

Autism, Episodic Memory, and Moral Exemplars

Introduction

Of the various theories of concepts on offer in the literature, one viable, and intuitively appealing, view is the exemplar theory. On this view, concepts are based on exemplars which simply consist of knowledge about things previously experienced by the subject which typify the concept at hand. So, for ordinary concepts such as DOG, we categorize newly encountered dogs as such by their similarity to the dogs which we have previously encountered, or our DOG exemplars. Some have gone on to suggest that, in addition to everyday concepts, the exemplar theory can be particularly helpful in understanding how humans make use of *moral* concepts.¹ We have, so they propose, exemplars of actions that are prohibited as well as of actions that are required, and we classify newly encountered actions based on their similarity to these exemplars. Judgments of (im)permissibility then follow from these exemplar-based classifications. While this is an initially plausible view of moral concepts and their resultant judgments, I think that there is good empirical evidence that the exemplars are not necessary for forming or accessing moral concepts. If they were, then we would expect that individuals who lacked, or were deficient in, the capacity to form or access exemplars would be similarly deficient in the ability to classify new actions according to them, and this relative inability would be manifested in the moral judgments made by such individuals. However, there is reason to suspect, I think, that a number of individuals who have been diagnosed with Autism

¹ See Stich, "Moral Philosophy and Mental Representation," as well as Sripada and Stich, "A Framework ..."

Spectrum Disorder (ASD) actually have the deficiencies I have described here but are nevertheless fully able to make sound moral judgments. If this is so, then it must be the case that classifying actions as instances of a given moral concept and making judgments based on said classification occurs by some other means. I will defend this thesis as follows: In section 1, I give a brief explication of exemplar theory and the role that some have suggested it plays in moral concepts. Then, in section 2, I argue that the exemplar view hinges on a particular type of memory system – episodic memory – when extended to moral concepts. Finally, in section 3, I present evidence that some individuals with ASD are deficient in the type of memory required to employ moral exemplars but are nevertheless capable of making reliable moral judgments. Section 4 addresses some open questions and offers some remarks concerning future research on these matters.

§1. Exemplar Theory and Moral Concepts

One way of defining concepts, according to Edouard Machery, is to think of them as, “the bodies of knowledge that are stored in the long-term memory and are used by default in the higher cognitive processes.”² One of those higher cognitive processes is categorization, the process by which we classify newly encountered things as instances of a particular concept, and a number of explanations for categorization have been proposed. According to the classical view of concepts and the categorization of objects according to them, it was believed that concepts are simply defined by reference to their necessary and sufficient conditions. This being the case, when we encounter something new we categorize it, on this view, by mentally assessing whether or not it meets the necessary and sufficient conditions of our already-established concept. Ample evidence has been gathered,

² Machery, “Concepts are not ...,” pg. 444.

however, showing that this account is not correct, and, as a result, two competing theories have been widely held in order to replace it. The first, prototype theory, says that rather than classifying objects according to necessary and sufficient conditions contained in our concepts we instead have a prototype representation of the concept and we judge new inputs by their similarity to the prototype. As John Jung Park puts it, “categories are represented by a set of features which may carry more or less weight in the definition of the prototype, and categorization is based on whether an item possesses enough of these features.”³ So, on this view, when I encounter a dog, I check to see whether or not it has the relevant features that comprise the prototype (e.g. it is a quadruped, it has fur, it barks, etc.). If the newly encountered creature has a sufficient number of these features (especially those features which are given greater weight in defining the prototype), then it gets categorized as a dog. Categorization on the prototype view, then, has a statistical focus. As Machery puts it, “In most prototype models ... prototypes are assumed to encode some information about the *typical* properties of the denoted category, that is, the properties that are judged to be possessed by *most* members of the category.”⁴ Importantly, however, these statistical features of the concept are not to be seen as necessary conditions for membership in the category in question, a feature which helps to distinguish prototype theory from the classical view.

A second theory to arise as a replacement for the classical view (and the theory of primary interest in this paper) is the exemplar theory. In essence, the exemplar theory suggests that we represent concepts based on previous experiences of things that

³ Storms et al., “Prototype and Exemplar-Based Information...” pg. 51.

⁴ Machery, “Concepts are not...,” pg. 453-454.

exemplify the concept in question.⁵ So, when I encounter a dog, I categorize it as such based on its similarity to previous dogs that I have encountered. Information is stored about a number of dogs which I have seen in my past, and when a categorization task arises, I retrieve some sufficiently large number of representations of specific dogs in my past experience. Having retrieved representations of these exemplars, I then answer the question, “Is this creature like *those*?” Rather than defining a concept based on a set of features which are given relative weights in their importance in categorizing, I am simply assessing the similarity of new inputs to previous inputs and categorizing based on this similarity.⁶ In short, as Machery writes,

According to exemplar theorists, applying a concept to an individual is tantamount to thinking that this individual is similar to some specific individuals, which are themselves described as having such and such properties. Thus, the mind stores some information about the properties of specific individuals, for example, some descriptions of Fido and Spot.⁷

In addition to classifying objects as members of basic, natural kind concepts, some philosophers have suggested that the exemplar view may be of considerable help in understanding how humans acquire and make use of *moral* concepts. Stephen Stich, for example, writes,

Exemplar models of conceptual representation ... suggest an explanation for the fact that those engaged in moral pedagogy generally prefer examples to explicit principles or definitions. Myths, parables, fables, snippets of biography (real or fanciful) - these seem to be the principle tools of a successful moral teacher. Perhaps this is because moral knowledge is *stored* in the form of examples and stories.⁸

⁵ See Medin and Schaffer, “Context Theory of Classification Learning.”

⁶ For more on ongoing debate between exemplar theory and prototype theory see, Storms et al., “Prototype and Exemplar-Based Information ...”; Macrae et al., “On Activating Exemplars,”; Verbeemen, et al., “Beyond Exemplars and Prototypes...”

⁷ Machery, “Concepts are not...,” pg. 455.

⁸ Stich, “Moral Philosophy and Mental Representation.” Stich reaffirms this notion and sets it in the context of a broader view the psychological mechanisms underlying normative concepts in Sripada and Stich, “A Framework ...”

So, there are some good reasons, it seems, to be optimistic that an exemplar view may be helpful in analyzing moral concepts.⁹ In other words, rather than conceptualizing right or wrong actions according to their necessary and sufficient conditions, it might be the case that we conceptualize them according to our previous experiences. As John Jung Park puts it,

If moral concepts are exemplars, then particular instances of, for example, right actions for an individual may be a grouping of particular cases that one has experienced or heard about that are right acts. For instance, one's exemplars for RIGHT ACTION may be WORKING IN THAT SOUP KITCHEN LAST THANKSGIVING or MY UNCLE, THE FIREMAN, RUSHING INTO THE TWIN TOWERS ON 9/11.¹⁰

Alternatively, we might think of exemplars as being examples of particular people who exemplify moral concepts such as GOOD or EVIL. This sort of exemplar view is taken by Linda Zagzebski, who writes,

I suggest that basic moral concepts are anchored in exemplars of moral goodness ... Good persons are persons *like that*, just as gold is stuff *like that*. Picking out exemplars can fix the reference of the term 'good person' without the use of descriptive concepts.¹¹

So, if moral concepts take the form of exemplars and we categorize new inputs in the way that exemplar theory suggests, then a great deal of explanatory power might be gained for answering questions in metaethics. Additionally, it might be evidence that a normative theory like Zagzebski's is, in fact, true. If moral concepts are based on exemplars, then it would follow that we make moral judgments by reference to these exemplars, and this could be evidence that the best normative view is one which takes seriously the psychology behind these judgments. I am skeptical, however, that the exemplar theory can be extended

⁹ Alvin Goldman takes a similar view in Goldman, "Ethics and Cognitive Science."

¹⁰ Park, "Prototypes, Exemplars, ..." pg. 4.

¹¹ Zagzebski, "Exemplarist Virtue Theory," pg. 51.

to moral concepts such as RIGHT ACTION or GOOD PERSON, and the remainder of this paper will be aimed at motivating this skepticism.

§2. Moral Concepts and Episodic Memory

The primary reason for my skeptical stance toward exemplar explanations of moral concepts is that the type of memory needed in order to form or retrieve exemplars of RIGHT ACTION or GOOD PERSON is far different than that needed to form or retrieve exemplars of DOG or GOLD. Storing a natural kind concept, such as GOLD, in the long-term memory requires what is known as semantic memory. “Broadly defined, semantic memory refers to memory for decontextualized factual information.”¹² It “has to do with knowledge – it is factual, and typically devoid of emotion or reference to time, place, and self.”¹³ This sort of memory seems perfectly fitting for simple, natural kind concepts such as DOG. After all, one needs no context to recall various dogs. It requires no reference to time, place, or self to recall particular chunks of gold. That is, I can recall a particular dog without ever recalling the circumstances under which I saw it. I need not make reference to my emotional state at the time I saw a dog or the time or day of the week when I saw it. All I need for such exemplars is the factual content of my experience. Indeed, most (though not all) exemplar theorists purport that an exemplar consists simply in my representation of particular objects and not in any specific encounters with those objects. That is, if I encounter a dog on Tuesday and then encounter the same dog on Friday, I have only one exemplar of this dog rather than, say, an exemplar of my Tuesday encounter as well as an exemplar of my Friday encounter. If this is the case, as many exemplar theorists suppose it to be, then exemplars of natural kind concepts, it seems, can be represented as entirely independent of any context in which

¹² Lind and Bowler, “Episodic Memory ...” pg. 896.

¹³ Ryan et al., “Perspectives on Episodic ...” pg. 5.

they may have been encountered. If this is true, then forming and retrieving an exemplar of a natural kind concept seems only to require that we be able to hold the descriptive, semantic content in our long term memory in order to make use of the concept in question. So, it seems to me that concepts such as these require memory of only the semantic variety.

However, when attention is turned to moral concepts, it can be seen that the memory system needed to underwrite exemplars is strikingly different. Consider Park's moral exemplars cited above. Storing and retrieving an exemplar such as WORKING IN THAT SOUP KITCHEN LAST THANKSGIVING seems to require something much more than the semantic memory used to store and retrieve exemplars based on particular hunks of gold or specific dogs. It must be stored and retrieved instead, I think, by using what is known as episodic memory. Whereas semantic memory is used to recall factual and descriptive content apart from its context, episodic memory is involved in recalling, as the name suggests, episodes, or events within a particular context. As Ryan et al. put it, "Episodic ... recollection involves thinking about a past event – it is personal, emotional, populated with players and specific places, imbued with detail, and it often has relevance to our sense of self and the meaning of our lives."¹⁴

Given the pervasiveness of morality in our lives and the significance that we often afford it, it should not be difficult to see why moral concepts, if the exemplar view is correct, would require this type of memory. In order to form and retrieve exemplars of GOLD or DOG it need not be the case, as I have claimed, that I represent these exemplars within the context that I first observed them. All that is needed to retrieve them is the factual, descriptive content that was experienced. However, this is not the case when the

¹⁴ Ibid.

concepts in question are populated with exemplars such as WORKING IN THAT SOUP KITCHEN LAST THANKSGIVING. Forming and retrieving moral exemplars requires more than mere recollection of facts. To see why this may be the case, consider the following question: What relevant features of an action would need to be represented and stored in order for an action to be an exemplar of the concept RIGHT ACTION? Park's example of the soup kitchen may be helpful here.

In order to store WORKING IN THAT SOUP KITCHEN LAST THANKSGIVING as an exemplar of the concept RIGHT ACTION I would need to store several bits of relevant information about that event.¹⁵ I would need to store information about my interactions with patrons at the kitchen. I would need to store information about my emotional and empathic responses to seeing the hardship that the people I was serving experienced. I would need to store information about the feelings of satisfaction and happiness I experienced upon having the opportunity to help others. I would need to store information regarding the sacrifice that I made in giving up my holiday plans to be at the kitchen. I would need to store information regarding the benefits that the kitchen's patrons received. And the list may go on. The important fact to take away from this is that none of these relevant bits of information can be stored independently from the context in which they occurred and still function as an exemplar of RIGHT ACTION. In order for the event, WORKING IN THAT SOUP KITCHEN LAST THANKSGIVING to be stored as an exemplar, it must be stored in its entirety and in such a way as to preserve the context in which it occurred and which contains its right-making features. Given that this context involves elements that are personal, emotional, populated with players and specific places, imbued with detail, and relevant to my sense of self and

¹⁵ The fact that we even refer to this as an event seems to me to be putative reason to believe that it requires episodic memory in order to be stored.

meaning it must be the case that it is stored by way of the episodic memory system, the system capable of storing such context-specific information. Such will be the case, I believe, with any moral concept whatever. Consider, for example, an event such as BEING LIED TO BY MY FRIEND, a case of a potential exemplar of the concept WRONG ACTION. In order to store such an exemplar, I would need to store information about the circumstances under which my friend lied, the sense of betrayal that I felt, the indignation that a mutual friend had on my behalf, the guilt that my lying friend expressed, the damage that the lie did to our relationship, her resulting apology, etc. Once again, none of these features can be properly said to be exemplars of WRONG ACTION unless they are stored within the context of the episode in which they occurred.

Nevertheless, exemplar theorists may object to the claim that recalling and categorizing moral exemplars requires episodic memory in *all* cases. Given the discussion above, it seems as though exemplar theorists take their view to claim that moral exemplars may consist of both personal experiences that the agent has herself (e.g. Park's example of working in the soup kitchen) as well as events that are experienced by others and merely witnessed by the agent (e.g. Park's example of the firefighter). Additionally, Stich even includes stories and parables among the candidates for moral exemplars. So, if events or stories such as these count as exemplars, it is open to the exemplar theorist to claim that even if it is the case that recalling and categorizing personal experiences requires intact episodic memory, the same may not be true of these other types of exemplars.¹⁶

This objection, however, is unfounded, and this is because there is good reason to think that fully appreciating the moral import of such stories and events does, indeed,

¹⁶ My thanks to an anonymous referee for raising this point.

require episodic memory. According to Lind et al., episodic memory consists of two separate processes: the process of imaginatively projecting oneself back in time, as it were, in order to recall the event in question and the process of scene construction.¹⁷ This latter process consists in “the ability to mentally generate and maintain a coherent, multimodal spatial representation,” and this ability, they claim, “involves binding together multiple elements of an imagined scene, including contextual details such as sounds, smells, feelings, thoughts, people, and objects.”¹⁸ Taking Park’s case of the firefighter as an example, it is clear that recalling such an event would require constructing a scene in one’s mind and imaginatively travelling back in time to when the event occurred. Moreover, in order for such an event to partially constitute one’s concept of RIGHT ACTION it must be the case that the scene which is constructed is rich in detail and imbued with the cognitive and affective elements that are central to judgments of what is morally right and wrong. The same is true, I think, of stories and parables.

Thus, my basic claim is that since moral exemplars must necessarily make reference to events or actions,¹⁹ they will always require episodic memory in order to be formed. This being the case, if the exemplar theory is correct (when extended to moral concepts), it should follow that any individual who lacks (or is deficient in) episodic memory would also lack (or be deficient in) the ability to form moral exemplars. Moreover, insofar as the formation and retrieval of exemplars is necessary for classifying new actions as permissible or impermissible, it should follow that any individual with deficiencies in episodic memory

¹⁷ Lind et al., “Episodic Memory...”

¹⁸ Ibid., pg. 56.

¹⁹ It may be objected here, that recalling exemplars of good *people* do not require memory of this sort. However, how do we come to judge whether or not a person is good if not by reference to that person’s actions within a particular context? Determination of good character must come from reference to episodes involving a person.

should have similar deficiencies in moral judgment. Finally, if any individual was found who had such a deficit in episodic memory but possessed no analogous deficit in moral judgment, then that individual would serve as a counterexample to the exemplar theory.

§3. Memory and Moral Judgment in Autism Spectrum Disorder

Recent research on autism spectrum disorder (ASD), I believe, offers us just such a counterexample. In general, ASD is defined as “A pervasive developmental disorder characterized by a pattern of deficits that include impaired (delayed and deviant) communication skills; failure to develop social relationships; and restricted, repetitive, and stereotypical behaviors.”²⁰ There are several competing cognitive theories of ASD on offer,²¹ but no matter which of these turns out to be correct, it seems clear from the available research on the subject that individuals with ASD have deficiencies in episodic memory. For example, in a 2007 study, Bruck et al. administered a questionnaire to a group of high-functioning children with ASD which asked questions about events in the children’s recent and distant pasts, verifying the truth of the answers with the children’s parents. During testing the children also participated in a magic show, and the experimenters, after a sufficient delay (“several days,” according to the authors), asked questions about this event to gauge the children’s recollection. The results were striking, and the authors summarized them as follows:

We found that children with ASD showed deficits in memory for personally experienced events. Relative to typically developing, age-matched peers, ASD children showed these deficits for events in their far past as well as their recent past. The deficits were found in terms of the number of details provided for various events as well as the accuracy of replies to open-ended, specific, and yes/no questions. For events from their distant past, not only did children with ASD show

²⁰ Accardo & Whitman, “Dictionary of Developmental Disabilities ...” pg. 39.

²¹ See Rajendran et al., “Cognitive Theories of Autism,” for an illuminating discussion of these.

deficits in the number of details provided, but also more of these children compared to normally developing children failed to recall the events at all.²²

Other studies have generated similar results. For example, Bowler et al. found that adults with Asperger's syndrome²³ do, indeed, show deficits in episodic memory,²⁴ and results from a recent study by Crane and Goddard confirm that adults with ASD demonstrate an episodic memory deficit while also showing that these same individuals possess intact semantic memory.²⁵ Moreover, results from a study by Lind and Bowler show that,

[A]lthough individuals with ASD (at least those without additional intellectual disability) demonstrate intact semantic memory, they show significant impairments in episodic memory. They show diminished memory for personally experienced events, ... source memory, ... and free recall, ... each of which is considered to index episodic memory."²⁶

Additional studies have shown that when tested for episodic memory individuals with ASD, "consistently generate fewer specific events than their typical counterparts and take significantly longer to do so."²⁷

Although the extent to which this memory deficit plays a causal role in the broader behavioral symptoms of the disorder is unclear, it may be the case that the deficit can be seen in some of the emotional features of ASD as well. For example, in a recent study on emotion description in ASD Losh and Capps found that in offering an account of emotional experience children with ASD were less likely to give an appropriate context for their emotions and offered fewer personal details of events in which the emotions occurred.²⁸

²² Bruck, et al., "Autobiographical memory and suggestibility ..." pg. 89.

²³ Asperger's Syndrome has subsequently been subsumed under the umbrella heading of ASD in the DSM-5, and I treat the two as being the same here.

²⁴ Bowler, et al., "Factors affecting conscious awareness ..."

²⁵ Crane & Goddard, "Episodic and Semantic Autobiographical Memory ..."

²⁶ Lind and Bowler, "Episodic Memory ..." pg. 897.

²⁷ Crane et al., "Remembering the past ..." pg. 158.

²⁸ See, Losh and Capps, "Understanding of Emotional Experience ..."

Despite all of this, the severity of episodic memory deficits in ASD is, at this point, not well understood. It is clear from the studies cited above that both children and adults with ASD display deficits that are statistically significant, but the effect sizes reported in these studies are not especially large. This suggests that while episodic memory differences are clearly present, it could be the case that the differences are not behaviorally significant. Given that research on episodic memory in ASD is relatively young, more evidence is needed in order to say with any confidence that this is correct. However, there are some indicators that seem to suggest that the significance of the deficit is not merely statistical. For example, in the Bruck et al. study cited above the authors asked participants (with a mean age of around 7) to recall events that took place when they were two years old. 40% of autistic participants were unable to recall the event as opposed to only 15% of typically developed, age matched participants. Additionally, when participants in that study were asked to provide details about an event that took place two years prior to the study, older children in the control group were able to provide nearly four times as many details as were age-matched autistic children. These are fairly dramatic effect sizes which might indicate that the deficit is more than merely statistically significant.

It is also important to note that while the objective measures in these studies do not rise, in some cases, much beyond statistical significance they may not be telling the whole story either. For example, in the Lind et al. study the authors asked participants to rate how present they felt in the episode or scene at the time they were recalling it as well as how salient the features of the event were to them. They summarize the responses as follows:

[I]ndividuals with ASD manifested a significantly reduced sense of presence in their imagined/remembered events/scenes. Participants with ASD also reported that the imagined/remembered events/scenes were significantly less salient than did the comparison participants. Spatial coherence scores were also significantly lower

among ASD than comparison participants, indicating that individuals with ASD experienced their mental representations as more fragmented and less coherent than did comparison participants.²⁹

So, even if the objective measures of episodic memory fail to reveal much more than statistical significance, the above results seem to suggest that there is a subjective, qualitative difference as well, and such a difference could turn out to be extremely important. This is especially true in the context of morality where forming and making use of moral concepts would seem to require a coherent and non-fragmented exemplar.

It seems, then, that individuals with ASD satisfy the first condition of my proposed counterexample insofar as they show signs of a deficit in episodic memory. What can be said, though, regarding their capacity for moral judgment? As it turns out, the evidence weighs heavily in favor of the view that such judgment does seem to be preserved in those on the high-functioning end of the autism spectrum as several studies have shown that these individuals are able to make reliable moral judgments. James Blair, for example, famously tested the ability of individuals with ASD to make moral judgments and to distinguish them from judgments of convention.³⁰ In order to test this ability, Blair presented a group of high-functioning children with ASD with a number of stories involving the breaking of a rule, either moral or conventional.³¹ What he found was that individuals with ASD tend to be as adept at making the moral/conventional distinction as their typically developing counterparts. That is, they are able to distinguish between transgressions on the part of others which involve what we commonly view as moral wrongs and those which involve wrongs that simply defy convention. Exemplar theory is,

²⁹ Lind et al., "Episodic Memory...", pg. 63.

³⁰ Blair, "Morality in the Autistic Child"

³¹ This task was first presented in Nucci and Turiel, "Social Interactions..."

fundamentally, a theory about classification, and the moral/conventional task is a straightforward test of classification ability. Thus, successful performance on this task is at least putative evidence of a retained ability to classify actions according to moral concepts.

One worry about Blair's study is that his moral judgment tasks involved subjects who were described as showing signs of distress. This feature of the study is potentially problematic since it leaves open the possibility that respondents are reacting to the distress of the subjects rather than the moral features of the task. In order to control for this, Leslie et al. performed a later study in which they supplied participants with additional stories which included distress cues in non-moral violations.³² Importantly, this study confirmed Blair's original conclusion that high-functioning individuals were able to make reliable moral judgments. In the time since these studies, further evidence has emerged confirming this conclusion. For example, Zalla et al. have shown that individuals with ASD can recognize the moral/conventional distinction as adeptly as typically developed individuals even in cases involving authoritative permission (e.g. "Moral harm, *x*, would be wrong even if authority figure, *A*, said it was permissible."),³³ and this feature is seen by some as the most significant element of the moral/conventional task.³⁴

Nonetheless, there is some evidence which suggests that moral judgment proceeds atypically in some respects in ASD populations. For example, in a 2011 study, Moran, et al. tested moral judgment in individuals with high-functioning ASD and found that their judgments differed from those of neurotypical groups in cases which involved recognizing

³² Leslie et al., "Transgressors, Victims, and Cry Babies ..."

³³ Zalla et al., "Moral Judgment in Adults with Autism Spectrum Disorder."

³⁴ See, for example, Shoemaker, "Psychopathy, Responsibility..."

the role of the intentions of those performing the actions in question.³⁵ More specifically, they found that individuals with ASD were more likely to assign blame for actions which involved negative consequences brought about accidentally. Similar results were also found by Gleichgerrcht, et al. in a separate study,³⁶ and this same under-reliance on the intentions of the actor was reported in the study by Zalla et al. cited above as well. There, the authors sought to test the ability of individuals with ASD to make the traditional moral/conventional distinction as well as their ability to distinguish between moral transgressions and disgust transgressions, and, importantly, they sought to examine the justifications that participants provided for these judgments. Two key findings emerged from this study. First, the authors found that individuals with ASD judged both conventional and disgust transgressions (i.e. transgressions that typically lead others to respond with disgust rather than, say, moral opprobrium) as more serious than control groups and, interestingly, that higher seriousness ratings (i.e. how serious participants judged the transgressions to be) for the stories presented were inversely correlated with lower performance on a test of belief understanding.³⁷ Second, the authors found that when asked to give a justification of their judgments ASD participants were significantly less likely to appeal to the welfare of others as a reason for a transgression's being judged impermissible and, instead, appealed to general rules which prohibit the transgression in question. Thus, the authors claim, individuals with ASD fail to make the moral/conventional distinction with respect to justification.

³⁵ Moran, et al., "Impaired Theory of Mind ..."

³⁶ Gleichgerrcht, et al., "Selective impairment ..."

³⁷ The belief test used was the faux pas test developed in Baron-Cohen, et al., "Recognition of Faux Pas..."

Zalla et al. explain this difference between autistic and neurotypical participants by appealing to the role of mental state reasoning in moral judgment, saying,

These findings suggest that [theory of mind] abilities differentially affect moral judgment in the two groups. Specifically, the fact that lower performance on the Belief questions in participants with [ASD] was associated with higher score in the seriousness rating of disgust and conventional transgressions might be explained by a strict adherence to societal rules.³⁸

Their claim, then, is this: individuals with ASD are less able to use information about the mental states of others when making moral judgments, and this leads to (1) their judging of non-moral transgressions as more serious than they actually are and (2) their relying on general moral rules for these judgments rather than on information such as the effect that a transgression might have on the welfare of others.

A more recent study by Shulman et al. found similar differences between the justifications offered by neurotypical participants as compared to those offered by individuals with ASD.³⁹ In that study, the authors presented participants with a similar moral/conventional task and examined the justifications for the answers that participants gave. As in previous studies, they found that individuals with ASD were able to differentiate moral from conventional transgressions and, as in the Zalla et al. study, that the justifications offered were atypical. “Participants with typical development,” they write, “provided significantly more abstract rules as rationales for their judgments of the unacceptability of the behaviors..., whereas the participants with ASD provided more nonspecific condemnations of the behaviors... (e.g. ‘that’s bad,’ ‘you can’t do that’).”⁴⁰ What all of these studies show, then, is that even though individuals with ASD are able to reliably

³⁸ Zalla et al., “Moral Judgment in Adults with Autism Spectrum Disorder,” pg. 123.

³⁹ Shulman et al., “Moral and Social Reasoning ...”

⁴⁰ Ibid., pp. 1370, 1372.

make the moral/conventional distinction, and thus reliably classify new actions according to moral concepts, there is clearly something atypical about the way in which this is accomplished.

This feature of moral judgment in ASD might be thought to undermine the thesis of this paper in at least two ways. First, if it can be shown that the differences noted here arise due to the deficits in episodic memory that are present in ASD, then there would be no challenge for the exemplar theory since it would remain possible that episodic memory is necessary for making reliable moral judgments. Second, it could be that the differences that are observed in autistic moral judgment, as compared to neurotypical moral judgment, arise due to the fact that individuals with ASD are able to develop compensatory strategies for understanding and acting in accordance with moral norms. If this is the case, then it could be that exemplar theory gets things right in the neurotypical case and that individuals with ASD are simply engaged in a different type of practice all together.⁴¹

I contend, however, that neither of these objections effectively tells against the argument presented here. First, it should be noted that none of the studies on moral judgment in ASD cited above attributes the differences observed to deficient episodic memory. Rather, Shulman et al. claim that the differences in moral judgment arise from a processing bias that has been proposed in ASD in which individuals are claimed to process information by picking out localized information and failing to form a coherent, global picture.⁴² Alternatively, the Moran et al., Gleichgerrcht et al., and Zalla et al. studies all

⁴¹ I'm grateful to an anonymous referee for raising this worry.

⁴² This is known as the Weak Central Coherence hypothesis. See, Frith, *Autism: Explaining the Enigma*; Frith and Happé, "Autism: beyond theory of mind."

attribute the differences to impaired theory of mind abilities in ASD.⁴³ This interpretation is initially plausible insofar as individuals who have deficits in recognizing and reasoning about mental states in others would be expected to be less able to recognize the importance of intentions in morally charged situations. So, none of the studies canvassed above take episodic memory deficits to be relevant to explaining the observed differences in moral judgment.

The experimental evidence, then, supports the view that moral judgment is largely intact in individuals with ASD and that this is so despite deficits in episodic memory. However, we still must address the possibility that high performance on moral judgment tasks is the result of compensatory strategies and not of their making genuine moral judgments. One way of addressing this issue is by appealing to our intuitions regarding anecdotal evidence of moral judgment in ASD. This anecdotal evidence, I think, suggests a robust ability to make moral judgments. Jeannette Kennett, for example, offers a number of accounts of individuals with ASD who seem to be engaged in genuine moral conduct and making genuine moral judgments. After doing so, she writes, “Many autistic people display moral concerns, moral feeling and a sense of duty or conscience,”⁴⁴ and, intuitively, all of these seem to require intact moral judgment to some extent. Moreover, this way of thinking of individuals with ASD seems to square well with the first personal accounts of autistic individuals⁴⁵ as well as with the experiences of those who have spent any amount of time interacting with them. Thus, the suggestion that what individuals with ASD are up to when

⁴³ This explanation may be problematic for a number of reasons. First, there is some doubt as to whether individuals with ASD do, in fact, have an impaired theory of mind (see, for example, Bloom and German, “Two Reasons to Abandon...”), and, second, there is some evidence which suggests that there is a close relationship between theory of mind and episodic memory (see Adler et al., “The Relationship Between...”). Thanks to an anonymous referee for bringing these points to my attention.

⁴⁴ Kennett, “Autism, Empathy, and Moral Agency.”

⁴⁵ See, for example, Grandin, *Thinking in Pictures...*; Williams, *Autism: an Inside-Out Approach*.

they make moral judgments is something entirely different than the practice that neurotypical individuals engage in does not seem to reflect actual experience in an important way.

If what I have said here is correct, then there is good evidence, I believe, suggesting that individuals with ASD also satisfy the second criterion for a counterexample to the exemplar theory that I suggested at the outset of this paper since, in addition to showing signs of a deficit in the memory system required to form and access moral exemplars, they are also capable of making reliable moral judgments (albeit in the somewhat atypical manner just described). To the extent that the ability to make moral judgment relies on successfully categorizing new actions as (im)permissible by reference to exemplars, the ability to make moral judgments ought to be deficient in those with ASD in a way that mirrors the deficiency in episodic memory. Since this is not the case, it follows that the current literature on ASD provides us with real world examples of individuals who show that the exemplar theory, when extended to moral concepts is inadequate.

§4. A Speculative Account of Autistic Moral Judgment

What has been said so far is sufficient to support the general challenge for exemplar theories that I have been pressing. However, the thesis of this paper would be rendered much stronger were there an explanation in the offing for the observed differences in moral judgment described above. Specifically, one which (a) does not result in their being attributed to deficits in episodic memory and (b) does not attribute them to a compensatory strategy which is different in kind from moral judgment. Such an explanation can be found, I think, by attending first to the nature of moral judgment more generally.

A large body of research has come about over the last decade or so which suggests that moral judgments occur as the result of dual cognitive processes. Those who advocate this sort of view claim that some of our moral judgments come about by way of high level cognitive processes and that others come about by way of our affective responses. Moreover, according to this view, cognitive processes tend to give rise to broadly utilitarian judgments while affective processes result in deontological judgments.⁴⁶ More recently, however, an alternative dual-process account of moral judgment has been proposed which aims to replace the cognitive/affective distinction with a model-based/model-free distinction.⁴⁷ On this view, moral judgments are best understood in computational terms. That is, some moral decisions are made by representing a model, or decision tree, which maps out the likely consequences of the decision in the mind. That model is then followed in order to reach some goal to which value is assigned. So model-based judgments are made on the basis of whether or not certain actions will foreseeably lead to a desired end. In other cases, however, judgments are made without relying on a model. In these cases agents make decisions by assigning value to actions themselves. The idea here is that by way of positive and negative feedback agents are able to assign either positive or negative value to action types over time. Fiery Cushman summarizes the distinction as follows:

Goal-directed actions require a working model of the world. You pick a desirable outcome, and then form a plan to bring it about. Thus, they correspond to the class of model-based reinforcement learning algorithms. In contrast, habits are reactive stimulus-response pairings that are strengthened when followed by reward. Executing a habit does not require planning toward a valued outcome, and thus corresponds to the alternative class of model-free algorithms.⁴⁸

⁴⁶ See Haidt, "The Emotional Dog..."; Green, "Secret Joke of Kant's Soul..."; Cushman et al., "Our multi-system moral psychology..."

⁴⁷ See, for example, Crockett, "Models of Morality"; Cushman, "Action, Outcome, and Value..."; Cushman, "From Moral Concern..."; Dolan & Dayan, "Goals and Habits..."

⁴⁸ Cushman, "From Moral Concern...", pg. 59.

As was the case in the cognitive/emotional dual process framework, the different processes in the model-based/model-free framework predict different types of moral judgments. The model-based process is thought to issue in consequentialist judgments since these require working out the foreseeable outcomes of one's actions, and the model-free process is thought to issue in deontological judgments since the assigning of value to particular actions amounts to creating rules for acting.

The model-based/model-free framework provides a basis for a plausible explanation of the differences between autistic and neurotypical moral judgments. Rather than relying on different compensatory processes all together, it is more likely, I think, that individuals with ASD simply rely more heavily on a model-free process of moral judgment. This is consistent with anecdotal evidence regarding individuals with ASD insofar as they are generally seen as rigid rule followers.⁴⁹ While more experimental evidence is needed to prove this, there is good reason to think that this view is correct. As I noted above, Zalla et al. found that the justifications offered by individuals with ASD relied heavily on general rules. Additionally, a strong preference for rule-guided behavior would be in line with the restricted and repetitive behavior that is associated with ASD⁵⁰ as well as with deficits in mental flexibility (e.g. following rules requires less mental flexibility than making decisions on the basis of one's ever-changing model of the world) that some have attributed to individuals with ASD.⁵¹

⁴⁹ See McGeer, "Varieties of Moral Agency ..." for a discussion of this feature of ASD.

⁵⁰ DSM-5, pg. 50

⁵¹ See, for example, Ozonoff et al., "Executive Function Deficits..."; for a review of this literature, as well as some of its problems, see Hill, "Evaluating the Theory..."

It should be noted that there may be reason to doubt that the model-free system is able to underwrite rule-guided behavior in this way. Experiments focusing on this distinction tend to use cases where harm is being caused to another person and cases in which involve actions that have received repeated and considerable negative feedback over the course of development, and this might suggest that the range of actions which elicit model-free judgments is quite circumscribed.⁵² However, this feature of model-free judgment does not tell against the positive account I am offering here, and, in fact, it may even provide additional support for my view. First, my claim is not that *all* moral judgments made by individuals with ASD proceed from the model-free system. Rather, all that I am claiming is that they rely on a model-free system more often than do neurotypical individuals. This claim, it seems to me, is sufficient to account for the differences described above, and, so, I need not hold the stronger view in order for my general account to be correct. Second, and more interesting, that moral judgments more often proceed from the model-free system in autism is precisely what we should expect if such judgments are elicited by actions that have persistently received negative feedback throughout development. This is because autism is partially characterized by deficits in social communication, socio-emotional reciprocity, and the development and maintenance of social relationships.⁵³ Given these social impairments, it is highly likely that many individuals with ASD receive more (and, perhaps, stronger) negative feedback from others in social situations and for a much less circumscribed range of actions than do neurotypical individuals. If this is true, then there would predictably be a much larger set of actions that elicit model-free judgments for individuals with ASD.

⁵² I'm grateful to an anonymous referee for raising this objection.

⁵³ DSM-5, pg. 50.

Importantly, if this is the correct view of autistic moral judgment, then it would offer a ready explanation for the differences outlined above. Recall that the primary differences were that individuals with ASD tended to ignore, or show an under-reliance on, mental state information (such as intentions) when making judgments, and they tended to judge conventional transgressions as being more serious than did controls. Each of these differences would be expected if individuals with ASD made primarily model-free moral judgments. Judgments which issue from the assignment of value to particular actions would be far less likely to involve attention to the mental states of others and would, instead, be focused on the details of the action in question. In other words, what matters for moral judgment on the model-free system is simply that an action conforms to a certain type and not, say, whether the agent had good or bad intentions in performing it or whether she took herself to have good reasons for doing so. On the other hand, information about intentions or reasons would be pertinent for a model-based judgment because that information is crucial to constructing an accurate model of the world. Likewise, judgments issuing from a model-free process would also be likely to render more severe verdicts in non-moral cases as well. If an individual assigns disvalue directly to actions which violate a given rule, then it would be extremely likely that said individual would be more sensitive to rule-guided behavior more generally, and this would predictably result in judgments of greater seriousness even for non-moral rule violations. So, if it were the case that moral judgment in individuals with ASD issued primarily from a model-free process, then this would provide an elegant explanation for the differences between autistic and neurotypical moral judgments without appealing to a complex compensatory heuristic and appealing instead to a bias toward a particular type of moral judgment which does not differ in kind

from moral judgments often made by typically developed individuals and thereby satisfying condition (b) above. Crucially, this interpretation satisfies condition (a) as well insofar as it gives an account of these differences which does not attribute them to deficits in episodic memory but to a preference for model-free judgments.⁵⁴

§5. Final Remarks

More can surely be said regarding both episodic memory and moral judgment in individuals with ASD, but the considerations offered above should suffice for my purposes here. We can formalize the argument of this paper as follows:

1. The exemplar theory of moral concepts is committed to the claim that individuals make moral judgments by reference to moral exemplars.
2. Forming moral exemplars necessitates the use of episodic memory.
3. Therefore, according to the exemplar view, if one can make reliable moral judgments, then one must have a capacity for episodic memory.
4. Individuals with ASD are capable of making reliable moral judgments but are deficient in the capacity for episodic memory.
5. Therefore, moral judgment does not require the use of moral exemplars.

This argument does not show, of course, that the exemplar theory is false. What it does show, however, is that the exemplar theory does not succeed, as it purports to, in specifying necessary conditions for moral judgment. I take it that the evidence from autism shows, rather decisively, that individuals can make moral judgments while being deficient in the capacity to form exemplars of moral concepts. Nevertheless, the thesis that I have defended here is, by nature, speculative. So far as I know, there has not been any research explicitly addressing the relationship between moral concepts and episodic memory. Nor has there been any research that explicitly seeks to understand the role of memory in autistic moral

⁵⁴ Readers may be suspicious that I am appealing to the fact that a particular explanation suits my argument as evidence for the veracity of the explanation. However, I think that there are good, independent reasons for thinking that this is the way in which moral judgment proceeds in ASD. Chief among these is the fact that ASD is partially characterized by pronounced deficits in counterfactual thinking, and model-based moral judgment requires robust counterfactual representational abilities. Space limitations prevent me from presenting the evidence for this view in detail here, but see Stout, "Moral Agency and Responsibility....".

judgment. These would both be fruitful topics to explore, and the results of such exploration could well prove the thesis of this paper wrong. Until such research is performed, however, I take it that the above considerations pose a significant challenge for an exemplar view of moral concepts.

In addition to posing a challenge to exemplar theories, I have also presented a positive view of autistic moral judgment which appeals to recent research on the difference between model-free and model-based judgments. This view, speculative though it may be, offers a promising way of understanding how moral judgment occurs in ASD, and it may offer a promising context for studying the nature of moral judgment more generally. If the reliance on model-free judgment can be seen as arising from specific deficits in ASD, then this might offer insight into the underlying features of moral judgment in neurotypical individuals as well. More research on this distinction and on the role that it plays in the judgments of autistic persons could, therefore, significantly further our understanding of both the nature of autism and of moral judgment more generally and should be pursued in the future.

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