Attentional Moral Perception

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Abstract

Moral perceptualism is the view that perceptual experience is attuned to pick up on moral features in our environment, just as it is attuned to pick up on mundane features of an environment like textures, shapes, colors, pitches, and timbres. One important family of views that incorporate moral perception are those of virtue theorists and sensibility theorists. On these views, one central ability of the virtuous agent is her sensitivity to morally relevant features of situations, where this sensitivity is often spoken of in perceptual terms. However, sensibility theorists have often not been careful to specify how to understand their claims about moral sensibilities as perceptual. In this paper, we distinguish between what we call Attentional Moral Perception and Contentful Moral Perception. We argue that sensibility theorists should endorse Attentional Moral Perception, because it has very powerful empirical evidence in its favor, and it can play all of the explanatory roles that the sensibility theorist needs in her theory of moral sensibilities.

Keywords

attention – moral perception – salience – sensibility theory – virtue theory

Moral perceptualism is the view that perceptual experience is attuned to pick up on moral features in our environment, just as it is attuned to pick up on the

mundane features of an environment like textures, shapes, colors, pitches, and timbres. Moral perception has been appealed to by a variety of theorists and for a variety of explanatory roles.[1] One important family of views that incorporate moral perception are virtue theorists and sensibility theorists.[2] On these views, one central ability of the virtuous agent is her sensitivity to detecting morally relevant features of situations, where this sensitivity is often spoken of in perceptual terms.[3]

Sensibility theory has a lot going for it, as others have pointed out. However, sensibility theorists have often not been careful to specify in clear terms exactly how to understand their claims about moral sensibilities as *perceptual* skills. This leaves a lacuna in their positive theory, at least if we are to adequately understand the commitments of sensibility theory with respect to moral psychology. On the most literal interpretation (which, as we will see, does have some textual support), these perceptual skills get cashed out in terms of the contents of perceptual experiences. In other words, we can see sensibility theorists as endorsing something like:

> **Contentful Moral Perception (CMP):** A virtuous agent can represent moral properties as part of the content of her perceptual experience (along with shape, color, pitch, etc.).[4]

Endorsing CMP would certainly provide a positive characterization of the perceptual skills of a virtuous agent. However, it is a contentious view to endorse, both for empirical and philosophical reasons.[5] Other things equal, the sensibility theorist should prefer a less controversial view about the nature of perceptual representation.[6] If possible, this would provide all of the positive explanatory power of her moral epistemology and moral psychology, but without being subject to many of the objections often raised against CMP.

In this paper, we argue that sensibility theory best fits with a more modest understanding of moral perception, which we call (following Werner (2020)) "Attentional Moral Perception" (AMP). We first aim to show how AMP provides all of the explanatory resources needed for the sensibility theorist to fill out her positive view, preserving all of its traditional advantages. We also briefly argue

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1   See Werner, "Moral perception", sect. 2.1 for an overview.
2   Cowan, "Perceptual Instuitionism", sect. 1.
3   McDowell, *Mind, Value Reality* 73; Jacobson, "Seeing by Feeling"; D'Arms & Jacobson, "Sensibility Theory"; Goldie, "Kind Thing to Do".
4   See Bergqvist & Cowan, *Evaluative Perception;* Werner, "Moral perception".
5   Faraci, "Hard Look"; Crow, "Mystery of Moral Perception", Reiland, "Experiencing Moral Properties", Vayrynen, "Doubts"; Werner, "Moral perception".
6   Throughout the paper, 'perception' and its cognates are used in their non-metaphorical senses, familiar from the philosophy and science of perception.

that AMP, if true, would have other implications for moral epistemologists. Next, we show that there is very powerful independent empirical evidence that AMP exists in just the ways that we would expect it to if sensibility theory were true. Ultimately, we hope that this provides an improved path forward for the sensibility theorists and others who are looking to cash out their moral psychology in a less contentious, more empirically plausible, way.

1   Virtuous Agents and the Perceptual Model

In recent decades, perhaps the most prominent proponent of a virtue theoretic moral psychology is John McDowell.[7] McDowell's theory, which has come to exemplify the family of theories now called 'sensibility theory,' makes heavy use of an analogy between our perception of evaluative properties and our perception of colors. As with colors, at least on one popular view in the philosophy of color,[8] we can think of values as simultaneously realist, irreducible to physical properties, and nonetheless human-centric. Values are, in some sense, response-dependent and yet wholly real and non-subjective.

One potential problem that McDowell considers is that, while there is widespread agreement about the application of color concepts, such agreement is not nearly as pervasive when it comes to the application of evaluative concepts. This is where the virtue theoretic aspect of McDowell's theory comes in. For McDowell, unlike with colors, the sensitivity to evaluative features of the world is a matter of a particular kind of perceptual expertise which helps to constitute the skill of the virtuous agent. So while the metaphysics of the moral (and the normative more generally) are much like colors, the epistemological/perceptual story is more like a special perceptual skill such as the expertise of bird watchers.

One need not endorse McDowell's broader metaethical views in order to endorse his model of the virtuous agent. But one commonly endorsed aspect of this notion of the virtuous agent has caught on among many, what we might call the *Virtuous Perceiver Thesis:*

> **Virtuous Perceiver Thesis (VPT)**: A constitutive feature of the virtuous agent is her perceptual attunement to moral difference-makers[9] in her social/perceptual environment.

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7   McDowell, *Mind Value and Reality*.
8   Levin, "Dispositional Theories".
9   We return to the question of what constitutes a 'moral difference-maker' in section 3.

VPT does not say that perceptual attunement is in itself sufficient for being virtuous. And this is so even if one endorses the further McDowellian claim that the relevant kind of perceptual attunement that the virtuous agent has can also directly motivate virtuous behavior. After all, presumably being virtuous also requires having the right beliefs, the right way to respond to new evidence, and so forth. But we can set these other features aside for our purposes. Our concern is exactly how best to understand the notion of perceptual attunement in VPT.

Before turning to an analysis of just how we should understand "perceptual attunement" in this context, it is worth first pausing to say a bit about what kind of explanatory role VPT is supposed to play within the kinds of views that endorse it. To see this, consider an example discussed by one prominent proponent of VPT, Laurence Blum:

> John and Joan are riding on a subway train, seated. There are no empty seats and some people are standing; yet the subway car is not packed so tightly as to be uncomfortable for everyone. One of the passengers standing is a woman in her thirties holding two relatively full shopping bags. John is not particularly paying attention to the woman, but he is cognizant of her. Joan, by contrast, is distinctly aware that the woman is uncomfortable.
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> Thus different aspects of the situation are *salient* for John and Joan … the difference between what is salient for John and Joan is of moral significance … Joan perceives a morally relevant value in the situation that John does not.[10]

In a situation like this, Joan has, while John lacks, the relevant kind of moral sensitivity to the situation necessary of a virtuous agent. The proponent of VPT wants to explain this intuitive difference in terms of their differing moral perceptual skills. Joan knows to offer her seat because she picks up on the situation differently from John – she "perceives a morally relevant value" that John does not.[11] We will call this explanandum *Saliency.*

Related to this is the idea that VPT aims to explain how virtuous agents are able to identify a situation as one of moral import in the first place, prior to the application of some moral theory. As Peggy DesAutels says, "the framing of moral situations is at least as significant to our daily moral cognition (or lack thereof) as is the formal reasoning about and hypothetical responses to

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10   Blum, "Moral perception" 31, emphasis his.
11   Chappell, "Moral perception"; DesAutels, "Moral perception".

already-identified and pre-given moral dilemmas."[12] The virtuous agent has an ability to frame moral situations in the right ways independent of the application of some general moral theory. In fact, some proponents of a perceptual model here would go as far as to say that there is no general moral theory or moral principles to appeal to in a context-independent way.[13] Call this second explanandum *Framing*.

A final explanatory role of VPT is in explaining an increased accuracy in virtuous agents with respect to identifying the morally relevant features of a situation. It is not just that virtuous agents are more likely to, for example, notice the suffering of the woman on the train. They are also less likely to be mistaken about instances of suffering than the less virtuous agent. They have an increased sensitivity to the subtle cues that provide evidence for (and against) the presence of some morally relevant features (consider implicit biases, micro-expressions, and so forth).[14] Call this final explanandum *Accuracy*.

2   "Perception" in the Perceptual Model

How should we understand the notion of perceptual attunement in VPT? Consider, for example, the way that Sophie Grace Chappell talks about the skills involved in moral perception:

> [T]he point of developing capacities for detecting and responding to the patterns that we call the moral properties is given by human interests: both those interests that humans have as the particular kind of creatures they are, and also those interests that humans would have to have no matter what kind of creatures (or rational creatures) they were. *The patterns that are salient as the moral properties* must, therefore, be the patterns that it is most useful and helpful for us to heed in our pursuit of those interests.[15]

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12   DesAutels, "Moral perception" 337. Note that the application of a general moral theory is not the same as the application of moral concepts. Perceptual, attentional processes might take moral concepts as inputs, but such would not entail that these attentional processes involve applying a moral theory with general principles or rules.

13   Dancy, "Ethics Without Principles"; Kirchin, "Moral Particularism".

14   Micro-expressions are very brief facial expressions that reflect an agent's true initial emotional reaction to a stimulus. They generally last less than a second before they are masked by the agent's judged socially appropriate emotional response, when these come apart (Yan et al., "Leaked facial expressions").

15   Chappell, "Moral perception" 436–437, emphasis ours.

Distinguish between two closely related but importantly different kinds of perceptual attunement. First, there is a certain (perceptual) pattern or patterns' *being salient as a pattern.* Second, there is the mere fact that there is a perceptual pattern of saliency, without the pattern being presented as a salient qua pattern. Chappell here appears to be endorsing the former, as indicated by her phrasing that the patterns are salient *as* moral properties. Blum, another proponent of something like VPT, speaks in similar terms.[16]

Perceiving patterns *as morally salient* suggests, at least tentatively, that 'perceptual attunement' in VPT should be understood in terms of the *contents* of perceptual experience including the representation of moral properties. In other words, we can see the proponent of VPT as endorsing something like CMP.[17] CMP is not an unprecedented commitment; it has received some recent defense.[18] So it is open for the proponent of VPT to embrace. On the other hand, CMP is quite contentious for a couple of reasons. First, it assumes that high-level properties can be represented in experience, which is a matter of a continuing highly contested debate within the literature on the philosophy of perception.[19] And second, there are also serious worries about CMP even granting the possibility of high-level perception.[20] For example, unlike other high-level properties, it may seem implausible that moral properties have a distinctive "look" (or sound, smell, etc.).[21] Furthermore, unlike other high-level properties, moral properties are generally thought to be non-causal, whereas perception is an essentially causal relation.[22] Or more generally, it may be thought that CMP is just not the best explanation of the relevant data that it is supposed to explain.[23] Perhaps if one were independently convinced that CMP is true, it would be a natural counterpart to go with VPT. But it is a substantive commitment, both philosophically and empirically. So it is natural to ask whether there is another, more 'lightweight' understanding of perceptual attunement that can capture all of the explananda of VPT. This lightweight understanding can be met, we argue, by a conception of perceptual attunement which we call Attentional Moral Perception.

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16   Blum, "Moral perception" 702–703.
17   See Bergqvist & Cowan, *Evaluative Perception*; Werner, "Moral perception".
18   See, for example, Cullison, "Moral Perception"; McBrayer, "Limited Defense"; Matey, "Good Looking"; and Werner, "Moral Perception and Experience".
19   See Helton, "High-level perception" for an overview of the recent debate.
20   See note 5.
21   McBrayer, "Limited Defense".
22   McBrayer, "Limited Defense".
23   Väyrynen, "Doubts about Moral Perception".

3   Attentional Moral Perception

Consider again the distinction drawn above between patterns of salience and patterns *as* salient. The latter, as we noted, appears to commit one to something like CMP. What about the former? A pattern of salience can certainly be a perceptual phenomenon. It involves the perceptual system's selection of certain features in an environment as relevant in such a way that the features are subject to attentional focus in perceptual experience.[24] And furthermore, this attentional effect, in order to count as a plausible instance of *moral* perception, should have some kind of non-trivial influence on downstream moral cognition. All of this could in principle occur without any intentional activity of the agent herself, although it could also be the result of feedback loops between moral judgments and perceptual processing over time. This gives us the following statement of what we call *Attentional Moral Perception*:

> **Attentional Moral Perception (AMP).** (1) Perceptual, attentional mechanisms tend to be sensitive to moral difference-makers and this sensitivity is reflected in attentional patterns in perceptual experience. (2) Moral cognition is influenced by these attentional patterns such that changing patterns of perceptual attention can change moral judgments and decisions.

We believe that the proponent of VPT should endorse AMP. First, as we will show, AMP has very powerful empirical evidence in its favor. Second, AMP is able to explain the presence of *Saliency, Framing*, and *Accuracy* in virtuous agents, which is just what the proponent of VPT needs her account of perceptual attunement to do. Third, neither AMP's claim that agents' attentional

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24   An attentional state or process is *perceptual* just in case it is an immediate input to or part of perceptual experience or perceptual processing. Attention and salience are closely related. Distinguish functional salience from phenomenal salience. *Functional salience* refers to a stimulus being "treated as important by the perceiver's perceptual and/or cognitive systems; [being] prioritized for processing, and [being] more likely to be selected for action and cognition" (Beck & Schneider, "Attention" 483). *Phenomenal salience* refers to "the way an object or property figures to a subject when she consciously attends to it in perception, a way that constitutes what it is like to attend to that object or property" (Wu, "Conscious attention": 93–94). Attentional processes of which the subject is unaware can prioritize some sensory information for enhanced processing relative to other sensory information. Thus, unconscious attention to a stimulus tends to increase the functional salience of that stimulus. Likewise, conscious attention to a stimulus tends to increase the phenomenal salience of that stimulus. For discussions of phenomenal salience, see Beck & Schneider, "Attention"; Vance, "Precise Experience"; and Wu, "Conscious attention".

mechanisms are sensitive to moral difference-makers nor VPT's claim that virtuous agents are perceptually attuned to moral difference-makers entails that those agents' perceptual experiences represent moral difference-makers or normative moral features. Thus, in these respects, AMP and VPT are less contentious than CMP.

It is worth making one more important point about the philosophical implications of AMP. Our focus here is on the explanatory role that AMP can play within sensibility theory. We think that this is a particularly striking and interesting role for AMP to play, but it is far from the only one. While there is much more to be said (and we hope to discuss this more elsewhere), let us briefly mention two philosophical questions that AMP may help to cast new light on.

First, AMP may play an important role in moral epistemology for moral particularists. Moral particularism is the view that there are no moral principles which are both universally and non-trivially true. This is naturally combined with the claim that moral knowledge is not the result of applying some general moral principles to particular cases.[25] As noted above, particularists, like sensibility theorists, often speak in perceptual terms. Furthermore, it is part and parcel of the view that agents can grasp moral difference-making features of a situation without applying some pre-existing moral theory. Much like sensibility theory, some versions of AMP look like plausible ways to begin to fill out the details of their moral epistemology.

Second, AMP may shed light on debates concerning moral expertise.[26] There are a number of thorny issues surrounding moral expertise which we cannot hope to sort through here: (a) whether there are or could be moral experts,[27] (b) whether, even if there are, we could identify them,[28] and (c) whether, even if we could identify them, it is morally and epistemically acceptable to defer to them.[29] What is important is that one plausible necessary (even if not sufficient) condition on moral expertise is an expert ability to identify and pick up on subtle markers of moral difference-makers in one's environment. If, as is plausible, this is a matter of degree in different agents, AMP could provide a clear mechanism of how this works. That would not prove the existence of moral experts, nor would it give us a clear way of identifying them, but it could play an important role in a broader theory of what makes moral experts special.

25   Dancy, "Ethics Without Principles"; Lance & Little, "Defending Moral Particularism"; Kirchin, "Moral Particularism".

26   Thanks to Daniel Statman for pointing out this connection.

27   See, e.g., Burch, "Moral Experts"; Gesang, "Moral Experts"; Jones & Schroeter, "Moral Expertise"; Matheson et al., "Moral Experts".

28   Cholbi, "Moral Expertise".

29   Davia & Palmira, "Moral Deference".

Before turning to the empirical evidence in favor of AMP, we should first clarify what we mean by "moral difference-maker." This phrase first arose in our definition of VPT, but it is also present in AMP. We want to be as neutral as possible about what constitutes the moral difference-makers, since our concern here is with moral psychology and moral epistemology, rather than with first-order normative theory. What we have in mind here by "moral difference-makers" are the features within one's perceptual environment that *make a moral difference in that situation*. For example, someone's wincing in pain is a moral difference-maker in a context where another agent's action is wrong, in part, because they caused that person to wince in pain. Given the right kind of context, any perceptible feature could in principle make a moral difference. The traffic lights being red when the car hit the pedestrian is morally relevant in that context, but in most contexts in our social environment, something being red is not a morally relevant feature. AMP does not entail (though it is compatible with) the idea that we directly perceive the moral properties per se. Rather, AMP allows for the indirect detection of the moral properties by virtue of drawing attention to the morally relevant difference-makers. These difference-makers will tend to be non-moral properties that are morally relevant.[30] Moreover, AMP is about general tendencies in perceptual attention, and it does not entail that agents' sensitivity to moral difference-makers is perfect. Perceivers are insensitive to moral difference-makers in many situations. In general, perceptual sensitivity is noisy and imperfect with respect to all features, not only morally relevant ones. What is important for AMP (and, in turn, for VPT) is that attention can and often does highlight the features of situations which are morally relevant in those situations.

4   Empirical Evidence for AMP

As we will now show, Attentional Moral Perception is supported by a diverse body of empirical evidence.

4.1   *Moral Pop-Out and Binocular Rivalry*
As subjects, we are sometimes aware of directing our attention to things in our visual field. Here attention operates to highlight things that we already see. But

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30   Recognition of one feature via attention to others is prevalent in perceptual processing. For example, recognition of surfaces is aided by attention to edges, distances, and orientations. A wide range of models in perception science and computer vision aim to account for attention's role in recognition. For an overview, see Rothenstein and Tsotsos, "Attention".
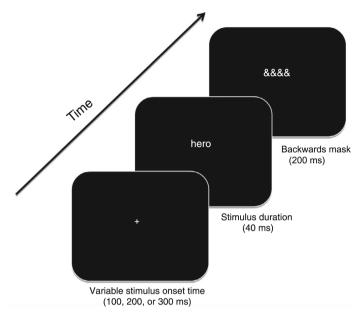
FIGURE 1   Stimuli from Gantman and van Bavel (2014, "The moral pop-out effect: Enhanced
            perceptual awareness of morally relevant stimuli". *Cognition, 132*(1), 22–29. Used
            with permission.)

attention also affects which information is selected for conscious experience in
the first place. Consider the *moral pop-out effect*. Gantman and van Bavel found
that "perceptually ambiguous moral stimuli [are] more likely to reach perceptual
awareness than matched non-moral stimuli."[31] In one study, moral words and
non-moral words were presented for 40-50ms, near the threshold of perceptual
awareness, followed by a backwards mask to prevent the image from remaining
on the retina for further processing (Fig. 1). Moral words denoted morally relevant
features such as justice, victim, hero, and evil. Non-moral words were matched
by length and frequency of use in English. Gantman and van Bavel found that
participants tended to accurately identify moral words more frequently and
more quickly than they identified matched non-moral words.

   To test whether the pop-out effect reflects moral sensitivity, Gantman and
van Bavel analyzed their data for potential confounds, including valence,
extremity, and elicited arousal for each stimulus. They found that the moral
pop-out could not be fully explained by any of the confounds "even though
moral words appear greater on all three of dimensions" (p. 28). Even when
including the potential confounds as factors, there remained a significant
effect of moral vs. non-moral words.

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31   Gantman & van Bavel, "Moral pop-out effect" 23.

FIGURE 2   Adapted from Anderson et al. (2011), "The visual impact of gossip". *Science*,
            332(6036), 1446–1448. Used with permission.

In addition to the moral pop-out effect, attention's role in prioritizing moral stimuli for conscious awareness can also be seen in studies of *binocular rivalry.* In a typical binocular rivalry paradigm, subjects' left eye is shown a different image from the right eye, and subjects experience each coherent image in alternation. However, if one stimulus image is preferentially attended, it can dominate experience – that is, it reaches conscious awareness more frequently and for longer. Anderson and colleagues distinguished *socially negative* actions (e.g. "threw a chair at his classmate"), *socially positive* actions (e.g. "helped an old lady across the street"), and *neutral* actions (e.g. "passed a man on the street").[32] The experimenters showed participants faces with neutral expressions captioned with descriptions of socially negative, positive, or neutral actions (Fig. 2). Finally, they presented the neutral expression faces that had previously been captioned with actions – but now without the captions – under rivalry conditions: one image to each eye.

Anderson et al. found that faces previously paired with socially negative actions tended to dominate experience, indicating preferential attention to them over faces paired with socially positive and neutral actions. The experimenters did not report a meta-analysis controlling for moral vs. non-moral socially negative actions. However, many of the socially negative actions were clearly immoral, including cases of physical violence, lying, cheating, and stealing. They summarize the findings thus: "In sum, hearing that a person stole, lied, or cheated makes it more likely that a perceiver will consciously see that structurally neutral, but purportedly villainous, face. Faces previously paired with descriptions of negative social behaviors were prioritized for consciousness as measured by longer dominance durations in binocular rivalry than were faces paired with other gossip or valenced, nonsocial information" (p. 1448).

The moral pop-out and binocular rivalry results above provide support for AMP. In the pop-out study, it is likely that moral words reach conscious awareness more frequently than non-moral words, because perceptual, attentional mechanisms are sensitive to the presence of words denoting moral

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32   Anderson et al. , "Visual impact of gossip".

difference-makers and prioritize such words for further processing over words which do not tend to denote moral difference-makers. Likewise, in the rivalry study, it is likely that bad agents' faces dominate experience over good and neutral agents' faces, because attentional mechanisms are sensitive to the moral status of agents' actions and prioritize bad agents' images for further processing, such as monitoring their behavior. Moreover, whether a stimulus depicting and associated with a morally relevant feature reaches conscious awareness plausibly affects moral cognition, since conscious awareness is a means of making information available to the subject for judgment and decision-making.

4.2   *Attentional Patterns in Moral Dilemmas*

A number of psychologists have used eye tracking to study morally relevant attentional patterns while participants consider moral dilemmas. Participants are visually presented with information about cases in virtual reality or in written form with illustrative pictures. Eye-tracking apparatuses record where participants' attention is allocated in real time.

One set of studies uses variations of classic trolley cases.[33] When participants were passive observers, experimenters found that they tend to allocate more attention to the victim of a moral wrong than to the wrongdoer.[34] When participants were required to make a decision, another study found that, *before* deciding, participants generally attended more to the person whom they would eventually sacrifice, possibly reflecting empathic concern for victims or a need to process victims' traits as part of the decision-making process.[35] A further study found that *after* deciding, participants generally avoided attending to the victim whom they had sacrificed, possibly reducing cognitive dissonance between feelings of guilt about and endorsement of sacrificing that person.[36]

In a different set of studies, researchers investigated attentional patterns in everyday moral dilemmas, such as whether to cheat on a test or whether to return a lost wallet. Garon and colleagues used the Social-Moral Reasoning Ability Level (SoMoral) task to visually present dilemma situations as a series of pictures, followed by the dilemma choice in words (Fig. 3). Participants were asked to make a decision about how to act and then to justify their decision verbally. Their eye movements were recorded throughout.

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33   Foot, "Problem of Abortion" provides the *locus classicus* of trolley cases.
34   Decety et al., "Emotion and cognition".
35   Skulmowski et al., "Forced-choice".
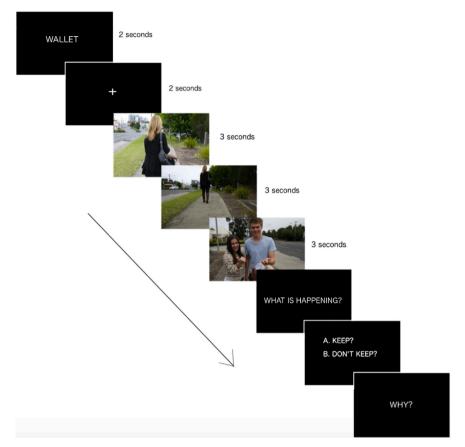36   Kastner, "Moral judgments".

FIGURE 3   Stimuli from Garon, Forgeot d'Arc, et al. (2018), "Visual Encoding of Social Cues
            Contributes to Moral Reasoning in Autism Spectrum Disorder: An Eye-Tracking
            Study". *Frontiers in human neuroscience*, 12, 409. Used with permission.

They found that a participant's number of visual fixations to regions of mor-
ally relevant interest (here, faces) was a significant predictor of the quality of
their moral justification (i.e. their explanation for why they decided as they did),
according to criteria prescribed in the SoMoral task.[37] In a follow-up study, Garon
and colleagues again found that a participant's number of fixations to regions of
interest predicted their level of moral justification.[38] In addition, they found that
a participant's time to first fixation on a region of morally relevant interest was

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37   Garon, Lavelee, et al., "Visual encoding". Participants' justifications were recorded and
      scored using the standard coding system based on a cognitive-developmental approach to
      moral reasoning. Detailed descriptions of the coding levels, with examples, can be found in
      Chiasson et al., "Assessing social cognition".
38   Garon, Forgeot d'Arc, et al., "Visual Encoding".

a significant predictor of their moral decision in the same everyday dilemmas. The latter study aimed to compare individuals with Autism Spectrum Disorder (ASD) with neurotypical counterparts. Unexpectedly, the experimenters found that increased attention to faces predicted superior moral justifications for both ASD and control groups. Likewise, they found that faster first fixations to faces predicted more socially adaptive decisions as measured by the SoMoral task in both groups. They conclude, "In summary, individuals with ASD exhibited poorer understanding of moral dilemmas, produced fewer socially adaptive decisions and showed differences in the quality of moral justifications they provided to everyday moral dilemmas compared to neurotypical individuals. However, these differences appear to be attributable to differences in the visual encoding of social cues only for decision-making" (p. 9), where visual encoding here refers to differences in attention to others' faces and facial expressions.

The eye tracking studies using trolley cases and everyday dilemmas provide additional support for Attentional Moral Perception. Eye tracking in the trolley cases suggests that participants' attention tends to be sensitive to moral difference-makers, such as victimhood. Eye tracking in relation to everyday dilemmas indicates sensitivity to morally relevant emotional states via attention to faces. In addition, these patterns of attention predict differences in moral cognition, as when Garon and colleagues found that increased attention to faces predicted superior moral justifications.[39]

4.3   *Gaze and Cheating*

In one study, participants had opportunities to cheat while their gaze was tracked.[40] The experimenters displayed two sets of dots on a screen, divided by a vertical line. The dot displays were symmetrical, except one side had dots where there were none on the other side (i.e. "missing dots"). Trials varied by incentive type. Some were "incentive-for-accuracy" trials, where participants

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39   Although Garon and colleagues did not specifically test for attention to morally relevant emotional expression, a number of other studies have. Many such studies test for emotion recognition utilizing visual search of faces, especially eyes, by individuals with psychopathic traits. For example, Dadds et al. (2008) found that young people with psychopathic traits attended less to others' eyes than control subjects, and also scored lower on emotion recognition in others' facial expressions, while Boll and Gamer (2016) found that psychopathic traits predicted reduced attention to another's eyes corresponding with reduced emotional reactivity and recognition of another's emotions. Additionally, Gehrer et al. (2019) studied incarcerated psychopaths and found that they allocated significantly less attention toward others' eyes (both in overall fixation time and frequency of initial fixation) across all emotional expressions. Gehrer et al. (2020) obtained similar results for psychopaths in live conversation settings, suggesting that the body of evidence is ecologically valid.

40   Hochman et al., "Biased Processing".

were rewarded for accurately identifying which side had more dots. Others were "incentive-for-side" trials where participants were told that they would be rewarded for choosing a particular side (left or right) regardless of which side had more dots. Participants were explicitly instructed to select the side with more dots in all trials, but had the opportunity to cheat in some incentive-for-side trials by selecting the side with fewer dots to get a higher payoff.

The experimenters monitored participants' attention throughout the experiment, including their attention to "missing dots" in each trial. They found that participants directed significantly more attention to missing dots in incentive-for-accuracy trials than in incentive-for-sides trials. In other words, "people focus less on the diagnostic information (missing dots) on trials that provide an incentive to cheat as compared with trials in which this incentive did not exist."[41] Additionally, for both incentive conditions, subjects allocated more attention to the missing dots when they responded accurately than when they responded inaccurately. The results show that when subjects cheated, they attended less to diagnostic information that could provide evidence of their cheating than when they responded accurately in either incentive condition. In the experimental context, "missing dots" were moral difference-makers: whether a participant's behavior was an instance of cheating depended, in part, on whether there were missing dots. The data also provides insights into how attentional patterns both facilitate wrongdoing (via attentional bias toward self-serving aspects of the scene) and insidiously shields the wrongdoer from evidence of their moral failure (via attentional bias away from diagnostic information when cheating).[42]

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41   Hochman et al., "Biased Processing" 331.

42   Pittarello et al. (2015) conducted another eye tracking study of cheating opportunities, with similar results. The experimenters also used eye tracking to measure attention in cheating scenarios. They displayed several dice rolled on a computer screen and asked participants to report which die appeared closest to a fixation cross. The value of the reported die was used to determine the participants' pay. For each trial, the experimenters secretly controlled the value of the die closest to the fixation cross (the closest die) and of the die second closest to the fixation cross (the second closest die). In some trials, they made the value of the second closest die higher than the closest (i.e. tempting information); in other trials they made the value of the second closest die lower than the closest die (i.e. non-tempting information). Trials also varied in difficulty from low to medium to high. In low-difficulty trials, the closest die was much closer to the fixation cross than was the second closest die. In high-difficulty trials, the closest and second-closest die were nearly equidistant from the cross. The experimenters tracked participants' eye movements and found that people preferentially attended to tempting information over non-tempting information. Moreover, they found that participants' attending to tempting information was a significant predictor of their incorrect, self-serving decisions. In high-difficulty trials where accuracy was rewarded, attention was allocated roughly equally to the closest and second-closest dots.

4.4   *Gaze and Generosity*

Several recent studies have found that patterns of perceptual attention predict participants' levels of generosity in strategic games. For example, one study tested participants' generosity during modified dictator games.[43] The experimenters visually presented subjects with proposals consisting of monetary trade-offs between themselves ($Self) and an anonymous partner ($Other). Trials varied to include either high or low time pressure (1.5 s vs. 10 s). Proposals for $Self and $Other varied from $0 to $100. Participants had to accept or reject proposals in each trial relative to a default $50 payout for each participant, and gains/losses relative to the default were zero-sum. Participants were informed that their choice in one randomly selected trial would determine the payoffs for their partner and themselves at the experiment's conclusion. The experimenters found that, under time pressure, participants' generosity was "strongly influenced" by whether participants fixated first on self-relevant or other-relevant information (p. 8). Without time pressure, there was no effect of first fixation. Since the balance between self-related and other-related payoffs is morally relevant, this study provides evidence for attentional moral perception.

In another set of studies, Rahal and colleagues tested participants' generosity in a dictator game paradigm.[44] However, instead of time pressure, the experimenters divided participants into two groups (Giants vs. Titans) and measured their generosity in trials with in-group partners vs. trials with out-group partners, monitoring participants' gaze behavior throughout. They found that participants were systematically more generous to ingroup members than to outgroup members. They also found that "ingroup compared to outgroup decision settings are characterized by systematic differences in information search effort (i.e., increased response times and number of fixations, more inspected information) and attention distribution" (p. 1). Rahal and colleagues also tested for differences between "individualistic" participants (with more self-interested tendencies) and "prosocial" participants (with more altruistic tendencies). They found that both participant-types allocated less attention to outgroup members than to ingroup members, but that, "Whereas individualistic decision makers invested relatively less effort into information search when decisions involved out-group members, prosocial decision makers' effort differed less between in[group] and outgroup decisions" (p. 1). The

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But in trials where accuracy was not rewarded, attention was allocated most to whichever was the higher payoff dot.

43   Teoh et al., "Attentional priorities".
44   Rahal, Fiedler, & De Dreu, "Prosocial preferences".

findings support Attentional Moral Perception indirectly. In-group vs. out-group membership was irrelevant to moral status in these cases. The results suggest that attention *away from* the morally irrelevant distractor of group membership tended to improve moral decision-making. That is, those participants who attended more to the morally relevant features of the situation, instead of morally irrelevant distracting information, tended to make better moral decisions. Thus, the study provides evidence that patterns of attention can differentially track morally relevant features, and that attending to morally relevant features (and away from irrelevant distractors) can make a difference to moral decision-making. In both sets of studies described in this section, the experimenters found distinctive patterns of visual attention that correlated with participants' levels of generosity, just as AMP predicts.

4.5   *Correlation vs. Causation*

The above survey of empirical results provides strong support for the first claim in AMP: that perceptual, attentional mechanisms are sensitive to moral difference-makers and this sensitivity is reflected in attentional patterns in perceptual experience. However, one might worry about the strength of support for the second claim: that moral cognition is influenced by these attentional patterns such that changing patterns of perceptual attention can change moral judgment and decision-making. Influence is a causal notion. We now turn explicitly to the issue of causal influence from patterns of attention to moral cognition.

Experimenters can test for causal influence by manipulating an independent variable and measuring its effect on a dependent variable of interest. Several recent studies have used variable manipulation and found evidence for causal influence by attention on moral cognition. Recall that Teoh et al. (2020) found that, under time pressure, participants' generosity was strongly predicted by whether they fixated first on self-relevant or other-relevant information. In some trials, participants could choose which attribute to click first, but in others, participants were forced to click first on either self-relevant or other-relevant information. Since the forced first fixations were manipulated randomly, the effects on generosity occur independently from each participant's social preferences and suggest that attention influences moral cognition, including some influence independent of top-down attentional guidance. As further evidence, Teoh et al. fitted several models to their data regarding the effects of attention on generosity. Using sophisticated model comparison techniques, they found that a model taking attention into account better predicted the data than all of the non-attentional alternative models. Participants' social biases accounted for some of their results, but not all. They write, "Thus, while

social response biases may partially drive choice behaviour, they cannot fully account for time pressure's effects on altruistic choice. Instead, accounting for attentional dynamics seems necessary to fully capture time pressure's effects on altruistic choice" (p. 6). Together, the experimental intervention and model comparison provide substantial evidence for an attentional effect on moral cognition. These results are corroborated by a growing body of evidence using similar techniques to measure the causal role of attention in shaping moral cognition.[45]

5   AMP and Sensibility Theory

We have now seen that Attentional Moral Perception requires fewer contentious philosophical commitments than Contentful Moral Perception. And we have also seen that there are very powerful empirical reasons to think that AMP is a genuine psychological phenomenon, at least in most adult human beings. Now, we turn to establish that the kinds of effects documented in favor of AMP in the previous sections are sufficient to undergird the Virtuous Perceiver Thesis (VPT). If all of this is correct, we will have shown that AMP can provide a positive empirical basis for the moral psychology associated with sensibility theory.

Recall the three explanatory roles that VPT plays within the sensibility theorist's moral psychology. First, the virtuous agent is able to perceive certain morally relevant features in ways that non-virtuous agents may not (*Saliency*). Second, virtuous agents are better able to recognize a situation as one of normative import in the first place (*Framing*). And finally, virtuous agents have an increased sensitivity to subtle cues that can provide evidence for the presence of some morally relevant feature (*Accuracy*). Let's consider each in turn.

First, AMP can explain certain agents' ability to meet *Saliency*. In accordance with AMP, virtuous agents' attention will be naturally and immediately drawn to morally relevant features of the situation. The moral pop-out and binocular rivalry effects illustrate this. Under the moral pop-out effect, subjects are better able to distinguish moral stimuli (in the form of moral words) from non-moral stimuli, even when other confounding factors are ruled out. In binocular rivalry, morally loaded events drew the (pre-agential) attention of subjects automatically, resulting in the morally loaded event being perceived

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45   See Ghaffari and Fiedler, "Power of attention"; Parnamets, Richardson, and Balkenius, "Modelling moral choice"; and Parnamets, Johnson, et al., "Biasing" for application of such techniques to attention's effect on moral cognition. For a review of earlier work, see Fiedler and Glockner, "Attention".

rather than some neutral one. It should be clear, then, that AMP can provide a perfectly natural explanation of *Saliency*.

Turn next to *Framing*. Framing, recall, is the ability of virtuous agents to identify situations as morally relevant ones in the first place. They move about the world keyed in to possible markers of morally loaded situations, in ways that are at least sometimes independent of their application of some general moral theory. And it appears that again, the evidence canvassed above illustrates that just this kind of thing occurs. Because moral pop-out and binocular rivalry effects control which features of the scene are made available in conscious awareness, they help frame the situation before general moral theories can be applied to the situation.[46] Additionally, it is difficult to see how many of the attentional patterns we have described would be the result of applying a moral theory. For example, in the cheating studies, it is not clear what moral theory we could plausibly attribute to agents such that it would cause them to attend away from diagnostic information to covertly facilitate cheating, especially given that subjects seemed to be unaware of their cheating.[47] Or, in the case of moral dilemmas, where participants grapple with difficult decisions for which no theory which they hold provides a clear answer, patterns of attention are better-explained by empathic concern and cognitive dissonance than by the application of a general theory. Thus, it looks that AMP can straightforwardly explain *Framing*.

Finally, we have *Accuracy*. As a reminder, *Accuracy* says that virtuous agents will have an improved ability to pick up on subtle morally relevant features of their surroundings that less virtuous agents may not. This condition is in some ways more difficult to read straight from the empirical data; this is not because the empirical data is unclear, but rather that assessments of accuracy will always be at risk of assuming some contentious first-order normative theory. We want to avoid that here. But there are two considerations which we think tell quite strongly in favor of AMP explaining *Accuracy*.

First, as a logical matter, the fact that there are empirical differences in which features different agents attend to tells indirectly in favor of *Accuracy*. For if different individuals attend to different features of their situations, and these changes in attention have effects on the downstream moral decisions

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46   Saying that general moral theories are not applied prior to attentional framing in some of these cases leaves open that moral concepts influence the attentional patterns in question. For a discussion, see Gantman and van Bavel, "Moral pop-out effect" 28–29. Framing is consistent with some top-down influence from moral concepts, since moral concepts are not moral theories.

47   Here it is important to note that participants often did not seem to know that they were cheating. See especially the discussion in the section "Doing Wrong but Feeling Moral" in Pittarello, et al., "Justifications".

being made (as we have shown they do), then it is clear that in principle some agents will be more accurate than others at identifying the morally relevant features. It is perfectly open to the proponents of VPT to just argue that virtue is partly constituted by having the right kinds of dispositions to attend in ways that are sensitive to morally relevant features of situations, and that some agents will be better than others at this.

Second, the limited empirical data we have does seem to bear this out. Recall that when subjects cheated, they attended less to diagnostic information than when they responded accurately. As a result, attentional patterns facilitated both wrongdoing and shielded the wrongdoer from evidence of their wrongdoing. On most first-order normative theories, cheating is wrong. So, this data suggests that patterns of attention can undermine accuracy in at least two ways: by facilitating morally wrong decisions and by facilitating false beliefs that one is not acting wrongly.[48] In addition, recall that both neurotypical individuals as well as individuals with ASD were better at justifying their moral decisions when they fixated more quickly on human faces than on other features of their situations. It seems plausible that the emotional states revealed through facial expressions are going to be moral difference-makers regardless of one's first-order normative theory. And it is also empirically plausible that these kinds of fixation dispositions would generalize to other moral difference-makers as well.[49]

In short, it looks that AMP, and our particular empirical understanding of it, provide the relevant explanatory power needed for a theory of moral perception to figure in VPT. AMP can explain *Saliency, Framing,* and *Accuracy.* Furthermore, as we have seen, we have quite compelling reasons to think that AMP is a cognitively realized phenomenon, not merely an abstract philosophical hypothesis.

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48 Recall that subjects seemed to be unaware of their cheating. See note 41.

49 One could object as follows: the data indicates that perceptual, attentional mechanisms tend to be sensitive to faces or facial expressions, not to the emotional states that they express; and, facial expressions are not themselves moral difference-makers, but only indicators thereof. Thus, the data does not show that attentional mechanisms tend to be sensitive to moral difference-makers. In response, attention is sensitive to emotional state by being sensitive to facial expressions that highly correlate with emotional states across a wide range of counterfactual situations. Moreover, further data indicates that attention is preferentially allocated to facial expressions to help the agent monitor others' emotional states. It is not mere coincidence that we attend to facial expressions and these happen to reveal one's emotional state. See Ekman and Friesen, "Constants"; and Ekman, *Emotions Revealed.*

6   Future Directions for AMP

In this paper, we argued for a few distinct claims. The first is that Attentional Moral Perception (AMP) describes a well-established empirical phenomenon in cognitive science and the psychology of perception. The second is that this fact has important philosophical implications. One implication that we have emphasized here is the role that AMP can play within sensibility theory, as a way to understand the role of perception in sensibility theorists' moral psychology. Specifically, we have argued that AMP fits nicely within the sensibility theorists' – as we call it – Virtuous Perceiver Thesis (VPT). As an empirical theory with significant backing, the sensibility theorist should, we suggest, endorse AMP as opposed to some more ambitious and controversial version of moral perception (such as Contentful Moral Perception).

It should be emphasized that the role of AMP in sensibility theory is only one particularly notable philosophical upshot of AMP. A wide variety of moral epistemologists and moral psychologists should be interested in our perceptual systems' attunement to morally relevant features in our everyday environments. Moral particularists should be interested in AMP as a model of how agents are able to pick up on the moral features of one's environment without the application of some general moral theory, in part, as we described in our discussion of Framing in the previous section. Those working on moral expertise may want to explore the implications of AMP – and different individuals' distinct levels of attentional moral perception – as it relates to issues surrounding the existence and (if they do exist) the identification of moral experts, in part, as we described in our discussion of Saliency and Accuracy in the previous section. AMP may even have a role to play as part of a standpoint moral epistemology.[50] And getting clearer about the connections between the empirical literature and the philosophical literature may also help to guide future empirical research. In short, the existence of AMP opens up many possibilities which we hope will be explored in future work.

Acknowledgements

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50   Dular, "Moral Standpoint Theory".

Biographical Note

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