



Social information processing, subtypes of violence, and a progressive construction of culpability and punishment in juvenile justice[☆]

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Abstract

Consistent with core principles of liberal theories of punishment (including humane treatment of offenders, respecting offender rights, parsimony, penal proportionality, and rehabilitation), progressive frameworks have sought to expand doctrines of mitigation and excuse in order to reduce culpability and punishment. With respect to juvenile justice, scholars have proposed that doctrinal mitigation be broadened, and that adolescents, due to aspects of developmental immaturity (such as decision-making capacity), be punished less severely than adults who commit the same crimes. One model of adolescent antisocial behavior that may be useful to a progressive theory of punishment in juvenile justice distinguishes between instrumental violence, by which the actor behaves thoughtfully and calmly to achieve personal gain, and reactive violence, which is characterized as impulsive, emotional retaliation toward a perceived threat or injustice. In particular, social cognitive differences between instrumental and reactive violence have implications for responsibility, length and structure of incarceration, rehabilitation, and other issues that are central to a progressive theory of juvenile culpability and punishment.

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1. Introduction

Liberal theories of punishment are guided by a number of principles, including that punishment must (a) not be inhumane, (b) not infringe upon the rights of the alleged or convicted offender, (c) be no more severe than is necessitated by the crime committed (i.e., the punishment must be penally proportional), (d) meet the principle of parsimony (or minimalism) in that, all other things being equal (such as deterrent effects), the lesser of two or more punishments is applied, and (e) “pursue constructive instrumental goals which promote a more just and equal society” and “be allocated on rehabilitative principles” (Hutton, 1999, p. 571; also, see Bottoms, 1995; Hudson, 1995). Although punishment is, by

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its nature, a retributive concept, liberal theorists have long posited justifications for punishment in their formulations of justice (e.g., Feinberg, 1970, 1984, 1985, 1986, 1988; Hart, 1959–1960; Hudson, 1987, 1993, 1995, 1996).

The doctrine of penal proportionality (principle *c* above) has served to guide liberal theories of retributive justice (e.g., Horder, 2004), theories of punishment that have attempted to balance liberal and retributive principles (e.g., Hudson, 1995), and theories of mitigation and punishment in juvenile justice (e.g., Steinberg & Scott, 2003). Retributive justice is centered on concepts of merit and desert. One who works hard and obeys the law deserves the benefits that a justly governed society affords; on the other hand, one who violates the law incurs a debt to society that must be paid. Retributivists believe that one who commits crime needs to incur a punishment that is proportional to his crime because that is what he *deserves* (Gurnham, 2003).¹ According to the pure retributivist, desert is necessary and sufficient to justify a punishment that is in proportion with the culpability of the crime committed.

Liberal theories of punishment are (at least sometimes) constrained by the doctrines of desert and penal proportionality (e.g., see Hudson, 1995), but argue that, when at all possible, punishments should be minimized and societal responses to crime should be guided by rehabilitative principles. In contrast to retributive theory, liberal theory views desert as necessary but not sufficient to justify punishment. In addition to desert, one or more liberal values (such as rehabilitation, deterrence, and public safety) must be demonstrated before punishment may be justified and, even in such cases, parsimony remains paramount.

The interest in balancing liberal values with retributive principles is reflected in the progressive construction of juvenile mitigation and punishment advanced by Steinberg, Scott, and Cauffman (hereafter Steinberg et al.; e.g., Cauffman & Steinberg, 2000; Scott, 1992; Steinberg & Cauffman, 1996; Steinberg & Scott, 2003; Scott & Steinberg, 2003). Based on empirical findings, Steinberg et al. argue that adolescent criminals should be found less guilty and receive proportionately less punishment than adults for the same crimes because adolescents are developmentally immature in their neurological, psychological, and social functioning. Although far more complex, the construct of developmental immaturity rests upon three main legs: (a) adolescents' decision-making capabilities have not reached capacity, (b) the ability of adolescents to resist coercive influences is lesser than that of adults, and (c) adolescents' character (e.g., identity formation) remains only partially formed. The developmental immaturity argument states that because adolescents are significantly different from adults in these three areas, they may not be held to the same standards of culpability and punishment as are adults who commit the same crimes. Rather, a driving goal of this argument is to shift the emphasis away from harsh sentences for juvenile offenders and place it on rehabilitation, public safety, and a more aggressive approximation of practical societal interests.

In contrast to the body of research by Steinberg and his colleagues, which has focused on differences between youth and adult functioning, studies of subtype models of antisocial conduct have examined differences between youths' alternative styles of violent behavior. In particular, the distinction between instrumental and reactive violence in youth has received considerable theoretical and empirical attention (e.g., Crick & Dodge, 1996; Dodge, 1991; Dodge & Coie, 1987; Fontaine, 2007a,b; Hubbard et al., 2002; Vitaro, Brendgen, & Barker, 2006; Vitiello & Stoff, 1997). Aggression that is *instrumental* is typically nonemotional, nonimpulsive, planned, and carried out in pursuit of realizing personal interests. Alternatively, *reactive* aggression is characterized by emotional, and often impulsive, retaliation toward one who is perceived to have acted provocatively or unjustly. As discussed below, differences in the structure, function, and phenomenology of antisocial subtypes have important implications for the construction of a liberal theory of mitigation and punishment in juvenile justice. However, prior to a discussion of research on antisocial subtypes, and its potential role in reframing legal and social policy, a brief review of recent scholarly attention to issues of culpability and punishment in juvenile justice is useful. Following such a review, this article (a) examines theoretical and empirical research on instrumental versus reactive violence in youth, (b) identifies potential implications of such research for mitigation of culpability and punishment in juvenile justice, and (c) addresses the relevance of aggressive subtypes for issues pertaining to rehabilitation and incarceration.

2. A developmental reevaluation of culpability and punishment in juvenile justice

In recent years, several liberal theories of mitigation/excuses and punishment have been advanced. Legal philosophers, liberal theorists, and social scientists have posited broadened conceptualizations of diminished capacity with

¹ Solely for the purposes of flow and consistency, I use only the masculine pronouns he, him, himself, and his, when referring to hypothetical characters (such as provocateurs and killers), throughout this paper/article. No gender or sex bias is intended whatsoever.

the intention of reducing crimes and punishments in cases in which the offender's ability to act in a controlled, rational manner is compromised (e.g., [Horder, 2004](#); [Morse, 2003](#); [Steinberg & Scott, 2003](#)). Although these philosophical, social, and scientific movements may serve to meet several liberal principles and values, and some have specifically asserted the importance of rehabilitation and public safety interests ([Morse, 2003](#); [Steinberg, & Scott, 2003](#)), these theories have focused on the values of penal proportionality and parsimony. In actuality, they reflect liberal approaches (or reforms) to ideas, principles, and doctrines that have retributive origins and center on culpability. In this way, these movements demonstrate an effort on the part of scholars with liberal values to accommodate retributive frameworks within a liberal theoretical vision.²

One case for expanding doctrinal mitigation has been made by Steinberg and his colleagues ([Cauffman & Steinberg, 2000](#); [Scott & Steinberg, 2003](#); [Steinberg & Cauffman, 1996](#); [Steinberg & Scott, 2003](#)).³ Steinberg et al.'s formulation of mitigation is uniquely guided by developmental science. Based on a combination of legal philosophy (i.e., penal proportionality) and empirical research (i.e., adolescent/adult developmental differences), Steinberg et al. have posited that youths,⁴ because they are not fully developed in specific, critical ways, should not be held to the same evaluative standards by which adult culpability and punishment are judged. This will hereafter be referred to as the developmental immaturity argument (DIA). Whereas DIA has been framed in a way that draws from developmental science in order to conclude lesser culpability for adolescent offenders, its underlying goals are clearly constructed via a liberal theory of punishment.⁵ That is, DIA attempts to make punishments for adolescent offenders penally proportional, less severe, and guided more by rehabilitation than retribution.

As outlined by [Steinberg and Scott \(2003\)](#), there are three separate, principal claims of DIA that have been empirically substantiated. As compared to adults, adolescents are characterized by diminished decision-making capacity, unformed character, and increased vulnerability to coercive circumstances and peer influence. DIA asserts that, because these attributes are already accepted, in various capacities, as bases for mitigation in other areas of American criminal law, they should be similarly recognized with respect to adolescent offending.

Although all three legs upon which DIA stands are important to Steinberg et al.'s case, diminished decision-making capacity emerges as perhaps the most critical. The most weight may be attributed to the role of decision-making because, of the three DIA components, decision-making is most proximal to the enactment of criminal behavior. Whereas aspects of being vulnerable to coercive circumstances may impact the likelihood that a person will commit crime, social cognitive science understands this relation (i.e., between the latent quality of coercion susceptibility and criminal conduct) to be mediated by decision processing. That is, an adolescent may be particularly vulnerable to coercive processes of gang culture (e.g., peer pressure), but the negative impact of this susceptibility may be more appropriately characterized as affecting the adolescent's decision-making, which, in turn, affects his behavior. Similarly, unformed character, such as insecure identity and partially developed self, may contribute to a tendency to favor criminal over noncriminal behavioral enactments. Here again, though, these latent character or personality components may be characterized as distal influences on adolescent criminal behavior that are mediated by on-line information processing and decision-making. To use the example of [Erikson's \(1968](#); see [Steinberg & Scott, 2003, p. 1014](#)) theory of identity crisis, it may be that struggling with identity and thus being more prone to experimentation may impact the likelihood that a teenager will sample illicit substances. The insecurity that characterizes adolescent identity crisis may underlie the adolescent's curiosity about and openness to drinking and drugs, but the effects of these factors on criminal behavior are mediated, according to social cognitive theory, by the adolescent's active decision-making that immediately precedes the illegal substance use.

² This juxtaposition, or reflection of the "compatibility," of the fundamentally retributive concept of culpability and the liberal (and, as discussed below, developmental) issue of penal proportionality, has perhaps been most overtly and thoroughly presented by [Hudson \(1987, 1993, 1995, 1996\)](#), whose liberal revision of the "just deserts" approach to punishment" has been described by [Hutton \(1999, p. 571\)](#) as "one of the most important attempts to construct a 'progressive' approach to punishment, an area of policy which has always been problematic for those on the left."

³ Steinberg and his colleagues, Cauffman and Scott, represent an interdisciplinary psychology-and-law collective, both by substantive focus and training (Steinberg and Cauffman are psychologists, Scott is a legal scholar and theorist). This group reflects a current trend in legal scholarship to draw upon empirical science in formulations of criminal jurisprudence (e.g., see [Brewer & Williams, 2005](#)).

⁴ The term youths is used to account for children and adolescents. Note, though, that much of Steinberg et al.'s work has focused on adolescents and adolescent development.

⁵ For example, [Steinberg and Scott \(2003\)](#) argue that, due to developmental immaturity, adolescent offenders should be protected from being sentenced to death.

By their own account, [Steinberg and Scott \(2003\)](#) view the effects of psychosocial maturity (including aspects such as vulnerability to peer influence, expectancies and judgments of risk, future orientation, and ability to manage oneself) as mediated by decision-making: “adolescent[s]’ judgment and their actual decisions may differ from that of adults as a result of psychosocial immaturity” (p. 1012). This is a causal statement about adolescent functioning by which psychosocial maturity (including factors such as being susceptible to coercive circumstances, unformed character, and insecure identity) is the cause and judgment and decision-making is the effect. While psychosocial maturity may influence various aspects of decision-making, the processing of behavioral decisions serves as the mediating, proximal influence of actual adolescent criminal behaviors. In emphasizing the immediacy of these factors, [Dodge \(1993\)](#) stated: “The relation between processing and behavior is so close that sometimes deviant behaviors are defined in terms of deviant processing” (p. 563).

3. Social information processing and real-time decision-making in aggressive youths

The proximal nature of the relation between decision-making and behavior suggests that this set of processes is not only important to DIA but to liberal constructions of mitigation and punishment in juvenile justice in general. However, as [Steinberg and Scott \(2003\)](#) acknowledge, the degree to which adolescent and adult judgment, reasoning, and decision-making differ is disputed. Also in dispute is the issue of the age at which these processes in adolescence sufficiently approximate those of adulthood. I suggest that these issues remain unresolved, in part due to insufficient research on the role of on-line social decision-making that takes place in real-time (as well as extracognitive processes, such as emotion and impulsivity, which may serve to impair or diminish one’s decision-making) in the empirical differentiation of alternative forms of youth violence (e.g., [Fontaine 2006b](#)). Decision-making that immediately precedes behavioral outputs in ongoing social interaction represents the “last stop.” It is then crucial from both basic and intervention (and rehabilitation) science perspectives, as this set of processes builds upon numerous social and psychological factors that exert their effects earlier in the temporal chain. Thus, assessing and understanding real-time decision-making is essential to determining one’s capacity for rational thinking and choice making (which are central to penal proportionality), as well as necessary for designing and implementing effective rehabilitations (which reflect a second goal of liberal theories of punishment).

The evolution and continued contributions of social-information processing theory (SIP; [Crick & Dodge, 1994](#); [Dodge, 1986, 1993](#); [Dodge & Schwartz, 1997](#); [Fontaine, 2006a](#); [Huesmann, 1988, 1998](#)) have given rise to new formulations of real-time decision-making. SIP posits that youth behavior is a function of multiple series of on-line cognitive operations. In response to a social stimulus, the youth (a) perceives and organizes cue-related information as it becomes available (*encoding of cues*), (b) interprets the meaning of the stimulus and makes attributions as to intent, causality, and affect (e.g., hostility) (*interpretation of cues*), (c) identifies and hierarchically orders his interests (*clarification of goals*), (d) accesses possible responses to the stimulus from memory, or generates new responses that may better fit the given social situation (*response construction*), and (e) evaluates these alternative responses across various domains (*response decision*) in order to select a response for behavioral enactment. Empirical support has been found at each step of SIP with respect to youth social competence and antisocial behavior ([Crick & Dodge, 1994](#); [Dodge, Coie, & Lynam, 2006](#)).

Recently, attention to later steps of SIP having to do with behavioral evaluation, outcome expectancy, and decision-making has increased ([Fontaine, 2006b](#); [Fontaine & Dodge, 2006](#)). This is due, in part, to trends in cognitive research on the importance of adolescence as a period of executive function development, as well as to developmental findings that response decision processes appear to be particularly relevant to adolescent antisocial behavior ([Fontaine, Burks, & Dodge, 2002](#); [Fontaine, Yang, Dodge, Bates, & Pettit, 2008](#); [Lansford et al., 2006](#)). More than 20 years of theoretical and empirical research on SIP operations has given rise to advanced formulations of mental operating that, as opposed to macroprocess models of social cognition such as SIP, serve as microprocess heuristics of on-line decision-making that occurs in real-time ([Fontaine, 2007b](#); [Fontaine & Dodge, 2006](#)).

In one such model, called response evaluation and decision (RED), [Fontaine and Dodge \(2006\)](#) elaborated upon the behavioral judgment and decision processes that were first articulated in the *response decision* step of SIP ([Crick & Dodge, 1994](#)). Several domains of decision processing were identified. *Response valuation* is a means-based assessment by which one judges the degree to which he identifies with a behavior as a social actor and moral agent. *Response efficacy* involves the estimation of how confident one feels about carrying out a behavior being considered. Via processes of *outcome valuation and expectancy*, the decision-maker attributes some positive or negative values to

various outcomes and approximates the likelihood that possible outcomes will result upon enactment of alternative behaviors. Finally, during *response comparison*, alternative behaviors are judged relative to each other in order to select the “overall best” behavior (*response selection*) for behavioral enactment. The RED framework is intended as a heuristic by which evaluative decision processes that have been empirically linked to aggressive and antisocial behaviors may be understood and further studied.

As a complement to RED, Fontaine (2006b, 2007b) offered an organization of decision processes that are hypothesized to be active during youths’ *instrumental* antisocial decision-making (IAD). Whereas valuations and expectancies about outcomes may predominate over decision-making about instrumental antisocial behaviors (e.g., Crick & Dodge, 1996; Dodge, Lochman, Harnish, Bates, & Pettit, 1997; Kupersmidt, Shahinfar, & Lochman, 1999; Schwartz et al., 1998; Smithmyer, Hubbard, & Simons, 2000), operations of goal identification and assessment, as well as strategy development and realization, are hypothesized to play important roles, particularly in the course of preparing to enact instrumental antisocial conduct that is planned with particular thoughtfulness and rigor. The uniqueness of the RED and IAD models lies in the phenomenological differentiation of the two—that is, whereas RED models response decision-making, and thus *reactive* cognitive processing, IAD encompasses planning and decision-making processes that are hypothesized to be inherent to self-initiated *instrumental* cognitive processing. It should be noted that, whereas both models may account for patterns or styles of antisocial behavior (e.g., Dodge et al., 2003; Fontaine et al., 2002), each is designed, as guided by formulations of SIP, to explain the series or collection of mental processes that are potentially active in the course of a *single event*. For example, a decision to retaliate against a provocateur may be described according to a youth’s comparative weighting of aggressive and nonaggressive response options and their expected outcomes (see Dodge, 1993; Fontaine & Dodge, 2006).

4. Social information processing and subtypes of aggression in youth

There has been considerable research on the development of social cognition and aggressive behavior in youths during the last two decades (e.g., Crick & Dodge, 1994; Dodge et al., 2006; Fontaine, 2006a; Guerra & Huesmann, 2004; Huesmann & Reynolds, 2001). One area that has received increasing scientific attention is the relation between social cognitive processing and aggressive subtypes (e.g., Fontaine & Dodge, 2006; Phillips & Lochman, 2003). Social scientists who study the nature of antisocial behavior have offered numerous dichotomous models of aggression and violence, including proactive/reactive (e.g., Dodge, 1991; Raine et al., 2006), overt/relational (e.g., Crick & Grotpeter, 1995, 1996), physical/verbal (e.g., Shope, Hedrick, & Geen, 1978; Tisak, Maynard, & Tisak, 2002), premeditated/impulsive (e.g., Houston, Stanford, Villemarette-Pittman, Conklin, & Helfritz, 2003), overt/covert (e.g., Kazdin, 1992; Loeber & Hay, 1997), direct/indirect (e.g., Richardson & Green, 2003), socialized/undersocialized (e.g., Quay, Routh, & Shapiro, 1987), and instrumental/expressive (e.g., Miethe & Drass, 1999).

Although all of these distinctions are conceptually sensible, they vary by the degree to which they are empirically supported. The distinction between instrumental (or proactive or offensive) and reactive (or hostile or defensive) aggression is one that has received particularly rigorous scientific scrutiny. Whereas instrumental aggression is characterized as self-motivated, cold, and deliberate, reactive aggression is cue-responsive, hot, and often impulsive and anger-laden (see Dodge, 1991, and Fontaine, 2006b, for discussions). The results of numerous studies have demonstrated a variety of structurally, functionally, and phenomenologically distinct factors that increment the validation of these aggressive subtypes. Scientific study of aggression and social cognition (e.g., Crick and Dodge, 1996), psychophysiology (e.g., Hubbard et al., 2002), neuropsychology, (e.g., Barratt, Stanford, Kent, & Felthous, 1997), and neurobiology (e.g., Houston et al., 2003), have all produced empirical support for the instrumental/reactive aggression distinction.

Research on social cognition and aggressive subtypes has identified multiple differences between instrumental and reactive aggressive actors. More specifically, the investigations of SIP and aggressive subtypes in youth have provided important findings. Dodge and his colleagues (Crick & Dodge, 1996; Dodge & Coie, 1987; Dodge et al., 1997) have advanced two general hypotheses with respect to aggressive subtypes. First, it has been hypothesized that earlier SIP steps, such as encoding and interpretation of cues (e.g., attributing hostility and intent to ambiguous provocateurs), are uniquely problematic among reactive aggressive youths. This hypothesis is based on the idea that reactive aggression stems from aversive experience of a stimulus. The second general hypothesis states that aggressogenic processing in later SIP stages, including RED factors (e.g., the specific hypotheses that proactive aggressive youths expect greater positive and lesser negative outcomes to result from behaving aggressively), are uniquely typical of purely or

predominately proactive aggressive youths. That is, it is posited that the youth who calmly and deliberately self-initiates aggression toward others is more likely to expect this approach to lead to desired outcomes, and avoid disfavored consequences.

Findings that support these general SIP hypotheses have been noted in several empirical studies. Initial evidence that SIP factors distinguish aggressive subtypes in youth was found by [Dodge and Coie \(1987\)](#), who demonstrated that bias toward interpreting ambiguous provocateurs as acting with “hostile intent” was indicative of reactive, but not proactive, aggressive youths. A number of subsequent studies have contributed to the validation of this finding (e.g., [Crick & Dodge, 1996](#); [Dodge, Price, Bachorowski, & Newman, 1990](#); [Schwartz et al., 1998](#)). In addition, reactive aggressive youths have been uniquely associated with encoding and response generation problems (e.g., [Dodge et al., 1997](#)). In other words, reactive aggressive youths have been shown to have greater difficulty with organizing and interpreting incoming social information in ambiguous provocation situations, and tend to generate a greater proportion of aggressive responses to such cues, compared to their nonreactive aggressive peers.

In contrast, multiple studies have shown links between advanced SIP steps and proactive aggressive behavior in childhood and adolescence. For example, proactive aggressive youths are more likely to expect positive outcomes to result from behaving aggressively, relative to their nonproactive aggressive peers (e.g., [Crick & Dodge, 1996](#); [Schwartz et al., 1998](#); [Smithmyer et al., 2000](#)). In addition, youths who display proactive aggressive patterns tend to evaluate aggressive behavioral options positively and tend to favor instrumental social goals over relational goals ([Crick & Dodge, 1996](#)). Collectively, this body of research has demonstrated conceptually cogent and empirically distinct sets of SIP correlates of proactive and reactive aggressive behavioral subtypes. However, for the psychology of social information processing and aggressive subtypes to be most useful to a liberal construction of adolescent crime and punishment, the role of social cognition in instrumental versus reactive violence needs to be more closely studied in adolescents who actually commit violent crimes.

Although relations between SIP factors and aggressive subtypes have been studied in samples that have ranged in age (child and adolescent) and representation (normative and clinical), only a handful of studies have examined SIP and subtypes aggression with respect to violent juvenile offending populations. A 1990 study by Dodge and his colleagues examined hostile attributional biases in incarcerated adolescents with respect to socialized versus undersocialized aggressive conduct disorder. Whereas notable support was found for the hypothesis that hostile attributional biases are positively correlated with undersocialized (as opposed to socialized) aggressive conduct disorder, only marginal support was found for the hypothesis that such biases are uniquely related to reactive (as opposed to proactive) aggression. Still, this study provided the first evidence that early operating in the SIP model is predictive of aggressive subtypes in a juvenile offender population.

Several years later, [Dodge et al. \(1997\)](#) examined a broad range of SIP factors in relation to proactive and reactive aggressive subtypes in a clinical sample of chronically violent youths who demonstrated one or more serious psychiatric disturbances. Main findings were twofold: first, the reactive aggressive group displayed poor functioning with respect to early SIP operations, such as encoding of cues; second, the proactive aggressive group showed processing biases in the more advanced domains of SIP, including outcome expectancies (proactive aggressors were more likely to expect aggression to reduce aversive treatment by others and lead to more positive feelings of self-worth) and behavioral efficacy judgments (proactive aggressors reported relatively more confidence in carrying out aggressive behavioral options). It should be noted, though, the [Dodge et al. \(1990\)](#) finding that reactive aggressive youths are more likely to be biased toward attributing hostile intent during social interactions, compared to their nonreactive aggressive peers, was not found when the study was replicated. Finally, there was modest support for the hypothesis that reactive aggressors have greater difficulty with emotion regulation, as compared to nonreactive aggressive youths, in that reactive aggressive juveniles reported more sadness in response to interpersonal exchanges.

A subsequent study by [Smithmyer et al. \(2000\)](#) examined the relation between aggression-outcome expectations and aggressive conduct subtypes in a sample of incarcerated youth offenders. In contrast with the [Dodge et al. \(1990\)](#) study that focused solely on the early SIP factor of hostile attributional bias, Smithmyer et al. limited their examination to outcome expectancies, a later SIP factor that falls within the domain of RED processing. Although the relation between aggression-outcome expectancies and proactive, but not reactive, aggressive behavior in youth had been demonstrated in earlier studies (e.g., [Crick & Dodge, 1996](#)), Smithmyer et al.’s investigation was the first to extend this finding to a juvenile offender population.

Lastly, a 1999 study by Kupersmidt and her colleagues examined psychiatric symptoms, anger arousal, and specific SIP factors in relation to incarcerated adolescent offenders who were classified as purely proactive ($n=27$) or purely

reactive ($n=17$) in their aggressive style. Consistent with the notion that reactive aggressive youths are more psychiatrically impaired than their proactive aggressive counterparts (see Vitiello & Stoff, 1997), Kupersmidt et al. found that reactive aggressive offenders showed greater overall psychiatric symptomatology. In addition, the reactive group was also uniquely linked to be more likely to have problems with anger arousal (also, see Hubbard et al., 2002). In addition, although only marginal support was found for the hypotheses that reactive aggressive offenders have hostile attributional problems and proactive aggressive offenders are more likely to expect positive outcomes to result from behaving aggressively, these findings should be interpreted in light of the study's small sample size (and low statistical power).

This set of studies suggests that SIP factors are important to distinguishing instrumental and reactive subtypes in juvenile violent offenders. However, research on SIP and severely violent, incarcerated juveniles has remained limited.⁶ One possible reason for this is that it can be extremely difficult to gain access to incarcerated populations—the challenge of which can be further exacerbated by a requirement of parental consent—for scientific examination, making data on SIP and violent subtypes in juvenile offenders particularly scarce and valuable. The importance of this work is derived not only via its implications for progress in basic science, but by its potential utility in the development and validation of a more specific and helpful psychiatric nosology (Dodge et al., 1990, 1997). In addition, because a variety of rehabilitation programs for juvenile offenders focus on social cognitive components (e.g., Leeman, Gibbs, & Fuller, 1993; Nas, Brugman, & Koops, 2005) and interest in such programs has served as the direct impetus for advancing related empirical study (see Frey & Epkins, 2002; Nas, Orobio De Castro, et al., 2005), it has become evermore important to address the role of SIP in alternative forms of aggression in adjudicated violent adolescents. This latter point is particularly relevant to liberal theories of punishment that focus on benefits to society such as rehabilitation of youth offenders and reduction of juvenile crime.

5. A progressive construction of culpability and punishment: Instrumental versus reactive violence in juveniles

The need to differentiate subtypes of youth offenders in the formulation of juvenile justice has been stressed before (e.g., Scott & Grisso, 1997). However, the emphasis has been based on differences between youths whose antisocial behavior is classified as *adolescent-limited* versus *life course persistent* (Moffitt, 1993). Whereas the developmental persistence of antisocial and criminal propensities is clearly relevant to multiple issues related to juvenile justice reform (e.g., the degrees to which a youth offender is rehabilitatable and deterrable), there are several important implications of a subtypes model of antisocial behavior that distinguishes between alternative styles of violence based on variations of structure, function, and phenomenology, as well. In particular, research on SIP and instrumental/reactive violent subtypes begs several critical questions: Is reactive aggression less rational? Is instrumental violence more controlled (or controllable) than reactive violence? Is the degree to which violent juvenile offenders are rehabilitatable a function of their style of violent conduct (i.e., instrumental, reactive, or mixed)? Should instrumental versus reactive violent juvenile offenders be housed separately when incarcerated? May youth offenders benefit more from rehabilitations that are guided by research on social cognitive mechanisms of violent subtypes (and would subtype-focused rehabilitations serve to reduce juvenile crime and increase public safety)?

Although definitive answers to these questions require further scientific study, empirical evidence observed thus far suggests that their answer is *yes*. There are several ways in which research on social cognitive processing and violent subtypes may inform a liberal construction of culpability and punishment in juveniles. First, understanding differences in social information processing and decision-making may be useful to reframing doctrinal mitigation of culpability and punishment of adolescents, consistent with the principles of penal proportionality and parsimony. Second, research on violent subtypes may be used to guide the development and implementation of rehabilitations that are more appropriately focused on the specific mechanisms of an individual offender's violent pattern or propensity. Increasing the success of rehabilitation may serve not only to reduce crime but to enable reformed delinquents to contribute more positively and proactively to society. Third, it may be that the way instrumental versus reactive aggressive adolescent offenders are detained has implications for the degree to which reactive aggressive youths, in particular, are humanely treated.

⁶ To be thorough, it should be noted that one Netherlands study examined SIP and aggressive subtypes in an extreme group's design of delinquent and nondelinquent juveniles. However, relations among SIP factors and aggressive subtypes were not examined *within* the juvenile offenders group (see Nas, Orobio De Castro, & Koops, 2005).

5.1. Mitigation of culpability and punishment

Anglo-American criminal law has long recognized that violent or otherwise criminal behaviors that are enacted in response to provocation or threat are less criminally culpable than are those that are unprovoked and self-initiated (e.g., [Uniacke, 2007](#)). Some retributivists have argued that reactive violence may be partially *justified* if it avenges a wrong (for a recent discussion, see [Dressler, 2002](#)). If not justifiable (as in the case of self-defense), the reactive violent behavior may be partially *excused* if the actor became so emotionally disturbed in response to provocation that he acted with diminished control and rationality ([Fontaine, 2007a](#)). Other, non-English-speaking countries have acknowledged similar distinctions (e.g., a discussion of provocation in Indian criminal law is provided by [Yeo, 1992](#)). The mitigating defense of provocation is most widely recognized in the United States in the form of the heat of passion defense to a charge of murder ([Fontaine, 2007a](#)), and is formally stated in the Model Penal Code ([American Law Institute, 1962](#)).^{7,8} Heat of passion may be used to successfully mitigate murder to manslaughter if the defendant can demonstrate that he was sufficiently provoked, experienced extreme emotional disturbance as a direct result of the provocation, and killed his victim while experiencing said emotional disturbance before having had enough time to “cool off.” In this way, heat of passion homicide represents reactive killing, in contrast to murder that is unprovoked and committed with malice aforethought (the latter of which represents instrumental homicide; [Fontaine, 2007a](#)). The former is deemed less criminally culpable (and thus less punishable) because the killer acted with diminished control and rationality.⁹

Two key factors that have been associated with the instrumental/reactive violence distinction in youth have implications for mitigation of culpability and punishment in juvenile justice. First, reactive aggression is typified by psychophysiological arousal and impulsivity by which the actor does not engage (or is not capable of engaging) in completely rational thought prior to acting. This form of aggression is characterized by higher degrees of *impulsivity and emotion* in that it is carried out in anger or fury,¹⁰ or, in legal terms, *heat of passion* ([Bushman & Anderson, 2001](#); [Dodge, 1991](#); [Fontaine, 2007a](#)). Alternatively, instrumental aggression is distinguished as nonimpulsive and emotionally cool; its enactment is planned and calmly anticipated, with relatively little physiological arousal. Second, whereas instrumental aggression is typically engaged for personal gain without considerable concern about its moral nature or implications, reactive aggression is enacted in order to defend oneself or hurt (or punish) the perceived provocateur. That is, the reactive aggressor, at least at the time of the violent act, views his actions to be necessary for self-preservation or deserved by the victim due to the victim’s own wrongdoing (provocation, threat, rejection). Whether validly or not, the actor believes reactive violence to be justified, representing a difference in *moral cognition* between the instrumental and reactive aggressor.

Emotion (specifically, anger) is a core distinguishing feature of reactive aggression in psychology. [Hubbard et al. \(2002\)](#) investigated whether anger was uniquely related to reactive aggression in children. They employed a multimethod approach in which anger was assessed via self-report as well as by observational (both angry facial expressions and angry nonverbal behaviors) and physiological (both heart rate and skin conductance) means. Moderate support was found in that observed angry nonverbal behaviors and skin conductance of participants during a rigged competitive game with a confederate peer were positively related to teacher-reported reactive, but not proactive, aggression. It was concluded that reactive aggressive children may experience unique difficulties with anger. Anger is recognized in the vast majority (if not all) of theoretical postulations and reviews of instrumental and reactive violence in behavioral science ([Fontaine, 2007a](#)).

In addition, several studies have investigated psychophysiological and neuropsychological correlates of these alternative aggressive types. Physiological and neurochemical foundations of emotion are undisputed and have long traditions in behavioral research ([Borod, 2000](#); [Cacioppo, Klein, Berntson, & Hatfield, 1993](#); [Lewis & Haviland-Jones, 2000](#)). Science has demonstrated links between neurochemical (e.g., low serotonergic activity) and psychophysiological

⁷ Note that the heat of passion defense may be invoked only in murder cases and does not apply to nonhomicidal crimes.

⁸ Elsewhere ([Fontaine, 2007a](#)) I have argued that heat of passion homicide is an affirmative partial excuse (as opposed to justification) defense.

⁹ It should be noted that although some scientists have shown a correlation between instrumental violence and psychopathy (e.g., [Cornell et al., 1996](#); [Dempster, Lyon, Sullivan, & Hart, 1996](#)), much instrumental violence is nonpsychopathic, and it cannot be presumed that instrumental violence is committed as a result of moral-cognitively deficient functioning. In my IAD model, this is clearly acknowledged in that the instrumentally violent youth may choose to act in a criminal or otherwise antisocial manner simply because he places a greater value on his instrumental goal than he does on behaving according to socio-moral norms ([Fontaine, 2007a,b](#)).

¹⁰ Fear (e.g., in response to a perceived threat) and frustration (e.g., in response to a challenge that is perceived to demand more than one’s resources can meet) may also contribute to various instances of reactive aggression.

(e.g., elevated skin conductance) mechanisms with reactive aggression in humans. Also, scholars have offered neurocognitive models to explain differences in violent subtypes (e.g., see Blair, 2001). A central hypothesis is that there are psychobiological foundations that cause, at least in part, some individuals to be more prone to instrumental aggression and others to have proclivities toward reactive violence. As Blair (2001) has noted, one reason that it is important to distinguish reactive aggression is that this subtype may be discerned by differences in functioning of the “executive emotional systems,” which control one’s ability to regulate his or her behavior when responding to threat. This is not the case with instrumental aggression, in which increased risk is marked by the failure to learn the wrongfulness of one’s own moral transgressions (Blair, 1995, 2005; R. J. R. Blair, personal communication, April 14, 2006; Blair, Jones, Clark, & Smith, 1997).

The relevance of this research to differential culpability and punishment for subtypes of juvenile offenders is that some youths may be less capable of controlling their behavioral impulses; that is, due to individual differences in emotion, psychophysiology, and neurochemistry, some juveniles may be particularly prone to violent retaliation in response to perceived provocations. Although this point has relevance for the distinction between instrumental and reactive violent offenders of any age, it may be especially relevant with respect to determinations of culpability and punishment for violent adolescents. Due to developmental differences in cognitive and affective capacities and functioning, such as response inhibition, adolescents may be relatively more predisposed to enacting impulsive (or reactive) violence than are adults.¹¹ This hypothesis seems increasingly plausible as the role of emotion takes a more prominent place in research on adolescent decision-making and deviant behavior (Steinberg, 2005). In his discussion of this trend, Steinberg (pp. 72–73) points to the importance of considering this relation in the context of “cold” (or unemotional) versus “hot” (emotional) cognitive functioning. The distinction between hot and cold cognition is critical to differential culpability and punishment because it is central to functional differences in rationality and self-control.

This discussion may also be relevant to Steinberg et al.’s DIA. Insofar as adolescents, versus adults, may struggle with rational decision-making, behavioral choice, and interpersonal behavior due to developmental difficulties with affect regulation and impulsivity, it may be that they are more likely to exhibit problems resisting thoughts or urges to engage in reactive (or hostile or affective) violence. Clearly, more research on this issue is needed. However, if adolescent, as compared to adult, violent behavior is more commonly characterized by reactive qualities (impulsive, angry, undercontrolled), this distinction would support the DIA for mitigation of juvenile offenders’ culpability. That is, due to developmental limitations, adolescents’ violent behaviors may be less rational and controllable. In addition, because the period of adolescence is marked by an introduction of novel social situations, an adolescent’s ability to foresee problems with impulse control (even when he is cognizant of such difficulties, which may be unlikely if the immature condition is normative within adolescent development) may be restricted; certainly, foreseeability is constrained by the pool of social situations that one can reasonably anticipate, and such anticipation is based, at least partially, on personal experience.

In addition to the possibility of greater problems with emotion, impulsivity, and response inhibition, adolescents’ diminished decision-making capacity and unformed character may play critical roles in their abilities to engage fully in moral reasoning and perspective-taking. The hypothesis in psychology that retaliatory aggression may be believed by the actor, whether or not validly, to be justified and deserved is based on the association between hostile attributional bias and reactive aggression (Crick & Dodge, 1996; Dodge & Coie, 1987; Dodge et al., 1990; Schwartz et al., 1998). An elaborated version of this hypothesis states that the youth reacts aggressively when he (a) interprets the stimulus-actor to have behaved with harmful and wrongful intent, and (b) favorably evaluates the behavioral option of aggressive retaliation because the stimulus-actor’s wrongful provocation justifies it (Fontaine, Burks, & Dodge, 1998; Fontaine & Dodge, 2006). Aspects of developmental immaturity, such as decision-making capabilities and character formation, may restrict the adolescent’s ability to consider alternative perspectives in an ambiguously hostile and provocative situation; likewise, these underdeveloped qualities may limit the adolescent’s ability to think through the justifiability versus wrongfulness of responding violently to a stimulus-actor who is interpreted to have behaved wrongfully. It should be noted, though, that behavioral science has not adequately demonstrated that the reactive aggressive youth’s moral cognitive processing is empirically different from that of the instrumental aggressor’s. In fact, some circumstances may lead to a judgment that instrumental aggression is less immoral (e.g., killing in war, or the mother who kills a store clerk in order to get food or medicine for her starving or ill baby). As a result, scientific

¹¹ In this context, impulsivity is defined as the predisposition to react to stimuli in an accelerated and unplanned manner with little or no regard to the behavior’s meaning or consequences.

research is needed before psychology can fully respond to potential differences in moral cognitive functioning between instrumental and reactive violence.

From a real-time decision-making perspective, implications of emotion and moral cognition for adolescent violence are clear. Emotion regulation is critical to a thoughtful, rational response decision-making sequence. Fontaine and Dodge (2006) discussed the alternative rational versus impulsive decision-making scenarios by which factors such as emotion and physiological arousal may lead to hasty decision-making or the bypassing of important decision-making domains altogether. Adolescent difficulties with affect modulation and response inhibition may be explained according to RED in that the anger an adolescent experiences as a result of a hostile attribution may facilitate a quick reaction of violent retaliation that was rapidly evaluated and accepted as a justifiable response. Similarly, adolescents' diminished decision-making capacity, unformed character (e.g., insecure identity), and vulnerability to negative influence may serve to reduce the likelihood that the socio-moral implications and meaning of reactive violent behaviors are fully considered and play a role in prebehavioral processing.

Thus far, this discussion has suggested that, due to adolescents' potential difficulties with affect regulation and moral cognitive reasoning, adolescent violence may have reactive qualities (anger-laden, impulsive, undercontrolled), adolescent violent behavior may be less rational and volitional, and thus less culpable and punishable. However, it should also be noted that the distinction between instrumental and reactive violence in youths may be less relevant to the DIA if diminished decision-making capacity is more related to instrumental violence than to reactive violence. That is, if, instrumental antisocial behavior is more thoughtful and planned, and based more mindfully on active decision-making, and adolescents' decision-making capacity is significantly less than adults, then the instrumental/reactive aggression distinction in youths may have less to do with differences in responsibility of alternative types of violence in adolescents than they do with adults. Yet another possibility is that there are mitigating factors for both instrumental (e.g., diminished decision-making capacity) and reactive (e.g., affect regulation) violence and so the instrumental/reactive aggression distinction is equally, or otherwise differentially, relevant to adolescent behavior and development. This set of empirical questions remains unanswered and points to the need for research on real-time decision-making, emotion, and behavioral subtypes in violent youths.

5.2. Rehabilitation

Research on aggressive subtypes may be used to guide design and implementation of alternative rehabilitations for juvenile offenders. Psychology has demonstrated that there are structural, functional, and phenomenological differences between instrumental and reactive aggression in youth. Subtypes of violent youths may benefit from rehabilitation programs that are tailored according to these differences. Among the many benefits of making offender rehabilitation more successful are reducing crime/recidivism, increasing the likelihood that reformed offenders may contribute positively to society, and public safety.

Rehabilitation of instrumental versus reactive violent offenders may draw from theoretical writings and research reviews by Dodge, (1991), Vitiello and Stoff (1997), and Fontaine (2007a), that have examined alternative treatment approaches to aggressive subtypes. Dodge argued that because rehabilitations are not tailored to subtype differences, that they are likely less than optimally effective. He pointed to several key issues. First, it is likely that there are etiological differences. Whereas the hypervigilant, reactive aggressive youth may be more likely to have a history of abuse, neglect, and maladaptive attachment relationships, the instrumental aggressive youth's history may be characterized by coercive training and observational and enactive learning that has reinforced the youth's expectation that aggression leads to desirable outcomes. Second, instrumental versus reactive violent youths appear to have different SIP difficulties. Cognitive therapies should focus on perspective-taking and social role-taking for reactive aggressive youths; on the other hand, the instrumental aggressive youth may benefit more from developing skills by which he may achieve his goals via nonviolent means. Also, the instrumental violent youth may have a better rehabilitation outcome if he can learn to better appreciate the negative consequences of acting in an antisocial manner. With respect to the instrumental youth who is less affected by normatively negative outcomes (e.g., the psychopath who is impervious to punishment), rehabilitation may need to be structured so that reinforcements of antisocial behavior are absent. Of course, the potential for a sustained effect may be limited if the instrumental violent offender is released to an environment in which reinforcements of deviant conduct are present.

Vitiello and Stoff (1997) concurred with Dodge's (1991) hypothesis that instrumental violent youths may benefit more from behavioral therapies by which they become more sensitive to negative consequences for their antisocial

behavior. However, they focused more on psychopharmacological interventions for reactive violent youths, noting their chronic problems with affect regulation and behavioral control. They characterized reactive aggressive youths as more psychiatric in that they have problems with frustration tolerance, volatility, and explosiveness. This characterization is consistent with Kupersmidt et al.'s (1999) finding that reactive violent juvenile offenders are more likely to have psychiatric symptoms than their instrumental violent peers. It may be that reactive violent juvenile offenders are more appropriately rehabilitated in programs for adjudicated youths who are psychiatrically disordered (see Dodge, Kupersmidt, & Fontaine, 2000).

Fontaine (2007a) suggested that although reactive violent offenders have greater difficulty with self-management and control, they may be more motivated to rehabilitate. Reactive aggression has been associated with hostile attributional bias by which a person tends to view ambiguous provocateurs as acting with harmful intent. The reactive aggressor often retaliates because he perceives the stimulus-actor to have behaved wrongfully and unjustifiably. If reactive aggressive youths develop skills with which they can better consider alternative explanations of ambiguous provocation situations, they may learn that their retaliations are often unwarranted and serve more to imbalance, rather than balance, the moral scales of interpersonal conflict.

Certainly, research that tests these scholars' hypotheses is insufficient and essential to further conduct. To date, little attention to instrumental versus reactive violent subtypes has been paid with respect to treatment, intervention, and rehabilitation. In addition to rehabilitation, research on violent subtypes appears to have important implications for the length of stay and structure of youth incarceration.

5.3. Incarceration

As opposed to instrumental violent youths, reactive aggressors are not characterized by having strong interests in acting in antisocial ways in order to achieve their goals. Whereas instrumental aggressors may plan and deliberate the execution of their antisocial behavior, reactive aggressive individuals enact violence in response to perceived aversive cues. It may be that reactive aggressive youths are better served by shorter periods of incarceration, for at least three reasons. First, reactive aggression, because it typically lacks considerable deliberation, may be argued, from a retributive perspective, to be less reprehensible than planned, instrumental violence. Second, there is reason to believe that reactive aggressive youths may be more negatively affected by being incarcerated. Cornell et al. (1996) demonstrated an association between instrumental aggression and psychopathy (also, see Dempster et al., 1996). Since psychopathic offenders tend to be the least deterrable and least affected by punishment (Blair et al., 2004; Newman, 1987; Skeem, Miller, Mulvey, Tiemann, & Monahan, 2005), it may be that reactive aggressive youths experience the punitive quality of incarceration to a significantly greater degree. Third, if instrumental and reactive aggressive offenders are housed together, longer periods of incarceration may have the iatrogenic effect of providing reactive aggressive youths the opportunity to learn more deliberate and strategic ways to carry out violent crime from instrumental aggressive inmates.

This final point introduces the issue of the structure (or manner) by which instrumental and reactive aggressive youths are incarcerated. When these subtypes of offenders are housed in mutual quarters, there is the risk that the instrumental offender may take advantage of his reactive violent peers by learning and pulling the triggers that "set off" the latter group. This may serve to entertain the instrumental aggressor or create a disturbance by which he derives a sense of power and control, or allows him a particularly promising opportunity to re-offend if the attention of the guards has been diverted. This is a problem not only for the management of the facility, but for the humane treatment of reactive violent youths. Housing reactive aggressors in situations where their vulnerabilities and hostile propensities may be exploited by instrumental offenders is unethical and may result in greater psychiatric and behavioral difficulties for the reactive aggressive youth.

6. Conclusion

Scientific attention to subtypes of aggressive behavior in humans has increased significantly during the past 20 years. In particular, psychologists and other behavioral scientists have distinguished an instrumental style of aggression from a style that is reactive. Whereas instrumental aggression is "cold-blooded," deliberate, and goal-driven, reactive aggression is characterized by "hot blood," impulsivity, and uncontrollable rage. This dichotomy has been likened to the distinction in criminal law between murders (that require malice aforethought) and manslaughters

(that are provoked and committed in the heat of passion), but may be applied just as sensibly to a vast array of criminal acts. Empirically substantiated differences between instrumental and reactive violence have implications for several principles that guide alternative theories of juvenile crime and punishment. This article has examined how research on instrumental versus reactive violence in youth may be relevant to a construction of juvenile justice that recognizes retributive interests, such as just deserts, and accounts for liberal values including (a) humane treatment of offenders, (b) respecting the rights of offenders, (c) penal proportionality, (d) parsimony (or minimizing punishment), and (e) rehabilitation and public safety.

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