

A Theory of Frames and Violence

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Rational choice theories,¹⁻⁴ which provide powerful explanations in the social and behavioural sciences, assume that the weighted average of preferences and the likelihood of their realization explain why people choose one thing over another. Because they cannot explain preferences,³⁻⁵ however, rational choice deterrence theories, which start from the premise that strength deters violence and weakness elicits it, inconsistently identify deterrents and do not tell us what makes a threat credible.^{6,7} Empirical tests thus may provide only ambiguous support,⁶⁻⁹ and policies based on these theories may not work well.¹⁰⁻¹² Here I 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. Analysis of a pooled cross-sectional time-series for the United States reveals that violent crime rates varied with the likelihood of evolutionarily significant consequences for violence perpetrators. The deterrent effects of a specific consequence varied with proxy measures of the prevalence of gain or loss choice frames. The likelihood that people frame choices as gains or losses corresponds with their exposure to violent environments, particularly during childhood. Significant violence rate reductions may come from interventions that target choice frames either directly (for adults) or indirectly, by reducing violence toward children.^{13, 14}

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. 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* and Beccaria's *On Crimes and Punishments*, and rationalizes nearly all international, domestic, and personal violence prevention policies. One widely shared personal policy in American culture 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 behaviour 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.¹⁵ 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.¹⁶ 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.¹⁷

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.¹⁸ 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.^{19, 20} 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.

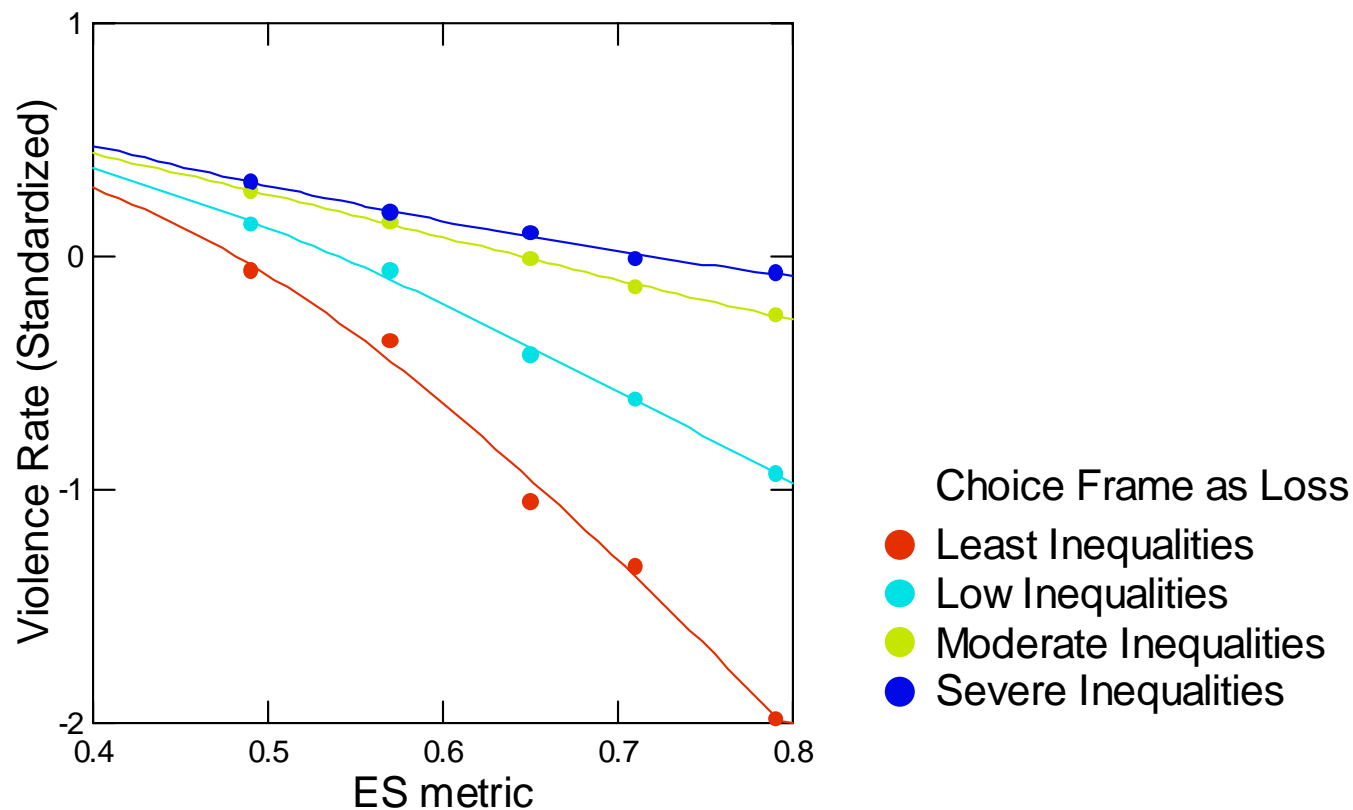
Equality shifts to inequality as the capacity to inflict evolutionarily significant consequences on an other emerges and grows. Powerful people maximize their survivability by maintaining or increasing their capacity to inflict evolutionarily significant consequences on others. As ES_{max} falls for 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_{max} of relatively powerless people elicits non-linear growth in powerful people's exploitative and violent behavior, which declines once the ES_{max} of formerly powerless people exceeds .5. Theoretically as well as empirically, and for both state^{21, 22} and individual^{23, 24} actors, weakness thus elicits predation and strength deters it. 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.¹³

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.

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 Will Frame Choices as Losses.



The simulated violence rates in Figure 1 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. Table 1 shows the estimates used to construct the simulation, which come from a model with an Akaike weight of .999.²⁵ The dependent variable consists of the factor scores from a principal components analysis of all forms of violent crime (murder, robbery, aggravated assault, with or without firearms), which fluctuate together over space and time ($\alpha=.768$). To produce the simulation, 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%.

TABLE 1.			
<i>Hierarchical Linear Mixed Model Analysis (random intercept and slopes): Violent Crime in the United States, 2001-2004</i>			
<i>(AIC: 106.591)</i>			
	Effects:	95% CL (Lower Upper)	
Intercept	0.000	-0.004	0.004
Proportion of Population in Urban Areas	0.879	0.727	1.131
Ln(Small World Properties*CCW Access)	-0.044	-0.079	-0.009
Percentage of Homes with Guns	-0.011	-0.014	-0.008
Young (18-29) Minority Men (standardized)*Guns	0.013	0.010	0.016
Poor, Unemployed, Uneducated Men (factor scores)*CCW	0.059	0.046	0.073
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: $t=-.016$, $p=.987$).			

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. 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.²⁶ 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. 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.²⁷ 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,²² 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). In the United States, people use guns daily to protect themselves effectively.^{28, 29} For the United States,

proxies for the inequalities that may produce variation in the likelihood that people frame choices as losses consist of the size of the population of (1) young, Black, Latino, and Native American men (YMM, expressed as standard scores), and (2) poor, unemployed, and uneducated men regardless of minority status (PUU, expressed as factor scores; $\alpha=.870$). 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 the likelihood of framing choices as losses.

The deterrent value and credibility of a costly consequence may vary with whether or not a choice is framed as a gain or a loss. People subject to violence, particularly during childhood, may evolve a propensity to frame choices as losses. This mechanism for an intergenerational cycle of violence^{13,24} and its intragenerational effect on an individual's propensity to frame a choice as a loss may constitute useful targets for policies and interventions that aim to prevent or deter violence.

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