore, once these narratives become integrated into the views of the world, they themselves become objects acting on subjects (Blyth, 2009:447).

These criticisms touch an important subject concerning the theory surrounding the concept of Black Swans. Surely we need narratives to make sense of a complex world, and to communicate with others. The latter criticism is important, because in my view it is the strongest criticism. How do we know that the narratives themselves do not change the rules of the game? The truthful answer to that, I believe, is that we cannot know that. But therein lay the answer. Welcome to the uncertain world of Extremistan! As mentioned in section 4.1, such narratives can lead to the “this-time-is-different” syndrome; it can push the unobservable risks further into the tails etc. In fact, one of the points of being aware of these kinds of narratives is to reduce the risks.

Regarding the first critical point, I fully agree to the notion that Blyth puts forward, that to socialize with others, the answer lies in the social, not the informational (Blyth, 2009:462). But there is a difference between analysis and predictions versus being social at cocktail parties. There is a difference between role playing knowing it is a game or playing a game believing it is real. In the former case, you use narratives as a social tool, but are aware of the fallacies they create as an informational tool. In the latter case, the difference between the social and the informational cease to exist.

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