

# Modern Political Thought in the Context of Evolutionary Psychology.

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This paper offers a brief summary of the research within the book "*The Evolutionary Psychology Behind Politics: How Conservatism and Liberalism Evolved Within Humans.*" Further details on this work can be found at the website [www.anonymousconservative.com](http://www.anonymousconservative.com).

This paper will present a theory of the evolutionary origins and purposes of our two main political ideologies, as well as their relation to Darwinian strategies in other species. Conservatism psychologically drives one to engage in individual and group competitions regardless of cost to individuals. This psychological drive is a manifestation of K-selected behavioral drives, and most likely arose in a K-selected cohort of ancestors prone to remain behind to compete for limited resources, as our world-wide migration began. Designed to select for competitive fitness, this psychology pursues an individual advantage of producing the fittest offspring possible. Liberalism, conversely, involves seeking a more r-selected environment of free resources for all, absent any individual's need to demonstrate competitive fitness. This psychological drive is likely an adaptation to r-selected environmental pressures, and is designed to produce superior numbers of offspring through support for promiscuity, diminished investments in child-rearing, and a diminution in fitness-based competition between peers. It likely arose within a migratory cohort within our early populations, which was prone to flee the violence of the K-selection, in search of the free resource availability of an untapped, uninhabited, new environment. This urge to flee would be facilitated by the Liberal's reduced loyalty to in-group, preference for novel environments, and it would explain the prevalence of the DRD4-7r gene associated with Liberalism in migratory populations. We show that Liberalism will hold some degree of advantage during times of diminished competitive selective pressures, and thus it will gradually take hold in a population during periods of resource excess and limited competitive Darwinian selection among the populace. We show that this theory explains the entirety of each political philosophy's issue positions, correlates with all reviewed research on the nature of political affiliation, is consistent with current understandings of group selection, and describes the purpose such urges served in our ancient evolutionary past.

Keywords : Political Science, Evolutionary Psychology, Conservatism, Liberalism, Evolution

## Section I - An Overview of the Theory

Since the dawn of civilization, men have sought to define the boundaries of freedom and governance. Some have asserted that each individual must be left alone, to sort his own affairs, and bear the responsibility for his decisions, regardless of whether he thrives or withers. Others have asserted that to be free, a man must be given all that is required to enjoy his freedom. Today, we see this battle continue, in our modern day political system.

The fundamental premise which this work seeks to support is that these two ideologies are actually rooted in two different personalities, produced through Darwinian selection, and commonly seen in more primitive form in other species. Fundamental to any

understanding of our political battles today, is an understanding of how these ideologies were produced, and the nature of the specific environments they were designed to confront.

This work asserts that in ancient evolutionary times, our primitive ancestors overpopulated their initial territory and began to spread across the globe. As their numbers grew too large for the resources of their home territory to support them, they began to fight for the limited resources which still remained. As these battles raged, a second subset of the population, exhibiting an aversion to such violence, fled to a new, untapped territory. As the new untapped territory became overpopulated, and competitive, some descendants of the initial Migrants again fled the violence, and sought out yet another new, untapped territory of free resources.

This process created two different environments, and each sub-population of human adapted to their respective environment, forming a unique Darwinian strategy. Those who remained behind to fight for limited resources, found themselves exposed to a competitive environment where only the most fit acquired the resources to survive. This is known in Population Biology as a K-selected environment. For reasons we will explain, biologists have long known that this K-selection of a populace will tend to kill off any individuals who do not exhibit four traits. The four psychological traits which emerge within a K-selected environment are tendencies towards competitiveness and aggression, embrace of monogamy, preference for two-parent rearing, and a desire to see a later exposure to sexual activity in youth. We maintain that these K-selected individuals imbued a segment of our population with a personality which was the evolutionary forerunner to the modern political right-wing ideology.

Known in America as Conservatives (a term which will be used herein to describe this psychology), these individuals today tend to support free competition for resources, such as capitalism, and are tolerant of the idea that such resources will be awarded disparately based upon fitness and ability – as they would have been in the K-selected environment. Conservatives favor war when threatened, just as our ancient ancestors did in the K-selected environment. They also favor monogamy over promiscuity, two-parent rearing over single parenting, and they seek to teach children abstinence until monogamy, rather than safe sex techniques (due to a judgmentalism of early onset sexual behavior and premarital sex). Conservatives even support the carrying of private firearms, so individuals may engage criminals in more primitive battles for limited resources. It is also worth noting that since our ancestors likely conducted their competitions in the form of group warfare, these individuals would also have evolved a fierce loyalty to in-group to promote group success, and a tendency to disregard out-group interests. Indeed, both are documented traits of Conservatives.

Those individuals who fled the competitions, and existed at the frontiers of our migration, would have found themselves constantly landing in new, uninhabited territory, full of plentiful, untapped resources, and for them, this became a Darwinian strategy. A new, untapped environment offers individuals nearly limitless resources, eliminating any need to compete for resources. Indeed, fighting with peers entails risks of injury or death. Here, these risks make such behaviors disadvantageous compared to avoiding such competitions entirely by seeking other freely available resources elsewhere. Known in Population Biology as an r-selective environment, this free resource availability has been

documented as culling a population for four main traits. The traits are, docility/competition-aversion, embrace of promiscuity, tendencies toward single-mother rearing, and early exposure of offspring to sexual activity. We maintain that this Migrator strategy imbued a subset of our population with a personality which became the foundation of our modern political left-wing ideology.

Presently embodied within America by the Liberal ideology (which will be used herein to describe this psychology), this personality is innately averse to free economic competitions, and their associated disparate economic outcomes (preferring instead that all individuals be provisioned with all of the necessities of life, even through seizing and using the earned resources of others to provide these free resources to everyone). Liberals also tend to be averse to war, more accepting of promiscuity, accepting of single-mother rearing, and they tend to support teaching all children safe sex techniques at an early age, absent any apparent judgmentalism of children engaging in sex at an earlier age.

All of these positions exhibit a clear tolerance of the four documented r-selected reproductive strategy traits, if not an active embrace of them. Fleeing a violent group competition might require abandoning one's peers, thus this psychology would eventually evolve less loyalty to in-group. They would also likely develop traits such as a preference for new experiences and novel environments, designed to promote moving to a new locale earlier to preemptively avoid any risk of conflict. Indeed, all of these personality traits have been documented as associated with Liberalism. We will show how a gene associated with a tendency to develop a Liberal political ideology is even found in large numbers today, in migratory populations.

It is the position of this paper that our modern political ideologies have emerged from two different Darwinian strategies designed to provide those who carried them with Darwinian advantage in our distant past. As such, our two ideologies are merely intellectual manifestations of the psychologies exhibited by r-selected and K-selected populations.

This theory can serve to explain why every aspect of each political ideology would align so perfectly opposite the other. It explains why such unrelated issues as sexual behavior and careful child rearing with strong “family values” would intertwine with issues of economics, gun control, and war, and why reconciliation between these two political ideologies has proven so problematic.

In this paper, we will assert that there is a purpose behind many of these urges, and the outcomes they seek. We assert no such conscious awareness of this purpose exists, however. Rather, this deeply affecting psychological drive to either embrace or reject rule-

governed competition simply alters perceptions and modifies feelings. It subconsciously guides each individual to the behaviors and psychology which would have conferred the greatest evolutionary advantage upon them and their species, in the ancient evolutionary circumstances where these urges were formed.

In the second major portion of this paper we will begin by defining ideology, and then examine r/K Selection Theory in Population Biology. We will then move on to an examination of intra-species competition within a more primitive organism. Within this species, individuals exhibit urges which produce behavioral drives similar to those of the modern Conservative and Liberal – behaviors which diverge based upon the embrace or rejection of rule-governed competition.

We will present evidence that when our population has been placed under either r or K type selection pressures in history, one psychology or the other has emerged from the selection, and as a result, that generation's normative political inclinations have changed either rightward or leftward, depending upon the r or K nature of the selection pressure, as would be predicted by this theory.

We will then attempt to present more evidence examining how this competitive drive may be altered. We will cite the latest research into the genetic origins of political ideology and the neurobiology of politics, and show how this work supports the premise that a specific mechanism likely underlies the fundamental embrace or rejection of risk and competition by individuals. We will examine studies of personality traits of those who hold each political ideology, and show how those personality traits would guide an individual to exactly the behaviors that such a Darwinian strategy would demand they engage in. Finally, we will attempt to describe how this theory comports with current understandings of group selection, in an effort to dispel any misunderstandings which might undermine this theory's acceptance.

## Section II – Supporting Evidence

### A Definition of Ideology

This paper will describe two different political ideologies, commonly referred to in America as Conservatism and Liberalism, as described by Treier and Hillygus (2005), whose characterization of these ideologies we will use within this paper. Within this paper, we will use the term Conservatism to represent the ideology often characterized within political science as right-wing, while we will use the term Liberalism to describe the ideology most often referred to as left-wing.

Although individuals may stray from their

ideology's platform on one issue or another, when viewed as groups, two groups emerge, each with two distinct sets of overall issue positions, on a raft of different, seemingly unrelated issues.

In the United States particularly, each of these political movements would appear to have randomly aggregated many different positions on many different, seemingly unrelated issues, with each position almost completely opposite to the other philosophy's position. Conservatives tend to favor gun ownership, favor war in response to threat, desire low taxes, and seek a more sexually restricted society where abstinence prevails until one engages in a monogamous marriage (Altemeyer, 1981; Jost, 2006; Jost et al., 2003; Treier and Hillygus, 2005). In matters of governmental authority, Conservatives generally place emphasis upon the freedom of the individual over the guaranteed well being of every individual citizen, while in issues of personal behavior and morality, they emphasize the need for those in society to abide by certain behavioral rules.

Conversely, Liberals tend to favor stricter restrictions upon the bearing of arms, favor appeasement and negotiation in matters of conflict, favor higher taxes upon the wealthy and more generous social programs, and favor a more sexually liberated society (Altemeyer, 1981; Jost, 2006; Jost et al., 2003; Treier and Hillygus, 2005). In matters of governmental authority, they place emphasis upon the need for government to provide for the safety and security of each citizen over the freedom of the individual, while in issues of personal behavior, they emphasize a freer, less restrictive society.

The panoply of issues which divide the two ideologies, though related by political inclination, have seemed unrelated psychologically, and unable to be characterized as deriving from a single base urge. A desire for freedom would predict a Conservative's desire to support concealed carry of firearms for personal defense or their desire to limit governmental authority. Yet it would not predict their desire to see a more controlled, socially Conservative society, whose behavior is restricted so as to abide by socially Conservative mores and values, especially on issues of sexual activity and reproduction.

A desire for freedom would predict a Liberal's desire to see citizens free to engage in all manner of sexual conduct between consenting adults, or the assiduous safeguarding of all individuals against discrimination. Yet it would not predict the Liberal's desire for higher personal income taxes for the wealthy, or restrictions on firearms ownership. Religious affiliation also fails to merit consideration as a psychological delineation, when confronted with the agnostic or atheistic Conservative, or the religious Liberal.

Each side of the political divide would seem to have its own unique perception of ideal human behavior,

restricted in certain areas, liberated in others, and each exactly the opposite of the ideal espoused by its contrary ideology. To date, no single underlying motive force has been perceived which might account for the aggregation of these diverse positions on seemingly unrelated issues. Nor has anyone postulated why our species should contain two such polar-opposite psychologies, with such opposite desires.

## Life History Traits and r/K Selection Theory

It is well established that in nature, populations will adapt their reproductive and behavioral strategies to their environmental conditions. Research has identified two primary reproductive strategies that such populations adopt. These two strategies are termed "r-selected" and "K-selected," and the selection pressures which produce them are referred to as "r-selection" and "K-selection."

Populations which find themselves subject to heavy predation or high mortality, but possess copious resource availability, will find that those individuals who waited to mate and reproduce will be culled from the population prior to reproduction. Those who do reproduce will have done so by following a mating strategy of reproducing at the earliest possible moment, with any mate available. Over time, such populations will evolve to avoid risk and competition, as their copious resources do not require such, and the risks inherent to such endeavors make them disadvantageous. They will reproduce quickly and often, with as many mates as possible, beginning as early in life as possible and investing as little effort as possible in offspring rearing. Minimizing investments in offspring rearing will be done so as to maximize individual reproduction rates. Diminished offspring fitness, due to reduced mate selectivity and diminished rearing investment will offer little disadvantage, since due to the diminished population and free resource availability, offspring will not need to compete with peers or demonstrate fitness to acquire resources. These risk averse, fast and frequently reproducing populations are said to be r-selected populations. The harsh conditions which produce them are referred to as r-selection pressures (MacArthur and Wilson, 1967; Pianka, 1970).

Conversely, populations which are not subject to heavy predation or high mortality will overpopulate, until there is a vigorous competition for limited resources among members. Under these conditions, an individual will need to be able to compete to acquire the resources to survive. As a result, these organisms tend to adopt a strategy of aggressively embracing competition, while seeking to produce offspring that are as capable of competition as possible. They will patiently and carefully select the fittest mate possible, and then devote extended periods of time to rearing offspring, rather than

unselectively mating and diminishing rearing investments. Careful mate selection and high investment rearing are preferred in K-selection so as to produce offspring which are as capable as possible in competition with their peers upon maturation.

Within these populations, the stronger, fitter, more competitive offspring will then cull less fit, or more r-selected individuals. Thus it is the competitive presentation which will dominate the population under these circumstances. These populations are said to be K-selected, and the conditions which produce them are referred to as K selection pressures (MacArthur and Wilson, 1967; Pianka, 1970).

Here we see two fundamental psychological foundations. The r-selected psychology favors promiscuity, diminished investments in child rearing, early sexual activity among the young, and exhibits an absence of competitiveness.

This paper maintains that this is the psychological foundation of the entire political platform of the political Left. In its purest forms, such as Communism and Socialism, political Leftism forbids individuals from engaging in all merit based competitions designed to disparately award resources based upon relative ability and effort. The purest forms of Leftism will also attempt to ameliorate all disparate outcomes of those competitions which do occur, through equal reapportionment of earned resources. In the Left's tendency towards pacifism, we see a desire to forbid merit- and ability-based Darwinian group competitions such as war. In the desire to restrict or ban gun ownership, we see a desire to forbid Darwinian competitions between criminals and citizens. In the Left's support for promiscuity, and their aversion to strict abstinence until monogamy, we see the r-selected behavioral drive to increase reproduction through promiscuity, absent any careful, time-consuming discrimination of mate worthiness. And in the Left's denigration of family values and support for single-mothering, we see the Liberal's absence of a desire to invest heavily in the careful rearing of offspring that is designed to maximize offspring competitive ability.

The second psychology we see in nature is the K-selected psychology. It exhibits an aversion to promiscuity, favors monogamy, seeks abstinence until monogamy at maturity, desires increased investments in child rearing, and is programmed to be highly Competitive.

This paper maintains that this is the psychological foundation of the entire political platform of the political Right, which in its purest forms favors merit based competitions everywhere, from economic competitions in the form of free market Capitalism, to war, to gun ownership for self defense among individuals. Among Conservatives, careful mate assessment and abstinence

until monogamy is strongly favored, and there is a strong emphasis placed upon “family values.” This will most clearly manifest in a distaste for any sub-optimal child rearing such as single-parenting or other nontraditional styles of child rearing. Since such strategies are not designed to make a child as capable and competent as possible, they are disfavored.

All species must have some variation in r and K-type psychologies, side by side within them, so that evolution may select among them. Given that, it is impossible to deny that these two fundamental psychological foundations will exist in humans as well.

If they do, it is also impossible to ignore that such a fundamental psychological foundation, affecting the drive to embrace or reject competition, the drive to embrace or reject monogamy or promiscuity, and the drive to embrace or reject strong, traditional (K-selected) family values in child rearing, would affect political ideologies, both of which revolve specifically around these issues. That each ideology has adopted exactly the issues predicted by their corresponding Darwinian reproductive strategy would strongly indicate that these instinctual drives are the underlying forces driving our political debates.

## The Cuttlefish Model - Direct Competition

Cuttlefish mating habits have been the subject of study due to an interesting dichotomy in the means by which males acquire mating opportunities. As the Australian Giant Cuttlefish, *Sepia apama*, masses within their breeding ground, males outnumber females 11-1 (Hall and Hanlon, 2002), creating an intense competition among males for female mates.

As Cuttlefish mass, each female takes up position on the ocean floor. Above them, males battle for the chance to pair with a waiting female, and mate. Battles begin with vibrant displays of colors, flashed on their chameleon-like skin. Males have evolved to defer to particularly striking displays, thus preventing males with inferior control over their chameleon-like skin from gaining mating opportunities. Having resolved who possesses a sufficient ability to control the images projected upon their skin, the males then test their physicality and prowess in physical fighting to resolve which male will pair with the waiting female. In so doing, they perform one final competition to test for physical fitness and vitality, before a male is allowed to pair with a waiting female (Hall and Hanlon, 2002).

This evolved mechanism, whereby males compete in competitions designed to test fitness-enhancing traits, such as chameleon-like skin, size, strength, and daring, has produced a five foot long Cephalopod capable of almost disappearing in plain sight.

Particularly striking is their evolution of a chameleon-like skin, with every individual pigment cell under the full control of their neurological system, and able to mimic the visual perception of their surrounding environment on a moment's notice.

Here, the embrace of a psychology prone to drive males to engage in competitions and accept outcomes, such as being out-flashed, exists as a sort of psychologically self-imposed selection pressure. The advantage of exhibiting this psychological drive is that populations which adopt this competitive psychology will evolve advantages not acquired by similar, uncompetitive populations. Should a competitive population and an uncompetitive population ever meet, the Competitor's evolutionary advances can provide a potent competitive advantage to their species and group in the competition for resources or the avoidance of predators.

The adoption of a competitive psychology fostering direct competition with peers should be viewed as functioning as a dynamic selection pressure, which is ever advancing with the abilities of successive generations. After millions of years spent chasing this moving evolutionary goalpost, a species can generate incredibly complex adaptations under this scheme.

This model is different from individuals merely competing indirectly, to see which individual has most perfectly adapted to a static environmental pressure, such as an ability to consume specific resources, or function best under harsh environmental conditions.

In the case of *Sepia apama*, pursuing this ever advancing, dynamic selection pressure has led its members to evolve a skin structure of astonishing complexity and ability.

Interestingly, not all males within the species adopt this competitive psychology, however. Less physically capable males engage in a reproductive behavior commonly referred to as sneaking. Sneaker males project the pastel coloration of a female cuttlefish upon their skin, and rearrange their tentacle structure to mimic that of a female. Too small and weak to compete effectively, they will don a deceptive feminine costume as a means of conflict avoidance during mating. After adopting a physical appearance indistinguishable from a female, these males cruise in, past the battling Competitor males, and mate with the waiting female. They mate without any male ever knowing of their presence, and without submitting their abilities to the test of free competition with other males (Hanlon, et al., 2005).

These individuals will not partake of a competition-based assessment of fitness before mating. As a result, their contribution to the adaptations developed by the competing cuttlefish is uncertain. They do, however, seize the immediate Darwinian advantage of not risking failure in competition, and apparently, for

them, this is a winning Darwinian strategy (Hanlon, et al., 2005).

Sexual sneaking as a means of competition avoidance is common among a wide range of species (Cardwell and Liley, 1991; Gibson, 2010; Huffard et al., 2008; Knapp and Neff, 2007; Kurdziel and Knowles, 2002; Plaistow and Tsubaki, 2000; Rios-Cardenas and Webster, 2008; Simmons et al., 2007; Wada et al., 2005; Whiting et al., 2009). It has been shown to contravene sexual selection (Jones et al., 2001), which serves as a competitive selection designed to enhance fitness (Fisher, 1930, p. 131-132).

This paper asserts that many advanced species which exhibit highly complex evolutionary adaptations, will have likely acquired them through the pursuit of dynamic, self-imposed selection pressures. These self-imposed, competitive selection pressures were pursued through the adoption of a competitive psychology emphasizing direct competitions, as in the Cuttlefish model. The nature of the competition will determine the nature of the evolutionary advancement it produces. The nature of the competition will in turn, be dictated by the species' unique evolutionary history and the necessities which presented themselves within it.

Furthermore, under this theory, within any such Competitor species, it will be highly likely that a subset of individuals will be driven to reject the competitive psychology, as well as the rules and behavioral drives designed to enhance the competition's effectiveness in selecting for fitness. Instead, they will pursue Darwinian success more directly, by avoiding or thwarting the competitive scheme that the Competitor individuals of the species would normally abide by.

For simplicity, within this paper, we will refer to those individuals who favor competition as Competitors, and those who eschew competition as Anticompetitors.

It is worth noting that Competitor Cuttlefish exhibit competitiveness, exhibit greater tendencies towards monogamy, and invest more heavily in offspring rearing through egg chamber provision and mate guarding. These are all K-type behaviors. For this reason, it is a premise of this paper that here, the ritualized individually Competitive psychology is an evolutionary outgrowth of the more primitive K-selected psychology.

Conversely, the Transvestite Anticompetitor exhibits an aversion to aggressive competition, a promiscuous mating strategy of cuckoldry, and diminished investments in child-rearing. Clearly, these are all r-type traits. It is the position of this paper that this individually Anticompetitive psychology is an evolutionary adaptation of the more primitive r-selected psychology, specifically adapted to confronting the presence of more fit and aggressive, K-type competitors.

Under the tenets of this work, both the K-type

Competitive psychology, and the r-type Anticompetitive psychology exist in Darwinian competition within human populations. Each seeks to seize competitive resources at the expense of the other. Competitors out-evolve Anticompetitors so as to gain advantage over them and seize their resources in free, fitness-based competition. Conversely, the Anticompetitor seeks to seize resources from the Competitor, by exploiting the Competitor's blind adherence to rules of competition, and loyalty to in-group.

After years spent evolving side by side, within an environment where each gains when the other loses, it would be expected that these psychologies would evolve an innate perception of competition existing between them. Those individuals which evolved traits designed to recognize this, and diminish the competitive advantage of their competing psychology would survive, while those which did not would die. The balance of these two competing psychologies is then finally molded by whether environmental conditions favor the fitter specimen or the more fecund.

Within this theoretical model, several disparate psychological drives of ideologues are interlinked by their relation to the r-type Anticompetitive psychology and the K-type Competitive psychology. These behavioral drives are therefore all further adaptations of the more basic r and K-type psychologies.

Competitors will exhibit a desire for competition, as well as a tolerance for disparities in outcomes that are based upon abilities and effort - even when such disparities are personally disadvantageous. They will also exhibit an instinctual desire to see all individuals abide by rules designed to further the efficacy of any competition selecting for fitness. Competitors will also desire to create a competition for mates by encouraging a careful, fitness based discrimination among prospective reproductive partners. Competitors will also exhibit an aversion to cultural promiscuity that is combined with a tendency towards a culture of monogamy. This preference is designed to enhance competitive monopolization of mate fitness and prevent reproductive sneaking once the competition for mates has concluded. Finally, Competitors will exhibit drives designed to produce success in group competitions, such as loyalty to in-group, altruism towards in-group, intolerance for out-groups, and increased concern for proper investments in child rearing.

Anticompetitive psychologies will tend to be averse to environments with free, rule-governed competitions designed to select for ability and effort. They will exhibit an aversion to the apportionment of resources based upon ability, effort, and success. They will exhibit tendencies towards opportunistic advantage taking, such as exhibiting less respect for the Competitor's rules of competition. They will possess a desire for a

culture favoring diminished levels of discrimination among prospective mates, and they will exhibit a desire for a culture where mates display increased levels of promiscuity, and are averse to monogamy, so as to facilitate reproductive sneaking, and diminish the ability of the highly fit to monopolize highly fit mates. Finally, they will not exhibit the Competitor's psychological desire for success in group competition, and will deride such desires as unthinking, unintellectual, and mindless group-think. This perceptual framework, being less instinctual and more logical in its pursuit of personal advantage, will serve to open the door to the Anticompetitor's more opportunistic, self advancing Darwinian Strategy while thwarting the Group Competitor's plans to advance their self interest through success in Darwinian group competition.

As we will show, these psychological traits have all been identified in studies of the personality traits of political ideologies, the traits we cite correlate with their respective political ideologies in these studies, and the evolution of all of these traits within each ideology is easily understandable in the context of r/K Selection Theory.

## The Liberal vs the Conservative Brain

The amygdala is a brain structure commonly associated with the perception of threat and the engendering of fear in response to it (Öhman. 2009), as well as the prioritization of perceived stimuli according to importance, especially in inter-personal interactions (Buchanan et al., 2009). There is evidence that amygdala function correlates with political affiliation (Rule et al., 2010), thus it is an excellent topic with which to begin a study of the divergent brain function underlying ideological partisanship.

Recent research by University College, London's Institute for Cognitive Neuroscience (Kanai et al., 2011) demonstrated that amygdala volume is related to one's adherence to either Liberal or Conservative political ideologies. Using Magnetic Resonance Imaging, Dr Kanai's team identified two measurable differences between Liberal and Conservative brains. The Liberal exhibited an increase in the thickness of their anterior cingulate cortex, and a diminished amygdala volume relative to their Conservative counterpart.

There are indications that the Competitive psychology of Conservatism predominates among members of the Military (Kohn, 1994; Trowbridge 2004), an occupation whose members routinely encounter fear engendering circumstances, and are forced to prioritize threats. If this is accepted, one must accept the possibility that the Conservative's increased amygdala volume is due to a hypertrophic adaptation to repetitive experiences of

perceiving, prioritizing, and addressing fear-engendering circumstances, such as threats or violent encounters.

Conversely, the Liberal's diminished amygdala volume could be seen as either atrophy or diminished development, perhaps due to avoidance of fear-engendering circumstances, such as competition, during developmental periods.

This proposition is supported by work by John T. Jost, (2006), which showed that exposure to fear inducing stimuli, which would presumably stimulate the amygdala, would precipitate a Liberal's conversion to Conservatism. Additionally, this conversion would extend into other areas of ideology unrelated to fear, such as policy issues relating to economics or social policy. This would be consistent with the premise that amygdala adaptation to experiences of fear and perceptions of threat induces a Conservative psychology.

Those with amygdala dysfunctions due to lesions are more likely to judge threats as approachable (Adolphs et al., 1998; Adolphs et al., 2002; Broks et al., 1998; Winston et al., 2002). In matters of war, Liberalism does seek to implement a strategy of conflict avoidance through freely approaching threats, so as to engage in negotiation and appeasement. This premise is supported by another classic study examining rhesus monkeys. In the study, monkeys with lesions in their amygdala (and uncus) were described by researchers as, "*retarded in their ability to foresee and avoid dangerous confrontations*" (Dicks et al., 1968).

Indeed, another study of monkeys (Brown and Schäfer, 1888) involved excising the temporal lobe of the brain (which contained the amygdala), and observing behavioral changes. Prior to the operation, one monkey was reported as being, "*very wild and even fierce, assaulting any person who teased or tried to handle him.*"

After the operation, researchers reported that, "*he voluntarily approaches all persons indifferently, allows himself to be handled, or even to be teased or slapped, without making any attempt at retaliation or endeavouring to escape....*" Another monkey in that experiment was shown to exhibit "*the same change of disposition... She is tame, and exhibits no fear of mankind, but shows uncontrollable passion on the approach of other Monkeys, so that it is now necessary to shut her up in a cage by herself.*"

Interestingly, amygdala damage is implicated in Klüver-Bucy syndrome (Trimble et al., 1997), a psychological disorder associated with docility (absence of aggression or fear), and a promiscuous hyper-sexuality which can also involve compulsively attempting to mate with inappropriate partners or objects (Trimble et al., 1997). Amygdala lesions are also associated with diminished investments in child rearing (Bucher et al.,

1968), a commonly recognized behavioral trait of the r-selected organism (Pianka, 1970).

This data would also suggest, that since amygdala development is related to Conservatism, younger individuals with less developed amygdalae would be predisposed to more r-type strategies such as Liberalism, at least until they matured. This would offer advantage, since the r-strategy of conflict avoidance is a wiser strategy for a less fit, less mature, less capable specimen to adopt in a competitive, aggressive species. This would indicate that ideological conversions, from Liberalism to Conservatism would be more common as individuals matured, than would ideological shifts from Conservatism to Liberalism. This might also explain John Jost's findings that fearful stimuli (which would excite the amygdala, thereby developing it) can trigger ideological conversions from Liberal to Conservative, but no corresponding stimuli would appear to trigger conversions from Conservatism to Liberalism. Once developed, it would require a stimuli capable of atrophying the amygdala to trigger such a shift from political right to left.

The amygdala offers a clear neuro-structural mechanism uniting the modulation of aggression/conflict, sexual behavior, and investments in child rearing – three facets of behavior associated with the r-selected organism. That it is also associated with political inclination offers further support for the theory of political ideology as an intellectual manifestation of either an r-selected or K-selected Darwinian strategy.

Future studies should examine whether diminished amygdala volume in the Liberal is a result of avoidance of competitive risk, or a more genetically/biologically imbued structural anomaly. Functional neuroimaging techniques also offer an excellent opportunity to examine whether this diminished amygdala development is mimicking lesion-mediated dysfunction of the structure. This would explain a possible neurological mechanism by which an individual living within a belligerent, competitive species could be rendered predisposed to approach threats absent any caution, so as to engage in negotiation.

Finally, although the ACC is perhaps too complex in its purposes to draw any conclusions from this study, it is worth noting that a strong correlation has been shown between activation of the ACC and the production of envy when viewing others with superior levels of self-relevant possessions (Takahashi et al., 2009). Increased envy of the success enjoyed by others in rule-governed competition could theoretically offer psychological motivation to break rules. Such a strategy would even the playing field with more adept and successful Competitors, who would enjoy increased adaptation and ability as K-selected specimens.

## Genetic Studies of Political Affiliation

Current research demonstrates that environmental conditioning towards Liberalism may be facilitated by possession of a specific allele of the gene for the D4 Dopamine receptor (DRD4) (Settle et al., 2010), which controls dopamine activity in the brain (Cloninger et al., 1993; Wiesbeck et al. 1995). Proper dopamine function is critical to proper functioning of the prefrontal cortex (Mattay et al., 1996), a structure which is responsible for both perceiving the nature of one's environment and organizing behavior in the pursuit of goals (Miller et al., 2002). The PFC is also capable of suppressing amygdala activation (Cacioppo, 2009; p873), likely in response to perceptions of positive circumstances activating the PFC (Henriques and Davidson, 1991), and indicating that goal attainment is likely. In this model, stimuli which indicate failure is likely would fail to stimulate the PFC with positive stimuli. As a result, the PFC would fail to suppress the amygdala, which would then activate, generating fear and aversive stimuli, dissuading one from continuing.

Mutations in the D4 receptor are also associated with anxiety, depression, and neuroticism (Tochigia et al., 2006), as well as derangements in libido (Ben Zion et al., 2006). Liberals have been shown to exhibit increased depression (Brooks, 2008, p32; Napier and Jost, 2008; Pew Research, 2006), as well as increased libido (Altemeyer, 1981; Jost, 2006; Jost et al., 2003; Treier and Hillygus, 2005).

Combined with the correlation between derangements in dopamine activity and depression (Tochigia et al., 2006), dopamine's role in incentive salience (the desire to pursue a reward) (Berridge, 2007; Berridge and Robinson, 1998), the necessity of its signal, at proper levels, for proper function of the PFC (Mattay et al., 1996), and the PFC's role in suppressing the amygdala (Cacioppo, 2009; p873), one can see how the DRD4 gene, that is associated with Liberal ideology, could affect brain development by altering competitive drive, while producing a more r-type mating strategy. It is a single gene which is capable of altering perceptions of optimism/pessimism, desire for a reward, the experience of fear, as well as sexual drive.

One can also see how variation within a single gene could serve as a simple means by which to encode within the genome a predisposition towards one of two Darwinian strategies. One strategy will pessimistically avoid the fear of a competition that they feel destined to lose, while mating desperately with any partner available. The other strategy will optimistically embrace the fear of a competition that they feel destined to win, while waiting patiently to find the most fit and capable mate possible.



One will depressively see defeat at hand, while the other will optimistically see victory within reach. One will desperately increase their sex drive, lest they be killed before mating, while the other will patiently wait, to find the best possible mate with whom to have children.

It is interesting that this “political” gene has been shown to be associated with sexual drive in humans (Ben Zion et al., 2006), just as issues of sexual social policy seem interlinked with issues of political ideology (Jost et al., 2003), and just as sexual behavior seems associated with the drive to embrace or reject intra-species competition in nature, through the adoption of an r-selected or K-selected psychology (Pianka, 1970). One researcher even discussed how an allele of this dopamine receptor gene would create an r-type mating strategy in humans by producing promiscuity and infidelity (Garcia et al., 2010).

In the study linking the DRD4 7r allele with Liberalism, it was shown that those with high numbers of the DRD4 7r allele, who self report having more friends during adolescence, will tend towards a Liberal political ideology. Other high number DRD4 7r carriers who report fewer friends will not tend towards a Liberal ideology (Settle et al., 2010). Settle maintains that this increased number of friendships during adolescence is likely an environmental factor which combines with the 7r allele to increase the likelihood of adherence to a Liberal political ideology as an adult.

There is, however, much evidence that high DRD4 7r carriage produces two different psychologies. There is further evidence that the developmental pathways yielding these two adult psychologies are triggered by early rearing experiences (Bakermans-Kranenburg et al., 2008; Bakermans-Kranenburg et al., 2011), and that the differing effects of these rearing experiences first manifest in early childhood (Bakermans-Kranenburg, van Ijzendoorn, 2006), well before the age at which Settle maintains friendships are forming ideology. Additionally, it has been found that early psychosocial stress, such as that which affects the developmental pathway of DRD4 7r carriers can produce r-type mating strategies, such as infidelity (Koehler and Chisholm, 2007).

If this is correct, the higher number of self reported adolescent friends among high 7r allele carriers who exhibit adherence to a Liberal political ideology, may not be an environmental factor triggering the development of Liberalism. Rather, it may be merely an early indication of a nascent Darwinian strategy triggered in early childhood, and designed to avoid confrontation and conflict, through befriending all whom they meet.

Given that Liberals are shown to have diminished amygdala volume (Kanai et al., 2011), and that those with amygdala lesions are less able to judge friend from enemy

(Adolphs et al., 1998; Adolphs et al., 2002; Broks et al., 1998; Winston et al., 2002), this openness to relationships might arise due to the Liberal's diminished tendency to judge friend from foe.

Clearly, Liberal approach behavior when confronted with threat would serve as an evolutionary mechanism designed to reduce overall mortality, through promotion of friendly approach and negotiation between such individuals over conflict. Interestingly, Settle's work may indicate that this developmental divergence is well on its way in adolescence, as some children become more oriented towards relationships with small numbers of friends (which could promote conflict and competition), while others become less confrontational, and more open to initiate relationships with everyone around them.

If political ideology is rooted in neurobiology, ideological development will be affected by conditioning effects. Genetic factors which facilitate these conditioning effects can thereby contribute to ideological development, in conjunction with the presence of appropriate conditioning stimuli. Here, DRD4 7r is the only gene found which may offer a predisposition to environmental conditioning of the Liberal ideology, and this information may offer a window into not just the genetic underpinnings of ideology, but also into how environmental stimuli may condition such development as well..

Current research into social behaviors and cognition in humans show them to be a product of multiple genetic influences (Mackay, 2001; Plomin et al., 2008, p 39), and clearly this should apply to the adoption of a political ideology as well, making genetic links tenuous. Additionally, adoption of, and adherence to political ideologies, have long been believed to be affected by experience (Mannheim, 1936). However the evidence does indicate that DRD4 allelic variation plays some role in the expression of political ideology in humans, and clearly it offers several possible biological avenues by which to exert such an effect.

This evidence further demonstrates the potential of this theory to unite the political and governmental aspects of political ideology with the sexual and social aspects, all within a theory which explains not only how these issues are linked, but why evolution has chosen to link them.

## Toxoplasma gondii

Toxoplasma gondii infection is associated with a range of behavioral drives in both rat and human infections (Webster, 2007). It is probably best known for its ability to make one of its natural hosts, the rat, approach predators, such as cats, as if they pose no threat. In doing so, the parasite coerces the rat to carry it to its

second host, the cat, who in turn will spread the parasite in feces which will infect other rats, continuing the host-vector cycle (Berdoy et al., 2000).

On infecting humans, *T. gondii* does produce many diverse psychological traits (Webster 2001), and many of these psychological indices are able to be viewed as averse to free competition, and the rules which would enhance such a competition's efficacy.

*T. gondii* infection has been shown to be associated in men with tendencies to envy success and break rules (Flegr 2007), while infected women exhibit greater levels of promiscuity (Alvarado-Esquivel et al., 2006). Additionally, population-wide studies find that populations with increased levels of *T. gondii* infections also tend to exhibit increased levels of personal guilt-proneness (tend to be more apprehensive, self-doubting, worried, guilt-prone, insecure, and self-blaming), as well as exhibit increased tendencies towards uncertainty avoidance, producing what one researcher termed a desire for a “*rule oriented society geared to reduce uncertainty*” (Lafferty, 2006). (Uncertainty avoidance is a confusing term, as related to political ideology, even as described by Hofstede and McCrae (2004). Under their definition, it encompasses both the desire for increased governmental laws designed to limit unstructured interactions among individuals, such as Liberalism desires (Treier and Hillygus, 2005), as well as intolerance for novel ideas, such as exhibited by Conservatism (Jost, 2006). What is described in *T. gondii* is a desire to restrict individual interactions through rules, so as to eliminate uncertainty in interpersonal outcomes. This paper maintains that this is a trait common to Liberalism, and is borne of an r-type Anticompetitive urge to suppress the process of competition between individuals, to avoid the adversity of defeat.)

Here in *T. gondii*, we do see many behavioral traits which would appear to correlate with both Liberalism and the r-selected organism. The tendency towards promiscuity and away from monogamy has been well documented as a delineation between political ideologies (Haidt and Hersh, 2001), as well as a trait of the r-selected organism (Pianka, 1970).

Envy of established success implies a desire to change an outcome at the conclusion of a competition which was lost. As we have discussed, Liberals show increased volume of their ACC (Kanai et al., 2011), a structure strongly associated with the production of envy (Takahashi et al., 2009). Envy can function as a powerful motivator to upset established competitive outcomes, in violation of the rules governing such outcomes. Those who can lose, and possess no envy, would be much better suited to accepting established outcomes of competitions, in accordance with their rules.

The willingness to violate rules is a fundamental

personality trait of the modern Liberal, as reported by John T. Jost (2003).

Finally, those infected with *T. gondii* seek the imposition of rules upon others, designed to eliminate personal risk, such as those risks which free competition will produce. Whether one is talking about the political left's aversion to free market Capitalism, or the r-selected organism's aversion to the risks inherent to the K-type environment, this desire for a secure guarantee against failure is a hallmark of the Anticompetitive psychology.

Since the mechanism by which *T. gondii* alters human personality has been roughly characterized, a brief study of it may shed further light on the underlying neurobiological mechanisms behind the adoption of either the Competitive or Anticompetitive psychologies.

Current research indicates that *T. gondii*'s mode of action is to alter dopamine signaling (Stibbs, 1985), while concentrating its infective cysts in the amygdala (Melzer et al., 2010) and, to a lesser degree, the cortex (Vyas et al. 2007).

The prefrontal cortex (PFC), and particularly the left prefrontal cortex, is involved in engendering a state of optimism, by perceiving good in the environment around it (Henriques and Davidson, 1991). Studies of depression have found that one coincident occurrence during depression is a power failure in the left PFC (Martinot et al, 1990).

*T. gondii* does produce a depressed mood (Henriquez et al., 2009; Lafferty, 2006; Kar and Misra, 2004), less able to perceive good or engender optimism. Such a mood would diminish one's willingness to face a challenge such as competition, and embrace the uncertainty in outcome it offers. Clearly, an optimistic individual, prone to see success, will engage in competition far more often than a pessimist prone to only see potential failure.

Also, *T. gondii* affects the activity of the neurotransmitter dopamine (Stibbs, 1985), which is responsible for the healthy functioning of the prefrontal cortex (Mattay et al., 1996), as well as incentive salience, or “want” for a reward (Berridge, 2007; Berridge and Robinson, 1998).

There is evidence that depression and depressed mood occurs at a higher rate among Liberals compared to Conservatives (Brooks, 2008: p32; Napier and Jost, 2008; Pew Research, 2006). Also, mutations in the DRD4 dopamine receptor gene are associated with both political Liberalism (Settle et al., 2010) and depression (Tochigita et al., 2006).

Initiation of an unmotivated, depressed mood would be an excellent means by which to reduce an individual's willingness to embrace competitive risk and diminish their desire for victory. As victory appears less likely due to their pessimism, they will be hesitant to

expend resources. Combined, this will forestall the drive to competition.

Rodents are designed to fear the cat, however as their amygdala function is altered by the infectious cysts of *T. gondii* (Melzer et al., 2010), they cease to perceive the threat presented by the cat, and will approach it willingly (Berdoy et al., 2000). This further supports the contention that the Liberal's desire for negotiation and appeasement over conflict is related to anomalies in amygdala function which alter threat perception.

This proposition is supported by research showing that humans with amygdala lesions will show diminished ability to judge the trustworthiness of individuals, and will tend to judge those who mean them harm as approachable (Adolphs et al., 1998; Adolphs et al., 2002; Broks et al., 1998; Winston et al., 2002). It is further supported by the evidence that Liberals exhibit diminished amygdala volume (Kanai et al., 2011).

In closing, both the Liberal, and the individual infected with *T. gondii* exhibit increased levels of depression, altered dopamine signaling activity, a willingness to approach and trust threats, a desire to live in a strict rule-governed society to perform competitive risk avoidance, an envy which might offer the justification to not abide by rules of competition, and a tendency towards promiscuity.

This paper is not making the case that *T. gondii* causes Liberalism. We are merely asserting that an infection which alters dopamine signaling and amygdala function, may also induce some behavioral characteristics of Liberalism. For this reason, we hope this case study might help elucidate the mechanism by which evolution created the ideological divide within our species.

## Depression, Infection, and Anticompetitiveness

As we have noted, ideological Liberals do appear to exhibit increased rates of depressed mood compared to Conservatives (Brooks, 2008, p32; Napier and Jost, 2008; Pew Research, 2006). This paper maintains that mood depression may be an evolutionary adaptation designed to provoke an Anticompetitive psychology. This is done so as to diminish incentive salience in individuals who are likely to fail in competition with peers.

The possible relation of a depressed mood to the Anticompetitive psychology merits a quick examination of some other research relating to depression, in the context of this theory.

To be clear, it is not the position of this paper that Clinical Depression is synonymous with an r-type Anticompetitive political ideology. It is clearly not. Although it is possible that Clinical Depression is some type of dysregulated form of the mild depression which we maintain produces r-type Anticompetitiveness, that is

far beyond the scope of this paper, and we are not even asserting such here. Rather, we are merely positing that the Anticompetitor likely possesses a depressed mood, and that this depressed mood may be an evolutionary adaptation designed to forestall any drive towards engaging in free competition with peers. Here we merely wish to discuss current thinking on the origins of depression, in the context of the theory we present.

Before beginning, all of these theories on the role of depression should not only be viewed as evolved mechanisms. They should also be viewed in the context of conditioned behavioral patterns imbued within the childhood environment. As an example, a child who repeatedly experiences defeat will be conditioned by the negative emotions of failure to not strive as an adult. We will expand more upon why this context is necessary for a fuller understanding of ideological predispositions, later in this paper.

Some Evolutionary Psychologists posit that depression may be an evolved response designed to solve problems that were frequently encountered in our ancestral environment (Beck, 1999; Nesse, 2000).

One current theory is the Behavioral Shutdown Model (Henriques, 2000), which posits that depression is produced as a means of purposely preventing an individual from going forward into a situation which would produce Darwinian failure. Under this model, behavioral shutdown is triggered if an individual will not get a positive Darwinian return on energy expended in pursuit of a specific course of action (Beck, 1999).

Here, were one of our ancient ancestors to have experienced developmental cues as a child indicating that they would be uncompetitive with peers (such as humiliating failures), as an adult, they would have exhibited a Pavlovian predisposition towards a depressed mood when confronted with free competition. This mechanism would have allowed a child to determine their likelihood of exhibiting competitive ability during the safety of childhood play. As an adult, when the consequences for failure in a K-selective environment would have been much more severe, this imbued mood would have served as a means of curtailing any drive towards engaging in competition with peers, and suffering a more potent, Darwinian defeat.

Obviously, this mechanism would operate within parameters set by genetic predisposition, itself a result of ancestral experiences of testing competitive drive against genetically transmitted physical ability.

Some cognitive researchers liken the depressed to investors who lack resources, and thus pursue a risk averse investment strategy (Leahy, 1997). Here researchers liken personal interaction with the world in the context of an economic competition. This theory may speak to one's approach to life within a K-type species

existing as an approach to Darwinian competition, making such metaphors particularly apropos. In this case, the Anticompetitor lacks the resources to compete, and thus adopts a risk averse strategy of avoiding defeat by avoiding competition.

Rank theory posits that depression may be an evolved means by which those of lower rank are psychologically guided to avoid striving for dominance with powerful superiors in their social hierarchy. Under this theory, when powerful superiors are likely to defeat an individual, that individual will adopt a strategy of diminished striving, through the adoption of a depressive psychology. (Gilbert, 1992, p. 244; Price, 1967; Price et al., 1994, Sloman et al., 1994). Here, an uncompetitive individual will exhibit an aversion towards competition, as a Darwinian survival strategy.

Chronic inflammation is associated with a depressed mood (Maes et al., 2011), as is diminished social functioning (Reinherz, et al., 1999), as well as diminished socio-economic position (Yu and Williams, 1999, p154). In all three cases, individuals exhibit diminished competitive ability, either due to diminished physical vitality, diminished ability to gain high social standing, or diminished earning potential. It is not impossible that humans, presented with such conditions, would have evolved a psychological drive to pursue a risk averse, r-type, Anticompetitive strategy. When confronted with the prospect of direct competition with peers who are more capable and successful in competition, competition will not prove advantageous. A mildly depressive state might be a means by which to engender this r-type psychology, and lead an individual to pursue a Darwinian Strategy of Anticompetitiveness.

Interestingly, neuroimaging studies of patients with depression have shown atypical function in both the prefrontal cortex, as well as the amygdala-hippocampal complex (Drevets, 1998; Soares and Mann, 1997), both of which this theory predicts would play a role in adoption of an r-type Anticompetitive psychology through the imposition of fear, anxiety, and a failure to perceive environmental conditions positively.

Finally, although depression is often seen as a result of environmental perceptions or disease pathology, it has been established that genetic predisposition plays a significant role in its etiology (Kendler et al., 1994). One of the gene mutations which is associated with increased depression is allelic variation in the DRD4 dopamine receptor gene (Tochigia et al., 2006), which is also associated with a Liberal political ideology (Settle et al., 2010), as well as sexual promiscuity (Ben Zion et al., 2006) and infidelity (Garcia et al., 2010).

Together, this evidence is consistent with the theory of political Liberalism as an evolved Anticompetitive Darwinian psychology, mediated by a

depressive mood, and designed to produce an aversion to the risk associated with competitive tests of fitness.

That studies of the genetics of politics, as well as neuroimaging of brain structures of Liberals and Conservatives are also consistent with this theory would lend it further credence. If this theory of a depressive mood as a mediating factor in Anticompetitiveness is accepted, it would stand to reason that there would exist a complementary psychology prone to optimistically strive, without conferring salience upon potential risk or failure. Clearly, this would correlate with the Conservative's drive to engage in free competition with peers, absent concern for competitive risk or the consequences of failure.

## Other Studies in the Social Sciences

Researchers in the Social sciences have long identified two distinct psychological tendencies among humans, and even identified them as “evolutionary mechanisms.” In their seminal 1991 paper on the subject, Belsky, Steinburg, and Draper (1991) proposed that two distinct psychologies existed in humans. Each of these psychologies was the result of an individual's psychology adapting to perceived environmental circumstances in childhood, and it was proposed that the mechanism which molded each psychology had an evolutionary origin.

One psychology, during the earliest years of an individual's life, would detect cues within their environment which would indicate that survival was going to prove difficult, and their life would likely prove short and harsh. These individuals would adopt a psychology geared towards opportunistic advantage taking, rule breaking, promiscuity, depersonalization of mates, and they would also enter puberty earlier. It was proposed that the adoption of this psychological and biochemical path was an attempt to simply mate and reproduce as quickly as possible, with as little investment in child rearing as possible (Dunbar and Barret, 2007, p. 242-243).

The second psychology Belsky et al. identified would detect cues indicating that the individual's environment was more hospitable. Individuals would then adopt a psychology geared towards an adherence to social rules, diminished personal selfishness, monogamy, formation of stronger, more loyal pair bonds between mates (itself an exhibition of competitive intent), and they would actually delay the onset of puberty, possibly in an effort to optimally increase maturity and ability prior to competing for a mate (Dunbar and Barret, 2007, p. 242-243).

Interestingly, these two psychologies are similar to the breeding strategies populations adopt when either r-selected or K-selected (MacArthur and Wilson, 1967; Pianka, 1970).

Indeed, our species likely exists with both r and K-selected psychologies present within it, waiting for an environmental selective pressure to determine the nature of our species. If so, it may prove fruitful to examine our political psychologies with an eye to the fact that they likely exist where higher intellectual function and the purposeful organization of social structures meets the more primitive r-and K-selected psychological drives.

Clearly these two developmental psychologies which Belsky, Steinburg, and Draper identified do appear to be a variant of this phenomenon.

One strategy could be viewed in the context of a less desperate, but competitive psychology, designed to abide by the Competitor's rules regardless of outcomes, choose a mate carefully, and then raise competitive children in a two parent environment. This psychology emerges when rampant mortality, such as that produced by predation or overwhelming defeat in war is not present. In this environment, parents exist within a K-type pair-bond, apparently following a more K-type reproductive strategy. These cues are taken by developing children to indicate that the K-strategy is effective in their environment. As a result, their neurological and psychological growth adopt a more K-type developmental path.

The other strategy exhibits a more desperate, r-type, Anticompetitive psychology, designed to eschew rule based competition, opportunistically seize any advantage which presents itself, mate as early and as often as possible, and devote as little effort as possible into child rearing. It emerges when parents experience conditions of mortality similar to predation, or simply follow a more r-type, single parenting rearing strategy themselves. Under these conditions, parents transmit the stress they experience to their children. The children then alter their psychological development so that as adults, they follow a reproductive strategy similar to that which their parents followed. That this psychological shift could be engendered within humans in just a single generation is particularly interesting.

Researcher Carol Dweck, of Stanford has identified two psychologies within children, which govern how they approach challenges (Dweck, 1999; Dweck, 2006). One psychology exhibits optimism, views defeat as a natural part of the process of self-improvement, and holds a perception that they can develop their abilities to whatever level they desire. Viewed within our evolutionary paradigm, this psychology is willing to risk defeat in a challenge such as free competition. It will not allow a potential defeat to deter their pursuit of future success in competition. These individuals possess an imbued perception that their abilities will grow even after defeat, and that their failures will ultimately increase their abilities, leading to future success.

The other psychology identified by Dweck is the exact opposite. Individuals who possess it do not have confidence in their own capability to develop abilities through hard work, over time, and are strongly averse to failure. Viewed in an evolutionary paradigm, this psychology will avoid challenges which would either require investments of effort or risk defeat. Instead, they will opt to quickly seize opportunities for easy, certain success, whenever such opportunities might present themselves.

Obviously, here again are two psychologies. One welcomes challenge, accepts competitive risk, and tolerates personal defeat, while the other views their abilities as limited, is risk averse, and is strongly averse to failure. Note, those afflicted with depression also exhibit hypersensitivity to any sense of failure or loss (Beck, 1967 p.187; Clark et al., 1999, p. 49), as does the less challenge embracing psychology identified by Dweck.

Taken with the totality of evidence, we do begin to see a model of two psychologies within the human race, manifesting as deeply affecting psychological urges. They are borne of some mix of genetic tendencies and environmental modeling of an individual's psychology during early developmental periods, and they begin to present in childhood. Custom-tailored to the individual's familial history of experience, as recorded within their genetic code, and further molded through developmental responses to environmental stimuli, this model of development imbues each individual with a psychological Darwinian strategy that is custom tailored to the individual, their abilities, and their environment. That these strategies are so closely allied with the well documented reproductive strategies of r/K Theory indicates that the r/K psychological divide, which is undoubtedly present within our species, has had a much greater effect upon our history, and the molding of our civilizations, than we would ever have thought.

## The Theory of the Dopaminergic Mind

One theory describing how modern man suddenly found himself out-evolving competing species is proffered by cognitive Neuroscientist Dr. Fred Previc, in his work "*The Dopaminergic Mind in Human Evolution and History*" (2009).

Dr. Previc's theory is that due to changes in diet which occurred about 2 million years ago, such as the increased consumption of meat, our ancestors began to exhibit increased levels of dopamine. This produced a myriad of advanced cognitive traits common to modern man, including an increased level of competitiveness. This dopamine-mediated change in psychology, is what Dr. Previc maintains altered the course of human evolution.

Dr Previc cites an excess of dopamine activity that can occur in individuals today as a hallmark of societal trouble, through its engendering increased competitiveness, goal orientation, conquest, and aggression within such societies.

Evidence in support of the theory is mixed (Raghanti et al., 2008; Rapoport 1990). However, it should be noted that allelic variations in genes for dopamine receptors, which alter signal transduction, as well as gene mediated differences in the activity of second messenger systems, could produce alterations in what might be construed as dopaminergic activity, absent any changes in actual dopamine concentrations.

Here again, we see dopamine, competitiveness, aggression, and human societal development all allied together.

## Personality Traits of Political Ideologies

John T. Jost of NYU has performed extensive research on the personality traits of Liberals and Conservatives (Jost, 2006, Jost et al., 2003). His work has shown that Conservatives tend to be less tolerant towards out-groups, as well as more prone to seek stability, order, familiarity, conformity, and decisiveness. His work has also shown that Conservatives are more prone to be motivated by fearful and threatening stimuli, more prone to abide by rules, and more loyal to their in-group. These are all traits one would expect, were Conservatives designed to engage in group competitions such as warfare, and seek the success of their group, while also engaging in individual, rule-governed competitions with in-group peers, designed to select for fitness, and reward it with reproductive opportunities. Traits one would expect of an ideology possessed of heightened amygdala function would include being motivated by fearful and threatening stimuli (Öhman, 2009), being more prone to abide by rules (Buchanan et al, 2009), and more loyal to in-group (Adolphs et al., 1998; Adolphs et al., 2002; Broks et al., 1998; Winston et al., 2002).

In Jost's research, Liberals tended to be less motivated by fearful or threatening stimuli, less prone to abide by rules, they exhibited more tolerance for ambiguity, and exhibited more tolerance towards out-groups. Again, all traits one would expect of an individual whose amygdala contributed less to their cognitive processing and discernment. They also sought conditions with less stability, less order, less familiar circumstances, less conformity, and they exhibited less loyalty toward their in-group (Jost et al., 2003; Jost 2006).

These are traits which would tend to produce an individual less prone to perceive and respond to competitive challenges such as threat, both individually, and at the group level. At the group level, they would be

less prone to recognize and respond violently to threats, more tolerant of changes in governing circumstances, such as the sudden seizure of governing authority by a conquering force of outsiders, and they would be more capable of breaking from the rules and mores of warfare, to sympathize with the plight of an enemy who would produce a change in a country's leadership.

Notice, the K-type group Competitor's goal is simple. The violent acquisition of resources, by force, from others, through an aggressive group assault. To aid the accomplishment of this, they seek that all individuals should adhere to certain behaviors, such as loyalty to in-group, blind support of in-group goals, acceptance of authority, decisiveness in action, and a rejection of out-group interests. Where the K-type psychology succeeds, the K-type allele(s) thrives within the species.

The r-type individual's strategy in group competition would appear to be the direct opposite of the K-type individual's, which is as would be expected, given these two psychologies are in Darwinian competition with each other. When K-types are successful in their endeavors and satiate their urges, the reproductive advantage of the r-type allele(s) wanes. By contrast when r-types are successful in thwarting K-types, their advantage grows, and they thrive as a trait, and an allele(s).

As a result, where the K-type individual will ignore out-group interests, the r-type will elevate their importance to thwart the K-type. Where the K-type individual will solely look out for his in-group, the r-type will tend to reject the importance of the interests of their in-group, again, in an effort to thwart the K-type on their path to group success. Where the K-type psychology seeks an environment where all individuals render themselves subservient to authority in matters of group competition, the r-type individual will instinctually reject their leadership's dominion over them, and even its moral propriety. Where the K-type will seek the comfort and order which would result from success in group competition for resources, the r-type is programmed to find comfort in disorder and chaos, such as would result following defeat – a condition where all of a society's K-type individuals will tend to have been killed in battle, removing their K-type alleles from the population. Note, this removal would have been accomplished by an opposing group of K-type Competitors, allowing the r-type to defeat and depopulate their own population's K-types without ever having competed against them.

It is very similar to the transvestite cuttlefish's adaptation to use deception and guile, so as to see K-type Competitor's occupied battling, while they enjoy reproductive success, without ever competing or demonstrating fitness.

It is noteworthy that many of the personality traits

noted by Jost would seem to be more related to issues of group competition than individual competition, indicating that perhaps group conflict has molded our political psyches more than individual conflict.

This would not be surprising, given that under the tenets of this work, individual competition would be more rule-governed, limited in tenor, and not as prone to result in mortality. Its purpose would be more to produce assortive mating effects, rather than cull the population. It would not be advantageous in a warring species to depopulate one's own tribe, through frequent lethal individual competitions.

Given the lethality of warfare, the r-type Liberal's freedom from rules would be a potent Darwinian advantage during a time when all other citizens find themselves reflexively conforming to competitive behavioral patterns which lead them to risk death and Darwinian failure. It would not be surprising to see such a strategy arise within a belligerent species, given the advantages it would offer.

Jost's findings that political ideology is related to fear and threat perception, is also consistent with the premise that amygdala stimulation is strongly associated with political ideology (Rule et al., 2010).

Part of this finding was the fact that presentation of fearful, mortal salience stimuli to adults had the ability to shift their ideological predisposition towards Conservatism (Jost, 2006). This ideological shift did not just render them more Conservative on the issue of threat presented to them. Rather, they espoused more Conservative ideology on other issues unrelated to the threat presented.

No contrary stimuli was noted, which would precipitate a shift from Conservatism towards Liberalism. This raises the question of whether reception and acknowledgment of threat stimuli by Conservatives may yield increased amygdala functionality through stimulation induced development of the structure. It also raises the question of whether such development will, with increasingly repetitive stimuli, exhibit an increase in permanence that is not easily reversed.

This is consistent with research into amygdala function. Once the amygdala is sensitized to a stimulus, deconditioning will not erase the sensitization pathway, but rather will simply suppress it (Buchanan 2009, p. 205). As a result, deconditioning of the amygdala to a stimulus will leave the sensitization pathway intact, thus allowing for easy reactivation of the conditioned response. As a result, amygdala development is engendered with far more ease than atrophy.

This might speak to Conservatism being a form of natural maturation precipitated by the K-selected environment, which once acquired, is not easily lost.

Finally, on the subject of formulating personality

tests based upon this theory, one must understand that both the Competitor and Anticompetitor are competitive, in the sense that they both seek to compete and win.

The difference is that the Competitor seeks to win in rule-governed competitions that are designed to select for fitness. In seeking a rule-governed competition, the Competitor is driven to accept defeat, if they exhibit diminished fitness, and that is what the rules dictate.

By contrast, the Anticompetitor is driven to succeed, regardless of rules, or any determination of their own personal fitness. That does not imply an absence of Competitive drive. In fact, their willingness to reject rules, and their unwillingness to accept defeat, even when the rules demand it, could be couched as more Competitive than the Competitor's psychology.

Thus both psychologies will prove competitive. The main differences in personality will be the Competitor's desire to abide by rules that are designed to enhance the ability of their competition to select for fitness, and the Competitor's tolerance for ability-based disparities in Darwinian outcomes.

These rules and the disparities that they produce may prove deleterious to the Competitor's personal advantage, should they prove less fit than another Competitor. However these traits will increase the evolutionary advancement of the carriers of the K-type allele, as well as the species as a whole, and thus, the Competitor is programmed to accept them.

Thus rules such as blind loyalty to group, resources apportioned based upon ability and accomplishment, tolerance of the less capable enduring hardships due to incapability, and an aversion to reapportioning resources, regardless of disparities in outcomes, can all be used to distribute populations onto the spectrum of these two psychologies.

The one delineation of tremendous importance will be the Competitor's comfort with K-type Darwinian themes applied to social structures. Competitors will be innately more comfortable in a K-type environment in which Competitive tests of fitness are performed, and yield grossly disparate rewards based upon Competitive success. Conversely, r-type Anticompetitors will be innately uncomfortable with the concept of a societal system which confers rewards based upon Darwinian competitions designed to test fitness, since they are not designed for such a K-selected environment.

## The Counterculture Movement of the 1960's

There is ample evidence of some means of transmissibility, from parent to child, of political ideologies. Many studies show that a familial tendency towards a political ideology exists (Bouchard and McGue 2003; Cloninger et al., 1993; Eaves and Eysenck, 1974).

In a study on twins, it was shown that both direction of political leaning and strength of adherence to ideology would appear to have a genetic root (Alford et al., 2005). Other studies also indicate a familial tendency towards a particular social attitude, or strength of adherence to that attitude, are heritable (Hatemi et al. 2007; Hatemi et al. 2009; Settle, et al., 2009).

If there is a transmissible component of political psychologies, then historical events which favored the survival and/or reproduction of Competitors or Anticompetitors could be expected to skew the proportions of K-type Competitors vs r-type Anticompetitors conceived within that period, just as populations can be either r or K-selected. This would then be expected to alter the general psychology of the affected generation, relative to its culture's baseline standards and mores. Under this theory, this effect would also alter the political ideologies of these generations and their societies.

This scenario would offer competitive advantage to groups, as it would allow a rapid psychological adaptation to changing historical and evolutionary circumstances. For example, such a mechanism would benefit the persistence of a group under conditions of defeat in group competitions such as war. Should all of a society's Competitors be killed in battle, it likely would be advantageous to a population's genetic persistence if that population's overall psychology adapted, changing from a more belligerent, competitive psychology, to a less threatening, more pacifistic one that is tolerant of being governed by outsiders.

In other words, were a population to lose a war, it would be in the interest of that group to immediately adopt a mentality and behavioral drive willing, or even desirous of ceding to the wishes of the conquering force.

Under the tenets of this theory, should a form of r-selection or K-selection ever be applied to a population of humans, their political ideologies should change radically.

Indeed, when America deployed as many service age K-type Competitors as possible during WWII, the sudden depletion of physically capable K-type Competitor males which ensued could be construed as similar to the conditions that would occur under r-selection of a population, such as tremendously increased predation. Due to the selective removal of K-type alleles, this effect would, in fact, be magnified beyond the simple r-selection effects one would find in nature.

Those who stayed behind during the war, and contributed to the gene pool of the generation born in the early to mid 1940's, produced a generation whose psychology was so inclined against the traditional K-type American culture that 20 years later, they were referred to as being the "counter-culture" revolution (Levitt and Rubenstein, 1974; Roszak, 1968).

The counter-culture revolution did exhibit many thematic influences similar to that which we maintain would accompany an Anticompetitive, r-selected psychology. They sought a competition-free, commune like social structure (Levitt and Rubenstein, 1974). They denigrated capitalism and economic ambition (Lattin, 2003; p186), through embrace of anti-materialism (Douglas, 1970, p. 131). They adopted a radical form of sexual promiscuity denigrating of monogamy, and demanding that women provide "free love," absent any careful fitness-based selection of potential mates (Lattin, 2003; p186). Finally, in an extreme form of out-group tolerance, they allied with a foreign enemy, and protested on this enemy's behalf at the very moment the United States was at war with this enemy (Hagopian, 2009, p.66). There even existed an animus between physically aggressive males who embraced Darwinian Competition, such as military members and police officers, and members of this "counter-culture" Anticompetitive generation (Hagopian, 2009, p.66; Sale, 1973, p. 648-653).

The counter-culture movement began in the early 60's, roughly 20 years after the US entry into WWII, and ended just about 20 years after the peak birthrate of the post-war baby boom, when returning US Military serviceman reproduction was at its peak (Bugliosi and Gentry, 1995; US Census Bureau, 2002; Centers for Disease Control, 2004). Thus, the US experienced three sociopolitical periods, consisting of normative K-type social behavior among the youth pre-60's, a period of fiercely r-type behavior during the 60's, and a final period of a return to normative K-type values and mores which began at the end of the sixties. Given that each of these periods occurred roughly twenty years following periods of peace, during which K-type reproduction was normal, and war, which reduced the K-type reproductive activity, it is difficult to deny that the Counterculture revolution was a direct outgrowth of the removal of K-type patriots who left for foreign shores to defend their nation, and in so doing, were removed from the mating pool.

Jost (2006) said that one delineation between political ideologies is "*loyalty vs. rebellion.*" In the counter culture model of Anticompetitiveness emerges a picture of a psychology prone to cultivate positive relations with an enemy force, while being driven by innate perceptions and urges designed to bring defeat to their own indigenous population. These urges are complemented by a desire to implement a strict Anticompetitive economic and social structure upon the populace, where even female mate choice was to be rendered uncompetitive. It is the position of this paper that all of these urges are examples of how the Anticompetitor will seek to use rebellion against their peers, as a Darwinian strategy.



In ancient times, wars were fought in close geographic proximity. To bring about defeat of one's society, while having acquired the favor of the conquering enemy, would have been a very effective Darwinian strategy for a less capable specimen seeking to defeat more capable, indigenous Competitors within their own population. If the enemy chose to lay waste to one's society, they might spare such a cooperative r-type Anticompetitor, while eliminating the Anticompetitor's Darwinian nemesis, the indigenous K-type Competitor. And were there an occupation, such an Anticompetitor could have been promoted to a position of authority by the enemy's leadership, overseeing some aspect of their occupier's new domain, in return for their "reasonable" understanding of their enemy's position.

This paper maintains that an Anticompetitor is likely to be an individual who has received cues in childhood indicating that as an adult, they will prove uncompetitive with Competitor peers. If an Anticompetitor was such an individual, then being driven by subconscious perceptions and urges, into using a force of foreign Competitors as a proxy, to subdue or eliminate local Competitors, would be an astonishingly brilliant Darwinian strategy. As with the transvestite cuttlefish, the r-type Anticompetitor could defeat their K-type Competitor nemesis, in violent competitions, without ever competing, or risking Darwinian defeat themselves. In addition, an occupation would facilitate the imposition of an oppressive, r-type Anticompetitive societal environment, where men were not free to compete with each other, lest they outshine their new occupiers.

In the Vietnam/counterculture example, had America been defeated and occupied by NVA/Vietcong forces, the counter-culture revolutionary would have been astonishingly well positioned to seize competitive advantage from their fellow indigenous Competitors, a group for whom they exhibited open animus. While Competitors resigned themselves to the oppression of outsiders, the Anticompetitor would have thrived upon the favor they carried with the new occupying force.

It is this clash of Darwinian strategies that Jost (2006) identified as a battle between "*loyalty and rebellion*," and it is the purpose which the Liberal's increased levels of tolerance for out-group interests (Jost et al., 2003) almost certainly serves. By performing rebellion against one's own population's K-selected majority, in times of war, the r-type allele(s) enhances its own chances of reproductive success relative to the K-type allele(s).

No member of the counter-culture would have believed that their innate perceptions and behavior would facilitate a seizure of competitive advantage in this fashion, however. And indeed, in the newly formed world of globalized warfare, this Anticompetitive urge proved

maladapted to the change in circumstances. However, such individuals, in our distant evolutionary past, where wars were fought in close geographic proximity, certainly would have been well served to pursue such a Darwinian strategy under such conditions. This hypothesis does correlate fully with Jost's work on the personality traits of political ideologies.

The theory contained within this paper is the only theory extant which would explain why a movement, so opposed to traditional American culture that it would be termed "counter-culture," would suddenly erupt within our nation, dominate the political debate within its generation for a short period, and then disappear into the ether, just as the children of WWII veterans came to dominate the young-adult scene.

This theory is also the only theory available which explains a mechanism that would predict all aspects of the counter-culture's political and social platforms. This theory predicts their sympathy with the causes of out-groups during group conflict, their favoritism for less competition driven economic models, and their adoption of a mating strategy entailing sexual promiscuity combined with single parenting and an aversion towards monogamy and two parent child-rearing. This is also the only theory extant which explains how each Anticompetitive aspect of their behavior would have conferred survival advantage upon them under similar conditions, in our evolutionary past. This theory shows where similar psychologies can be found in other species, and highlights that they would be produced under similar environmental conditions.

Finally, peer pressure influences likely played a considerable role in the evolution of the counter-culture movement. This will make it difficult to analyze each case individually. However, it is still notable that enough of a shift in the overall psychology of a generation occurred to produce this dramatic, yet temporary, shift in culture and political ideology. That this temporary shift in psychology so closely aligned with such a momentous occurrence as the temporary deployment of American military might during WWII, and that it proved reversible with the return of our military members at the end of the war, lends further support to this thesis of political ideology as Darwinian strategy.

## Group Competition as a Selection Pressure

One of the main arguments that will be made against this theory will be based upon confusion over our assertions of group Competition, and its effects upon evolution. This rebuke will be based upon the assumption that Competitors altruistically shoulder Darwinian risk, both in abiding by rules in competition, and by accepting the competitive disadvantage of defeat.

This ignores several aspects of the scheme we present.

First, K-type competitiveness, as a trait, drives all of those who hold the trait to compete honestly, in competitions designed to reward the fittest. This will lead some individuals to altruistically sacrifice personal competitive advantage through acceptance of defeat and rule adherence. However it will also drive those who hold the Competitive trait to engage in assortive mating (of the fittest to the fittest), as well as preferentially reapportion resources to those of the highest fitness.

Under conditions of free resource availability and r-selection, the rigors of this competitive scheme would indeed be a competitive disadvantage, however this strategy is not an adaptation to such conditions. Under conditions of K-selection, where high levels of fitness relative to peers is rewarded, this strategy will produce a situation where those who exhibit the highest levels of fitness are those who hold the Competitive trait. This is highly beneficial to the competitive success of the Competitive trait under conditions of K-selection and competition for resources.

For this reason, the Competitive trait should be viewed as a master trait, which drives its entire cohort of carriers to all engage in behaviors designed to foster the trait's success, if not each individual's.

Here, those who hold the trait, are driven to engage in behaviors which are designed to mold the rest of the genome which will carry the Competitive trait forward. Whether these behaviors are beneficial to the survivability or persistence of the rest of the genes (or of specific individuals) will become immaterial. What will matter is the Competitive trait's ability to create highly fit carriers, capable of out-competing non-carriers during periods of resource shortage. As a result, what will persist during periods of resource scarcity and fierce competition is the trait of Competitiveness, and the high levels of genetic fitness of those who carry it.

Thus, those who see an individual compete, and accept defeat in a rule governed competition, will see altruism on the part of this individual. However, those who observe an entire population of such individuals (all exhibiting the K-type, Competitive trait) will see a trait which has molded its carriers to willingly, preferentially provide resources to its fittest carriers, all within an environment which favors that trait which accumulates fitness enhancing adaptations.

The trait of individual Competitiveness is not acting selfishly or altruistically, in any sense. It sacrifices individuals and leads its carriers to endure the risk of defeat for the selfish purpose of accumulating fitness enhancing adaptations to aid it within the K-selected environment of limited resources, where evolutionary advancement is favored over raw reproductive ability.

It is also worth noting that individual Competitiveness likely enjoys an additional advantage due to the mechanism of sexual selection, and the role which female mate choice plays in the male's acquisition of competitive advantage. Indeed, the process of female mate selection likely played a considerable role in the evolution of this Competitive trait.

Females produce very limited numbers of offspring. They produce as many as 400 eggs in their life (Wilson 1978, p. 124). However the most fertile woman in history is believed to have given birth to only 69 children, 67 of whom survived infancy (Guinness, 1999). That is likely near the maximum possible, and indeed, the vast majority of females, particularly in a state of nature, would be expected to produce far less offspring. Each child born requires 9 months of gestation, and several years of rearing before it is capable of fending for itself, even in the most rudimentary sense.

By comparison, the most fertile man is said to have fathered 888 children (Guinness, 1999), and fathering many more is theoretically possible, given the immense numbers of sperm produced by men (Wilson 1978, p. 124).

Given these facts, females have limited opportunities to pass their genes forward. The responsibilities demanded by each child born, in order to obtain the Darwinian advantage it offers, will also make women hesitant to waste a reproductive opportunity upon a sub-par mate. As a result of these circumstances, females will selfishly seek to pair with the most successful males possible. This is done so as to pair their genes with the most successful genes available, thereby giving their few offspring, and themselves by extension, maximal competitive advantage.

For this reason, a Competitor male's willingness to shoulder the risk of failure in Competition likely arose as a sacrifice, wisely demanded by females looking to maximize their own competitive advantage. Under this model, individual, rule-governed Competition would improve group fitness, would foster more success in group competitions, would evolve a species or population, and would even enjoy a trait level advantage under competitively selective environmental conditions. All of these advantages would have gained much of their advantage, however, as a coincidental outcome of selfish female reproductive drives.

Deviating from the rules of competition through cheating would offer an advantage to males within such competitions. However, a female who accepted such a mate would be accepting a less fit specimen, thus diminishing her own competitive advantage. For this reason, K-selected females would likely evolve a drive to punish such behavior by withholding mating opportunities.

As in all of life, one cannot overrule a female mate's will to have her way. From a Peacock's tail, to the 4 foot long, 40 lb., spiked antlers that Elk carry on their heads as they run through forests, there is likely no altruistic Darwinian impediment females would demand that would not emerge as an evolutionarily stable strategy.

As high levels of K-selection continue within a population, it becomes inevitable that sooner or later some individuals will band together into groups, to gain further advantage. Here, those K-type individuals who band together, can be viewed as doing so to confer even greater advantage upon the K-type, Competitive trait. Again, the trait's future is paramount, ala Richard Dawkin's the Selfish Gene.

This will not produce group selection, per se. Although groups will be competing, it is the individuals who comprise the group who will succeed or fail, through survival and reproduction or death. As a result, one will find a whole range of K-type individuals, with a range of psychological traits, self-assembling into groups, and competing. Those who survive will be those who best navigate this group competitive environment to find themselves within a successful group.

To this end, the K-type trait will evolve within its individual carriers a whole suite of behaviors that are designed to aid the individual to join with and function within a successful group, and aid the trait to seize resources, acquire advantage, and dominate a population, within the K-selected environment of group competition.

Individuals will most of all become both discriminating of those they allow to be a part of their group, and altruistically loyal to those who form their in-group. They will also demand subservience to the group leadership in times of conflict, display insensitivity to out-group interests, and exhibit an intolerance for deviations from K-type mores and virtues, such as exhibiting disloyalty to the group.

Although some of these behaviors may be seen as altruistic, and dedicated to the group's success before the individual, in reality, each behavior serves the advantage of the trait, by aiding an entire group of carriers to succeed in defeating other groups, thereby aiding the K-type competitive trait to become the standard of the species.

The goal of the K-type trait here is to see its group succeed, and acquire resources from others. So long as the group succeeds, it will be able to acquire resources from those it defeats, and the K-type trait will remain (and even thrive) within the population, regardless of what happens to any individual K-type Group Competitor.

Thus again, were an individual seen to sacrifice himself to save his group, it would appear altruistic from an individual perspective. However when one sees his

entire group, composed of other individuals harboring the same K-type allele continue to survive, while the opposing group, with less K-type psychologies dies, suddenly the strategy would not seem so altruistic from the K-type trait's perspective.

Political ideology has been shown to have a genetic foundation (Settle et al., 2010), thus if this theory is correct, the Competitive psychology which underlies it would as well. Competitiveness would also exhibit some degree of heritability, as political ideology has been shown to do (Alford et al., 2005; Bouchard and McGue 2003; Cloninger et al., 1993; Eaves and Eysenck, 1974; Hatemi et al. 2007; Hatemi et al. 2009; Settle, et al., 2009).

Clearly, the best candidate thus far to function as one such Competitive allele would be the K-type allele of the D4 dopamine receptor gene. In this light, one could view the r/K, Liberal/Conservative, Anticompetitor/Competitor, and Appeaser/Warrior divides within our population as all being, at least in part, attempts by r and K-type alleles of the D4 dopamine receptor gene to compete with each other.

Just as genetic effects upon political ideology are likely polygenic, Competitiveness will likely be polygenic in its genetic origins as well. Although there may be different genetic influences driving Competitiveness, the trait itself is a single viable evolutionary strategy. As a result, different means of provoking the Competitive trait may arise, interact, and engage in competition themselves. Some may become obsolete, sacrificing themselves through competition with superior versions of the trait. Some may combine, producing a more effective hybrid. However the trait itself will persist, in whatever form proves most advantageous to its persistence.

Finally, many have made the argument that group beneficial altruism may persist due to an evolved psychology among group members which favors it ( Alexander 1987; Haley and Fessler 2005; Nowak and Sigmund 2005; Trivers, 1971). Others have criticized such assertions on grounds that their circular logic provides a substantiation for altruism in group selection, absent any evidence that such an explanation is the case (Boyd and Richerson, 2009).

If a psychological tendency of members of a species should lend substantial advantage to a trait beneficial in group competition, and that psychological tendency does in fact exist, it is not illogical to assume that it yields advantage to the trait.

Here, we assert that the natural inclination of humans, particularly those who engage in group competitive processes, to revile those who do not abide by rules of fairness in Competition, as well as the urge to revile those who are not loyal to the group, serve as psychological forces which lend K-type Competitiveness

a further evolutionary advantage, especially given the violent nature of humans. Combined with our violent natures, it is this evolved tendency for selection by the group which further favors this altruistic aspect of the K-type psychology.

Analyses of group selection often note that the change in frequency of an allele in each generation within a population is the sole means by which to determine if that allele will persist. The study of how an allele's frequency changes usually focuses upon the ability of an allele to reproduce with each generation, relative to the ability of other alleles to reproduce. However, the ability of an allele to eliminate competing alleles from the population more directly should be given equal weight, especially within a violent species such as humans, and within a K-type environment of high competitive mortality, such as humans are believed to have evolved within.

According to some statistics, among modern day hunter/gatherer species, at least 1 in 10 male deaths are due to violence oriented group competitions similar in form to warfare (Holmes, 2008). Among Stone Age humans, 1 in 7 deaths were due to group combat, and recent modeling of such competitions shows that group combat offered a strong advantage to those who exhibited altruism towards each other in battle (Bowles, 2006; Bowles, 2009). Clearly, warfare has been an enormous selection pressure upon the evolution of the human species.

If some of our ancestors first joined together altruistically to kill individuals, seize their resources, and steal their mates within a K-selected environment, this would offer a means by which accepting the risk of sacrifice on behalf of a group could yield an overall trait-level advantage. Indeed it would even offer an individual advantage, given the inability to function within such a group would have resulted in death due to denial of resources.

As individualism was culled from the population, this belligerent altruism would then produce battles between groups. In this environment, groups which continued to conduct rule-governed, individually competitive tests of fitness amongst themselves, prior to mating, would have enjoyed further advantage in these battles, beyond the mere genetic superiority they acquired for use in individual Competition. Indeed, under these conditions, the entire panoply of Competitive behavioral/psychological traits would have been favored.

Among these warring groups, some would contain Competitors who might tolerate those who did not compete individually within the group, tolerate those who did not obey the rules designed to enhance the efficacy of their individual completions, tolerate those who engaged in reproductive sneaking to obtain mates, or tolerate those

individuals who engaged in disloyalty to the group and selfishness within the group.

Such r-type, selfish behaviors would offer competitive advantage to individuals within the group, compared to engaging in rule-governed competition. Such r-type individuals would likely evolve to prefer to see Competitive groups tolerant of such behaviors. However, as time passed, this Anticompetitor-tolerant group would likely find itself populated with individuals exhibiting aversions to competition and selfishness. This would yield a less evolved group, composed of selfish individuals lacking in loyalty and selflessness, and exhibiting lesser fitness.

Other groups would be composed of Competitors who evolved to revile those who violated the Competitive strategy. These groups would easily dominate such a group competition. Individuals that were imbued with a fierce contempt for cowardice, a hatred for selfishness, and aversions towards such behaviors as interference in free competitions between men, opportunistic advantage taking, rule breaking, sexual sneaking and disloyalty to the group would form, and function within, successful groups unusually well. Such K-type Competitors, within such a group of like minded individuals, would either kill the r-type Anticompetitors within their group, or drive them from the group. This would produce a group which would adhere to the Competitive plan, advance faster evolutionarily, and be more fit and more capable in group competition, due to the increased loyalty and diminished selfishness of its members.

Should these two variants of groups meet in conflict after a period of time sufficient to produce evolutionary divergence, the group intolerant of Anticompetitors would have a fierce advantage in battle. Their members would be fitter and more capable, due to their psychologically driven evolution, and they would function more seamlessly in group competition, as a selfless, loyal group, whose each individual was committed selflessly to the group's success.

Here, the Competitive trait would appear to offer a competitive advantage in group Competition within a species, especially considering how aggressively humans have culled each other in violent group competition. This group advantage would also translate into individual advantage, through seizure of resources, and mates. However, the advantage that individual Competitiveness would offer individually, in group competitions, would depend upon how strongly this trait was combined with a sense of loyalty to the group, and intolerance for the presence of selfishness, disloyalty, and other aspects of the r-selected Anticompetitor.

Clearly, mankind has evolved tendencies to exhibit an open contempt for Anticompetitive drives, such as disloyalty, selfishness, cowardice, oppression, and the

altering of competitive outcomes “unfairly.” Even in cases of treason, traitors will be awarded the death penalty, while rapists and murderers are punished lightly by comparison. These K-type urges would all offer advantage to the trait of K-type Competitiveness in group selection processes, allowing it to more effectively enhance a group's fitness, while out-competing more selfish traits within the group.

Were Maynard Smith's haystack model (1964) to have defined altruism to include periodically uniting all altruists to purge or kill selfish and disloyal individualists, one by one within their groups, as well as the elimination of selfish groups in group competition (as would occur under K-selective conditions of resource scarcity), altruism would quickly overtake the entire population. Although this is a simplified example, if the killing progressed quickly enough, this altruistic trait could dominate the population, even prior to any reproduction.

Once a trait drives its carriers to actually eliminate competing traits, even individuals sacrificing of themselves may not be altruistic. If the sacrifice produces the death of non-carriers, and the trait remains behind in compatriots as they altruistically function to continue the eradication, an allele's numbers need not increase, to see its frequency increase. In a species which is predominately Competitive, each altruistic Competitor who sacrifices themselves to kill an Anticompetitor would increase the frequency of the Competitive trait prior to reproduction.

This effect would only be magnified in the case of group warfare. Those who are selfish and disloyal, by their nature, exist alone. Faced with a unified group of loyal competitors, seeking their demise, the selfish and disloyal individualist's numerical inferiority, innate to the nature of their selfish strategy, would doom them absent any massive unselective thinning of the population by external forces.

Competitiveness also confers additional advantages upon those who exhibit it. Rule-governed, individual competitions within groups, where defeated males retreat, not only select for fitness. These competitions hone skills and develop abilities – even in the defeated. A group of Competitors, constantly competing amongst each other, for mates and resources, will not only effectively direct resources and reproductive responsibilities to the most fit individuals. Their competition will also develop each member's innate abilities, through the use of a psychological drive to practice and gain experience in competitions with others. This too, is a potent advantage in group competition. Groups in which opportunistic advantage taking is normative, or where there is no competition, would engage in far less practice of their competitive skills prior to any group competition.

Taken together, these perspectives offer a compelling case for the competitive advantage offered by a K-type, Competitive psychology, especially within a K-type Competitive species living in a K-type Competitive environment, and engaging in group competition for limited resources.

In closing, the theory presented herein is not, in any way, inconsistent with current theories regarding group selection. Although individual Competitors are altruistic personally, in exhibiting a willingness to sacrifice of themselves, this personal altruism is borne of a single master trait's selfish Darwinian Strategy, and its subversion of the individual's genome to its own selfish strategy for persistence. Competitiveness offers concrete competitive advantages at the genetic/trait level, the group level, and the species level. This model does not in any way postulate that an altruistic trait will persist in group selection, nor does it violate any current understanding of the mechanisms of Natural Selection.

### Analysis Must Focus Upon r/K Urges More Than Effects

It is worth noting that evolution is always adapting, and many aspects of this theory can only be interpreted in terms of the ancient environment where it formed, where government was near non-existent, and both technology and intellectual endeavors were not present. As a result, examining this work in light of today's modern environment can prove confusing. What is required is a very detailed analysis of how underlying motives and cognitive characteristics would have played out in the ancient natural environment, rather than an analysis of the effects of the motives, such as birth rates. Indeed, we are still evolving, and many of our urges have not adapted to our current reality.

As an example, Conservatives out-reproduce Liberals today. This would seem to contradict this theory, which asserts that r out-reproduces K in nature. However, in primitive times, prior to the advent of birth control, the promiscuity and support for single parenting of Liberals would have increased their numbers faster. Today, modern birth control allows one to engage in nearly unlimited sexual activity, without the risk of pregnancy.

In nature, the r-strategy entails an embrace of low-investment parenting. This means fathers have little or no inclination to rear offspring. Mothers exhibit a limited inclination, rearing their offspring to a base level of fitness, before ejecting them to make way for the next brood. This diminished drive to invest in parenting would likely affect the decision to have children. If one is not driven to rear children, then one will be less likely to make a volitional decision to endure the physical and financial hardships associated with doing so.

By contrast, the K-strategy involves an embrace of high-investment, two-parent parenting. The K-strategy will thus see both parents seek to rear offspring together, for extended periods, until the child is fully mature. This likely speaks to an elevated drive to rear offspring, which would translate into an elevated drive to conceive offspring. In today's modern world, where breeding is not a by product of nearly uncontrollable psychological forces, but is rather a completely conscious, volitional decision, this subtle difference in behavioral drives will play a large role.

Adding to this may be aspects of r-type psychology present in highly r-type populations which tend to discourage long term mate bonding, thereby leading females to delay reproduction indefinitely, while they search for a suitable mate that they can get along with, only to not find one.

Others may point out that left-wing feminism supports a model of female behavior that is highly competitive, in the form of the careerist female, who seeks to out-shine men. Interestingly this lends support to the theory. In r-type populations, females exhibit more male traits, such as increased size, aggression, and competitiveness. In this milieu, this is an effective aspect of an r-strategy, as r-females need to both provide for their offspring, and fend off threats, due to r-type male abandonment. Thus r-females exhibit more K-type male qualities, so as to better fill the missing male's role in provision, protection, and rearing of offspring.

It is interesting that modern feminism, so often associated with the left, exhibits a denigrating view of the rewards offered by offspring rearing, an embrace of sexual liberation for women (ie promiscuity), a denigrating view of men which would facilitate short term mating relationships, as well as an increased drive to compete aggressively alongside males, in traditionally male endeavors. Under the tenets of this work, these are all traits strongly associated with an r-strategy.

Also of note, is that in an r-type species, males will tend to take on more effeminate qualities (by K-standards), becoming diminished in size, more conflict averse, and exhibiting other less masculine characteristics. Since they are not involved in child rearing beyond mating, and are inherently conflict and competition averse for evolutionary reasons, they need not be as physically or psychologically imposing. As a result, they evolve a physicality and psychology designed solely for fleeing and fornication. By comparison, as we have noted, r-type females tend to exhibit physical and psychological traits which are more associated with K-type males, to better aid them to fill the missing male's role in protection, provision, and rearing. It is amusing to note, Conservative commentator Rush Limbaugh has long characterized the males and females supportive of

feminism as a contingent of masculine *Feminazi's* accompanied by a cohort of effete *Castrati*. In truth that is a perfect description of the nature of the sexual dimorphism in an r-type species.

Finally, many may point out the ruthless and bloody nature of many Communist regimes. According to Dr. Rudolph Rummel, Communism has filled over 260 million graves with innocent victims (Rummel, 1994). Critics will point out that this is hardly the strategy of a docile, aggression-averse cohort of the human race.

This requires an examination of the r-type individuals who fill such movements, and a recognition of the complexity in large populations. Liberals exhibit reduced amygdala volume on MRI. Reduced amygdala functionality produces every facet of the r-strategy, as well as a reduced ability to perceive threat in others and a tendency to judge threats approachable.

Suppose you have a movement composed of aggression-averse psychologies which are unable to judge threat in others, and they accumulate any form of numerical advantage and political power within a population (perhaps due to extended periods of r-selection). Within every population are psychopaths, ruthlessly seeking personal advantage. A movement with power, run by individuals who cannot perceive threat, and who are further programmed to appease threat when confronted with it, is a gold mine to such a psychopath. On gaining entrance to the movement, such a psychopath will exhibit a natural tendency to rise above everyone else, due to a combination of his ruthlessness, and the r-cohorts inability to see it, and tendency to curry favor with it when it is perceived.

So it is not that every Communist/Socialist/Marxist movement is led by the wrong Communist/Socialist/Marxist. It is that every such movement has its leaders chosen by individuals with deficient amygdalae, who cannot see threat until it confronts them openly, and are programmed to appease any such threat once it is perceived. For this reason, every such movement exists as low hanging fruit to the first murderous psychopath who can gain entrance to their inner circle - and cow the movement into the inevitably murderous sycophancy we have all too often seen.

## Caution Is In Order

It should be noted that individuals are difficult to characterize. In many ways, this is a Newtonian theory of group behavior, which makes no pretense of characterizing the Quantum Mechanical nature of any particular individual. Every individual has, at their core, the indefinable element, and the ability to be anyone they wish. We make no pretense of being able to characterize that aspect of human nature, nor do we, in any way,

impugn the free will of the individual. These urges are merely behavioral inclinations. Whether we cede to them, or obey the orders of our conscience and intellect is solely the province of the mystery that is our free will.

Additionally, humans are incredibly complex, both psychologically, and intellectually. There will exist contravening psychological drives which may overrule these urges, making individual characterizations even more difficult. Intellect may judge an urge illogical and contravene it. Conditioned responses unique to an individual may override their psychology.

At the individual level, a position on any single issue may also relate to an individual's personal competitiveness within the arena which that specific issue addresses.

Thus a successful businessperson who favors Capitalism and is imbued with a Competitive psychology, may be uneducated in matters of personal defense. They may embrace competitiveness in economic matters, and thus support Conservative positions on tax policy. However they may also support strict firearms controls, since their inability to defend themselves renders them uncompetitive in that environment. Although the evidence would indicate that most individuals will embrace or reject competitiveness over a broad range of issues, we do not assert that the general embrace or rejection of competitiveness will define every aspect of every individual's ideology.

To be clear, this theory is designed to explain how the majority of the country comes to join a political ideology, and even how that ideology arose within our species, but it makes no pretense of characterizing all individuals, or addressing the variability in roles and motivations which may present themselves at the individual level.

Also note, these urges, and the cues they responded to, likely evolved in a different environment from that which we exist within today. In this more primitive environment, different abilities were required for adult competition. Thus any childhood assessment of potential adult fitness performed today would have had its parameters dictated by the environment of our past. In our distant past, where adult competition was a more violent, life or death affair, a molding of an individual's psychology to their physical prowess in martial matters could have led them to execute a Darwinian strategy that would have served them well.

Today, an individual may exhibit an enormous facility in computer science as a child, or have the ability to prove highly competitive in the economic or intellectual realm as an adult, however they will still use more primitive cues to determine their likely competitive ability as an adult.

Given the rate of our society's advancement, from

the role of technology and intellect in our competitions, to the effect of voluntary birth control on the outcome of hedonistic reproductive activities, we assert that evolution is still attempting to catch up to events which overtook it long, long ago.

## Discussion

A fundamental premise of this work is that Liberals embody a migrator psychology, and were responsible for our species spread out of Africa, and around the globe. Conservatives, by contrast, embody a Warrior psychology, prone to battle for resources within territories where the population exists at the carrying capacity of the environment. As a result, it is the Conservative psychology which is responsible for evolving us to our present state of greatness, after our spread.

The rapid expansion of Homo sapiens out of the plains of Africa would have created two sets of environmental conditions, existing upon a spectrum which would, in its most basic sense, be geographical in its presentation. Where mankind first evolved, and overpopulated, there would have been conditions of resource scarcity, as well as a fierce competition for those limited resources which remained. There, one would have found a highly K-selected environment, as well as highly K-selected individuals, who were willing to fight it out for territory and resources in fierce, bloody, group conflicts.

A second presentation of human would have arisen under such circumstances. As violence and competition raged within the home territory, some individuals would have fled from the violence, and found themselves landing in a new untapped territory, full of freely available resources. As this fleeing presentation underwent the r-selection provided by the free resource availability they encountered, they would have become more r-type, and more competition averse. When competition began within their territory, as populations grew and resources grew scarce, they would have been all too ready to flee into new territory, yet again.

As time went on, those r-types who fled the earliest, the fastest, and the farthest, as competition approached, would have enjoyed the greatest numerical advantages due to enjoying the greatest degree of r-selection. They would also have found themselves increasingly less able to face down the K-type individuals behind them, as the K-type cohort continued to adapt to the violent, K-selective, group competitions they were embracing. This would only have further enhanced their drive to flee, as the environment turned K-selective.

Today, it could be argued that the Liberal's reduced loyalty to in-group during conflict (Jost, 2006),

preference for novel environments and stimuli (Jost 2003), and their desire for free resource availability in matters of governance, are all adaptations designed to motivate this migratory urge. Indeed, the 7r DRD4 allele associated with Liberalism is even present in large numbers within migratory populations (Chen, 1999).

As this more fecund model of migrating human multiplied, they would gradually turn their new territory into a more K-strategy favoring environment, as the more r-type, competition averse, novelty-seeking types among them again fled, and spread out into even newer territories, further enhancing the extent of their r-type urges.

Repeated again and again, as the human race spread over the globe, this psychological bifurcation would offer our species great advantage. We would possess the invasiveness and rapid proliferation of an r-type species. Combined with this r-type cohort's fierce drive to seek out and experience new environments, this would motivate our rapid spread across the globe. But unlike a strictly r-type species, behind this outlying r-type frontier lurked the evolved greatness of a K-type species, following behind the r-types, and allowing us to adapt rapidly to our new environments. Because of these K-types, we avoided both predation and the evolutionary stagnation produced by long term r-selection.

This model would produce a gradually changing spectrum of environments, ranging from the most K-type at mankind's territory of origin, to the most r-type at the frontiers of the species' migration. Within the middle, would exist territories where neither strategy was favored clearly, and where both would exist together, to some degree or other. There each r/K trait would adapt strategies designed to confront the presence of their nemesis (as seen in the transvestite cuttlefish), in an effort to compete with each other.

K-types would evolve urges to purge r-types from their groups, so they might succeed more completely. r-types would evolve urges to camouflage themselves so as to avoid being purged. They would also evolve urges to seek to diminish any urge of the group to purge the disloyal or selfish, as well as to work against the K-types within their groups so as to diminish their relative advantages. r-types even appear to have evolved urges to support the interests of out-groups - urges designed to aid foreign K-types to decimate indigenous K-types, allowing the r-type to enjoy free resource availability within their home territory yet again.

As those primitive ideologues all met the evolutionary process, those who best adapted to compete with their competing "ideology" would survive, while those which did not would gradually endure the Darwinian effect of their competitive disadvantage.

As mankind's productivity emerged, something

changed. No longer was the determinant of our environment's carrying capacity a relatively static number relating to a stable, harvest-able resource in the environment. Rather, our environment's carrying capacity became a dynamic variable, dependent upon the functionality of our groups and their level of production.

Those groups which were composed of a high number of productive, group-functional individuals, would produce far more resources than they required. This would produce conditions of resource excess and r-selection, favoring less selfless, less productive, more fecund models of humans. As this more fecund, less productive model became common relative to the productive, one would see the per-capita productivity decrease.

If in this model, the competitive, productive, group functional individuals were the K-type group Competitors, and the less productive, more fecund individuals were r-type, Anticompetitive individuals, then one could also expect a politically Conservative, productive society to gradually become more Liberal and less productive as time went on, due to the r-selection effects generated by the free resource availability one would find due to high levels of resource production. Once Darwin comes to favor fecundity over fitness, one will see an increase in fecundity and a corresponding decline in ability, effort and motivation.

As time went on, it would become inevitable that such a society would find itself overrun with less productive individuals, demanding of free resource availability, prone to engage in rampant promiscuity and single parent child-rearing, less prone to perform altruism on behalf of the group, less possessed of a sense of loyalty to in-group, and possessed of a subconscious animus towards the more K-type, Conservative producers, as well as the K-type mores and values they would advocate.

At this point, the society will be on an inevitable crash course with a K-type environment of limited resource availability, and fierce fitness-based competition for resources. If given their way, and further provisioned with free resources, the r-type cohort of the population will only proliferate further, and increase the burden they place upon the producers. Eventually, they will enlarge to the point that their further provisioning will be impossible, due to the inability of the productive to produce sufficient resources to support them. Under such conditions it could be expected that there would be a considerable diminution in the authority afforded government. Indeed, it would not be impossible that there would be a wholesale collapse of governing structures, as the productive decided to keep their resources for themselves and their offspring, and leave the more r-type cohort to fend for itself.



This effect, whereby the productivity of a K-selected society would yield an r-selected environment favoring less able, more fecund specimens, and that this would, taken to the extreme, collapse governments, may be the hidden hand behind the observation that no nation lasts forever, and that the success of a nation contains within it the very seeds of the nation's destruction.

This occurs in nature routinely, where a species finds a sudden surge of resources, experiences r-selection effects, proliferates wildly, reaches the carrying capacity of the environment, and then enters a K-strategy favoring period of competition for resources – combined with a mortality inflicted upon the less fit. In humans it seems unusual only due to our absence of familiarity with (and indeed, inability to imagine) competitive mortality in our ranks, and the unusual state whereby a dynamic ratio of r/K psychologies within our population will simultaneously determine both our population's productivity and its consumption.

In America, free resource availability has been extended considerably, through the use of sovereign debt instruments. This has allowed the productive to furnish the less productive with free resources absent the need to produce them explicitly. It has however, allowed a longer period of r-selection to occur, increasing the numbers of less productive r-type individuals far beyond that which America has ever seen before.

As the debt reaches higher levels, and other nations withdraw from offering credit, this mechanism will cease to be efficacious and conditions of resource scarcity and competition can be expected to be inevitably reintroduced at some point. Indeed, foreign demands of repayment of debt will drain further resources from a population already experiencing resource shortage, further heightening conditions of K-selective stress.

If such conditions are severe enough (and they may be due to the debt's artificial elevation of the population's r/K ratio), it should be expected that such a scenario would result in both severe diminution of governmental power and authority, and a gradual return of the population's political psychology to that of a more K-selected, Competitive, Conservative ideology. It would also produce concomitant rises in individual fitness, ability, group functionality, K-type “family values,” and over all production.

Of greatest irony, the increased production will most likely be used to provision the less fortunate and alleviate mortality in their cohort, again imposing a period of r-selection, and beginning the population's decades long slide towards collapse yet again.

### Section III - Conclusions

As noted at the beginning of this paper, a desire

for freedom would predict a Conservative's desire to support concealed carry of firearms for personal defense or their desire to limit governmental authority. Yet it would not predict their desire to see a more controlled, socially Conservative society, whose behavior is restricted so as to abide by socially Conservative mores and values. A desire for freedom would predict a Liberal's desire to see citizens free to engage in all manner of sexual conduct between consenting adults, or the assiduous safeguarding of all individuals against discrimination. Yet it would not predict the Liberal's desire for higher personal income taxes for the wealthy, or restrictions on firearms ownership and carry by law abiding individuals.

This theory effectively predicts all of the issue positions of both major political philosophies. It describes the evolutionary advantages of pursuing each strategy, and explains why neither would dominate our populations entirely. It even shows where similar psychologies exist in nature, and demonstrates how these individuals pursue the exact same Darwinian strategies within their primitive species.

There exists a tremendous amount of evidence that political ideology exists as a Darwinian strategy, designed to either foster an embrace or rejection of rule-governed fitness competitions. Studies of brain structures identify a structure, associated with perception of threat and fear, as being related to ideology. All issue positions of each ideology revolve around facets of competitions between men, and their consequences. Similar bifurcations of populations can be found in more primitive species, and they are delineated by an individual's embrace or rejection of rule-governed competitions designed to select for and evolutionarily reward fitness.

These ideologies follow many of the themes found in the r-selected and K-selected populations of species in the wild. Similar divergent psychologies have been identified in humans by social scientists. They have been found to be related to perceptions of environmental harshness, and they revolve around deviations in competitive risk avoidance, rule adherence, as well as mating and child rearing strategies. Studies of the personality traits of political ideologies find that divergent approaches to rule adherence, threat stimuli, fear, and loyalty are all related to political ideology.

One can even show where a human population, stripped temporarily of its Competitor males during a transient period of r-selection, adopted an aggressive form of the Liberal political ideology, even adopting sexual mores that were, by the standards of societies before and after, extraordinarily lax. When the selection pressure was reversed, so was this psychological and ideological shift.

If one accepts that all species, including humans, can be either r-selected or K-selected, then it follows that

both psychologies must exist within such a species, so they may be selected for (Pianka, 1970). If one accepts that premise, then within humans, two psychologies will exist. They will govern fundamental perceptions regarding risk and Competition and unite these perceptions with specific behavioral predispositions toward sexuality, reproduction, and child rearing. One psychology will be risk and mortality averse, sexually promiscuous, and will be baffled by concern for family values. The other psychology will seek a riskier path of increased competition, combined with a more competitive, selective, mating strategy, and a strong concern with maintaining traditional family values and morals within our societies. If one accepts that, then it will follow that our political debate begins where intellect and the purposeful construction of societal structures meets the primitive r and K-selected psychologies of our ancient evolutionary past.

Other implications for this theory on future decisions of governance require further research. If ideology exists as a Darwinian strategy, one's perspective will carry with it a distinct purpose, and the drives motivating it are likely to be quite deeply imbued. The Competitor will be forever seeking the freedom to compete, while the Anticompetitor will be forever seeking freedom from the very competition that the Competitor desires. Competitors will forever seek to blaze their own path through the world, absent any externally imposed responsibility for others, while Anticompetitors will forever seek to restrain the Competitors, so as to prevent anyone from enduring an adverse outcome in life.

Since each ideology's purpose would seem diametrically opposed to that of its countervailing ideology, common ground will prove exceedingly scarce, and political partisanship is likely to remain with our species forever.

Hopefully, with an understanding of the evolutionary origins of political ideology, individual decisions on matters of governance will, at least, prove better informed in the future.

## References

- Adolphs, R., Tranel, D., Damasio, A. R. (1998). The human amygdala in social judgment. *Nature*, 393, 470–474.
- Adolphs, R., Baron-Cohen, S., Tranel, D. (2002). Impaired recognition of social emotions following amygdala damage. *Journal of Cognitive Neuroscience*, 14, 1264–1274.
- Alexander R. D. (1987). *The biology of moral systems*. New York: Aldine de Gruyter.
- Alford, J., Funk, C., Hibbing, J. (2005). Are political orientations genetically transmitted? *American Political Science Review*, 99 (2), 153–167.
- Altemeyer, B. (1981). *Right-wing authoritarianism*. Manitoba: University of Manitoba Press.
- Altemeyer, R. A. (1998). The other “authoritarian personality.” In Zanna, M. P. (Ed.), *Advances in experimental social psychology* (Vol. 30, pp. 47–91). New York: Academic Press.
- Alvarado-Esquivel, C., Alanis-Quinones, O. P., Arreola-Valenzuela, M. A., Rodriguez-Briones, A., Piedra-Nevarez, L. J., Duran-Morales, E., Estrada-Martinez, S., Martinez-Garcia, S. A., Liesenfeld, O. (2006). Seroepidemiology of *Toxoplasma gondii* infection in psychiatric inpatients in a northern Mexican city. *BMC Infectious Diseases*, 6, 178.
- Bakermans-Kranenburg, M. J., van IJzendoorn, M. H. (2006). Gene-environment interaction of the dopamine D4 receptor (DRD4) and observed maternal insensitivity predicting externalizing behavior in preschoolers. *Developmental Psychology*, 48 (5), 406–409.
- Bakermans-Kranenburg, M. J., Van IJzendoorn, M. H., Pijlman, F. T. A., Mesman, J., Juffer, F. (2008). Experimental evidence for differential susceptibility: dopamine D4 receptor polymorphism (DRD4 VNTR) moderates intervention effects on toddlers' externalizing behavior in a randomized controlled trial. *Developmental Psychology*, 44 (1), 293–300.
- Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., Caspersb, K., Philibertb, R. (2011). DRD4 genotype moderates the impact of parental problems on unresolved loss or trauma. *Attachment and Human Development*, 13 (3), 253–269.
- Beck, A. T. (1967). *Depression: clinical, experimental, and theoretical aspects*. New York: Harper & Row.
- Beck, A. T. (1999). Cognitive aspects of personality disorders and their relation to syndromal disorders: a psychoevolutionary approach. In Cloninger, C. R. (Ed.), *Personality and psychopathology*, (pp.411-430). Washington, DC: American Psychiatric Press.
- Belsky, J., Steinberg, L., Draper, P. (1991). Childhood experience, interpersonal development, and reproductive strategy: an evolutionary theory of socialization. *Child Development*, 62 (4), 647–670.
- Ben Zion, I., Tessler, R., Cohen, L., Lerer, R., Raz, Y. (2006). Polymorphisms in the dopamine D4 receptor gene (DRD4) contribute to individual differences in human sexual behavior: desire, arousal and sexual function. *Molecular Psychiatry*, 11 (8), 782–786.
- Berdoy, M., Webster, J. P., Macdonald, D.W. (2000). Fatal

- attraction in rats infected with *Toxoplasma gondii*. *Proceedings of the Royal Society, Biological Sciences*, 267, 1591–1594.
- Berridge K.C. (2007). The debate over dopamine's role in reward: the case for incentive salience. *Psychopharmacology*, 191, 391-431.
- Berridge, K. C., Robinson, T. E. (1998). What is the role of dopamine in reward: hedonic impact, reward learning, or incentive salience? *Brain Research Reviews*, 28 (3), 309-369.
- Bouchard, T. J., and McGue, M. (2003). Genetic and environmental influences on human psychological differences. *Journal of Neurobiology*, 54 (1), 44–45.
- Bowles, S. (2006). Group competition, reproductive leveling, and the evolution of human altruism. *Science*, 314 (5805), 1569-1572.
- Bowles, S. (2009). Did warfare among ancestral hunter-gatherers affect the evolution of human social behaviors? *Science*, 324 (5932), 1293-1298.
- Boyd, R., Richerson, P. J. (2009). Culture and the evolution of human cooperation. *Philosophical Transactions of the Royal Society: Biological Sciences*, 364, 3281-3288.
- Broks, P., Young, A. W., Maratos, E. J., Coffey, P. J., Calder, A. J., Isaac, C., Mayes, A. R., Hodges, J. R., Montaldi, D., Cezayirli, E., Roberts, N., Hadley, D. (1998). Face processing impairments after encephalitis: Amygdala damage and recognition of fear. *Neuropsychologia*, 36, 59–70.
- Brooks, A. (2008). *Gross national happiness*. New York: Basic Books.
- Brown, S., Schäfer, E. A. (1888). An investigation into the functions of the occipital and temporal lobes of the monkey's brain. *Philosophical Transactions of the Royal Society of London: Biological Sciences* 179, 303–327.
- Buchanan, T. W., Tranel, D. & Adolphs, R. (2009). The human amygdala in social function. In Whalen, P. J., Phelps, E. A. (Eds.), *The human amygdala*, (pp. 289-318). New York : Guilford.
- Bucher, K., Myersn, R., Southwick, C. (1970). Anterior temporal cortex and maternal behavior in monkey. *Neurology*, 20 (4), 415.
- Bugliosi, V. Gentry, C. (1994). *Helter skelter*. New York: W. W. Norton & Company, Inc. p. 492-493
- Cacioppo, J.T. (2009). *Handbook of neuroscience for the behavioral sciences*. Vol 2. New York: Wiley Books.
- Cardwell, J. R., Liley, N. R. (1991). Hormonal control of sex and color change in the stoplight parrotfish, *Sparisoma viride*. *General and Comparative Endocrinology*, 81 (1), 7-20.
- Centers for Disease Control. (2004). *Live Births, Birth Rates, and Fertility Rates, by Race: United States, 1909-2003*. <[http://www.cdc.gov/nchs/data/statab/natfinal2003\\_annvol1\\_01.pdf](http://www.cdc.gov/nchs/data/statab/natfinal2003_annvol1_01.pdf)>.
- Chen, C., Burton, M., Greenberger, E., and Dmitrieva, J. (1999). Population migration and the variation of dopamine receptor (DRD4) allele frequencies around the globe. *Evolution and Human Behavior*, 20 (5) , 309-324.
- Clark, D. A., Beck, A. T., and Alford, B. A. (1999). *Scientific foundations of cognitive theory and therapy of depression*. New York, NY: John Wiley & Sons.
- Cloninger, C. R., Svrakic, D. M., and Przybeck, T. R. (1993). A psychobiological model of temperament and character. *Archives of General Psychiatry*, 50 (12), 975–990.
- Darwin, C. (1859). *On the origin of species by means of natural selection*. London: John Murray.
- Dicks, D., Meyers, R. E., Kling, A. (1968). Uncus and amygdala lesions: Effects on social behavior in the free ranging rhesus monkey. *Science*, 165, 69-71.
- Douglas, J. D. (1970). *Youth in turmoil*. Chevy Chase, Md.: National Institute of Mental Health.
- Drevets, W. C. (1998). Functional neuroimaging studies of depression: the anatomy of melancholia. *Annual Review of Medicine*, 49, 341-361.
- Dunbar, R., Barret, L. (2007). *Oxford Handbook of Evolutionary Psychology*. New York: Oxford University Press.
- Dweck, C. (1999). *Self-theories: their role in motivation, personality, and development*. Philadelphia: The Psychology Press.
- Dweck, C. (2006). *Mindset: the new psychology of success*. New York: Random House.
- Eaves, L. J., Eysenck, H. J. (1974). Genetics and the development of social attitudes. *Nature*, 249, 288–289.
- Fischer R.A. (1930). *The genetical theory of natural selection*. Oxford: Clarendon Press
- Flegr, J. (2007). Effects of toxoplasma on human behaviour. *Schizophrenia Bulletin*, 33 (3), 757–760.
- Garcia, J. R., MacKillop, J., Aller, E. L., Merriwether, A. M., Wilson, D. S., Lum, J. K., (2010). Associations between dopamine D4 receptor gene variation with both infidelity and sexual promiscuity. *Plos One*, 5 (11), e14162.
- Gibson, K. N. (2010). Male mating tactics in spider monkeys: sneaking to compete. *American Journal of Primatology*, 72 (9), 794-804.

- Gilbert, P. (1992). *Depression: the evolution of powerlessness*. East Sussex: Lawrence Erlbaum Associates.
- Guinness Publishing Ltd. (1999). *The Guinness book of world records*. New York: Bantam Books.
- Hagopian, P. (2009). *The Vietnam war in American memory: veterans, memorials, and the politics of healing*. Massachusetts: Univ of Massachusetts Press.
- Haidt, J., & Hersh, M. (2001). Sexual morality: The cultures and emotions of conservatives and liberals. *Journal of Applied Social Psychology*, 31, 191–221.
- Haley K., Fessler D. (2005). Nobody's watching? Subtle cues affect generosity in an anonymous economic game. *Evolution and Human Behavior*, 26 (3), 245-256.
- Hall, K. C., Hanlon, R. T. (2002). Principal features of the mating system of a large spawning aggregation of the giant Australian cuttlefish *Sepia apama* (Mollusca: Cephalopoda). *Marine Biology*, 140 (3), 533-545.
- Hanlon, R. T., Naud M. J., Shaw, P. W., Havenhand, J. N., (2005). Transient sexual mimicry leads to fertilization. *Nature*, 430, 212.
- Hatemi, P. K., Medland, S. E., Morley, K. I., Heath, A. C., Martin, N.G. (2007). The genetics of voting: an Australian twin study. *Behavior Genetics*, 37 (3), 435–448.
- Hatemi, P. K., Hibbing, J., Alford, J., Martin, N., Eaves, L. (2009). Is there a ‘party’ in your genes? *Political Research Quarterly*, 62 (3), 584–600.
- Henriques, G. (2000). Depression: disease or behavioral shutdown mechanism? *Journal of Science and Health Policy*, 1, 152–165.
- Henriques, J. B., Davidson, R. J. (1991). Left frontal hypoactivation in depression. *Journal of Abnormal Psychology*, 100 (4), 535–545.
- Henriquez, S. A., Brett, R., Alexander, J., Pratt, J., Roberts C. W. (2009). Neuropsychiatric disease and *Toxoplasma gondii* infection. *Neuroimmunomodulation*, 16 (2), 122–133.
- Hofstede, G., McCrae, R. (2004). Personality and culture revisited: linking traits and dimensions of culture. *Cross-Cultural Research* 38, 52–88.
- Holmes, B. (2008). How warfare shaped human evolution. *New Scientist*, 2682, 8-9.
- Huffard, C. L., Caldwell, R. L., and Boneka, F. (2008). Mating behavior of *Abdopus aculeatus* (d'Orbigny 1834) (Cephalopoda: Octopodidae) in the wild. *Marine Biology* 154 (2), 353-362.
- Jones, A. G., Walker, D., Kvarnemo, C., Lindström, K., Avise, J. C. (2001). How cuckoldry can decrease the opportunity for sexual selection: data and theory from a genetic parentage analysis of the sand goby, *Pomatoschistus minutus*. *Proceedings of the National Academy of Sciences of the United States of America*, 98 (16), 9151-9156.
- Jost, J. T., Glaser, J., Kruglanski, A. W., and Sulloway, F. J. (2003). Political conservatism as motivated social cognition. *Psychological Bulletin*, 129 (3), 339–375.
- Jost, J. T. (2006). The end of the end of ideology. *American Psychologist*, 61 (7), 651–670.
- Kanai, R., Feilden, T., Firth, C., Rees, G. (2011). Political orientations are correlated with brain structure in young adults. *Current Biology*, 21 (8), 677-680.
- Kar, N, Misra, B. (2004). *Toxoplasma* seropositivity and depression: a case report. *BMC Psychiatry*, 2004; 4, 1.
- Kendler, K. S., Walters, E. E., Truett, K. R., Heath, A. C., Neale, M. C., Martin, N. G., Eaves, L. J., (1994). Sources of individual differences in depressive symptoms: analysis of two samples of twins and their families. *American Journal of Psychiatry*, 151, 1605-1614.
- Koehler, N., Chisholm, J. S., (2007). Early psychosocial stress predicts extra-pair copulations. *Evolutionary Psychology*, 5 (1), 184-201.
- Knapp, R., Neff, B. D. (2007). Steroid hormones in bluegill, a species with male alternative reproductive tactics including female mimicry. *Biology Letters*, 3 (6), 628-631.
- Kohn, R. H. (1994). Out of control: the crisis in civil-military relations. *The National Interest*, 35(Spring 1994), 3–17.
- Kurdzial, J. P., Knowles, L. L. (2002). The mechanisms of morph determination in the amphipod *Jassa*: implications for the evolution of alternative male phenotypes. *Proceedings of the Royal Society, Biological Sciences*, 269 (1502), 1749-1754.
- Lafferty, K. D. (2006). Can the common brain parasite, *Toxoplasma gondii*, influence human culture? *Proceedings of the Royal Society, Biological Sciences*, 273, 2749-2755.
- Lattin, D. (2003). *Following our bliss: how the spiritual ideals of the sixties shape our lives today*. New York: Harper Collins.
- Leahy, R. L. (1997). An investment model of depressive resistance. *Journal of Cognitive Psychotherapy*, 11, 3-19.
- Levitt, M., Rubenstein, B. (1974). The counter-culture: adaptive or maladaptive? *The International Journal of*

- Psychoanalysis, 1 (3), 325-336
- Locke, J. (1698) *Two treatises of government*. Peter Laslett, (Ed.), rev. ed, (1988). Cambridge: Cambridge University Press.
- MacArthur, R., Wilson, E. (1967). *The theory of island biogeography*. Princeton, NJ: Princeton University Press.
- Mackay, T. (2001). The genetic architecture of quantitative traits. *Annual Review of Genetics*, 35, 303–339.
- Maes M., Kubera M., Obuchowiczwa E., Goehler L., Brzeszcz J. (2011). Depression's multiple comorbidities explained by (neuro)inflammatory and oxidative & nitrosative stress pathways. *Neuroendocrinology Letters*, 32 (1), 7-24.
- Mannheim, K. (1936). *Ideology and utopia*. London: Routledge.
- Martinot, J. L., Hardy, P., Feline, A., Huret, J. D., Mazoyer, B., Attar-Levy, D., Pappata, S., Syrota, A. (1990). Left prefrontal glucose hypometabolism in the depressed state: a confirmation. *American Journal of Psychiatry*, 147 (10), 1313–1317.
- Mattay, V. S., Berman, K. F., Ostrem, J. L. (1996). Dextroamphetamine enhances “neural network-specific” physiological signals: a positron-emission tomography rCBF study. *The Journal of Neuroscience*, 16 (15), 4816-4822.
- Maynard Smith, J. (1964). Group Selection and kin selection. *Nature*, 201: 1145-1147.
- Maynard Smith, J. (1976). Group selection. *Quarterly Review of biology*, 51 (2), 277-283.
- Melzer, T. C., Cranston, H. J., Weiss, L. M., Halonen, S. K., (2010). Host cell preference of *Toxoplasma gondii* cysts in murine brain: a confocal study. *Journal of Neuroparasitology*, 2010, 1, 19-24.
- Miller E. K., Freedman D. J., Wallis J. D. (2002). The prefrontal cortex: categories, concepts and cognition. *Philosophical Transactions of the Royal Society London B, Biological Sciences*, 357 (1424), 1123–1136.
- Napier, J. L., Jost, J. T. (2008). Why are conservatives happier than liberals? *Psychological Science*, 19, 565-572.
- Nesse, R. M. (2000). Is Depression an Adaptation? *Archives of General Psychiatry*, 57 (1), 14-20.
- Nowak, M. A., Sigmund, K. (2005). Evolution of indirect reciprocity. *Nature* 437, 1291–1270.
- Öhman, A. (2009) Human fear conditioning and the amygdala. In Whalen, P. J., Phelps, E. A. (Eds.), *The Human Amygdala*, (pp. 118-154). New York : Guilford.
- Pew Research Center. (2006). Poll : Are We Happy Yet? Available online at <<http://pewresearch.org/pubs/301/are-we-happy-yet>> .
- Pianka, E. R. (1970). On r- and K-selection. *American Naturalist*, 104, 592–596.
- Plaistow, S. J., Tsubaki, Y. (2000). A selective trade-off for territoriality and non-territoriality in the polymorphic damselfly *Mnais costalis*. *Proceedings of the Royal Society, Biological Sciences*, 267 (1447), 969-975.
- Plomin, R., DeFries, J. C., McClearn, G. E., McGuffin, P. (2008). *Behavioral Genetics*. 5th ed. New York: Worth Publishers.
- Previc, F.H. (2009). *The dopaminergic mind in human evolution and history*. Cambridge: Cambridge University Press.
- Price J. S. (1967). The dominance hierarchy and the evolution of mental illness. *Lancet*, 2, 243-246.
- Price, J., Sloman, L., Gardner, R., Gilbert, P., Rohde, P. (1994). The social competition hypothesis of depression. *The British Journal of Psychiatry*, 164, 309-315.
- Raghanti, M. A., Stimpson, C. D., Marcinkiewicz, J. L., Erwin, J. M., Hof, P. R., Sherwood, C. C. (2008). Cortical dopaminergic innervation among humans, chimpanzees, and macaque monkeys: a comparative study. *Neuroscience*, 155 (1), 203–220.
- Rapoport, S. I. (1990). Integrated phylogeny of the primate brain, with special reference to humans and their diseases. *Brain Research Reviews*, 15 (3), 267–294.
- Reinherz, H. Z., Giaconia, R. M., Hauf, A. M., Wasserman, M. S., and Silverman, A. B. (1999). Major depression in the transition to adulthood: risks and impairments. *Journal of Abnormal Psychology*, 108, 500-510.
- Rios-Cardenas, O., Webster, M. S. (2008). A molecular genetic examination of the mating system of pumpkinseed sunfish reveals high pay-offs for specialized sneakers. *Molecular Ecology*, 17 (9), 2310-2320.
- Roszak, T. (1968). *The making of a counter culture*. Berkeley, CA: University of California.
- Rule, N. O., Freeman, J. B., Moran, J. M., Gabrieli, J. D. E., Adams, R. B., Ambady, N. (2010). Voting behavior is reflected in amygdala response across cultures. *Social Cognitive and Affective Neuroscience*, 5, 349–355.
- Rummel, R. J. (1994). *Death by government*. New Brunswick, NJ: Transaction Publishers
- Sale, K. (1973). *SDS*. New York: Random House
- Settle, J. E., Dawes, C. T., and Fowler, J. H. (2009). The heritability of partisan attachment. *Political Research*

- Quarterly, 62 (3), 601–613.
- Settle, J.E., Dawes, C. T., Christakis, A., Fowler, J.H. (2010). Friendships moderate an association between a dopamine gene variant and political ideology. *The Journal of Politics*, 72, 1189-1198.
- Simmons, L. W., Emlen, D. J., Tomkins, J. L. (2007). Sperm competition games between sneaks and guards: a comparative analysis using dimorphic male beetles. *Evolution*. 61 (11), 2684-2692.
- Sloman, L., Price, J., Gilbert, P., Gardner, R. (1994). Adaptive function of depression: psychotherapeutic implications. *American Journal of Psychotherapy*, 48, 401-416.
- Soares, J. C., Mann, J. J. (1997). The anatomy of mood disorders--review of structural neuroimaging studies. *Biological Psychiatry*, 41, 86-106.
- Stibbs, H. H. (1985). Changes in brain concentrations of catecholamines and indoleamines in *Toxoplasma gondii*-infected mice. *Annals of Tropical Medicine and Parasitology*, 79, 153-157.
- Takahashi, H., Kato, M., Matsuura, M., Mobbs, D., Suhara, T., Okubo, Y. (2009). When your gain is my pain and your pain is my gain: neural correlates of envy and schadenfreude. *Science*, 323 (5916), 937-939.
- Tochigita, M., Hibino, H., Otowaa, T., Kato, C., Maruia, T., Ohtania, T., Umekagea, T., Kato, N., Sasakia, T. (2006). Association between dopamine D4 receptor (DRD4) exon III polymorphism and neuroticism in the Japanese population. *Neuroscience Letters*, 398 (3), 333-336.
- Treier, S., Hillygus, S. (2005). The structure and meaning of political ideology. Working paper, University of Georgia, Athens, Georgia. Available online at <<http://www.tc.umn.edu/~satreier/apsa05TreierHillygus.pdf>>
- Trimble, M. R., Mendez, M. F., Cummings, J. L. (1997). Neuropsychiatric symptoms from the Temporolimbic Lobes. In Salloway, S., Malloy, P., Cummings, J. L. (Eds.), *The neuropsychiatry of limbic and subcortical disorders*, (pp. 123-132). Washington DC, American Psychiatric Press.
- Trivers, R. L. (1971). The evolution of reciprocal altruism. *Quarterly Review of Biology*, 46, 35-57.
- Trowbridge, G. (2004). Poll: Today's military: right, republican and principled. *Military Times*. 05 January 2004. Available Online at: <[http://militarytimes.com/projects/polls/2003\\_chart2.php](http://militarytimes.com/projects/polls/2003_chart2.php)>, <[http://militarytimes.com/projects/polls/2003\\_side1.php](http://militarytimes.com/projects/polls/2003_side1.php)>.
- US Census Bureau. (2002). Population Profile of the United States. <<http://www.census.gov/prod/2001pubs/p23-205.pdf>> (retrieved February 24, 2012)
- Vyas, A., Kim, S.K., Giacomini, N., Boothroyd, J.C., Sapolsky, R.M. (2007). Behavioral changes induced by *Toxoplasma* infection of rodents are highly specific to aversion of cat odors. *Proceedings of the National Academy of Sciences of the United States of America*, 104, 6442–6447.
- Wada, T., Takegaki, T., Mori, T., Natsukari, Y. (2005). Alternative male mating behaviors dependent on relative body size in captive oval squid *Sepioteuthis lessoniana* (Cephalopoda, Loliginidae). *Zoological Science*, 22 (6), 645-651.
- Webster J.P. (2001). Rats, cats, people and parasites: the impact of latent toxoplasmosis on behaviour. *Microbes and Infection*, 3, 1037–1045.
- Webster, J.P. (2007). The effect of *Toxoplasma gondii* on animal behavior: playing cat and mouse. *Schizophrenia Bulletin*, 33 (3), 752–756.
- Whiting, M. J., Webb, J. K., Keogh, J. S. (2009). Flat lizard female mimics use sexual deception in visual but not chemical signals. *Proceedings of the Royal Society, Biological Sciences*, 276 (1662), 1585-1591.
- Wiesbeck, G.A., Maurer, C., Thome, J., Jacob, F., Boening, J. (1995). Neuroendocrine support for a relationship between “novelty seeking” and dopaminergic function in alcohol-dependent men. *Psychoneuroendocrinology*, 20, 755–761.
- Williams, G.C. (1966) *Adaptation and Natural Selection: A Critique of Some Current Evolutionary Thought*. Princeton: Princeton University Press.
- Wilson, E. O. (1978). *On Human Nature*. Cambridge: Harvard University Press.
- Wilson, D. S., Wilson, E. O. (2007). Rethinking the theoretical foundation of sociobiology. *The Quarterly Review of Biology*, 82 (4), 327-48
- Winston, J. S., Strange, B. A., O’Doherty, J., Dolan, R. J. (2002). Automatic and intentional brain responses during evaluation of trustworthiness of faces. *Nature Neuroscience*, 5 (3), 277–283.
- Yu, Y., and Williams, D. R. (2006). Socioeconomic status and mental health. In Aneshensel, C. S., Phelan, J. C. (Eds.), *Handbook of the sociology of mental health*, (pp. 151-166). New York: Plenum Publishers.