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Commentary Title: Applying the revenge system to the criminal justice system and jury  
decision-making

Authors: Dr S. Craig Roberts<sup>1</sup>, Dr Jennifer Murray<sup>2</sup>

Institution: University of Stirling

Addresses:

1. Psychology, School of Natural Sciences, University of Stirling, Stirling, FK9 4LA,  
Scotland, UK. Tel: +44 (0)1786467654; email: craig.roberts@stir.ac.uk
2. Nursing, Midwifery and Allied Health Professions Research Unit, Iris Murdoch  
Building, University of Stirling, Stirling, FK9 4LA, Scotland, UK. Tel: +44  
(0)1786466119; email: jennifer.murray@stir.ac.uk

Home Page URLs:

Dr S. Craig Roberts <http://www.psychology.stir.ac.uk/staff/staff-profiles/academic-staff/craig-roberts>;

Dr Jennifer Murray <http://stir.academia.edu/JenniferMurray/About>

## Abstract

McCulloch and colleagues propose an evolved cognitive revenge system which imposes retaliatory costs on aggressors. They distinguish between this and other forms of punishment (e.g. administered by judges) which are not underpinned by a specifically-designed evolutionary mechanism. Here we outline mechanisms and circumstances through which the revenge system might nonetheless infiltrate decision-making within the criminal justice system.

## Applying the revenge system to the criminal justice system and jury decision-making

The proposed evolved cognitive revenge system serves two purposes: to discourage an aggressor from imposing future costs to their victim, and to encourage the aggressor not to withhold future benefits from the victim. The authors suggest that the revenge system is similar to the criminal justice system (CJS) in some respects, but is fundamentally distinct from institutionally-organised forms of punishment such as that administered by judges. However, we believe that, under certain circumstances, the revenge system may not be as distinct from the CJS as McCullough *et al.* suggest. In particular, it may be relevant to the applied context of jury decision-making, where a group of lay people are tasked with deciding whether or not a person is guilty of committing a crime (this can be wholly, partially, or not guilty). In light of growing recognition of the potential for applying evolutionary insights to specific issues in modern society (e.g. Roberts, 2012), we here discuss the ways in which the proposed revenge system can be applied to the CJS.

The main distinction between the evolved revenge system and institutionally administered punishment lies in their respective foci. While the former is characterised by a mechanism designed to deter cost-impositions or benefit-withholdings in the future (McCullough *et al.*), underpinned by emotional motivation (e.g. Lapsley, 1998), the latter is based on socially developed constructs of justice (Ho *et al.*, 2002; Price, 1997). The CJS therefore aims to allocate suitable and appropriate punishment in an emotionally detached fashion, according to pre-identified guidelines and societal norms (Lerner, 2003).

A further distinction between the revenge system and jury decision-making lies in the level of personal involvement. While the revenge system is discussed in the context of a victim-

aggressor relationship, where the costs and benefits are highly personal and relevant to the individuals directly involved, CJS decision-making involves almost no true personal involvement, as no previous (or probable future) relationship normally exists between the aggressor and legal representatives or jurors.

There are, however, occasions where the revenge system may infiltrate the CJS. This is because punitive decisions in the CJS cannot always be wholly extricated from emotional influence (Ho *et al.*, 2002; Murray *et al.*, in press). Individuals who hear intimate details about a case may involuntarily become emotionally involved, especially where there has been a high cost to the victim (e.g., extreme violence, sexual assault), leading to empathy for the victim (Tsoudis, 2002). Jurors, in particular, may be influenced by the emotional re-telling of an incident, as they are relatively unlikely to have experiences of such cases in their day to day lives and have little to no formal training in legal processes. Through increased emotional involvement and empathy, an 'emotionally involved' juror may come to view the costs of the crime in a personal manner, seeing the benefits of punishment in a similar way to the victim, leading to the desire for 'vengeance' and stronger punitive sentiment (Ho *et al.*, 2002; Lapsley, 1998; Murray *et al.*, in press). Thus, due to the evolutionary link between emotion and vengeance, the proposed revenge system may well be applicable to decision-making by jurors (and possibly others), at least in cases where emotional valence and cost to the victim is high.

Understanding the likely circumstances under which the revenge system may be activated within institutionally administered punitive decision-making is a necessary step towards making such processes more balanced and fair. Activation of the revenge system is less likely in cases where the cost to the victim, and therefore levels of empathy, are relatively low (e.g.

petty crimes, which constitute the majority of cases). In such instances, punitive decisions may be better explained and guided by considering socially-defined justice processes and norms. In contrast, as we have discussed, the revenge system cognitive architecture may be suitable for understanding decision-making in more emotionally-valenced cases and especially when jurors are involved.

Furthermore, research is urgently needed to understand potential between-individual differences in susceptibility to emotional involvement and its corollary effects on judgements and punitive decision-making. Our recent unpublished data, for example, suggest that personality traits predict levels of anger at transgressors and desire to punish them. Another example is potential gender differences in emotional involvement. In a scenario involving transgression in a public-goods game, men expressed a greater desire to punish 'cheats' than did women (O'Gorman *et al.*, 2006). Men also showed different empathy-related activation responses than women in response to individuals who played unfairly in a study of another economic game, and were more likely to express desire for revenge and to favour physical punishment (Singer *et al.*, 2006). Furthermore, it is now well-known that evolutionarily-relevant characteristics of the defendants (such as their sex and attractiveness), and shared characteristics between defendants and jurors (such as race or sexuality, triggering in-group/out-group prejudice), influence punitive sentiment and sentencing leniency or harshness (e.g., Abwender & Hough, 2001). These findings may be explained through involuntary activation of the revenge system cognitive architecture.

While there are clear distinctions between the proposed revenge system in its current form and institutionally administered punishment decisions, the revenge system may be useful in explaining punitive decision-making in a number of applied contexts in the CJS, notably

where jurors are involved and emotional valence in a case is high. Through considering justice as a mediating factor alongside the already existing components of the revenge system, the theory may also be applicable at a more 'socially driven', justice-based decision-making level. A final potential use for the revenge system is in future investigations of punitive decision-making in the CJS relating to between-individual differences, such as personality and gender differences, as we have discussed. Through better understanding the ways in which individuals come to their decisions about punishment, improvements to punitive decision-making processes within the CJS will be made possible.

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## Relevant Expertise of Authors

Dr. S. Craig Roberts

*School of Natural Sciences, University of Stirling, UK*

I am an evolutionary biologist/psychologist with special interest in applications of evolutionary theory in contemporary society. I have recently published a wide-ranging book on this subject (*Applied Evolutionary Psychology*; Oxford University Press, 2012) and have carried out research on individual variation in punitive sentiment.

Dr. Jennifer Murray

*Nursing, Midwifery and Allied Health Professions Research Unit, University of Stirling, UK*

My expertise lies in the area of violence risk assessment and applying decision-making theory to judgements of violence. These areas are of clear high importance to the CJS and are related to revenge and punishment processes. I am particularly interested in translating theory to practice through useable, meaningful research findings.