WHY VIOLENCE?
Because the Irrationalities Induced By Choice Frames Make Perfect Evolutionary Sense

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Abstract. This paper argues that strength deters violence and weakness elicits it because selection favors moral relativism and choices framed as gains between equals but moral clarity and choices framed as losses as inequalities grow. Deterrents consist of evolutionarily significant consequences for violent acts, but their credibility (and effects) should vary with the likelihood that people frame choices as gains or losses. Findings consistent with these claims come from (1) tests for cycle-of-violence effects on structured interview data for 344 post-transition men and women in Barbados, (2) tests for violence exposure effects on structured interview data for 165 men and women from Colombia, Denmark, Israel, South Africa, and the United States, and (3) a comprehensive test for framing effects with a pooled cross-sectional time-series on violent crime rates and the likelihood of evolutionarily significant consequences for violence perpetrators in the United States. Significant violence rate reductions may come from interventions that target choice frames either directly (for adults) or indirectly, by reducing violence toward children. The greatest violence rate reductions may require the creation of intervention cultures.

Key Words: Violence, IPV, Terrorism, Rational Choice Theory, Choice Frames

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INTRODUCTION

In 1998, *Human Organization* published an article titled *Why Violence?* That study used data from Antigua and Barbados to test the hypothesis that violence comes from social relations (weakness elicits violence) against the possibilities that violence comes from the characteristics of individuals (e.g., the ‘rotten man’ hypothesis) or the circumstances in which they find themselves (e.g., poverty). Here I extend that line of reasoning to argue that strength deters violence and weakness elicits it because selection favors choices framed as gains between equals and as losses as inequalities grow. Deterrents consist of evolutionarily significant consequences for violent acts, but their credibility (and effects) should vary with the likelihood that people frame choices as gains or losses. People subject to violence, particularly during childhood, may evolve a propensity to frame choices as losses and moral clarity about the parameters of acceptable and unacceptable behavior. Significant violence rate reductions may come from interventions that target choice frames either directly (for adults) or indirectly, by reducing violence toward children. The greatest violence rate reductions may require the creation of intervention cultures.

VIOLENCE

Violence comes in forms that include school-yard bullying and stalking, the battering of women and children, shootings, stabbings, and assaults, and organized warfare and terror attacks. Even for survivors, violence-induced trauma shortens lives and lasts a lifetime. Widom’s (2005) new instrument for lifetime trauma contains 27 major items which range from direct combat experience to being stalked (we ignore her categories of disasters and “other dangerous situations”). This instrument thus recognizes that some forms of violence do not produce important forms of trauma. These include the spanking, cuffing and equivalent physical punishments that parents may inflict on their children, the periodic hurtful words that all individuals inflict occasionally on others, and most of the physical and emotional violence in which children and adolescents commonly engage as they compete for status and establish social boundaries (see, e.g., Hawker and Boulton 2000, Dao et al. 2006). Trauma that induces health problems or critical shifts in behavioral patterns in survivors comes either from dramatic forms of violence (being shot or witnessing someone being killed; e.g., Hobfall, Canetti-Nisim, and Johnson 2006) or by violence made dramatic because it arrived as a signal from a powerful agent. The latter may include racism (e.g., Williams, Neighbors, and Jackson 2003), job discrimination (e.g., Din-Dzietham et al. 2004), discriminatory school-yard bullying (e.g., Twemlow et al. 2006), and community disadvantage (e.g., Bellair and McNulty 2005).

Terrorist attacks constitute the most dramatic forms of violence in the contemporary world. Between the mid 20th century and the first years of the 21st century, terrorist incidents skyrocketed from 1-2 incidents per year to 3 per day. Israelis alone have experienced nearly 800 terror attacks since the signing of the Oslo agreement in 1993, which was intended to establish non-violent relations between Israel and Palestinians. But terrorist attacks have also killed Russians, Americans, British, Danes, Canadians, Saudis, Germans, French, Egyptians, Jordanians, Indians, Australians, Japanese, Philippinos, Indonesians, Pakistanis, Iraqis, and Afghans. Terrorists left Dutch filmmaker Theo van Gogh dead on the sidewalk with a knife in his chest, and the editor of a Sudanese newspaper, Mohammed Taha, without a head. Terrorist threats drove Hirsi Ali, a member of the Dutch parliament, to flee to the United States, and Seyran Ates, a German women’s rights lawyer who won the Berlin Women’s Prize in 2004 and a Civil Courage Prize in 2005, to close her law practice.
The frequency of these kinds of terrorist incidents, however, pales in comparison to another form of violence that terrorizes its recipient, violence against women. Data collected in the U.S. through the National Violence Against Women Survey (NSVAV; Tjanden and Thoennes 2000) indicate that 5.3 million terrorist incidents of this kind occur to women each year. These result in nearly 2 million injuries, 8 million days of lost paid work, and around 5.6 million days of lost household work (CDC 2003). Because the effects of such violence accumulate, the severity and breadth of sequelae are especially problematic (Heise et al. 1994). The direct effects of violence include scratches, bruises, welts, lacerations, knife wounds, broken bones, head injuries, sore muscles, internal injuries, broken teeth, burns, bullet wounds, and death (Tjanden and Thoennes 2000). Sequelae of violence include everything from an elevated risk of STDs/HIV, PID, and cervical cancer (e.g., Paolucci, Genuis, and Violato 2001) through depression and PTSD (e.g., Handwerker 1999a) through suicide attempts, homicide by the victim, and later homicide of the initial victim (e.g., Heise et al. 1994, Sharps et al. 2001). Whitaker et al. (2007) show that significant trauma from intimate partner violence extends to men as well as women. Within the United States, violence thus entails huge social and economic costs (e.g., Dolan et al. 2005). The CDC has estimated the annual costs of intimate partner violence against women in the United States at $5.8 billion (CDC 2003). Violence to children, however, accompanies violence to women (Handwerker 1993, 1996). Violence to children, whether structural or direct produces violence in the next generation (e.g., Currie and Tekin 2006). The costs of the assaults, robberies, and murder by adults who were abused as children add another $8.6 billion, which makes the annual cost of violence in the United States exceed the budgets of the Department of the Interior, Labor, Commerce, or the Treasury, and approximate the budget for the Department of Justice.

THE EVOLUTION OF CHOICE FRAMES

The premise that strength deters violence and weakness elicits it lies at the heart of Sun Tzu’s 2500 year old The Art of War, Machiavelli’s The Prince, Beccaria’s On Crimes and Punishments, and rationalizes nearly all international, domestic, and personal violence prevention policies. A widely shared personal policy in American culture, for example, holds that individuals should avoid ‘dangerous situations,’ meaning situations in which one makes oneself ‘vulnerable’ because they send a signal of weakness to potential predators. It follows, and we tell children, to stay away from strangers and not to talk with them or get in their car. We tell women not to go out alone; while they’re out we urge them to avoid distractions (cell phones, searching purse), to walk with authority and purpose (don’t look scared); that, if approached, to look the person in the eyes (to signal alertness), talk with the person (to signal that you can identify them); and, if attacked, to yell, (threaten to) fight back, and carry (something) with which to fight back effectively.

Shared assumptions, norms, and patterns of behavior that constitute cultural understandings like this one may acquire coherence through selective processes that maximize a cultural participant’s ability to survive and eat well reliably (Handwerker 2009). Human imagination produces a continuous flow of new ideas and behaviors. But specific novelties originate unexpectedly and invariably contain imperfections. By assigning emotional weights to the consequences of behavior for a person’s ability to survive and eat well reliably, our brains may exert a selective effect by identifying knowledge and reasoning imperfections, giving precedence to one or another mode of framing choices, and thus altering the values that apply to a set of choice alternatives.

Selection must favor the evolution of a mechanism that weights choice consequences (S) by the change they produce in the likelihood that an organism will avoid death, eat well reliably and, thus, optimize its reproductive success. Selection necessarily gives priority to short-run success and thus must also favor a mechanism that weights the severity (S) of a consequence by its immediacy (I) and certainty (C).
Consequences that do not occur immediately introduce uncertainty, measured as certainty weighted by immediacy. The evolutionary significance (ES) of a consequence thus consists of a severity metric weighted by the immediacy and uncertainty of S: \( ES = S^*I^*(I^*C) \). Given that each variable exhibits values between 0 and 1, ES metrics over .5 reflect consequence severity of at least .6 and very high levels of immediacy and certainty. ES metrics over .5 thus identify consequences that may significantly decrease the likelihood that an organism will survive well if at all.

Human relationships may exhibit dynamics that vary with the relative power of the actors. **Power** is the ability to influence or control the behavior and beliefs of others even without their consent (Weber 1922). Power comes from the capacity of one person to inflict evolutionarily significant consequences on another. The capacity to inflict these consequences accrues to any individual or organization to the extent to which it serves as gatekeeper for access to means of survival and resource access for clients. Power grows with the importance of the resources involved and the number of clients (Handwerker 2009: 135-140).

Equality characterizes a relationship when neither social actor depends on the other for survival and resource access, or when both depend on the other equally. Mutual dependence equality is characterized by equal capacities to inflict evolutionarily significant consequences on the other. Sanctions in the form of costly punishments may have co-evolved with the propensity to cooperate (Henrich et al. 2006). The common assumption that weakness elicits violence and strength deters it thus may come from a mind evolved to respond sensitively to variations in the immediacy and certainty with which a consequence bears on life, reliable access to food, and reproductive success (Nairne, Thompson, and Pandeirada 2007, Glimcher, Dorris, and Bayer 2005). When social actors can respond (tit-for-tat) with equivalent consequences, maximum survivability comes from keeping ES below .5. Selection thus favors the evolution of a mechanism that frames behavioral choices as gains and links this choice frame with an exaggerated sense of risks. Behavioral choices that focus on gains thus avoid interactions in which ES> .5 because choice makers fear losing something they worked hard to acquire. Equals consequently engage in risk aversion strategies and, in general and on balance, treat each other well. Because equals rarely violate behavior norms in significant ways, equalities produce stability in social relations. Among equals, consequently, selection operates only weakly on moral clarity regarding the parameters of acceptable and unacceptable behavior and, thus, the ability to identify and (attempt to) maintain behavioral boundaries.

Equality shifts to inequality as the capacity to inflict evolutionarily significant consequences on an other emerges and grows. Powerful people maximize their survivability by maintaining or increasing their capacity to inflict evolutionarily significant consequences on others. As \( ES_{max} \) falls for one social actor, however, selection favors the evolution of a mechanism that shifts choices framed (cautiously) as gains to choices framed as losses, and links these losses to a mechanism that decreases the weight of perceived negative outcomes in direct proportion to the evolutionary significance of the choice. As \( ES_{max} \) differences grow, consequently, behavioral choice consequences become increasingly irrelevant to powerful people who develop a growing sense of entitlement. As power differences grow larger, the fair behavior that characterizes interaction between equals shifts increasingly rapidly to increasingly exploitative and eventually violent behavior.

As the ES metrics powerless people experience grow larger than .5, clients search increasingly intensively for alternative resource access channels to counter the power of gatekeepers. Inequalities thus generate instability. So long as people frame their behavioral choices as involving gains and ES remains <.5, tit-for-tat behavioral responses keep exploitative behavior within bounds. However, once ES grows beyond .5, people fear the loss of something that constitutes their (human) right and experience anger if not outrage if their entitlements are not met. As ES grows, both powerful and powerless people discount at increasing
rates the risks they undertake to defend themselves. Because a shopkeeper confronted by an armed robber
risks death whether or not he or she grabs a gun to stop the assailant, for example, grabbing the gun adds so
little to the immediate threat that it doesn’t count. Power inequalities fall as the number or importance of
alternative resource access channels grows. Growth in the ES$_{\text{max}}$ of relatively powerless people elicits non-
linear growth in powerful people’s exploitative and violent behavior, which declines once the ES$_{\text{max}}$ of
formerly powerless people exceeds .5. Theoretically as well as empirically, and for both state (e.g., Rummel
1995, Krain 2005) and individual (e.g., Figueredo et al. 2001) actors, weakness thus elicits predation and
strength deters it. As inequalities grow, the increase in violence exposure induces selection for moral clarity
about behavioral boundaries and dehumanization of the 'other.' People count as fellow humans to the
extent to which they treat each other fairly. Our minds transition out of the category of 'fellow human'
anyone who fails this test; the distance between fellow human and enemy grows with the predation threat.
People who grow up in such traumatic/violent (exploitative) cultural environments should learn to be
highly sensitive to power relations, respond quickly and strongly when others attempt to take advantage of
them, and, to minimize the chance of further exploitation, search harder than others for ways to avoid
dependency (Handwerker 1993).

**PREVIOUS EMPIRICAL STUDIES**

Figure 1 shows what we might expect from an empirical study. As the evolutionary significance of
consequences grows, violence rates should fall at rates that vary with the likelihood that people frame
choices as losses. As the ES metric rises, populations characterized by minimal inequalities (and a very low
likelihood that people frame choices as losses) should exhibit an increasing rate of decline in violence,
whereas populations characterized by severe inequalities (and a very high likelihood that people frame
choices as losses) should exhibit a decreasing rate of decline in violence.

**INSERT FIG 1 ABOUT HERE**

We shall return to Fig. 1 later as part of a test of the full set of hypotheses. Its present importance is to
exhibit findings consistent with a series of publications which appeared over the last decade or so (e.g.,
and that people subject to childhood violence (a) evolve behavioral mechanisms that reduce the likelihood
of finding themselves subject to violence as adults, and (b) at least by implication, evolve moral clarity
about the parameters of acceptable and unacceptable (violent) behavior. For example, West Indian data
consistently show that power inequalities between domestic partners (for example where women have little
income, no significant income generating skills, and few or no relatives or friends to help them) elicit
violence toward women and their children; conversely, power equalities between partners elicit affectionate
and supportive behavior for women and their children, irrespective of class, education, or the presence of
stepfathers in the home. The 1998 study pointed out further that as gender power inequalities decrease,
the chances that even rotten men act affectionately grows by a factor of 9 (from .057 to .512) and the
chances that they act violently falls by more than 50% (from .889 to .412). Moreover, power corrupts
even good men. As gender power inequalities grow, the chances that even good men act affectionately falls
75% (from .813 to .200), and the chances that they act violently grows by a factor of 4.6 (from .145 to .
660). Similarly, people subject to violence, particularly during childhood, evolve behavioral patterns that
reduce their chances of becoming subject to violence as adults.

Because women can use their sexuality and childbearing capacity as a means to empower themselves in
childhood environments marked by exploitation and trauma, for example, variation in sexual cultures
corresponds with variation in a woman’s experience with traumatic/violent and supportive/affectionate
cultural environments. Women in Barbados who grew up in households marked by affection and support began sexual activity relatively late, had relatively few partners and few or no sexually transmitted diseases (STDs), experienced good relationships with their current partner, and were subject to little sexual or gender-based harassment later in life. Barbadian women who grew up in households marked by gender inequalities, by contrast, experienced sexual, physical, and emotional violence towards women and children. This exploitative childhood environment corresponded with an early start to sexual activity with much older first partners and, in adolescence, high levels of childbearing as well as a pattern of high sexual mobility which continued through their early 30s. Fuentes (2008) found similar patterns among diverse American women.

Both Barbados and Antigua exhibited what we can fairly characterize as a culture of violence prior to major structural change in the regional economies. As elsewhere in the West Indies, not only was battering a culturally acceptable practice, men occasionally asserted droit de seigneur rights to daughters. More than half of the people interviewed reported that his or her mother experienced significant levels of emotional and physical violence. Approximately 1 in 4 experienced childhood emotional and physical violence. On Barbados, nearly 1 in 3 women experienced childhood sexual violence. Opportunities for West Indian women to escape dependence on men and on childbearing increased dramatically after the mid 1960s as the economy shifted from an emphasis on agriculture to an emphasis on tourism. Most new job opportunities required high levels of educational and technical skills. The expansion of employment opportunities drew women into school and pushed them further than they would have gone otherwise. Women used their education to take advantage of the new employment opportunities in increasing numbers. Women who empowered themselves in this way experienced from their partners far more domestic help, emotional support, and affectionate behavior than women who are not -- and little or no family violence. Women freed from dependency on childbearing had fewer children. Women simultaneously freed from dependency on men enjoyed markedly better relationships with their partners. The incidence of family violence fell dramatically in just one generation.

Table 1 reports as yet unpublished findings of a multiple logistic regression test for social learning 'cycle of violence' effects among 344 of these post-transition men and women in Barbados. The binary dependent variable integrates emotional and physical violence because both consistently appeared together (1993, 1998). Post-hoc tests for the effects of potential confounders, whether main effects, poverty and social status, SES-based strains between partners, social learning, and family and personal histories, show effects best explained by chance.

Some findings appear unsurprising as well as theoretically uninteresting. Men who reported emotional abuse from their partner, for example, reported treating their partner violently nearly 24 times more often that men who reported no such emotional abuse. Women who traded sex for drugs reported elevated rates of violence, as did women in long duration unions. The latter reflected a tendency among the oldest women in the Barbadian sample to have been subject to violence earlier in life.

Some findings appear theoretically interesting but unsurprising considering earlier studies. Women who could not count on interventions from their sons or brother or father reported a rate of violence 10 times higher than women who could count on those interventions, for example. Similarly, women without the personal power that comes from well-paying employment based on high educational achievement reported a rate of violence about 3.6 times higher than women with such power. The finding that the likelihood of violence falls with the degree of affection a woman receives from her partner provides further support for
the 'rotten man' hypothesis. The finding that sexual mobility reduces a woman’s exposure to violence from her partner provides further support for the empowering effects of sexual behavior.

Some findings appear both surprising and theoretically interesting. We see one widely reported social learning effect, for example – that women who were abused by their mothers reported higher levels of abuse than women who grew up in a supportive childhood environment. We do not, however, see an unconditional cycle-of-violence effect among abused men. Men abused by their father did not by virtue of that experience inflict violence on their partner. Men whose father abused their mother likewise did not by virtue of that experience inflict violence on their partner. Men whose father abused their mother who subjected their sons to violence abused their partners, but only when the partner relationship exhibited significant inequalities.

NEW EMPIRICAL STUDIES

Exposure to Violence Induces Moral Clarity. – Exploratory, mixed method ethnographies carried out over the last few years sought to compare the findings from the U.S. and the West Indies with countries in which citizens experience violence very rarely (e.g., Denmark) and countries in which citizens experience war-zone levels of violence (e.g., Colombia, South Africa), plus a country in which citizens face war-zone conditions daily (Israel). To identify and describe cultures, ethnographic analysis aims to accurately characterize the degree and kind of sharing among research participants. Accurate and precise answers depend on samples designed to actively search for cultural variation that comes from specific forms of variation in antecedent life experiences. Sample size depends on the degree of similarity among cases. Table 2 shows the degree to which we captured life history diversity in the study countries. Post-hoc calculation of inter-participant correlations revealed significant levels of sharing (r=.50 and higher) about the cultural models used to identify and reason about behavioral boundaries and violence. At these levels of sharing, a sample of 20 will yield validity and reliability coefficients over 0.95. The total sample of 165 for this set of pooled cross-sectional data remains too small, however, to explore country-level hierarchical effects. Findings reported here deserve appropriate caution in interpretation. They nonetheless provide support for the implication of earlier findings, that behavioral mechanisms that reduce the likelihood of adulthood violence rest on moral clarity about the parameters of acceptable and unacceptable (violent) behavior.

INSERT TABLE 2 ABOUT HERE

Figure 2 shows a consensus analysis plot for agreements about items with which we sought to measure the clarity with which individuals identified differences in acceptable and unacceptable behavior. This analysis produced a classic example of two cultural agreements characterized by clinal variation between the qualitatively different extremes. Table 3 shows those extremes. Countries appear in different colors and the size of symbols appears proportionate to the factor scores of the moral relativism-moral clarity scale.

INSERT FIGURE 2 ABOUT HERE

INSERT TABLE 3 ABOUT HERE

We measured lifetime trauma exposure with an adaptation of Widom’s (2005) new instrument. Guttman scaling analysis of this items suggests a common exposure pathway (Coefficient of Reproducability = .861). Principal components analysis, however, confirmed that exposure to the most dangerous events (e.g., being shot at, seeing someone attacked with a weapon) comprised a single scale (σ = .91).
analysis of the items used to measure moral relativism about right and wrong, exposure to the most
dangerous violence events, and judgments about the acceptability of defending yourself and others
violently, shown in Figure 3, exhibit a cline consistent with the possibility that exposure to violence may
induce clarity in judgments about acceptable and unacceptable (violent) behavior.

INSERT FIGURE 3 ABOUT HERE

Violence comes from choices framed as a loss. – The clearest evidence that loss frames may induce choices
to act violently will come from choice experiments, currently being designed. Here I substitute narratives in
which individuals frame violent action as a response to a loss. Some we collected as case studies of violence
individuals personally experienced. Some we collected from ‘What If?’ scenarios. Some we noted in the
words spoken in social settings. Examples include:

- Remark at dinner, wife to husband: ‘If you take my bread, I’ll hurt you.’

- A 26-year old man recalls: ‘I was 10 years old, and the neighboring Tajik kid living across the street
  from me was 8 years old. We often played together, and I used to pick on him and bully him around a
  lot, just for the fun of it. It was a boy thing… I liked being the older, bigger one and the leader, so when
  we played games, I set the rules and he had to oblige. I guess the kid got tired of my bossing him around,
  and when he turned 9 years old, he thought he could confront me. He got a little bit bigger at 9, and
  cockier. He confronted me one day. We started arguing about something silly, when he got into my face
  saying, ‘Wanna fight? Wanna fight?’. I told him, ‘Let’s fight later. Meet me here at the same spot later,
  and we will fight, if that’s what you want.’ I went home and told my older brothers what happened. I
  was apprehensive, and I didn’t want to fight, but my brothers got me pumped to fight the kid. Also, I
  was thinking, ‘If I will choose not to fight, then it’s the same as having this kid automatically win.’ If I
  didn’t fight, I knew he would then be the bully of me.’

- A woman in her mid-30s explains that, in a mugging ‘it is relatively obvious what they want, your
  wallet, give it to them and they’ll leave. With an intruder in your home at a time when they know you
  are there, you can assume they don’t just want your stuff. I would assume the worst and take action to
  prevent death.’

- A 38 year old man pointed out that ‘I hit [women] when I can’t get through to them [communicate my
  point of view] no other way. I would beat women not because I am a man and they are a woman, but
  because it irritates me to the fullest when I can’t get through verbally.’

Data collected thus far contain no contrary examples.

The credibility of deterrents declines when choices are framed as losses. – This hypothesis returns us to
the violence rates in Figure 1, which are simulated violent crime rates for the United States between 2001-
2004, given specific values for variables that bear on the evolutionary significance of a consequence and its
credibility. If evolved properties of mind provide the means by which we respond to the world of
experience, the immediacy with which a consequence bears on survival, eating well reliably, and
reproductive success, should determine the design of choice alternatives and the costs of their consequences,
which we ordinarily call the balance of power in a relationship. Significant and quick consequences should
deter violence. A low risk of significant and quick consequences should increase violence. Relatively
insignificant and slow consequences should also increase violence.
The following test of these hypotheses uses a pooled state-level cross-sectional (50 states), four-year time series for the years 2001-2004 concerning the incidence of three kinds of violence in the United States: murder and non-negligent homicide, robbery, and aggravated assaults. The dependent variable comes from FBI Uniform Crime Reports. I imputed the occasional missing datum by assigning the average for all states with no missing values. State and year specific crime rates measure incident reports relative to CDC population estimates. All forms of violent crime (murder, robbery, aggravated assault, with or without firearms) fluctuate together over space and time and constitute a unitary cultural phenomenon. A principal components analysis of the various violent crime rates revealed a single factor (factor 1 explained 81.64 percent of the matrix variance and its eigenvalue was 8.4 times larger than the eigenvalue for factor 2). Using only one of the variables that comprise a multidimensional phenomenon such as violent crime introduces measurement error or, perhaps, measurement bias. The dependent variable for this study thus consists of the factor scores derived from this analysis ($\sigma=.768$).

The following analysis looks at the effects on violent crime rates of three classes of variables: (1) those which measure the properties of social networks that reduce or increase the likelihood of detection and punishment, (2) those which measure cultural variation in the assessment of punishment severity, and (3) those which measure cultural variation in the speed of detection and punishment severity. These variables constitute ‘superorganic’ properties of human populations in the sense meant by Alfred Kroeber: they constitute properties of the environments in which people live, which affect our lives however much we might want to wish them away.

Small world environmental properties, like neighbors or authorities who intensively monitor behavior (e.g., the former Soviet Union, contemporary Japan), increase the immediacy and certainty of sanctions of a given severity. Short-term memory limitations imply that the maximum size of face-to-face networks approximates 140 people (Bernard and Killworth 1973). Nonetheless, huge numbers of people organized in many localized clusters over great distances may be connected by a small number of ties to create small worlds in which members experience great connectedness. High levels of connectedness and the sense of belonging that it elicits mean a higher likelihood that breaches of behavioral norms will be identified and sanctioned. Low levels of connectedness and the sense of anonymity that it elicits mean a lower likelihood that breaches of behavioral norms will be identified and sanctioned. Population compression creates new network ties that may produce only small changes in the degree of clustering but dramatic declines in the average distance between network members (Watts and Strogatz 1998). Population density relative to population size thus measures small-world properties that should increase the certainty of immediate sanctions and predict decreases in violent crime rates.

Environmental properties that increase the likelihood of evolutionarily significant sanctions (ES>.5) may consist of friends and family who deter battering by threatening physical intervention (e.g., Koss 2000), a practice of swift, consistent incarceration for violation of a restraining order (e.g., 4th District Court, Knox County, TN), or a population of armed citizens (e.g., Switzerland, Israel). Within the contemporary United States, where FBI data for the years 2001-2004 indicate that 60% of murders and non-negligent homicides, nearly 40% of robberies, and 17% of aggravated assaults involve the use of guns, the prevalence of firearms and the ease with which a citizen may acquire them (e.g., in the form of licenses for the concealed carry of weapons) may provide an effective way to enforce breaches of behavioral norms quickly. Death or serious injury constitutes an excessively costly consequence. Even small and physically weak people can and do use a gun to kill or seriously injure predatory attackers. In the United States, people use guns daily to protect themselves effectively (Hahn et al. 2003, Kleck and Gertz 1995, Tark and Kleck 2004).
Data on the proportion of population in urban areas comes from the U.S. Census in 2000. The small world (population compression) variable consists of population density relative to population. The armed citizenry variables were formed with data from the CDC and information on the laws and practices pertaining to the issue of licenses for the carry of a concealed weapon (CCW; http://nraila.org/GunLaws/). The CDC’s Behavioral Risk Factor Surveillance System provided estimates of the proportion of households with guns. I imputed these missing data with SYSTAT’s EM maximum likelihood estimation procedure, once it was determined that missing values in the gun prevalence data were missing completely at random relative to the violent crime variables (Little’s MCAR statistic = 2.902, df=6, p=.821). I measured CCW access as 1 for states that ‘may issue’ CCW permits but which do so rarely (e.g., Massachusetts, New York, New Jersey), 5 for states that ‘may issue’ CCW permits and do so regularly (e.g., Connecticut), 6 for states that ‘shall issue’ CCW permits for any qualified individual who requests one (e.g., Florida, Texas), and 10 for Vermont and Alaska, which do not require permits for CCW.

The ‘Choices Frames as Losses’ proxy variables consist of (1) the proportion of minority (African American, Latino, and Native American) men aged 18-29 expressed as standard scores, and (2) the supply of poor, unemployed, and uneducated men measured as factor scores from a principal components analysis of the proportion unemployed of the men aged 16 and over, the proportion of men aged 25 and over who had not completed high school, the proportion of population below the poverty level, and the proportion of families with children headed by women (σ = .870). LOWESS smoothed plots show threshold effects for the ‘choices framed as losses’ proxies. Both covary strongly with violent crime rates up to a score of about 0.100 (young minority men) and 0.300 (poor, unemployed, uneducated). This standard score of 0.100 corresponds with a proportion of approximately 4% (young minority men made up anywhere from 0.4% to 15% of state populations, with an average of 3.7% and a standard deviation of 2.8%). The factor score of 0.300 corresponds with a proportion of 25% or more of the men aged 16 and over unemployed and the men aged 25 and over without a high school diploma or the equivalent. The variables used in the models reported in this paper assign a score of 0.100 to all scores beyond the threshold point for the young, minority men variable, and a score of 0.300 to all scores beyond the threshold point for the poor, unemployed, and uneducated variable. A test for a time trend in violent crime, small-world properties, and the percentage of homes with guns revealed change plausibly explained by random variation (all Bonferroni-corrected probabilities = 1.000).

I analyzed this pooled state-level cross-sectional time series for the years 2001-2004 with SYSTAT’s procedure for hierarchical linear mixed models using restricted maximum likelihood estimates. I treated both the intercept and the estimates as random effects, which thus allows us to make inferences bearing on future tests that use a different set of effect levels. I tested for interactions between the Immediacy and Certainty (small world) variable and the variables that should measure ES for people who frame violence decisions as gains to determine if each contributed to the effectiveness of the other. I also tested for interactions between the gun variables and the large-world and ‘choices framed as losses’ proxies to determine if ‘more-guns-mean-more-crime.’ Because the violent crime rate may vary with proportionate rather than simple unit changes in determinants, I looked for nonlinearities. These tests also evaluated the hypothesis that a population’s likelihood of framing a violence choice as a gain or a loss would produce two sets of effects.

Findings appear in Table 4, which shows the estimates used to construct the simulation in Figure 1, which come from a model with an Akaike weight of .999 (Richards 2005). To produce the simulation in Figure 1, I set the proportion of population in urban areas, which reduces the certainty of immediate sanctions and predicts increases in violent crime rates, at 50%.
ES scores for Figure 1 consist of the natural logarithm of the sum of observed scores for three environmental properties that served as proxies for the certain, immediate application of evolutionarily significant consequences for violent behavior: (1) the small world properties of social networks, (2) the proportion of households with guns, and (3) access to permits for concealed carry of a weapon (CCW), measured on a 10-point scale. Correlates of violent crime rates like the size of the male prison population ($r=-.221$, $p=.002$), median income ($r=.165$, $p=.020$), Gini coefficients ($r=.304$, $p<.001$), the size of the black population ($r=.283$, $p<.001$), and the difference between white and minority per capita income ($r=.314$, $p<.001$), showed no effect once we controlled for the certainty of immediate, life-threatening sanctions and variation in their deterrent effect linked to proxy measures of the prevalence of loss choice frames. Figure 4 shows the empirical relationship between U.S. violent crime rates and the distribution of effective means of self-defense from 2001-2004.

DISCUSSION

Rational choice theories (e.g., Becker 1968, Shafir and LeBoeuf 2005), which provide powerful explanations in the social and behavioral sciences, assume that the weighted average of preferences and the likelihood of their realization explain why people choose one thing over another. Rationality abounds in cultural designs, of course (Handwerker 2009: 16-18, 74-78). But the fact that we cannot make 'rational' decisions (e.g., Kahneman and Tversky 1979, Kahneman 2003, Mercer 2005) leaves us wondering how. Real world choices depend heavily on availability heuristics, confirmation biases, evaluations based on likeness rather than likelihood, overestimates of the likelihood of rare events, and many forms of 'irrelevant' information. If, for example, we frame a choice as a loss, we discount real risks; if we frame a choice as a gain, we exaggerate risks.

Not only do real-world choices exhibit predictable 'irrationalities,' rational choice theories cannot explain preferences (Shafir and LeBoeuf 2005, Bueno de Mesquita and McDermott 2004). Bueno de Mesquita’s (2003) rational choice model achieves remarkably accurate predictions, but these depend on accurate empirical knowledge of decision-maker preferences, not a theory of preferences. ‘Cultural’ explanations of preferences (e.g., Wildavsky 1987) beg the question of the origin of cultural preferences. Consequently, rational choice deterrence theories, which start from the familiar premise that strength deters violence and weakness elicits it, inconsistently identify deterrents and do not tell us what makes a threat credible (Huth 1999). Empirical tests thus may provide only ambiguous support (e.g., Cameron 1988, Jervis 1989) and policies based on these theories may not work well (Nagin 1998, Koss 2000, Houston and Richards 2004, Ward, Stafford and Gray 2006).

Findings discussed here indicate that strength deters violence and weakness elicits it because selection favors choices framed as gains between equals and as losses as inequalities grow. Deterrents consist of evolutionarily significant consequences for violent acts, but their credibility (and effects) should vary with the likelihood that people frame choices as gains or losses. People subject to violence, particularly during childhood, may evolve a propensity to frame choices as losses and moral clarity about the parameters of acceptable and unacceptable behavior. This mechanism for an intergenerational cycle of violence and its intragenerational effect on an individual’s propensity to frame a choice as a loss may provide useful targets.
for policies and interventions that seek to prevent or deter violence. The greatest violence rate reductions may come from intervention cultures.

'AN ARMED SOCIETY IS A POLITE SOCIETY'
Robert Heinlein

If choice frames make perfect evolutionary sense, we now can explain why, possibly, Sun Tzu, Machiavelli, and Beccaria were right. This means that American culture is right to hold that individuals should avoid appearing ‘vulnerable’ because, in fact, vulnerability invites predation. Of course, this also means that 1960’s war mongers were correct that we can’t have peace without preparing for war. Moreover, gun nuts must be correct that free exercise of our 2nd Amendment rights constitutes the single most effective way to suppress violent crime. Violent crime may correspond with poverty because the poor find it particularly hard to defend themselves, not because poverty breeds crime. Inner city violence rates may correspond with inequalities in the distribution of effective means of defense. Participation in intervention cultures marked by shared clarity about the boundary between acceptable and unacceptable (violent) behavior, competence in at least one martial art (like Judo or the Art of the Gun), and social networks filled with people who assume that friends and relatives should actively protect each other might constitute the most effective way to suppress domestic as well as other forms of violence (like terrorism).

Implications abound. The finding that all violence originates as defensive action means, for example, that it makes no sense to condemn or applaud violence without first determining the worth of what people seek to defend. This finding also implies that violence stops only when the parties who defend themselves find that they may reliably expect to experience behavior that elicits choices framed as gains, not losses. Historically, this has meant either an overwhelming defeat of one party by the other or stalemate. How to create those equalities without overwhelming defeat or stalemate remains one of our most important challenges. Toward that end, Cass Sunstein and Richard Thaler (2008) think that ‘irrationalities’ like these, which produce violence, warrant intervention by experts. If these irrationalities make perfect evolutionary sense, however, philosopher-king intervention of this sort will systematically make everyone's (excepting the 'experts') life worse.
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FIGURE 1.
Simulated Rates of Violence by the Evolutionary Significance of Consequences, the Credibility of Which Varies with Prevalent Inequalities and the Likelihood that People Frame Choices as Losses.
TABLE 1.
Determinants of Violence Toward Women Among Post-Transition Men & Women, Barbados

<table>
<thead>
<tr>
<th>DEPENDENT VAR: Abused</th>
<th>95.0% BOUNDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARAMETER</td>
<td>ODDS RATIO</td>
</tr>
<tr>
<td>Woman A Man Reports as Emotionally Abusive</td>
<td>23.747</td>
</tr>
<tr>
<td>No Intervention Assistance for Dependent Woman</td>
<td>10.118</td>
</tr>
<tr>
<td>Woman Without Personal Power from Educational Achievements and Employment Success</td>
<td>3.565</td>
</tr>
<tr>
<td>Women Who Were Abused by Their Mothers</td>
<td>2.842</td>
</tr>
<tr>
<td>Sexual Partners for Women Involved with Drugs</td>
<td>1.249</td>
</tr>
<tr>
<td>Powerless Women in Relationships With Men Abused by Abused Mothers</td>
<td>1.145</td>
</tr>
<tr>
<td>Woman in Union of Long Duration</td>
<td>1.085</td>
</tr>
<tr>
<td>Woman Given Affection by her Partner</td>
<td>0.890</td>
</tr>
<tr>
<td>Woman with Many Sexual Partners</td>
<td>0.860</td>
</tr>
</tbody>
</table>

\[2^{(LL(N)-LL(0))} = 142.426\text{ WITH 9 DOF, CHI-SQ P-VALUE = 0.000}\]

Log-Likelihood Tests of the H0: \(\beta_{k}=0.00\) for all Control Variables

<table>
<thead>
<tr>
<th>Main Effects</th>
<th>LL</th>
<th>DF</th>
<th>Chi-sq</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>146.881</td>
<td>15</td>
<td>4.455</td>
<td>.814</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poverty and Social Status</th>
<th>LL</th>
<th>DF</th>
<th>Chi-sq</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>144.844</td>
<td>14</td>
<td>2.418</td>
<td>.789</td>
</tr>
</tbody>
</table>

Lower class home, Woman's job status, Partner's job status, Woman's educational level, Partner's educational level

<table>
<thead>
<tr>
<th>Socioeconomic Strains</th>
<th>LL</th>
<th>DF</th>
<th>Chi-sq</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>142.457</td>
<td>13</td>
<td>0.031</td>
<td>.999</td>
</tr>
</tbody>
</table>

Difference in job status, Difference in educational level, Difference in job status for people in the lower class, Difference in educational level for people in the lower class

<table>
<thead>
<tr>
<th>Social Learning</th>
<th>LL</th>
<th>DF</th>
<th>Chi-sq</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>148.115</td>
<td>20</td>
<td>5.689</td>
<td>.893</td>
</tr>
</tbody>
</table>

MEN AND WOMEN: Childhood abuse by mother's partner, MEN ONLY: Childhood abuse by mother
MEN AND WOMEN: Abuse to mother by mother's partner, MEN AND WOMEN: Affection toward mother
MEN AND WOMEN: Affection from mother's partner, MEN AND WOMEN: Affection from mother
### TABLE 1.
Determinants of Violence Toward Women Among Post-Transition Men & Women, Barbados

<table>
<thead>
<tr>
<th>Family &amp; Personal History</th>
<th>LL</th>
<th>DF</th>
<th>Chi-sq</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrestricted</td>
<td>147.755</td>
<td>23</td>
<td>4.101</td>
<td>.995</td>
</tr>
</tbody>
</table>

Age, Raised in a stable nuclear family household, Raised in a home with a stepfather
Raised by foster parents, Raised by a mother with no (regular) partner, Raised in a lower class home
Frequency of illicit drug use, Number of different sexual partners
### TABLE 2.
Characteristics of 165 Men & Women Interviewed in Colombia, Denmark, Israel, South Africa, and the United States

<table>
<thead>
<tr>
<th>Variable</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Mean 30 years</td>
</tr>
<tr>
<td></td>
<td>SD 12</td>
</tr>
<tr>
<td></td>
<td>Min-Max 16-72</td>
</tr>
<tr>
<td>Gender</td>
<td>Men 32.1%</td>
</tr>
<tr>
<td></td>
<td>Women 67.9%</td>
</tr>
<tr>
<td>Country &amp; Ethnicity</td>
<td>Colombia 35.6%</td>
</tr>
<tr>
<td></td>
<td>Black 2%</td>
</tr>
<tr>
<td></td>
<td>White 17%</td>
</tr>
<tr>
<td></td>
<td>Latino 4%</td>
</tr>
<tr>
<td></td>
<td>Mestizo 75%</td>
</tr>
<tr>
<td></td>
<td>Denmark 6.7%</td>
</tr>
<tr>
<td></td>
<td>Dane 100%</td>
</tr>
<tr>
<td>Israel</td>
<td>30.3%</td>
</tr>
<tr>
<td></td>
<td>American 8%</td>
</tr>
<tr>
<td></td>
<td>Australian 2%</td>
</tr>
<tr>
<td></td>
<td>Israeli 76%</td>
</tr>
<tr>
<td></td>
<td>Jordanian 2%</td>
</tr>
<tr>
<td></td>
<td>Russian 10%</td>
</tr>
<tr>
<td></td>
<td>Zimbabwean 2%</td>
</tr>
<tr>
<td>South Africa</td>
<td>8.5%</td>
</tr>
<tr>
<td></td>
<td>African 36%</td>
</tr>
<tr>
<td></td>
<td>Colored 21%</td>
</tr>
<tr>
<td></td>
<td>Dutch 7%</td>
</tr>
<tr>
<td></td>
<td>German 7%</td>
</tr>
<tr>
<td></td>
<td>White African 21%</td>
</tr>
<tr>
<td></td>
<td>Zambian 7%</td>
</tr>
<tr>
<td>United States</td>
<td>18.8.0%</td>
</tr>
<tr>
<td></td>
<td>Black 3%</td>
</tr>
<tr>
<td></td>
<td>Italian 3%</td>
</tr>
<tr>
<td></td>
<td>South Asian 3%</td>
</tr>
<tr>
<td></td>
<td>Southern 3%</td>
</tr>
<tr>
<td></td>
<td>Southern WASP 3%</td>
</tr>
<tr>
<td></td>
<td>WASP 7%</td>
</tr>
<tr>
<td></td>
<td>West Indian 3%</td>
</tr>
<tr>
<td></td>
<td>White 74%</td>
</tr>
<tr>
<td>Grew up in Poverty</td>
<td>Yes 18.80%</td>
</tr>
</tbody>
</table>
FIGURE 2.

Loadings on Factor 1 by Loadings on Factor 2, Consensus Analysis of Agreements About Moral Relativism – Moral Clarity Items.

Colombia = red, Denmark = yellow, Israel = cyan, South Africa = green, USA = black
Symbol Size proportional to Moral Relativism scale.
**TABLE 3.**
Qualitative Differences between Items for Moral Relativism – Moral Clarity about Boundaries
(*Cronbach’s σ = .67*)

<table>
<thead>
<tr>
<th>Statement 1</th>
<th>Statement 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truth doesn’t exist.</td>
<td>Truth exists.</td>
</tr>
<tr>
<td>Others are responsible if I have hurt feelings</td>
<td>I take responsibility for my hurt feelings</td>
</tr>
<tr>
<td>It is virtuous to submit to violence</td>
<td>It is virtuous to resist violence</td>
</tr>
<tr>
<td>Violence and war are never justified</td>
<td>Violence and war may be justified</td>
</tr>
<tr>
<td>Violence should be met with apologies and concessions</td>
<td>Violence should <em>not</em> be met with apologies and concessions</td>
</tr>
<tr>
<td>There are no objective standards to judge one culture as better than another.</td>
<td>There are objective standards to judge one culture as better than another.</td>
</tr>
<tr>
<td>It is most important to rely on help from others</td>
<td>It is most important to rely on yourself</td>
</tr>
</tbody>
</table>
FIGURE 3.

Correspondence Analysis, Items for Moral Relativism, Acceptance of Violent Defense, and Violence Exposure.

Colombia = red, Denmark = yellow, Israel = cyan, South Africa = green, USA = black
Symbol Size proportional to Moral Relativism scale.
TABLE 4.  

<table>
<thead>
<tr>
<th>Effect Coefficient</th>
<th>95% CL (Lower Upper)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.000</td>
</tr>
<tr>
<td>Proportion of Population in Urban Areas</td>
<td>0.879</td>
</tr>
<tr>
<td>Ln(Small World Properties*CCW Access)</td>
<td>-0.044</td>
</tr>
<tr>
<td>Percentage of Homes with Guns</td>
<td>-0.011</td>
</tr>
<tr>
<td>Young (18-29) Minority Men (standardized)*Guns</td>
<td>0.013</td>
</tr>
<tr>
<td>Poor, Unemployed, Uneducated Men (factor scores)*CCW</td>
<td>0.059</td>
</tr>
</tbody>
</table>

Test for Main Effects, YMM: t=0.033, p=.973, PUU: t=0.000, p=1.000; CCW: t=-0.012, p=.990; SW: t=-0.021, p=.983. For Included main effects, AIC = 114.598. Substitution of main effects for the interaction terms increases the AIC score nearly 16 points to 122.546. AIC equals 122.432 if we eliminate the large-world variable, 283.001 if we eliminate the credibility/choice frame variables, and 149.391 if we eliminate the ES variables.

Test for Controls (entered one at a time): Supply of Perpetrators (Male Prison Population as a Proportion of Total): t=-1.102, p=.272; Poverty (Median Income): t=0.033, p=.974; Social and Economic Inequities (Proportion of Population Black/African American: t=0.565, p=.573; GINI coefficients: t=-0.009, t=.995; Difference between White and Minority Per Capita Income: t=-.016, p=.987).
FIGURE 4.
LOWESS smoothed relationship between violent crime rates in the U.S. (factor scores) and the percentage of homes with guns and CCW access (standardized).
Symbol size is proportional to the size of sanction devaluation populations. Symbol color signals CCW Access from states that rarely issue gun permits (RED), May Issue states (GREEN), Shall Issue states (BLUE), and no regulation states (VIOLET); color saturation is proportional to the strength of the small-world properties*CCW access interaction. Selected states appear as abbreviations (AL, AK, CT, FL, IA, MA, MT, NC, ND, NJ, NY, TX, VT, and WY).