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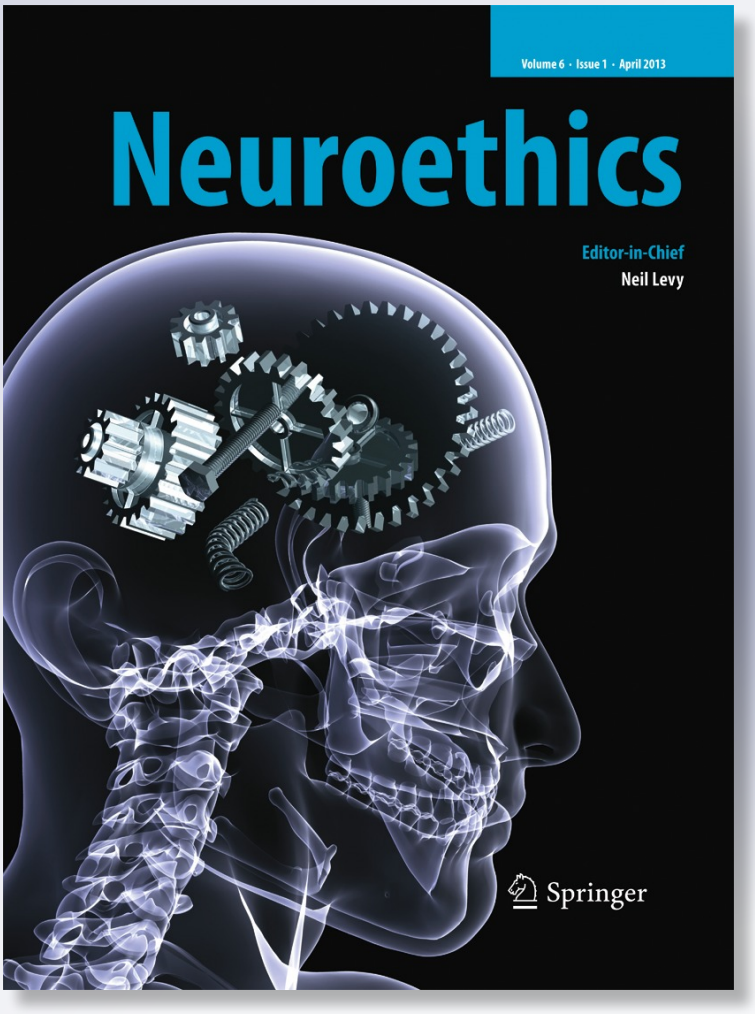

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ORIGINAL PAPER

On the Criminal Culpability of Successful and Unsuccessful Psychopaths

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Abstract The psychological literature now differentiates between two types of psychopath: successful (with little or no criminal record) and unsuccessful (with a criminal record). Recent research indicates that earlier findings of reduced autonomic activity, reduced prefrontal grey matter, and compromised executive activity may only be true of unsuccessful psychopaths. In contrast, successful psychopaths actually show autonomic and executive function that exceeds that of normals, while having no difference in prefrontal volume from normals. We argue that many successful psychopaths are legally responsible for their actions, as they have the executive capacity to choose not to harm (and thus are legally rational). However, many unsuccessful psychopaths have a lack of executive function that should at least partially excuse them from criminal culpability. Although a successful psychopath's increased executive function may occur in conflict with, rather than in consonance with their increased autonomic activity—producing a cognitive style characterized by selfdeception and articulate-sounding, but unsound reasoning—they may be capable of recognizing and correcting their lack of autonomic data, and thus can be held responsible.

Keywords Psychopathy · Criminal responsibility · Executive function · Rationality

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Psychopaths have been deemed by some philosophers to be less criminally responsible than other offenders because they lack personhood [1], moral knowledge [2], or rationality [3]. However, the criminal courts do not generally consider psychopathy to be an excusing condition. By some estimates there are half a million psychopaths currently in US prisons [4]. Some juries are even willing to apply the highest level of culpability and punishment to psychopaths: In 2010, an Illinois jury sentenced murderer James Dugan to death, despite hearing clear psychological and neuroscientific evidence that he was a psychopath [5]. While in the Dugan case psychopathy was offered as a mitigating factor, interviews with career capital defense attorneys suggest that evidence of psychopathy is usually seen as an aggravating factor [6].

The disagreement regarding the culpability of psychopaths appears to be grounded in a related dispute about the cognitive capacities necessary for criminal culpability. Although many psychopaths tend to have normal, or even slightly above normal, IQs, they are said to suffer from an inability to experience social or "moral" emotions, including empathy. It has been

argued that this inability to feel for their victims means psychopaths don't have access to certain reasons not to act. However, autistic persons suffer similar deficits and they do not tend to commit anti-social acts [7]. Indeed, they are less likely than the average person to be entangled in the criminal justice system. Because autistics are not likely to commit crimes, and are generally not considered exempt from criminal responsibility if they should, deficits in empathy alone cannot explain the psychopath's behavior, or constitute a legal excuse [7].

We will argue here that psychopaths' cognitive deficit is not best understood in terms of an inability to experience certain emotions. Instead, we propose that a better understanding of the law's rationality requirement, and the psychopath's moral capacities, can be gained by a study of the brain's executive function. When seen from this perspective, the disagreement regarding psychopaths' culpability can be explained by the heterogeneous nature of the group "psychopaths." This heterogeneity is roughly captured in the distinction between successful (with little or no criminal record) and unsuccessful (with a criminal record) psychopaths. We claim that many unsuccessful psychopaths have a lack of executive function that should at least partially excuse them from criminal culpability. However, successful psychopaths may be fully culpable, because they possess the executive functions to allow them to notice and correct for their criminal tendencies. Recent research indicates that earlier findings of reduced autonomic activity [8, 9], reduced prefrontal grey matter [10], and compromised executive activity may only be true of unsuccessful psychopaths. Yang et al. [11] found reduced orbitofrontal gray-matter volumes in subjects with high-psychopathic traits and criminal convictions, compared to those who did not self-report convictions. In some studies, successful psychopaths actually show autonomic and executive function that exceeds that of normals, while having no difference in prefrontal volume from normals [12]. However, the successful psychopath's increased executive function, we hypothesize, occurs in conflict with, rather than in consonance with their increased autonomic activity. This produces a cognitive style characterized by self-deception and articulate-sounding, but unsound reasoning (even while they may be capable of correcting a false inference). As psychopaths also have an increased likelihood of possessing the traits of narcissism and Machiavellianism—the so-called "dark triad" [13] - successful psychopaths are uniquely equipped to choose to cause harm. But we argue they are legally responsible for their actions, as they have the executive capacity to prevent themselves from causing harm.

Finally, we will argue that diagnostics currently used to assess psychopaths, including the Hare Psychopathy Checklist Revised (PCL-R) [14], are inadequate for the task of identifying the varying cognitive profiles of psychopathy. The PCL-R does not adequately track executive function, and some measures of executive function, including the Wisconsin Card Sorting Test (WCST), may be too simplistic to delineate psychopaths who are fully responsible for their acts from those with diminished legal capacity.

Rationality and Criminal Culpability

Many legal scholars pose questions of criminal culpability in terms of legal rationality expressed in the language of folk psychology. For example, Stephen Morse argues that the law's conception of the person as a practical reasoner is inevitable given the nature of the legal system: the law is meant to give people reasons to act, or refrain from acting, and hence requires that they be capable of acting for reasons. According to Morse, "It is sufficient for responsibility that the agent has the general capacity for rationality, even if the capacity is not exercised on a particular occasion" [15] (253). In turn, the lack of a general capacity for rationality explains those cases where the law excuses persons from responsibility. Morse defines this general capacity as an underlying ability to engage in certain behavior. If a person is capable of certain conduct, it is fair to hold her responsible for failing to engage in such conduct.

Morse fleshes out his account by including the following capacities as constitutive of rationality: (1) the ability to perceive the world accurately, form true and justifiable beliefs; and (2) the ability to reason "instrumentally, including weighing the facts appropriately and according to minimally coherent preference-ordering" [15] (255). Weird or abnormal desires themselves don't make a person irrational unless she lacks the rational capacities to weigh and order her desires. Therefore a person with disorders of desire is excused only where a desire is so strong

and overwhelming that he loses the capacity to be guided by reason. Overall, the law's standard for rationality is set fairly low, according to Morse, because our legal system "has a preference for maximizing liberty and autonomy" [15].

H. L. A. Hart called these general qualifying conditions for criminal responsibility "capacity-responsibility" [16]. According to Hart, capacity-responsibility consists in "understanding, reasoning, and control of conduct: the ability to understand what conduct legal and moral rules require, to deliberate and reach decisions concerning these requirements; and to conform to decisions when made" [16] (227). These capacities may be "diminished" or "impaired," as well as wholly lacking, "and persons may be said to be 'suffering from diminished responsibility' much as a wounded man may be said to be suffering from a diminished capacity to control the movements of his limbs" [16] (228).

The defense of diminished capacity recognizes that some defendants may have decreased legal rationality or capacity-responsibility, and allows a criminal defendant to reduce the degree of the crime for which the defendant may be convicted, even if the defendant's conduct satisfies all the elements of a higher offense [17, 18]. Courts may also use the doctrine of diminished capacity to decrease the level of punishment at sentencing. This "partial responsibility" application of diminished capacity is justified by the principle of proportionality, whereby punishment is moderated to be proportional to both the harm caused and the type of offender. Those who suffer from diminished capacity are thought to be less responsible for their acts because they do not have the capacity to form intentions in the way that normal adults do.

Morse disagrees with the partial responsibility doctrine and argues that diminished capacity should only be used to negate *mens rea* (where a defendant is found not guilty) or ground an insanity plea [17]. He then claims that psychopaths lack minimal rationality such that they are eligible for a plea of legal insanity. "Unless an agent is able to understand what the victim will feel and is able to at least feel the anticipation of unpleasant guilt for unjustifiably harming another, the agent lacks the capacity to grasp and be guided by the primary rational reasons for complying with legal and moral norms" [15]. Thus Morse believes that the psychopath's lack of emotional data regarding his potential victim translates into a wholesale lack of rationality, and proposes broadening the mental disorder criterion of the insanity defense to include psychopathy as a sufficient mental abnormality to support the defense.

Morse's all or nothing approach to legal rationality is quite difficult in application, however, especially with regard to certain groups of offenders. Is a 14 year-old generally capable of understanding and acting based upon the perceived consequences of his acts? Is a person with an IQ of 70? The answer to these questions is complex, and the language of folk psychology is often inadequate when applied to the extremes of human behavior. For example, when the result of a behavior is particularly harmful, folk psychology tends to err on the side of attributing full responsibility (possibly despite evidence of abnormal or substandard cognitive faculties) [19]. However, we agree with Morse's emphasis on the rational *processes* underpinning legal responsibility. These processes are what move us from beliefs and desires to action. According to John Searle, "any definition of rationality must presuppose a gap between the set of intentional states on the basis of which I make my decision, and the actual making of my decision" [20]. That is, the antecedent set of beliefs and desires are not causally sufficient to determine the decision's outcome. If they were, no deliberation need occur: the decision is "automatic," not considered. According to Searle, there are at least three gaps that rationality must fill. The first is the gap in which you make up your mind what to do. This gap is between the reasons for making up your mind, and the actual decision made. The second is the gap between decision and action: "There comes a point, after making up your mind, where you actually have to do it" [20]. The third is the gap between initiation of the action and its continuation to completion, i.e., the continuous voluntary effort needed to stick to a plan until it is fulfilled. Within these gaps identified by Searle are the processes that compose rationality. Searle's position, like Morse's, entails the view that a false or faulty belief or representation isn't usually enough to explain the unacceptable behavior of a rational person. In addition to pointing to these intentional states and representations, one must also examine the processes of rationality within these three gaps. Further, a particular set of abnormal desires or beliefs isn't enough to excuse a person from responsibility for his or her acts. Instead, there are opportunities for the processes of rationality

to recognize and correct for abnormal intentional states. We believe that both legal rationality and capacity-responsibility are best understood in terms of executive function in the brain, and that the diminished capacity doctrine recognizes the reduced responsibility of those with sub-par executive function.

Rationality and Executive Processes

As indicated above, although we believe that folk psychology is generally correct in the way it classifies mental states and processes [21], in certain cases it is too blunt a tool. Thinking of rationality as accomplished by the set of executive processes allows for much greater precision. Despite the almost unanimous agreement that responsibility under the criminal law is dependent on some notion of rationality, there is little agreement regarding how rationality translates into scientific theories of cognition. This is especially worrisome because criminal courts are increasingly using scientific evidence of brain function to determine culpability, or during subsequent sentencing. We have argued that proper executive function is the scientific equivalent of legal rationality [22], and will argue below that some psychopaths have it and some don't.

Most executive processes reside in the prefrontal lobes, including the dorsolateral frontal lobes on the side of the brain, the ventrolateral frontal lobes below them, the medial prefrontal lobes on the inner surfaces of the two hemispheres, and the orbitofrontal lobes located on the brain's undersurface just above the eye sockets [23]. They function as parts of larger cortical networks containing sensory and mnemonic areas located in the posterior regions of the brain, supported by subcortical nuclei. The following are thought by most to be included in the set of executive processes: attention, (considered) recognition, memory, decision-making, the planning of intentional actions, and the inhibition of actions. Each prefrontal area has its executive specialities. Burgess states, for instance, that area 10 in the polar prefrontal cortex, as well as the right dorsolateral prefrontal cortex, are involved in the "creation and maintenance of intentions" [24] (470). Planning involves recalling items from memory and merging them with other representations and plan segments already in consciousness. This requires activation of executive processes to verify the recalled memories [25]. It also requires the ventrolateral cortex to hold relevant information, contained in the posterior cortices, online [26] while the dorsolateral cortex, under the direction of the polar cortex, manipulates that information. While all this is happening, executive sectors of the anterior cingulate are monitoring this process for errors or inconsistencies [27], capable of producing a strong alerting signal via the autonomic system when one is found.

The executive processes tasked with monitoring and correcting inaccurate perceptions (i.e., they produce what we call "considered recognition": recognition that may need to be corrected by contextual or mnemonic information) or memories themselves (which again may need correcting) are especially important to rationality. Without them, people can become confabulatory, or even delusional [28]. Or, they can become psychopathic, with no ability to correct for their cognitive-emotional deficits. Executive processes involved in planning [29] are also crucial for rationality, especially when one is planning actions that will involve others. Our ability to correct for perceptual deficits, or simply mistaken perceptions, using our executive processes, is a vital part of our rationality. Being rational is not so much a matter of what you can perceive or what actions you can execute, but rather what you do with what you can perceive and how you connect that to action.

Consider the example of Tom, a man who is completely color blind. This makes his representations of the world abnormal in that they don't contain information most people have. Imagine Tom is arrested for running a red light and hitting a pedestrian. He might argue that, because he was incapable of perceiving the traffic light normally, he shouldn't be held responsible. The police and prosecutors will not consider this incapacity to be an excuse for Tom's behavior and the harm he caused, however. Why? Because Tom has had ample opportunities, in the gaps between his intentional perceptual states (faulty as they may be) and his behavior, to correct for his incapacity. Tom should have noticed his problem and corrected for it, by memorizing the position of the red light versus the green. And if he was incapable of doing this, or if he were driving in a foreign country where he didn't know which light means "stop," he should not be driving at all.

Similarly, consider Ted, a young person with autism. While he is at the high-functioning end of the

autism scale, Ted still sees others as unpredictable "bags of skin," and doesn't understand that they have mental states of pain and happiness as he does. However, Ted has been taught by his parents and his medical caregivers that when he directs action at another person who then makes a face with a turned-down mouth or says "stop" that he should stop whatever he is doing. Like most high-functioning autistics, despite his lack of empathy, Ted acts morally due to his consistent application of learned social or moral rules [7]. And, if Ted were to commit a crime, his social-perceptual deficit would not be considered an excuse. What Tom and Ted have in common is that they are able to use executive processing to correct for their lack of relevant information. Both have to exert a bit more effort to reason their way to correct behavior, but they are capable of such behavior because they are able to monitor and correct for inaccurate or incomplete perceptions. Our contention is that at least some psychopaths are similar in important ways to Tom, or to high-functioning autistics like Ted. Psychopaths lack the capacity to build accurate representations of the world because their representations lack the appropriate emotional salience or information about other's emotional states; but many successful psychopaths have sufficient executive processing to have corrected for this lack. Thus they are responsible for their acts. Many unsuccessful psychopaths, however, might have global incapacities in executive processing and thus lack the ability to properly assess and correct (or at least mitigate) their problems. These persons may not be fully responsible for their behavior due to diminished mental capacity.

It seems important that both Tom and Ted are *aware* of their cognitive deficits. If Tom had no idea that color data informed people's behavior, he might be excused for running a red light. Similarly, if Ted had no idea that people had mental states, he might be excused for hurting someone. Persons who are color-blind, and autistics, learn of their deficits fairly early on as a part of the normal development process, and because of this they have access to important reasons for acting or inhibiting action (whether or not they are actually swayed by these reasons) [30]. Tom and Ted are able to employ rule-following to correct for perceptual or representational lacks precisely because they have the executive capacity to pay attention to the morally relevant aspects of a situation, and to determine whether certain learned rules should be applied. Thus, at least according to certain theories of responsibility, they may be considered agents deserving of praise or blame for their acts [30]. Not surprisingly, the grounds for legal responsibility and moral responsibility exhibit significant overlap from the perspective of scientific psychology.

While a young psychopath may be less likely to be diagnosed as having a deficit by a professional than autistics, we think it is extremely likely that parents, peers, and teachers, as well as the general culture, will have provided information that he should care about the mental states of others, and that there are moral rules that he ought to follow in order to exhibit ethical behavior. In general, there are sufficient environmental cues to put psychopaths on notice that they have a deficit, although only successful ones may have the executive processing to properly identify and correct for this deficit. If a successful psychopath can take notice of his deficit, and has the capacity to employ rules that would stop him from causing harm, he is responsible for any harm he causes.

The Executive Function of Psychopaths

Each person has a different executive profile in that her executive processes will vary in the overall role they play in her psychology. Inhibition, for instance, figures strongly in the mental lives of some people, and very little in others. Some people are strongly future-directed in that they seem to always be making plans, sometimes in the long term, while others seem never to think about a future more than a few hours away, and spend very little time planning. Certain combinations of motives and drives, coupled with certain executive profiles, produce dangerous or toxic results. For instance, combine the motive to steal with an absence of inhibition, and you have a thief.

Research on the brain function of psychopaths has focused on their emotional impairments. Blair, Mitchell and Blair (2005) have argued that amygdala function is impaired in psychopaths, leading to dysfunctional creation and processing of affect-laden representations, particularly of others the psychopath may harm [31]. Psychopaths may be similar to patients with damage to the ventromedial prefrontal cortex (vmPFC) who are said to be suffering from "acquired sociopathy" [32]. In persons with normal cognition, the vmPFC tends to take emotional input from the

amygdala and its extended network, and plays a role in anticipating and modulating rewards and punishments [33]. Motzkin et al. (2011) found reduced functional connectivity between the vmPFC and amygdala in a sample of psychopaths [34]. They also found reduced structural integrity of the right uncinate fasciculus, the primary white-matter connection between the vmPFC and the anterior temporal lobe, which they suggest is the ground of the reduced functional connectivity [34]. Adina Roskies claims that vmPFC patients have normal reasoning capacities, but are unmotivated to act upon moral beliefs [35]. This may be due to their inability to experience moral emotions such as empathy. When asked to provide an answer to the famous "trolley" thought experiment—where subjects are asked to decide whether to intentionally kill one person to save five—patients with ventromedial damage are more likely to judge that intentionally killing the one person (by pushing him onto trolley tracks) is the right thing to do, despite their having an active role in the killing. Thus, it is thought that persons with ventromedial damage may be more likely to engage in antisocial or immoral behavior, precisely because they do not feel badly about such actions. Similarly, in an fMRI study of fearful expression processing, Marsh et al. reported reduced functional connectivity between the amygdalae and the vmPFC in the children with psychopathic tendencies [36]. Moreover, Birbaumer et al. (2005) reported reduced vmPFC activity as well as reduced amygdala activity in individuals with psychopathy during aversive conditioning [37].

In 2000, Morgan and Lilienfeld conducted a meta-analysis of the existing research on executive function in people diagnosed as exhibiting antisocial behavior, a large category that includes those diagnosed with antisocial personality disorder, as well as those diagnosed as psychopathic [38]. While they note that the existing research posed methodological issues and produced equivocal results, on the whole, antisocial behavior groups scored .62 standard deviations worse on tests of executive function, which yielded a medium to large effect size [38]. This included a finding of response perseveration in a group diagnosed as psychopathic [39, 40]. Since then, several attempts have been made to delineate subtypes within the category of psychopaths, partly in order to discern whether certain groups might have more severe executive function deficits. These possible subtypes include the classic distinction between primary and secondary psychopaths [41]. Primary psychopaths show low levels of anxiety, and have shown superior performance on executive tasks such as the Stroop task [42], although this has been attributed to their insensitivity to peripheral information once they have established a goal-directed focus of attention, rather than to superior executive capacity [43, 44].

Recent research has distinguished two categories of psychopath which appear to have very different executive profiles: successful psychopaths, with little or no criminal record, and unsuccessful psychopaths, currently incarcerated or with a substantial criminal record. Gao and Raine recently published a review of studies distinguishing the two populations within five types of samples: a community recruited sample, individuals from temporary employment agencies, college students, psychopaths employed in business and industry, and psychopathic serial killers [45]. Studies suggest that unsuccessful psychopaths have reduced prefrontal and amygdala volumes and hippocampal abnormalities, resulting in reduced executive functioning, including impaired decision-making [45] (203). Unsuccessful psychopaths also exhibit impaired autonomic/somatic markers and fear-conditioning deficits which contribute to poor and risky decision-making [45] (203). In contrast, successful psychopaths do not show similar structural and functional impairments of the prefrontal cortex, amygdala and hippocampus [45] (203). Ishikawa et al. found that successful psychopaths actually had greater autonomic responses than both unsuccessful psychopaths and normal controls, as measured by their heart rate reactivity during a task designed to produce embarrassment and guilt: preparing and then delivering a two-minute speech detailing their personal faults and weaknesses [12].

The Ishikawa et al. study also found that, compared with unsuccessful psychopaths who had at least one criminal conviction, successful psychopaths had enhanced executive functioning as measured by the Wisconsin Card Sorting Task (WCST) [12]. The WCST is used to assess the following frontal lobe functions: strategic planning, organized searching, shifting of cognitive sets, considered attention, and modulating responses [12]. Indeed, successful psychopaths showed significantly better performance on the WCST than non-psychopathic controls [12]. In contrast, unsuccessful psychopaths scored lower than the controls, even though the two psychopathic groups did not differ on full scale IQ compared with the controls

[12]. Ishikawa and colleagues suggested that better executive function might play a "protective" role for successful psychopaths, decreasing their tendency to be caught up in the criminal justice system [12]. This executive profile may make successful psychopaths particularly skilled at manipulation.

Almost all of these studies used the PCL-R for identification of psychopathic populations. One problem with using the PCL-R to select subjects for studies on successful versus unsuccessful psychopathy is that one of its criteria for achieving a high enough score (i.e., above 30) involves actual evidence of antisocial behavior that a successful psychopath may have been able to hide. Because of this, the vast majority of studies on psychopaths use incarcerated subjects. However, Ishikawa, et al. (2001), recruited subjects from five temporary employment agencies in the greater Los Angeles area, and then separated participants into groups according to whether they had ever been convicted of a crime. Participant's self-reports regarding convictions were then collaborated; e.g. via conviction data derived from court records. Unsuccessful psychopaths had higher total scores on the PCL-R than the successful psychopaths, scoring a mean of 31.5, compared with successful psychopaths mean score of 27.7 [12]. However, this difference was accounted for by the unsuccessful psychopaths' higher levels of antisocial behavior as assessed by Factor 2. And as Ishikawa et al. note: "Importantly, the two psychopathy groups did not differ on Factor 1, which assesses the personality features that are considered central to psychopathy (e.g., superficial charm, poor empathy, callousness" [12]. Mullins-Sweat et al. (2010) used a five-factor model (FFM) instead of the PCL-R to identify successful psychopaths using informants [46]. Psychologists with an interest in law, attorneys, and clinical psychology professors were sampled to obtain descriptions of individuals they interacted with who exhibited signs of psychopathy and who were also successful in their endeavors [46]. The results showed a consistent description across professions and convergence with descriptions of traditional psychopathy, though the successful psychopathy profile had higher scores on conscientiousness [46]. We believe that Ishikawa et al.'s method of moderating the PCL-R's use of criminal activity as an indicator of psychopathy when studying successful psychopaths is especially promising. Since the standard deviation of the unsuccessful psychopath's score was 5.36, the psychopaths in the study can be seen as clustering together [12]. The mean PCL-R score of the control group was 10.85 [12].

One might argue that focusing on executive function inappropriately diverts attention away from a well-studied hallmark of psychopathy: an inability to make the conventional/moral distinction (see, e.g., [47]). When asked if it is acceptable for them to pull another child's hair if the teacher gave them permission, normal children say no, thus distinguishing between a conventional transgression and a moral one. However, there is evidence that psychopaths believe all transgressions are rule-dependent (and thus conventional) [48, 49]. Turiel (1983) was one of the first to argue for the distinction between moral and conventional transgressions based on the sort of harm caused [50]. Moral transgressions have effects on the well-being of others, and are likely to cause distress to persons; and conventional ones do not cause distress to persons. Blair (1995) has suggested that affective response to cues of distress grounds the distinction. He argues that this affective response is connected to a "violence inhibition mechanism" (VIM) that then results in an aversion to distress cues and signals to withdraw aggression (if the viewer of the cues is the aggressor) [48]. People without high physiological responses to distress cues, including psychopaths, are said by Blair to have defective VIMs [48]. Nichols (2002, 2004) also argues that the conventional/moral distinction is grounded in negative affect [51, 52]. Nichols claims that the reason why certain etiquette transgressions also seem to garner moral responses, instead of being judged as convention, is because they engender a disgust response which may also be properly classified as negative affect.

Given our theory, it may seem worrisome that James and Blair (1996) found that autistic children can make the distinction between conventional and moral rules [53]. However, Blair (1999) also showed that children with autism "do not lack the physiological correlates of empathy" [54]. As Grant et al. state, "[I]t may be that the physiological correlates of behavioral empathetic responsivity are sufficient for making the distinction between moral and social conventional rules and rule breaking (though not sufficient for empathic behavioral responsivity)" [55].

Grant et al. (2005) also found that children with autism were capable of making the conventional/moral distinction, based upon assessment of the type of

damage caused [55]. However, they postulate that children with autism may have been explicitly taught that damage to people is more culpable than damage to objects and property [55]. To support this idea, they note that justifications for making the distinction were mediated by verbal ability [55].

Thus it seems autistics may feel a stronger affective response to behavioral cues than at least some psychopaths. But they may also just be applying a fairly sophisticated set of rules to make moral judgments. This possibility is supported by the work of Kelly et al. (2007), who found in a large internet-based study that six of nine harm transgressions were not judged to be authority independent [56]. Kelly et al. argue that many of the earlier studies of the moral/conventional distinction focused on "schoolyard harm transgressions" [56]. It is very likely that subjects—primarily children, and including autistic children—tested using these sorts of scenarios would have been specifically taught rules governing these sorts of transgressions. Successful psychopaths may also be capable of learning a somewhat sophisticated rule set regarding harmful transgressions. As argued above, this ability to notice and correct for his perceptual lack would make a successful psychopath criminally culpable.

Much remains to be sorted out concerning executive function in psychopaths. However, whatever the ultimate subcategories of psychopaths are found to be, it is clear that there are substantial variations in the levels of executive function within the existing group labeled as psychopaths. Given the connections between executive function and basic human rationality, as well as the ability of executive function, when it exists, to correct for emotional and perceptual deficits, we would argue that those psychopaths who possess normal or above normal executive function bear full responsibility for their acts. Alternatively, psychopaths whose executive function is substantially compromised should be considered less responsible. In what follows, we will assume that those psychopaths with normal of above normal executive function are successful psychopaths, while those with below normal executive function are unsuccessful, as indicated by the Ishikawa et al. study.

The Culpability of Successful versus Unsuccessful Psychopaths

We have argued above and elsewhere that executive function is the key to legal rationality and its consequent legal culpability [22]. Juveniles, the mentally retarded, and the legally insane are populations who may be less culpable due to diminished executive function and thus, diminished mental capacity. Similarly, unsuccessful psychopaths' deficiencies in executive processing may be severe enough to constitute evidence of diminished mental capacity. Many successful psychopaths, on the other hand, seem to have a healthy enough executive profile to correct for their lack of emotional empathy and thus are not incapacitated enough to warrant an excuse. Criminal laws are designed to be persuasive reasons not to act. Like our colorblind driver, or the high-functioning autistic person, successful psychopaths would seem to have the ability to avoid violating the law. If an offender is capable of (knowingly) following a law, she is responsible when she does not.

If we are right and successful psychopaths have the capacity to rule-follow, why don't they? Put another way, why do successful psychopaths fail to make moral or ethical decisions if they don't exhibit structural or functional impairments in their autonomic systems, aren't lacking in autonomic responses (at least to some social situations), and exhibit normal executive activity? Remember, successful psychopaths are still likely to make harmful or criminal choices, even though they evade capture by law enforcement—many serial killers have been deemed "successful" psychopaths. It may be that psychopaths are more likely to have harmful desires because they are self-centered [13]. There may also be less direct environmental pressure placed on psychopaths to develop and exercise their capacity to apply learned rules to make up for their deficits. For example, in many settings (institutional and personal) psychopaths may be simply be punished for their acts, without being offered resources to help them make better future choices.

In addition, we suggest that the autonomic activity and the executive activity in successful psychopaths may fail to work together. In addition to coming at the right time, i.e., when empathy is needed, autonomic responses need to be within a certain range in order to be of use in cognition. Too small, and they have no effect on cognition. Too large, and they derail thought and planning and make us their pawns (as may occur in obsessive-compulsive disorder). In a study on a large sample (37) of autistic children, we found that the majority of them (70 %) showed skin-conductance

responses (a measure of activity in the sympathetic branch of the autonomic system) vastly greater than those of normal [citation removed]. In addition, a small subgroup (11 %) showed no autonomic responsiveness at all [57]. The effect of this under- and over-responsiveness was the same: neither was of use for developing or sustaining the capacity for normal cognition.

Cognition without the proper influence of emotion (or, more neutrally, the autonomic system)—regardless of whether it is too much or too little emotion—may be aimless and subject to being sidetracked by specious reasoning. The role of emotion in cognition goes far beyond that of merely inhibiting us from doing harmful, illegal, or counterproductive things. It guides our reasoning, and can provide us with a sense of how strong or weak an argument is. For example, Baird discovered that adolescents take longer to make moral decisions, partly because they have yet to develop the "gut" feeling which requires one to stop considering a decision when an immoral or harmful result is realized [58]. Without this feeling, a strong reason to do x and a weak reason to not do x can appear to be equal. This can cause a phenomenon we call "neutralizing," in which a weak argument is considered to sufficiently counter a strong argument, which neutralizes its effect on the person's reasoning. This sort of reasoning can allow one to derive any conclusion she desires.

We suggest that those psychopaths with larger autonomic responses but intact executive function may have developed more extensive executive activity precisely in order to keep those responses from jolting them off track, or causing them to engage in impulsive, unwise actions. As in the case of autistics, we would expect this executive control to take the form of learning and applying sets of rules to govern cognition. Unfortunately, these rules need not align with the social rules of morality (e.g., members of the mafia are governed by sets of rules) but they will indeed make the successful psychopath, who is also likely to possess the traits of narcissism and Machiavellianism [13], better able to achieve his goals. So while a mildly autistic person (such as Ted) might use the rule "if you see certain behavioral indicators of pain or disapproval, stop," without guidance a successful psychopath might learn the rule "only cause behavioral indicators of pain in places where others cannot see you." The successful psychopaths can alter their behavior based on learned rules, but because of their malevolent desires, the rules they learn may not make it less likely that they cause criminal harm, but instead just make it less likely they will be caught.

We suspect that the existing measures of executive activity are unable to distinguish between genuine critical reasoning and mere rule-following. Some of the classical measures of executive activity, for instance, are merely measures of the ability to follow rules, with the WCST as a prime example. Indeed, the most-cited finding of greater executive activity in successful psychopaths [12] used the WCST as its measure. In principle, it would be possible to make this distinction empirically, since critical reasoning would draw on memory in different ways from rule-following. Rule following would only require that the rule itself be recalled, while critical reasoning might tap memory at several points, in order to provide evidence for or against certain courses of action based on past experience. Critical reasoning would also require more creativity and greater openness to the specific facts of the person's current situation than rule-following. We would expect rule-following psychopaths to respond more quickly than normals employing critical reasoning when the psychopaths were in possession of a rule they could apply, but more slowly (and with greater error rates) than normals if they did not know which rule to apply.

With regard to the culpability and punishment of psychopaths, we agree with the "partial responsibility" variant of the diminished mental capacity excuse and feel that psychopaths with sub-par executive function are deserving of less punishment than those who have normal executive function. As criminal law theorist Joshua Dressler notes, diminished capacity is relevant to culpability because it is appropriate to for the court to consider "any reasonably provable factor that tends to demonstrate that the actors' accountability for their actions is less than that of normal persons under normal circumstances" [59]. Contra Morse, we do not feel that psychopathy is best understood as a mental illness which qualifies a defendant for legal insanity. Many defendants who are successful in pleading insanity suffer from schizophrenia and experience a hallucination or delusion relevant to the criminal harm caused [60, 61]. We feel strongly not only that psychopathy is not relevant to whether a defendant understands the difference between right and wrong, an important prong of the traditional test for insanity, but that courts

will not perceive psychopaths as lacking this basic moral understanding.

The difference between insanity and diminished capacity is one of degree [59]. Psychopaths understand the basic facts of their actions (where they are, what they are doing), but some of them have lacking or inappropriate affect. A psychopath who can correct for this lack is fully responsible. A psychopath who cannot should be able to attempt to prove the excuse of diminished capacity. If successful, this excuse would result in lesser culpability, and lesser punishment.

We understand that this is an unsavory prospect as many unsuccessful psychopaths are likely to continue to commit crimes. However, the future dangerousness of a defendant is not relevant at the guilt phase of a trial (which aims only to determine guilt regarding a particular crime). At sentencing, future dangerous may in some cases be considered (e.g. in capital cases). However, in such cases diminished capacity may also be considered as a mitigating factor in sentencing.

Imagine an analogous case: a defendant, Bob, has an IQ of 60 and also has very bad desires to kill women. Regardless of these desires, at trial the court is only asked to determine Bob's guilt with regard to a particular crime. If his lower IQ corresponded to a lower capacity to control the desires that resulted in criminal harm, Bob should be eligible for the partial responsibility variant of the diminished capacity excuse. At sentencing, the US Supreme Court has disqualified Bob from the death penalty because of his diminished capacity (see Atkins v. Virginia). It is unfortunate that Bob has ongoing harmful desires. But the criminal law is in the business of assessing responsibility for harmful acts, not harmful desires. (We hope the reasons that thoughts alone don't engender criminal culpability are obvious.) Unless there is a minimally rational choice to cause criminal harm, there is no criminal culpability. It is the decision to act that the law cares about: Did the defendant have the capacity to make this decision in a normal way (where the bar for normal is rather low)? This is the question of legal capacity.

For the law to be applied in a just manner, the criteria for criminal culpability must be applied in a systematic way to all persons. We think Morse's worries about the dangerousness of psychopaths may ground his attempt to subsume them under the law of legal insanity. If a psychopath were to be successful in his plea of insanity, he would be incapacitated in a mental hospital for just as long, or longer, than his sentence would be if he were found guilty. But the problem is that psychopaths aren't insane. As students are taught in law school, hard cases make bad law. It is never a good idea to convolute legal concepts or categories to accommodate a difficult case.

Conclusion

We have argued that the empirical ground of legal rationality and thus criminal culpability resides in the brain's executive processes, and that successful psychopaths are thus both more rational and more culpable than unsuccessful psychopaths. Successful psychopaths fail to behave ethically, on our account, because their autonomic activity fails to work in concert with their executive activity, producing a reasoning style that is easily subverted by their malevolent or selfish motives. However, we argue that successful psychopath's level of executive functioning could allow them to correct for their lack of appropriate autonomic data. This may be why some treatment regimens—namely, long term cognitive therapy—appear to be successful in reducing violence in persons with psychopathy [62]. If a successful psychopath were to be arrested for causing criminal harm, we predict that, because they have intact executive functions, they are more likely to benefit from such treatment than unsuccessful psychopaths with executive dysfunction.

Note that our position indicates that it might be more appropriate to delineate psychopaths as "healthy" and "unhealthy" or "functional" and "dysfunctional." It is generally agreed that many successful psychopaths do cause criminal harm and thus might be caught up in the criminal justice eventually (just not with the regularity of unsuccessful psychopaths).

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