

Descartes on the Errors of the Senses¹

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Abstract

Descartes first invokes the errors of the senses in the *Meditations* to generate doubt; he suggests that because the senses sometimes deceive, we have reason not to trust them. This use of sensory error to fuel a sceptical argument fits a traditional interpretation of the *Meditations* as a work concerned with finding a form of certainty that is proof against any sceptical doubt. If we focus instead on Descartes's aim of using the *Meditations* to lay foundations for his new science, his appeals to sensory error take on a different aspect. Descartes's new science is based on ideas innate in the intellect, ideas that are validated by the benevolence of our creator. Appeals to sensory error are useful to him in undermining our naïve faith in the senses and guiding us to an appreciation of innate ideas. However, the errors of the senses pose problems in the context of Descartes's appeals to God's goodness to validate innate ideas and natural propensities to belief. A natural tendency to sensory error is hard to reconcile with the benevolence of our creator. This paper explores Descartes's responses to the problems of theodicy posed by various forms of sensory error. It argues that natural judgements involved in our visual perception of distance, size and shape pose a problem of error that resists his usual solutions.

1. Sensory error and scepticism

Descartes first appeals to the errors of the senses in pursuing his plan of demolishing all his opinions through doubt. The rationale he gives for this plan in the opening sentences of the *Meditations* is that he acquired many false beliefs in childhood:

Some years ago I was struck by the large number of falsehoods that I had accepted as true in my childhood, and by the highly doubtful nature of the whole edifice that I had subsequently based on them. I realized that it was necessary, once in my life, to demolish everything completely and start again right from the foundations...²

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² AT VII 17, CSM II 12, tr. alt. References to AT are references by volume and page number to C. Adam and P. Tannery (eds), *Oeuvres de Descartes*, 11 vols. (Paris: Vrin, 1904). References to CSM are references

The fact that we acquired some false beliefs in childhood hardly seems to justify wholesale demolition of our current beliefs through doubt. That can fuel the thought that this is simply a pretext for a project that is actually motivated by the threat of scepticism. On this traditional view, Descartes's project in philosophy is to try to defeat the threat of scepticism once and for all, and he pursues it by advancing the strongest sceptical arguments he can muster in the hope of finding a form of certainty that is proof against any doubt. In the First Meditation he points out that the senses sometimes deceive, that we are often deceived in dreams, and finally that for all we know we might be subject to wholesale deceit by God or an evil demon, so that we go wrong all the time. In the Second Meditation, he finds his first certainty in knowledge of his own mind; even if he is being deceived, he is still thinking, and if he thinks he must exist. But knowledge of one's own mind is a pretty slender foothold from which to rebuild knowledge of the world; and so, in the Third Meditation, Descartes has to appeal to a benevolent God as a *deus ex machina* to slay the evil demon and so pull him out of the sceptical hole he has dug for himself.

This, I think, is a familiar reading of the progress of the first three *Meditations*; and, I think, it is easy to feel that there is something unsatisfactory about Descartes's progress, so described. After the exhilarating doubt and recovery of the first two Meditations, the sudden appearance of God comes as rather a let-down. The image of a solitary iconoclastic thinker striking out into the unknown seems very modern, indeed appealing; a shamefaced rescue by appeal to a traditional deity seems quite the opposite. In one sense, this juxtaposition is not surprising. Descartes is not called the father of modern philosophy for nothing; he is plausibly seen as having one foot in the medieval world of the Aristotelian schoolmen and one foot in the modern world of the scientific revolution.³ But we can find a more satisfactory role for Descartes's appeal to a benevolent creator if we read the *Meditations* not as a heroic quest against scepticism, but as an attempt to lay foundations for a new science, a new

by volume and page number to J. Cottingham, R. Stoothoff and D. Murdoch (eds), *The Philosophical Writings of Descartes* Vols. I and II (Cambridge: Cambridge University Press, 1984).

³ This is aptly reflected in the title of John Carriero's recent study of the *Meditations*, *Between Two Worlds* (Princeton: Princeton University Press, 2009).

way of understanding the world and our place within it.⁴ For Descartes, the blueprint for this new understanding comes from ideas that are innate in us, placed in our minds by God.

2. Cartesian physics and the prejudices of the senses

But for the condemnation of Galileo, Descartes's first published work would have been a work of science. In 1633 Descartes was about to publish a book entitled *The World* in which he aimed to 'explain all the phenomena of nature – i.e. all of physics' – when he heard that Galileo had been condemned for maintaining the movement of the earth.⁵ This movement was central to the physics of *The World*, and Descartes preferred to withdraw it rather than 'publish it in a mutilated form'.⁶ Instead he set out to create the conditions for the favourable reception of his physics. First, in 1637, he published the *Discourse on the Method* with essays on optics, meteorology and geometry, samples of the results could be achieved using his method. Then, in 1641, he published the *Meditations*. In a now famous passage, he wrote to Mersenne:

...I may tell you, between ourselves, that these six Meditations contain all the foundations [*fondemens*] of my physics. But please do not say so, because those who favour Aristotle would perhaps have more difficulty in approving them. I hope that those who read them will imperceptibly [*insensiblement*] become accustomed to my principles, and recognize the truth in them before they notice that they destroy those of Aristotle.⁷

⁴ This approach to the *Meditations* has gained prominence in recent decades. For influential examples of it, see Margaret Dauber Wilson, *Descartes* (London: Routledge & Kegan Paul, 1978), Daniel Garber, 'Semel in vita: The Scientific Background to Descartes' *Meditations*' and Gary Hatfield, 'The Senses and the Fleshless Eye: The Meditations as Cognitive Exercises', both in A. O. Rorty (ed.), *Essays on Descartes' Meditations* (Berkeley and Los Angeles: University of California Press, 1986), and John Carriero, 'The First Meditation', *Pacific Philosophical Quarterly* 68 (1987), 222–48.

⁵ Letter to Mersenne of 1629, AT I 70, CSMK 7. References to CSMK are references to J. Cottingham, R. Stoothoff, D. Murdoch and A. Kenny (eds.), *The Philosophical Writings of Descartes* Vol. III (Cambridge: Cambridge University Press, 1991).

⁶ Letter to Mersenne of 1633, AT I 271, CSMK 41.

⁷ Letter of 1641, AT III 298, CSMK 173, tr. alt.

The metaphysics in the *Meditations*, then, provides the foundations for Cartesian physics. If we think of them as part of Descartes's campaign to replace the principles of Aristotle with the principles of Cartesian physics, the progress of the first three Meditations looks very different. According to Cartesian physics, the physical world consists of matter divided into parts of different shapes and sizes, moving in different ways. The nature of this matter is simply to be extended in three dimensions, to take up space. In Descartes's view, our grasp of the fundamental nature of the physical world comes not from our senses but from an innate intellectual idea placed in our minds by God, the idea of matter as extension that enables us to understand geometry. We also have innate ideas of thought, substance and God. But these ideas are obscured by a preoccupation with the senses that begins in childhood and persists into adult life. This preoccupation gives rise to many 'prejudices of the senses' that obstruct our understanding of the true natures of body and mind.⁸ Descartes writes:

The senses often impede the mind in many of its operations, and in no case do they help in the perception of ideas. The only thing that prevents all of us noticing equally well that we have these ideas [sc. innate ideas of mind and God] is that we are too occupied with perceiving the images of corporeal things.⁹

In metaphysics...there is nothing which causes so much effort as making our perception of the primary notions clear and distinct...they conflict with many *prejudices derived from the senses* which we have got into the habit of holding from our earliest years...¹⁰

One of the primary notions placed in our minds by God is the idea of matter as extension. According to this,

...nothing whatever belongs to the notion of body except the fact that it is something which has length, breadth and depth and is capable of various shapes and motions.¹¹

However, our grasp of this idea is obstructed by our preoccupation with the sensory images of corporeal things. Thanks to this, we all believe that the bodies around us have qualities of colour, heat, cold and so on that exactly resemble our sensations. To counteract

⁸ See AT VII 440–1, CSM II 296–7.

⁹ AT VII 375, CSM II 258, emphasis added.

¹⁰ AT VII 157, CSM II 111, tr. alt., emphasis added.

¹¹ AT VII 440, CSM II 297, tr. alt.

Descartes on the Errors of the Senses

these prejudices of the senses, which ‘offer only darkness’, Descartes seeks to steer his readers’ minds away from opinions that they have ‘never properly examined – opinions which they have acquired not on the basis of any firm reasoning but from the senses alone’.¹²

Moreover, in Descartes’s view, Aristotelian philosophy simply codifies this naïve preoccupation with the senses. As Aquinas puts it, citing Aristotle, the principle of knowledge is in the senses.¹³ The senses receive the likenesses of sensible things, and our intellectual understanding of their nature is abstracted from these. On this view, all the materials of thought come from the senses; since there is nothing in the intellect that was not first in the senses, there are no innate ideas.¹⁴

If we read the first sentence of the *Meditations* against this background, we can see Descartes’s talk of the many false beliefs acquired in childhood not as a reference to casual infantile mistakes, but as a reference to the prejudices of the senses we have got into the habit of affirming from our earliest years. And when he says that what we take to be most true is acquired from the senses, Descartes is voicing the view of childhood prejudice and Aristotelian philosophy. This is the view he expects his readers to bring to their reading of the text, the view he seeks to unseat. So it is not surprising that Descartes should speak of the benefit of the First Meditation doubt as he does in the Synopsis:

Although the usefulness of such extensive doubt is not apparent at first sight, its greatest benefit lies in *freeing us from all our prejudices*, and providing the easiest route by which the mind may be *led away from the senses*.¹⁵

Undermining our naïve faith in the senses helps to free us from the prejudices of the senses imbibed in childhood, while drawing the mind away from the senses enables us to turn inwards and discover the intellectual ideas of mind and body innate in our minds, as we begin to do in the Second Meditation. Once in our lives, as Descartes says in the opening sentences of the *Meditations*, we need to demolish the views based on the prejudices of childhood and

¹² AT VII 158, CSM II 112.

¹³ Thomas Aquinas, *Summa Theologiae*, Part I, question 84, article 6.

¹⁴ Descartes alludes to the Aristotelian slogan, ‘Whatever is in the intellect must previously have been in the senses’ when describing his pre-meditative views in the Sixth Meditation (AT VII 75, CSM II 52).

¹⁵ AT VII 12, CSM II 9, tr. alt.

start again from new foundations, the foundations provided by innate ideas.

3. Innate ideas and the origin of our nature

If we read the First and Second Meditations in this way, in the context of a new science based on innate ideas, the appeal to God's benevolence in the Third Meditation takes on a different cast. God is brought in not to slay the evil demon, but to respond to a question that arises when we consider the ideas we find within ourselves.¹⁶ Ideas that are innate, that come not from the senses but from within, are ideas we possess by nature. But what is their provenance? Where does our nature come from? We need to know this to know whether ideas we have by nature can be trusted.¹⁷ This question of the origin of our nature is raised explicitly in the First Meditation:

...firmly rooted in my mind is the long-standing opinion that there is an omnipotent God *who made me the kind of creature that I am*. How do I know that he has not brought it about that there is no earth, no sky, no extended thing, no shape, no size, no place, while at the same time ensuring that all these things appear to me to exist just as they do now? What is more, since I sometimes believe that others go astray in cases where they think they have the most perfect knowledge, may I not similarly go wrong every time I add two and three or count the sides of a square, or in some even simpler matter, if that is imaginable?¹⁸

Here, God is specifically identified as our author of our natures, as the creator who made us the kind of creatures that we are. How do we know that this creator has not given us a nature that makes us subject to constant error? One might object that this would be incompatible with God's benevolence. But Descartes has a response:

¹⁶ The evil demon doubt (on which the traditional reading focuses) is differentiated in the text from the doubt based on ignorance of the origin of our nature. Worries about the origin of our nature are introduced as a reason for doubt; the evil demon is introduced simply as a device to counteract habitual tendencies to belief (AT VII 22, CSM II 15). This point is stressed by Carriero, *op. cit.* note 3, 57–8.

¹⁷ Carriero, *op. cit.* note 4, argues for interpreting Descartes's concern with the origin of our natures in light of his innatism.

¹⁸ AT VII 21, CSM II 14, emphasis added.

Descartes on the Errors of the Senses

...perhaps God would not have allowed me to be tricked in this way, since he is said to be supremely good. But if it were inconsistent with his goodness to have created me such that I am deceived all the time, *it would seem equally foreign to his goodness to allow me to be deceived even occasionally*; yet this last assertion cannot be made.¹⁹

If occasional deception is compatible with God's goodness, why not constant deception? Moreover, the prospect of constant deception is not removed by denying that we are the creations of an omnipotent God:

Perhaps there may be some who would prefer to deny the existence of so powerful a God rather than believe that everything else is uncertain. ...yet since to be deceived and to err seem to be imperfections, the less powerful they make my original cause, the more likely it is that I am so imperfect as to be deceived all the time.²⁰

In sum, an all-powerful God could surely make us such that we go wrong all the time, while a less powerful cause might also produce the kind of nature that is constantly mistaken.²¹ To assuage these worries about our nature, we need what might be called an origin story; we need to know where our nature comes from, how we come to be the kind of creatures that we are. The Third Meditation provides this origin story by arguing that we are the creations of a perfect being, God, 'who is subject to no defects whatsoever'.²² This removes both the worry that our originating cause is lacking in power, and the worry that we are the creations of a deceiver. A perfect being 'cannot be a deceiver, since all fraud and deception depend on some defect'.²³

Descartes's innatism makes sense of his concern with the origin of our nature. But once we have discovered that our creator is benevolent and non-deceiving, the problem raised in the First Meditation returns. How can this origin story be reconciled with the fact that we are sometimes deceived, that we are sometimes in error? Without a satisfactory answer to this question, the suspicion may

¹⁹ AT VII 21, CSM II 14, emphasis added.

²⁰ AT VII 21, CSM II 14; tr. alt.

²¹ The significance of this dilemma argument is stressed by Carriero, *op. cit.* note 4, and by Robert Stoothoff, 'Descartes' Dilemma', *The Philosophical Quarterly* 39 (1989), 294–307.

²² AT VII 52, CSM II 35.

²³ AT VII 52, CSM II 35.

remain that God's benevolence is compatible with our having a nature that is inherently flawed, a nature that disposes us to embrace falsehoods. Moreover, this question arises with particular force for Descartes, since he holds that many of the opinions we take for granted are in fact erroneous. The main task of the Fourth Meditation is to explain how the benevolence of our creator is compatible with the fact that he has given us a nature that enables us to make erroneous judgements. In doing so, Descartes takes pains to show that our capacity for judgement error can be explained without attributing any flaw to the faculties bestowed on us by the author of our nature.

4. Judgement error and the goodness of God

It might seem that the existence of judgement error is easy to reconcile with the benevolence of our creator. We are finite, imperfect creatures, so of course we make mistakes. But Descartes rejects this solution as unsatisfactory. We have already seen that for strategic reasons, Descartes could not rest content with attributing our errors to the imperfection of our nature. If we err simply because our nature is imperfect, our nature may be so imperfect as to contain false innate ideas, or positive propensities to affirm falsehoods. If our having such a nature were compatible with God's benevolence, appeals to that benevolence would be useless as a guarantor of the veracity of our innate ideas and propensities.

A satisfactory solution to the problem of judgement error, Descartes argues, must do justice to the fact that error is a privation: 'error is not a pure negation, but rather a privation or lack of some knowledge that somehow should be in me'.²⁴ A negation is simply the absence of something that could have been present. God could have given us wings, for example, but he has not done so. A privation is more than this; it is the absence of something that should be present.²⁵ If we judge wrongly only through lack of some knowledge that should be present, that suggests that we might be able to avoid error by repairing that lack. Descartes's explanation of our judgement errors makes good on this suggestion by attributing them to our

²⁴ AT VII 55, CSM II 38.

²⁵ For helpful discussion of the negation/privation distinction and its role in Descartes's argument, see Lex Newman, 'The Fourth Meditation', *Philosophy and Phenomenological Research* 70 (1999), 559–91, especially sections 1.1–2.

Descartes on the Errors of the Senses

incorrect use of our freedom of will. The intellect perceives ideas, the contents of potential judgements; the ideas are affirmed or denied by an act of will. Erroneous judgements come about when we use our freedom of will to assent in cases where our perception is not sufficiently clear and distinct to discern the truth.²⁶

If I simply refrain from making a judgement in cases where I do not perceive the truth with sufficient clarity and distinctness, then it is clear that I am behaving correctly and avoiding error. But if in such cases I affirm or deny, then I am not using my free will correctly. ...In this incorrect use of free will may be found *the privation which constitutes the essence of error*.²⁷

The privation involved in judgement error arises from our incorrect use of free will; we fail to take account of the fact that 'the [sc. clear] perception of the intellect should precede the determination of the will', and so we assent in cases where we do not fully understand.²⁸ We are responsible for the incorrect use of freedom that constitutes the essence of error; 'the privation, I say, lies in the operation of the will in so far as it proceeds from me'.²⁹

Descartes's explanation of our errors of judgement is designed to show that they do not arise from any defects in the faculties given to us by God. Our power of willing is not the source of our errors, since it is 'extremely ample and also perfect of its kind.'³⁰ The intellect is not to blame; since it comes from God, everything we understand, we understand correctly.³¹ Indeed, at the end of the Fourth Meditation Descartes derives the truth of clear and distinct ideas directly from the nature of God.³²

²⁶ As is often noted, Descartes's solution to the problem of judgement error parallels a traditional solution to the problem of evil. That solution reconciles the evil of human sin with the perfection of our creator by attributing it to our misuse of our freedom of will.

²⁷ AT VII 59–60, CSM II 41, emphasis added.

²⁸ AT VII 60, CSM II 41.

²⁹ AT VII 60, CSM II 41.

³⁰ AT VII 58, CSM II 40.

³¹ AT VII 58, CSM II 40.

³² Descartes says in the Third Meditation that ideas considered solely in themselves, and not referred to anything else, cannot strictly speaking be false (AT VII 37, CSM II 26). This might suggest that ideas considered solely in themselves cannot be true either. However, the Fourth Meditation passage is one of several places in which Descartes speaks of ideas as being true. See also AT VII 46, CSM II 32, where he describes the idea of God as true. See Carriero, *op. cit.* note 3, 309–11, for helpful discussion.

...every clear and distinct perception is undoubtedly something and so cannot be from nothing, but necessarily has God for its author, God, I say, who is supremely perfect, who cannot be a deceiver on pain of contradiction; and therefore it is undoubtedly true.³³

If what comes from God must be true, the story of our divine origin seems to vindicate our innate ideas and innate propensities. Surely nothing that we receive from a God who is 'supremely good and the source of truth'³⁴ could lead us astray.

5. The errors of the senses and the goodness of God

But this is not the end of the matter. The faculty of sensation is also part of our God-given nature. In the context of his campaign against naïve-cum-Aristotelian views, Descartes warns us of the deceitfulness of the senses and the error of trusting the senses rather than the intellect. But in the context of his story about the benevolence of our creator, the deceitfulness of the senses seems to pose a problem of theodicy that parallels the problem of judgement error. If our creator is no deceiver, why has he equipped us with what seems to be a deceitful faculty of sensation?

As a first step towards answering this question, we need to unpack Descartes's talk of the errors, deceptions and prejudices of the senses. Let us turn to a passage from the Sixth Replies in which Descartes clarifies what he means by saying that the senses are less reliable than the intellect. This is a passage in which Descartes draws an important distinction between three grades of sensation.

6. Errors of sensation and errors of judgement

The authors of the Sixth Objections pose a challenge to Descartes's claim that the reliability of the intellect is much greater than that of the senses.³⁵ 'How', they ask, 'can the intellect enjoy any certainty unless it has previously derived it from the senses when they are working as they should?'.³⁶ They cite the example of a stick that is straight, but looks bent in water because of refraction. Here, they

³³ AT VII 62, CSM II 43, tr. alt.

³⁴ AT VII 22, CSM II 15.

³⁵ AT VII 418, CSM II 281–2.

³⁶ AT VII 418, CSM II 282.

Descartes on the Errors of the Senses

claim, the sense of touch corrects an error made by the sense of sight, a correction that the intellect could not make on its own.³⁷

Descartes responds that there is in fact no error of sensation in this case; rather, there is an erroneous judgement that is corrected by another judgement. He supports this diagnosis by distinguishing three grades in what is called 'sensation'. The first is purely corporeal; it consists in the stimulation of the bodily organs by external objects, and subsequent motions in the nerves and brain.³⁸ The second grade

comprises all the immediate effects produced in the mind as a result of its being united with a bodily organ that is affected in this way. Such effects include perceptions of pain, pleasure, thirst, hunger, colours, sound, taste, smell, heat, cold and the like, which arise from the union and as it were intermingling of mind and body.³⁹

The third grade of sensation 'includes all the *judgements* about things outside us which we have been accustomed to make from our earliest years on the occasion of the movements of these bodily organs'.⁴⁰ Descartes goes on to explain that nothing beyond the second grade 'should be referred to sensation, if we wish to distinguish it carefully from the intellect.'⁴¹ Nonetheless, he says,

when from our earliest years we have made judgements, and even rational inferences, about the things that affect our senses...we refer them to sensation, because we reason and judge so quickly because of habit, or rather we remember judgements we made earlier about similar things, so *we do not distinguish these operations from a simple sense perception*.⁴²

According to Descartes, then, sense-perception proper ends with the perceptions of pain, thirst, colour, heat and so on that occur in the mind as the immediate effects of movements in the brain. However, these perceptions are followed by inferences and judgements that go unnoticed, because they are so fast, habitual and familiar. Since they go unnoticed, they are confused with simple sense perceptions.

This confusion of habitual judgement with sensation, Descartes argues, lies behind the objectors' claim that the sense of touch

³⁷ Ibid.

³⁸ AT VII 436–7, CSM II 294–5.

³⁹ AT VII 347, CSM II 294.

⁴⁰ AT VII 437, CSM II 295, tr. alt., emphasis added.

⁴¹ Ibid., tr. alt.

⁴² AT VII 438, CSM II 295, tr. alt., emphasis added.

corrects an error made by the sense of sight. Strictly speaking, there is no error of sensation here:

we are not here dealing with the first and second grades of sensation, because *no falsity can occur in them*.⁴³

This is a striking claim. Descartes insists that no falsity can occur in the perceptions of pain, pleasure, thirst, hunger, colours, sound, taste, smell, heat, cold and the like that occur at the second grade of sensation. Though this claim it may sound odd in view of his talk of the deceptions of the senses, it is just what we should expect, given that the faculty of sensation is part of our nature as embodied minds. Sensory perceptions are simply the natural effects of movements occurring in the body. Since they are a consequence of the workings of a nature created by a benevolent God, Descartes has good reason to say that there is no falsity in them.⁴⁴

Where, then, is the error that the objectors attribute to the sense of sight? According to Descartes, it is the product of judgements occurring after the second grade of sensation. He explains that ‘when people say that a stick in water “appears bent because of refraction”’, they mean that ‘it appears to us in a way which would lead a child to judge that it was bent’, and may even cause us to make the same judgement, if we follow our childhood prejudices.⁴⁵ The correction of the error is also the work of judgement rather than of the senses. First we judge that the stick is straight as a result of touching it, then we judge that the judgement based on touch is to be preferred to the judgement based on vision.⁴⁶ So when the senses are said to be less reliable than the intellect, ‘the senses’ means habitual childhood judgements occurring at the third grade of sensation. To say that the intellect is more reliable than the senses, then, is to say that

⁴³ AT VII 438, CSM II 295–6, tr. alt., emphasis added. The claim that there is no falsity in the senses has a long pedigree. Aristotle writes in *De Anima* III.6 that the senses cannot be deceived about their proper objects (418a11). However, error is possible about objects perceived by more than one sense, such as size (*De Anima* III.3, 428b17).

⁴⁴ As we will see in sections 8 and 9 below, Descartes holds that sensations of thirst and pain occurring at the second grade of sensation can be erroneous when conditions are abnormal, and he has a story to tell about how this comports with God’s goodness. The objectors to whom he is responding in the Sixth Replies explicitly limit their discussion to cases where the senses are working as they should, which may be why he does not mention these errors here.

⁴⁵ AT VII 438–9, CSM II 296.

⁴⁶ AT VII 439, CSM II 296.

Descartes on the Errors of the Senses

mature, considered judgements are more reliable than infantile, unconsidered judgements; and this, Descartes says, is true.⁴⁷

This passage provides important clarification of Descartes's talk of sensory error. It is not sensation proper that is in error, he says, but judgements that we have habitually made since childhood and that we do not distinguish from sensation. This recasting of errors of sensation as errors of judgement puts a different spin on Descartes's talk of the malign influence of the senses. The so-called 'prejudices of the senses' are evidently judgements, precisely because they are prejudices (pre-judgements) – judgements made before the intellect has examined the matter. Opinions acquired on basis of the senses, and never properly examined, are also judgements. But 'errors of the senses' that are actually errors of judgement can be dealt with by the account given in the Fourth Meditation.⁴⁸ The defect leading to these errors is not a defect in the faculty of sensation that God has given us, but consists in our wilful assent in cases where we do not perceive sufficiently clearly and distinctly.

7. A natural propensity to false resemblance judgements?

If Descartes's talk of errors of the senses can be recast as referring to erroneous judgements, they do not pose a further problem of error. However, Descartes not only speaks of the prejudices of the senses, he speaks of erroneous judgements that we seem to be 'taught by

⁴⁷ AT VII 438, CSM II 295.

⁴⁸ Some interpreters hold that third-grade judgements are not judgements in the full-blooded sense of the Fourth Meditation. This is the view taken by Alison Simmons, 'Descartes on the Cognitive Structure of Sensory Experience', *Philosophy and Phenomenological Research* 67 (2003), 549–79, 566–7 and by Cecelia Wee, *Material Falsity and Error in Descartes's Meditations* (London and New York: Routledge, 2006), 69–70. Since Descartes attributes third-level judgements to the intellect *alone*, they read him as referring to an act of combining ideas that involves only the intellect and not the will. I read Descartes's talk of the intellect *alone* as designed to emphasise that the senses are not involved, rather than to exclude any role for the will. This reading gains support from the fact that Descartes associates judgements in the full-blooded sense with the 'intellect alone' at the end of the Second Meditation, where his point is also to contrast judgement with the senses and imagination (AT VII 33, CSM II 22). Here Descartes uses 'intellect' as an umbrella term to cover intellect and will, the faculties of pure mind, when a contrast is being made with the faculties of the embodied mind.

Nature' to make, and this threatens to pose another problem of error. It is as hard to see how a veracious God could give us a natural propensity to make false judgements as it is to see how such a God could give us a deceitful faculty of sensation.

What are these false judgements that we seem to have a natural propensity to make? As noted earlier, we all believe that the bodies around us have qualities of colour, heat, cold and so on that exactly resemble our sensations. And early in the Third Meditation, Descartes identifies what he calls 'the chiefest and most common mistake' in our judgements, that of judging that external bodies wholly resemble our sensory perceptions.⁴⁹ He gives some examples in the Sixth Meditation: we judge that 'heat in a body is something exactly resembling the [sensory] idea of heat that is in me', that 'when a body is white or green, the selfsame whiteness or greenness which I perceive through my senses is present in the body', and that 'stars and towers and other distant bodies have the same size and shape which they present to my senses.'⁵⁰ By Descartes's lights, the belief that heat in a body is something exactly resembling the idea of heat that is in me, and the belief that stars have the same size which they present to my senses, are false. Heat as it exists in a body, for example, is to be understood in terms of the motions of matter. A star is a distant sun, many times larger than the earth. Nevertheless, Descartes depicts the tendency to form these false beliefs as universal; we all have a tendency to form what we might call 'resemblance judgements' – to believe that bodies exactly resemble the sensory perceptions they cause in us. Moreover, in the Third and Sixth Meditations he alludes to the idea that we are 'taught by Nature' to believe that external bodies wholly resemble our sensory perceptions of them.⁵¹ Not surprisingly, then, many commentators read Descartes as holding that we have a natural propensity to form these false resemblance judgements.⁵²

⁴⁹ AT VII 37, CSM II 26.

⁵⁰ AT VII 82, CSM II 56–7.

⁵¹ AT VII 38, CSM II 26; AT VII 76, CSM II 53.

⁵² See for example, Gary Hatfield, *Routledge Philosophy Guidebook to Descartes and the Meditations* (London: Routledge, 2003), 262. He writes that 'we have a natural inclination to affirm the resemblance thesis' and that 'He [God] has given us a tendency to believe that things are as they appear to us'. Deborah Brown, 'Descartes on True and False Ideas' in J. Broughton and J. Carriero (eds), *A Companion to Descartes* (Oxford: Blackwell, 2008), speaks of the senses as disposing us to judge incorrectly that the world is a certain way (197), and of our having 'a very natural and useful inclination' to externalize the content of our sensory ideas (214).

Descartes on the Errors of the Senses

If God has given us a tendency to form a host of false beliefs, that surely poses a problem of theodicy. How could a non-deceiving God have given us such a propensity to error? This would be hard to reconcile with Descartes's claim that

Since God is the supreme being, he must also be supremely good and true, and it would therefore be a contradiction that anything should be created by him which positively tends towards falsehood.⁵³

Moreover, Descartes's argument for the existence of material things is based on the premise that a propensity to belief that is given to us by God must be trustworthy. Descartes argues that God has given us a 'great propensity' to believe that our sensory perceptions are caused by material things, and since God is no deceiver, this belief must be true.⁵⁴ He goes on to make the more general claim that

...everything that I am taught by nature contains some truth. For if nature is considered in its general aspect, then I understand by the term nothing other than God himself...and by my own nature in particular I understand nothing other than the totality of things bestowed on me by God.⁵⁵

It is hard to see how these claims about God's veracity could be squared with the claim that we have a natural propensity to form a host of false beliefs about the resemblance between external bodies and our sensory perceptions.

Fortunately, Descartes does not face the task of reconciling these two claims. He does not hold, and indeed explicitly denies, that we have a natural propensity to form resemblance judgements. Far from being something we are taught by nature, he claims, such beliefs are prejudices that we affirm through habit. Descartes writes:

...there are many other things which I may appear to have been taught by nature, but which in reality I acquired *not from*

Raffaella De Rosa, *Descartes and the Puzzle of Sensory Representation* (Oxford: Oxford University Press, 2010), 26, claims that according to Descartes, our nature as a combination of mind and body erroneously teaches us that heat in a body is something exactly resembling the idea of heat which is in us, and so on.

⁵³ AT VII 144, CSM II 103.

⁵⁴ AT VII 80, CSM II 55.

⁵⁵ AT VII 80, CSM II 56.

nature but from a *habit of making ill-considered judgements*; and it is therefore quite possible that these are false.⁵⁶

Descartes takes pains to emphasise that these habitual resemblance judgements do not derive from any real or positive propensity:

...although a star has no greater effect on my eye than the flame of a small light, *that does not mean that there is any real or positive propensity in me* to believe that the star is no bigger than the light; I have simply made this judgement from childhood onwards with out any rational basis.⁵⁷

Given his views on what follows from God's veracity, he has good reason to emphasise this. A real propensity to believe would come from God, since 'everything real which is in us must have been bestowed on us by God'.⁵⁸ But a real propensity to believe that a star is no bigger than a small light would be a real propensity to believe a falsehood, and a non-deceiving God would not give us such a propensity.

For Descartes, then, we have no natural propensity to form resemblance judgements; we cannot, given the veracity of our creator. How, then, do we come to make them? Well, we already know from the Fourth Meditation that we form false beliefs because we judge where we do not perceive the truth sufficiently clearly and distinctly. When we do so, we forget that 'the perception of the intellect should always precede the determination of the will'.⁵⁹ That is just what we are doing, Descartes explains in the Sixth Meditation, when we draw conclusions from sensory perceptions about things located outside us 'without waiting until the intellect has examined the matter'.⁶⁰

But this still leaves something unaccounted for. Our capacity to jump to conclusions explains how we are able to make ill-considered judgements, but it does not explain why we form *these particular* ill-considered judgements, nor why we all jump to the same conclusions. Without an account of this, Descartes's account looks incomplete. Descartes does have a story to tell here, one which begins with his diagnosis of where we go wrong in these cases:

...I see that I have been in the habit of misusing the order of nature. The proper purpose of the sensory perceptions given

⁵⁶ AT VII 82, CSM II 56, emphasis added.

⁵⁷ AT VII 83, CSM II 57, tr. alt., emphasis added.

⁵⁸ AT VII 144, CSM II 103.

⁵⁹ AT VII 60, CSM II 41.

⁶⁰ AT VII 82, CSM II 57.

Descartes on the Errors of the Senses

me by nature is simply to inform the mind of what is beneficial or harmful for the composite of which the mind is a part; and to this extent they are sufficiently clear and distinct. But I use them as reliable rules for immediately discerning the essence of the bodies located outside us, about which they signify nothing that is not obscure and confused.⁶¹

Descartes claims that this habit of misusing sensory perceptions begins with our childhood preoccupation with the senses. As he depicts it in the Sixth Meditation, because we know external things only on the basis of our sensory ideas, we suppose that external things resemble these ideas.⁶² Moreover, we take the supposition of complete resemblance to be something we are taught by nature; hence, Descartes initially describes it in the Third Meditation as something we are ‘apparently’ taught by nature. In the Sixth Meditation, the supposition is revealed as habitual, rather than natural. Our nature as embodied beings teaches us to avoid things that cause pain and seek things that cause pleasure, but it does not teach us to draw conclusions about external bodies from sensory perceptions without proper intellectual examination.⁶³ Beliefs reflecting the assumption that external objects wholly resemble our sensory perceptions are made through habit, not through natural propensity.

8. True errors of nature

All the so-called ‘errors of the senses’ discussed so far have been reduced to errors of judgement. They are errors we make by judging too hurriedly, by affirming what we are in the habit of affirming; they do not indicate any deceit in the faculties, propensities or ideas that we possess by nature. However, Descartes’s claims about what our natures teach, about the purpose for which God has given us sensory perceptions, point us towards cases of genuinely sensory error.

Internal sensations of pain, thirst, hunger are given to us to inform us of harms to the mind-body composite, and of what would be beneficial to the composite. These occur at the second grade of sensation, so they are part of sensing proper. But these sensations can mislead.

⁶¹ AT VII 83, CSM II 57–8, tr. alt.

⁶² AT VII 75, CSM II 52.

⁶³ AT VII 82, CSM II 57. I discuss teachings of nature in more detail in ‘Descartes on Nature, Habit and the Corporeal World’, *Aristotelian Society Supplementary Volume* 87 (2013), 235–58, secs. 2 and 3.

Sarah Patterson

In the second part of the Sixth Meditation, Descartes discusses the cases of the person with pain in a limb that no longer exists, and of the person with dropsy who feels thirst when drinking would be harmful. Descartes signals clearly that such cases present a new problem of theodicy, not reducible to the problem of judgement error.

I have already looked in sufficient detail at how, *notwithstanding the goodness of God*, my *judgements* are false. But *a further problem* now comes to mind regarding those very things which nature presents to me as objects which I should seek out or avoid, and also regarding the internal sensations, where I seem to have detected errors...⁶⁴

He identifies two forms of error here: cases in which nature presents something as beneficial when it is in fact harmful, and cases of error in the internal senses. The dropsy case is an example of the first kind of error, while phantom limb pain is an example of the second.⁶⁵ How is the existence of these errors to be reconciled with the goodness of our creator? This is the problem that Descartes faces, and it is one he takes very seriously. It cannot be dismissed, he argues, simply by saying that the nature of the person with dropsy is disordered by the disease:

A sick man is no less one of God's creatures than a healthy one, and it seems no less a contradiction to suppose that he has received from God a nature which deceives him.⁶⁶

He takes pains to emphasise that in a case of dropsy, the human being or mind-body composite is subject to what he calls a 'true error of nature' in being thirsty when drinking will cause it harm.⁶⁷ Here our God-given nature leads us astray. So 'it remains to inquire how it is that the goodness of God does not prevent nature...from deceiving us'.⁶⁸

⁶⁴ AT VII 83, CSM II 58, emphasis added.

⁶⁵ Phantom limb pain is also mentioned earlier in the Sixth Meditation as an example of error in the internal senses, when Descartes is surveying reasons for doubting the senses (AT VII 77, CSM II 53). He presents it alongside cases of error in 'the judgements of the external senses', such as errors about the shape of distant towers (AT VII 76, CSM II 53).

⁶⁶ AT VII 84, CSM II 58.

⁶⁷ AT VII 86, CSM II 59.

⁶⁸ AT VII 86, CSM II 59.

Descartes on the Errors of the Senses

Descartes's explanation of how these errors can occur in a nature created by a perfect God is very different from his theodicy of judgement error. Judgement error is made possible by the difference in scope of will and intellect, and made actual by our misuse of freedom of will. What Descartes calls 'true errors of nature' are erroneous sensations; and since sensations are involuntary, the misuse of our wills cannot be responsible for them. Instead, Descartes offers a theodicy of these errors of nature that exploits his account of human beings as composites of mind and body.

9. Natural deceptions of the senses and the goodness of God

Descartes's explanation of what he calls 'natural deceptions of the senses' turns on his account of our nature as minds united to mechanical bodies. He compares the human body to a clock, depicting it as 'a kind of machine equipped with and made up of bones, nerves, muscles, veins, blood and skin'.⁶⁹ The mind united to the body is affected by motions in only one part of it, the part of the brain that contains the common sense (elsewhere identified with the pineal gland).⁷⁰ Moreover, motions in the brain are paired one-to-one with sensations in a fixed correspondence. A given motion in the gland causes 'just one corresponding sensation' in the mind.⁷¹ This holds true no matter how the motion in the pineal gland has been produced. Given these constraints, Descartes says, the best system that could be devised is that a given motion in the gland should produce 'the one sensation which, of all possible sensations, is most especially and most frequently conducive to the preservation of the healthy man'.⁷² Furthermore, he claims that

experience shows that the sensations which nature has given us are all of this kind; so there is absolutely nothing to be found in them that does not testify to the power and goodness of God.⁷³

Although God has devised the signalling system that best conduces to the preservation of our health, occasional errors are inevitable: 'notwithstanding the immense goodness of God, the nature of man as a

⁶⁹ AT VII 84, CSM II 58.

⁷⁰ See the *Optics*, AT VI 129 and the *Treatise on Man*, AT XI 175, CSM

I 105.

⁷¹ AT VII 87, CSM II 60.

⁷² AT VII 87, CSM II 60.

⁷³ AT VII 87, CSM II 60.

combination of mind and body is such that it is bound to mislead him from time to time.’⁷⁴ It is possible for motions in the pineal gland to be caused by neural events other than those they are intended to signal to the mind, and when they are, the resultant sensation is ‘naturally deceptive’.⁷⁵ This is what happens in the cases Descartes singles out, those of phantom limb pain and dropsy. Suppose a foot has been amputated. Motions can still occur in the nerves that used to lead from the foot to the brain, and when they are transmitted to the brain they produce a sensation of pain as in the foot. Suppose that in dropsy, the throat is dry because fluid is accumulating elsewhere in the body. The dryness of the throat will cause motions in the nerves and in the brain that induce a sensation of thirst. The fact that God has given us a nature that is subject to these errors is not inconsistent with his goodness, because God has paired sensations with pineal motions in the way that works for the best in the typical case.⁷⁶

10. The errors of the senses and the goodness of God revisited

The question we are concerned with is whether Descartes manages to reconcile the fact that we are subject to sensory error with the perfection of our creator. And it seems that he does. Consider again the three grades of sensation. No falsity can occur in the first grade, since this is just a matter of motions in nerves. No falsity occurs in the perceptions of the second grade, though sensations of thirst, hunger and pain can be deceptive when conditions are out of the ordinary. But as we have seen, Descartes argues that this occasional misrepresentation is an inevitable consequence of an internal signalling system that is the best it can be, given the limitations of a being composed of mind and body. Error at the third grade of so-called sensation is actually error in judgement. We have no natural propensity to make false judgements on the basis of sensory perceptions; our tendency to do so is the result of habits formed in childhood, when we lacked the use of reason.

⁷⁴ AT VII 88, CSM II 61; tr. alt., emphasis added.

⁷⁵ Ibid.

⁷⁶ Descartes implies both that it is better for God to design the system to preserve the healthy (‘well-constituted’) body, and that the circumstances for which the system is designed are more common than those for which it is not (the motion signalling damage to the foot more frequently arises from such damage than from another cause).

Descartes on the Errors of the Senses

Descartes seems to be home and dry; he seems to have strategies for reconciling all our putatively sensory errors with the perfection of our creator. However, I think it would be premature to think that this is the end of the matter. According to Descartes's account of vision, our perception of the size, shape and position of objects is very often erroneous. On a natural reading of his account, these errors are due to erroneous judgements that contribute to the construction of our visual experience. (Recall the discussion in the Sixth Replies of how we perceive the shape of a stick.) Since they form part of the natural processes responsible for visual perception, they would seem to be judgements we have a natural propensity to make. If this is so, this poses a further problem of error for Descartes, a problem that has received little attention from commentators.⁷⁷ To see how these errors arise, we need to turn to Descartes's account of how visual perception works.

11. Descartes's account of how we see position, distance, size and shape

Descartes's fullest account of vision appears in the *Optics*, published in 1637.⁷⁸ This is the account to which he refers the reader in the passage in the Sixth Replies in which he distinguishes between the three grades of sensation. The *Optics* explains how light rays reflected by an object are focussed on the back of eye, tracing its image on the retina as a pattern of motion. This image is transmitted by nerves to

⁷⁷ Celia Wolf-Devine does recognize that these erroneous judgements threaten to pose a problem of error. She writes that Descartes's assigning our perceptual errors to erroneous judgements helps him to reconcile those errors with God's benevolence. See *Descartes on Seeing: Epistemology and Visual Perception* (Carbondale and Edwardsville: Southern Illinois University Press, 1993), 87. I argue below that these judgements are ones we have a natural propensity to make, and that the problem of reconciling them with God's benevolence therefore remains.

⁷⁸ For further discussion of Descartes's account of vision, see op. cit. note 77, Gary Hatfield, 'Descartes' Physiology and its Relation to his Psychology' in J. Cottingham (ed.), *The Cambridge Companion to Descartes* (Cambridge: Cambridge University Press, 1992) and Celia Wolf-Devine, 'Descartes' Theory of Visual Spatial Perception' in S. Gaukroger, J. Schuster and J. Sutton, *Descartes' Natural Philosophy* (London: Routledge, 2000).

the brain, where it appears as a pattern of motion on the surface of the pineal gland.⁷⁹ As in the explanation of sensory signalling in the Sixth Meditation, these patterns of motion in the brain naturally produce certain sensations in the mind:

it is the movements composing this picture which, acting on our soul insofar as it is united to our body, are ordained by nature to make it have such sensations.⁸⁰

We are now at the second grade of sensation, that of the immediate effects in the mind of motions in the body. Discussing the example of seeing a stick in the Sixth Replies, Descartes says this grade ‘extends to the mere perception of the colour and light reflected from the stick’.⁸¹ He explains in the *Optics* that the *force* of the movements in the relevant part of the brain makes the soul have a sensation of light, while the *manner* of these movements makes it have sensations of colour.⁸² So Descartes appears to think of the immediate mental effect of brain motions at the second grade as a perception of a two-dimensional pattern of colour.⁸³

Nonetheless, light and colour are not the only qualities we see; we also perceive ‘position, distance, size and shape’ by sight.⁸⁴ To perceive the position, distance, size and shape of objects, the mind needs more information than is present in the two-dimensional image alone. Information about location is crucial, as Descartes recognises, since we need it to determine the size and shape of objects on the basis of the two-dimensional image. A small object located near the eye can project the same image as a large object positioned further from the eye. So how do we determine an object’s distance from us?

Descartes details four methods we use. Firstly, the shape of the eye varies depending on whether it is focussing light from an object close to us or from an object further away. These changes in the shape of the eye are accompanied by a change in the brain which is ‘ordained by

⁷⁹ AT VI 128, CSM I 167.

⁸⁰ AT VI 130, CSM I 167.

⁸¹ AT VII 437, CSM II 295.

⁸² AT VI 130, CSM I 167.

⁸³ Descartes says in the *Optics* that we can only discriminate the parts of the bodies we look at if they differ in colour (AT VI 133, CSM I 168), and speaks in the Sixth Replies of a perception of ‘the extension of the colour and its boundaries’ (AT VII 437, CSM II 295). So, as Simmons notes, expanses of colour are represented at the second grade (op. cit. note 48, 558).

⁸⁴ AT VI 130, CSM I 167.

Descartes on the Errors of the Senses

nature to make the soul perceive this distance'.⁸⁵ Secondly, we can determine the distance of an object 'as if by a natural geometry'.⁸⁶ Imagine a line drawn between our two eyes A and B. This line AB forms the base of a triangle with X, the object seen, at its apex. If we know the length of the line AB and the size of the visual angles XAB and XBA, we can calculate how far the object X is from our eyes. The magnitudes of the line AB and the angles XAB and XBA combine together in our imagination and enable us to perceive the distance of X by an action of thought which although 'a simple act of the imagination, implicitly contains a reasoning quite similar to that used by surveyors'.⁸⁷

The third way of perceiving distance is through 'the distinctness or indistinctness of the shape seen, together with the strength of weakness of the light'.⁸⁸ Objects further or nearer than the object X are seen less distinctly. If they reflect light more strongly than they would if they were at the same distance as X, we judge (*jugeons*) them to be nearer; if they reflect light more weakly, we judge them to be further.⁸⁹ Fourthly and finally, when we 'already imagine' the size or position of an object, or the distinctness of its shape and its colours, or merely the strength of the light that comes from it, this can enable us to imagine, though not to see, its distance.⁹⁰ For example, Descartes says, if we look from afar at something we are used to seeing close at hand, 'we judge [*jugeons*] its distance much better than we would if its size were less well known to us'.⁹¹ If we look at a sunlit mountain beyond a forest in shadow, 'it is only the position of the forest that makes us judge [*juger*] it the nearer'.⁹² If we look at two ships out at sea, one smaller than the other but proportionately closer so that they appear equal in size, 'we will be able to judge [*juger*] which is farther away' by the difference in their shapes and colours and the light they send to us.⁹³

⁸⁵ AT VI 137, CSM I 170.

⁸⁶ Ibid.

⁸⁷ AT VI 138, CSM I 170. I quote from the translation of the *Discourse on Method, Optics, Geometry and Meteorology* by Paul J. Olscamp (Indianapolis: Hackett, 2001), 106.

⁸⁸ Ibid.

⁸⁹ AT VI 138, CSM I 172.

⁹⁰ AT VI 138–40, CSM I 172, Olscamp 107.

⁹¹ AT VI 140, CSM I 172, Olscamp 107.

⁹² Ibid. In this case, presumably, the greater brightness of the mountain would lead us to judge it to be nearer than the forest, if we did not already know that the forest was in front of it.

⁹³ Ibid. It is not completely clear what is meant to be going on in this example, but perhaps Descartes's point is that we will judge a ship to be nearer if we perceive its shape and colour more distinctly. (He has already

As this summary indicates, Descartes accords processes of judging a central role in our perception of distance. The same is true of our perception of the size and shape of objects, since he holds that the perception of these is ‘wholly included’ in the way we see the distance and position of their parts.⁹⁴ He explains that

we judge [*s'estime*] their size by the knowledge or opinion we have of their distance, compared with the size of the images they imprint on the back of the eye.⁹⁵

Moreover, he thinks it equally obvious that ‘shape is judged [*se juge*] by the knowledge, or opinion, that we have of the position of the various parts of the object’.⁹⁶ He cites the fact that retinal images usually contain only ovals and rhombuses when they make us see circles and squares. Because we know (or believe) that the object we are looking at is positioned at an angle to our line of sight, we judge it to be circular rather than elliptical, even though it produces an elliptical image in the eye.⁹⁷

These passages from the *Optics* indicate the extent to which processes of reasoning and judgement are involved in seeing.⁹⁸ The size, distance and shape of distal objects cannot be determined on the basis of the two-dimensional image alone. The visual perception of these features depends on processes of reasoning and judging that combine information present in the image with information from other sources.⁹⁹ These judgements occur beyond the second grade

explained why different colours cannot be discriminated in distant objects, AT VI 134, CSM I 168–9.)

⁹⁴ Ibid.

⁹⁵ Ibid. Descartes explains the phenomenon of size constancy by appeal to the nature of these judgements. We obviously do not judge the size of objects by the absolute size of the retinal image alone, he says, because we do not see objects as a hundred times larger when they are close to us, even if the image they produce on the retina is a hundred times larger than the one they produce when ten times further away. Instead, we see them as the same size, but far away.

⁹⁶ Ibid.

⁹⁷ Ibid.

⁹⁸ This is emphasised in the Sixth Replies, where Descartes writes that he explained in the *Optics* ‘how size, distance and shape can be perceived by reasoning alone, which works out any one feature from the others’ (AT VII 438, CSM II 295).

⁹⁹ Alongside these references to judgement, Hatfield sees Descartes as presenting an account of distance perception as purely psychophysical (op.

of sensation, but are nonetheless involved in the construction of visual experience. Borrowing a term from Simmons, I call them ‘constructive judgements’.¹⁰⁰ Why should constructive judgements be thought to pose a further problem of error?

12. Erroneous constructive judgements and the goodness of God

Firstly, the constructive judgements that figure in the seeing of position, distance, shape and size are very often wrong. This is inevitable, since ‘all our methods for recognising distance are highly unreliable’.¹⁰¹ Consider, for example, the first and second methods of estimating distance, which depend on the shape of the eye and the visual angles respectively. The shape of the eye varies hardly at all, Descartes says, when the object is more than four or five feet away, and even when it is closer it varies so little that ‘we cannot have any precise cognizance of it’.¹⁰² If we are looking at an object at all far way, there is very little variation in the visual angle. This, he claims, is why the moon and the sun look so much smaller than they are. Our methods for registering distance represent them as no more than one or two hundred feet away, and this false estimate leads to a false constructive judgement of their size. We see them as one or two feet across at the most, he says, although we know through reason that they are very much larger.¹⁰³

Secondly, a case can be made for regarding constructive judgements as ones that we have a natural propensity to make. This point can also be illustrated by the perceived size of the sun. The constructive judgement of size responsible for our visual experience of

cit. note 78, 356–7). In the *Treatise on Man* (AT XI 170, CSM I 106), he depicts perceptions of distance as depending directly on changes in the pineal gland. In the *Optics* (AT VI 137, CSM I 170), he says that changes in the shape of the eye are accompanied by changes in the brain ‘ordained by nature’ to make the soul perceive distance. Even on this psychophysical account, processes of reasoning and judgement would presumably be needed to yield perceptions of shape and size, but vision would involve fewer (erroneous) judgements.

¹⁰⁰ Op. cit. note 48, 569. Though I disagree with it on some details, I have learned much from Simmons’ paper.

¹⁰¹ AT VI 144, CSM I 173.

¹⁰² Ibid.

¹⁰³ Ibid.

the sun is made on the basis of the size of the two-dimensional image the sun projects, combined with information about distance gleaned from sources that are unreliable. The knowledge that the information is false, that the sun is very far away and very large indeed, does not enable us to stop making the constructive judgement; the sun goes on looking as it always did. This is reason to think that the constructive judgement is dictated by our nature – that it is a consequence of the way we mind-body composites are set up to perceive distance, size and shape. But if God has given us a natural propensity to make erroneous constructive judgements, that poses a problem of error distinct from any discussed so far.

However, a case can also be made for the contrary view that our tendency to make constructive judgements is due to habit, not natural propensity. After all, in the Sixth Replies Descartes associates visual error about the shape of a stick with judgements made through habit. If these false judgements are habitual, they are our responsibility, and our tendency to form them is no more problematic from the point of view of God's goodness than our tendency to form false resemblance judgements. To weigh the case for regarding constructive judgements as natural, we need to consider the case for the contrary view.

13. A natural propensity to false constructive judgements?

Speaking of how we see the size, shape and distance of a stick in the Sixth Replies, Descartes speaks of 'judgements, or even rational inferences, about the things that affect our senses' that are made at great speed because of habit, judgements made since childhood.¹⁰⁴ This may seem to provide clear evidence that he regards constructive judgements about size, shape and distance as made through habit.¹⁰⁵ But the discussion in the Sixth Replies is open to differing interpretations. Does it concern resemblance judgements, which are acknowledged to be habitual, or constructive judgements, the status of which is in question? To say a stick in water appears bent because of refraction, Descartes claims, is to say that it appears in a way that would lead a child to judge it to be bent. But is he speaking here of the constructive judgement that determines how the stick visually appears, or of

¹⁰⁴ AT VII 438, CSM II 295.

¹⁰⁵ For example, see Hatfield, *op. cit.* note 78, 357–8 and Alison Simmons, 'Spatial Perception from a Cartesian Point of View', *Philosophical Topics* 31 (2003) 395–423, 398.

the resemblance judgement that the child may make on the basis of that appearance? The fact that he says that we adults may also judge it to be bent, *if* we follow the prejudices of childhood, suggests that he is referring to a judgement that can be corrected. This is most plausibly taken to be the resemblance judgement. We adults know that the stick in water is straight despite its visual appearance, so we can correct the false childhood judgement that it is bent. But even if we do, the visual appearance of the stick in water remains the same. So the judgement we correct is not the constructive judgement that determines the visual appearance of the stick, but the resemblance judgement – the rash childhood judgement that the stick is just as it appears. This would make the point that Descartes is aiming for here: that adult judgements are more reliable than childhood judgements.

Later in the Sixth Replies, Descartes speaks of astronomers who know that the sun is larger than the earth, but cannot prevent themselves from judging it to be smaller when they turn their eyes to it.¹⁰⁶ He compares them to those who have an inveterate habit of affirming judgements made since childhood.¹⁰⁷ Does this not show that he regards the constructive judgement of the sun's size as habitual? Again, the text is open to differing interpretations. There are two false judgements in this case, the false constructive judgement responsible for the visual appearance of the sun, and the false resemblance judgement that the sun is as small as it appears. Descartes uses the case to illustrate the difficulty of abandoning an habitual judgement. Is it the constructive judgement that is the habitual judgement in question, or the resemblance judgement? The text tolerates both readings. Here as elsewhere, though, Descartes's concern is with false resemblance judgements. He uses the passage to illustrate how difficult it is to relinquish false habitual opinions about the natures of mind and body. Clearly he thinks these opinions can be corrected; the arguments of the *Meditations* are designed precisely to correct them. So the illustration better serves Descartes's purposes if these opinions are compared to the astronomer's habitual resemblance judgement, which can be altered, rather than the constructive judgement, which cannot.

Of course, this consideration is not decisive if Descartes himself holds the view that the constructive judgement of the sun's size

¹⁰⁶ AT VII 440, CSM II 296.

¹⁰⁷ AT VII 446, CSM II 300. The same comparison appears in the later *Principles of Philosophy*, section I.72, AT VIII A 36–7, CSM I 219–20.

resists alteration only because it is entrenched by habit.¹⁰⁸ But that view is extremely implausible. Descartes clearly regards it as possible to correct errors in habitual judgements as a result of rational reflection, even though it is difficult to do. The error in the constructive judgement of the sun's size is not difficult, but impossible to alter through rational reflection. This is not surprising, since the errors in these different judgements originate in very different ways. The error in the habitual judgement that the sun is the size it visually appears to be is due to lack of reflection; it is a resemblance judgement made without good grounds in childhood, and thoughtlessly affirmed through habit since then. The error in the constructive judgement of the sun's size is due to false information derived from unreliable methods of judging distance. Our judgements of distance are unreliable not because they are based on childhood habits, but because of limitations in the way the visual system works. That is good reason to regard the errors in our constructive judgements as errors we are disposed to make by the nature God has given us, rather than errors we make because we have not yet corrected the prejudices of childhood.¹⁰⁹

14. Constructive judgements and natural deceptions of the senses

If these erroneous constructive judgements flow from our nature, can they be handled in the same way as so-called errors of nature, such as sensations of pain in a missing limb? Since these natural errors are explained as the inevitable consequence of the way we mind-body composites are constituted, so this proposal may seem promising at first.

¹⁰⁸ The fact that Descartes speaks of the difficulty of 'imagining' the sun and stars as being larger than we are accustomed to do may be a sign that he is tempted by this view, if 'imagine' is read as an allusion to experience. This terminology appears in the Sixth Replies, AT VII 446, CSM II 300 and the *Principles*, AT VIIIA 37, CSM I 220.

¹⁰⁹ As noted earlier (note 48), Simmons denies that constructive judgements involve the will. She takes them to involve mental operations falling 'somewhere between the mere perception of ideas and the affirmation by the will of whatever those ideas present to the mind' (op. cit. note 48, 566). These operations yield sensory experience, which cannot be revised, rather than belief, which can (see 567). Some kind of affirmation still seems to be involved here, even if it does not involve the will; so even on this view, we are so constructed as to naturally affirm falsehoods, though not because of a natural propensity to believe.

Descartes on the Errors of the Senses

However, Descartes's solution to the problem of errors of nature does not generalise in any straightforward way to the problem of error in constructive judgements. The explanation of errors of nature turns on the claim that although God has benevolently devised the signalling system that best preserves health in usual conditions, misleading sensations can still occur when the body is damaged or diseased. In these unusual conditions, sensations can be caused by bodily conditions other than the one they are intended to signal to the mind. But erroneous constructive judgements do not fit this model. False estimates of distance and erroneous constructive judgements about shape and size do not happen occasionally, when conditions are unusual or when the body is damaged or diseased. They occur routinely, as a consequence of the ordinary functioning of the visual system. Moreover, the claim that a visual system that functions in this way is the best that could be devised seems hard to defend. It is not difficult to imagine changes to the system that could produce more reliable estimates of the distance of objects, such as greater variation in the shape of the eye, or in the visual angle. Finally, unlike naturally deceptive sensations, the visual errors we are concerned with are errors in judgement. It seems more troubling to suppose that the routine operation of our God-given visual system compels us to act incorrectly, by affirming falsehoods, than it does to suppose that God has created an internal signalling system that occasionally produces erroneous sensations.

Even though the model Descartes uses to reconcile natural errors with God's goodness does not fit error in constructive judgements, the focus on sensations may suggest a more promising line of thought. Descartes emphasises that our senses are given to us for the preservation of life, to present bodies to us in ways that indicate their potential to help or harm us. So, we might think, there is no surprise, and no conflict with God's goodness, in the occurrence of false judgements in the operation of a visual system that aims at preservation rather than truth. According to this line of thought, the putative problem of error simply dissolves when we take account of the true function of the senses.

This solution has been used to explain how Descartes reconciles our supposed natural propensity to form false resemblance judgements with the goodness of God. It is fine for the senses to dispose us to false judgements, the thought goes, since the senses aim at survival rather than truth.¹¹⁰ I have argued that the reconciliation is

¹¹⁰ For example, Brown writes, 'We learn from the Sixth Meditation that the primary function of sensation is to deliver us the world not so as to know it but so as to navigate it as embodied agents. ...Take seriously

unnecessary, since Descartes denies that we have such a natural propensity. But if we do have a natural propensity to form false constructive judgements, why not apply the solution here?

Though the solution may seem to be an appealing one, it would not be appealing to Descartes, or so I claim. It stands in too much tension with his view that there is no falsity in our God-given sensations. To see where the tension lies, it is helpful to briefly compare Descartes's view with that of a later Cartesian, Malebranche. Malebranche appears to hold the view that some commentators attribute to Descartes, the view that falsity in our sensations is immaterial because they are given to us not to discern the truth, but for the preservation of life. Understanding how their views differ will help us to see why this solution would not sit well with Descartes.

15. Malebranche on falsity in natural judgements

Malebranche's account of how vision works follows Descartes's closely.¹¹¹ Like Descartes, he notes the 'considerable defects' in our means of judging distance, and the consequent unreliability of all the judgements based on them.¹¹² Explaining why we see the moon as small even when we know it is not, he writes:

although we might know for certain through reason that [the moon] is large and at a great distance, we cannot help but see it quite as near and small, because these *natural judgements of vision* occur in us, independently of us, and even in spite of us.¹¹³

What Malebranche here calls 'natural judgements' are clearly constructive judgements. For him, they are judgements made not by us, but by God. As far as we are concerned, they are sensations; but they are sensations corresponding to judgements that we would make if we had the requisite knowledge and inferential capacity.¹¹⁴

this idea and much can be explained about how the senses dispose us to judge incorrectly that the world is a certain way...' (op. cit. note 52, 19).

¹¹¹ For an extended discussion of Malebranche's account of spatial perception that compares it with Descartes's, see Simmons, op. cit. note 105.

¹¹² Nicolas Malebranche, *The Search After Truth*, tr. and ed. T. M. Lennon and P. J. Olscamp (Cambridge: Cambridge University Press, 1997), Book I, Part 9, 46. Hereafter cited as *Search*.

¹¹³ *Search* I.7, 35, emphasis added.

¹¹⁴ *Search* I.7, 34. Malebranche here notes that there are many errors that these natural judgements or compound sensations enable us to avoid.

Descartes on the Errors of the Senses

Since we lack that knowledge and capacity, Malebranche thinks, God fashions our visual perceptions in and for us in accordance with the laws of optics and geometry and the laws of soul and body.¹¹⁵

Now the problem of error arises. The manifold errors in our perception of distance, shape and size illustrate Malebranche's claim that 'our eyes generally deceive us in everything they represent to us'.¹¹⁶ But why has a benevolent God created a system that gives us so many false judgements-cum-sensations? Malebranche replies that the defects in our natural judgements of distance, size and shape are just what one would expect in a sensory system geared to the preservation of life rather than the discernment of truth. For example, our methods of estimating distance via changes in the shape of the eye and the visual angles 'are quite useless when the object is from five to six hundred paces away and are not reliable even when the object is closer'.¹¹⁷ As a result,

we know the motion and rest of objects better as they come closer to us, and we are unable to judge them through the senses when they seem no longer to have any relation, or to have almost no relation, to our bodies (as when they are five or six hundred paces away and are of insignificant size, or even nearer than this and smaller, or finally, when they are larger but further away).¹¹⁸

For Malebranche, this just goes to show that 'our eyes were not given us to judge the truth of things, but only to let us know which things might inconvenience us or be of some use to us'.¹¹⁹ It is important for our survival to know about bodies that are near to us, and therefore in a position to help or harm us; it is not important for our survival 'to know the exact truth about things occurring in faraway places'.¹²⁰ So, Malebranche says, the defects of vision exemplify his general doctrine about the senses, that they 'inform us of things only in relation to the preservation of our bodies and not as they are in themselves'.¹²¹

For example, we see people walking towards us as getting closer but not as getting larger, though the images they project on the retina do get larger (cf. note 95). However, they are also the cause of many errors.

¹¹⁵ *Search* I.9, 47.

¹¹⁶ *Search* I.6, 25.

¹¹⁷ *Search* I.9, 43.

¹¹⁸ *Search* I.9, 46.

¹¹⁹ *Search* I.6, 30.

¹²⁰ *Ibid.*

¹²¹ *Ibid.*

Consonant with this general doctrine, Malebranche holds that all our sensory perceptions incorporate false natural judgements. Some of these, as we have seen, lead to false perceptions of the size, shape and distance of bodies. Others lead us to falsely perceive our own sensations as existing in bodies. Our sensations of whiteness, coldness and pain are simply modifications of our souls, modifications that cannot exist in an extended body. But thanks to in-built natural judgements, we perceive whiteness and coldness as being in snow, and pain as being in our fingers.¹²² The natural judgements that make us thus project our sensations onto bodies occur 'in us independently of us and even in spite of us... in connection with the preservation of life'.¹²³ Pain must be felt in the finger so that we pull it away from the thorn, and colour must be sensed in objects so that we can distinguish them from one another.¹²⁴ The falsity of these natural judgements-cum-sensations accords with God's benevolence, since it simply reflects the fact that the senses aim at preservation, not truth. We willfully go wrong, though, in habitually making free judgements that match these natural judgements. In making these erroneous judgements, the soul

blindly follows sensible impressions or the natural judgements of the senses...it is content, as it were, to spread itself onto the objects it considers by clothing them with what it has stripped from itself.¹²⁵

To avoid these habitual errors, we must judge in accordance with reason, which is given to us to discover the truth, and not in accordance with the natural judgements of the senses, 'which never discover the truth and which were given only for the preservation of the body.'¹²⁶

16. Descartes and Malebranche compared

How do Descartes's views compare with those of Malebranche? One obvious difference is that Descartes never suggests that the defects in our means of judging distance, and the consequent falsity of

¹²² *Search* I.10, 52.

¹²³ *Search* I.11, 55.

¹²⁴ *Ibid.*

¹²⁵ *Search* I.12, 58. This memorable image was later borrowed by Hume (see *A Treatise of Human Nature*, I.3.14).

¹²⁶ *Search* I.12, 59.

Descartes on the Errors of the Senses

judgements based on them, are designed to further our preservation. We have to make judgements about shape and size on the basis of judgements about distance, because information about distance is needed to try to reconstruct the layout of the three-dimensional objects responsible for projecting the two-dimensional image. Our manner of judging the distance of objects is unreliable because it is based on cues that are relatively insensitive to that distance, such as the shape of the eye and the size of the visual angle. So the falsity in constructive judgements is simply a consequence of the way the visual system is structured, and that is the end of the matter. Descartes gives no sign of adumbrating an explanation of visual error in terms of preservation of the kind that Malebranche gives.

Why does Descartes not adopt Malebranche's solution? After all, their views seem very similar. Malebranche takes the view that sensory perceptions aim at preservation from Descartes, and both thinkers warn of the error of using perceptions given for this purpose as guides for free judgements about the nature of bodies. However, there is a fundamental difference underlying these similarities. For Malebranche, the mistake we make in judging in accordance with our sensations-cum-natural judgements is that of affirming something false. Our sensory perceptions of size and shape illustrate the falsity of sensations particularly well, because they incorporate natural judgements of distance that are clearly false.¹²⁷ For Descartes, by contrast, the distinctive feature of what he calls 'the grasp of the senses' is not that it is false, but that it is naturally obscure and confused.¹²⁸ Sensory perceptions occurring at the second grade of sensation involve no judgement and contain no falsity. So the error we make in our habitual judgements is not that of affirming sensory perceptions that are false, but that of treating obscure and confused perceptions of bodies as guides for immediate judgements about their essences. Notice that Descartes does not say that sensory perceptions provide no information about external bodies, nor that they provide false information; rather, they provide information about the nature of external bodies, but in a form that

¹²⁷ Presumably this is one reason why Malebranche begins with them in his campaign to set us right by bringing us 'to a general distrust of all the senses' (*Search* I.6, 25). The falsity of natural judgements of distance can be used to prepare the way for his more controversial claims about the error of perceiving sensible qualities such as colour and heat in bodies.

¹²⁸ He writes, 'in many cases the grasp of the senses is very obscure and confused', AT VII 80, CSM II 55.

is obscure and confused.¹²⁹ For example, we might think of our sensory perception of heat in an external body as an obscure and confused perception of motions in its parts, or of a similar property that can be understood in mechanical terms.¹³⁰ On this picture, we perceive heat as located in the body because we are perceiving something that is actually in the body, rather than projecting our own sensation onto the body, as we do for Malebranche.¹³¹ Though our sensory perception of heat is not false, its obscurity and confusion means that it does not clearly reveal the nature of its object.¹³² That is why we are mistaken if we assume that we can read the true nature of bodies straight off our sensory perceptions of them – if we assume, for example, that heat as it exists in a body exactly resembles our sensory perception of heat.¹³³

For Descartes, unlike Malebranche, our perceptions of distance, size and shape are atypical among sensory perceptions through being false, and through involving judgement. When we habitually

¹²⁹ This point is stressed by Alison Simmons, in ‘Are Cartesian Sensations Representational?’, *Noûs* 33 (1999), 347–69, 350.

¹³⁰ In *Principles* I.198–9, Descartes describes heat, colours and so on as nothing but certain arrangements or dispositions (*dispositiones*) in objects, depending on size, shape and motion (AT VIII A 323, CSM I 285). We are accustomed to distinguish between mechanical properties per se and dispositions grounded in them, but Descartes shows little sign of being concerned with this difference.

¹³¹ Interpreting sensory perceptions as perceptions of features existing in bodies has the advantage of providing objects for them. Sensory perceptions are ideas, and all ideas are directed on objects. Indeed, according to the traditional model that Descartes inherits, ideas are objects existing in the mind. For further discussion, see my ‘Clear and Distinct Perception’ in J. Broughton and J. Carriero (eds), *A Companion to Descartes* (Oxford: Blackwell, 2008), 217–8 and John Carriero’s very helpful ‘Sensation and Knowledge of Body in Descartes’ Meditations’ in K. Detlefsen (ed.), *Descartes’ Meditations: A Critical Guide* (Cambridge: Cambridge University Press, 2015), particularly 117–8.

¹³² This is the view I suggest in op. cit. note 131, 229. Gary Hatfield interprets the obscurity and confusion of sensory ideas in this way in ‘Descartes on Sensory Representation, Objective Reality, and Material Falsity’ in K. Detlefsen (ed.), op. cit. note 131, 141.

¹³³ Malebranche and Descartes agree that we habitually mistake the purpose of sensory perceptions when we match our free judgements to them, but they differ over the nature of our mistake. For Malebranche, we mistakenly assume that sensory perceptions aim at truth. For Descartes, we mistakenly assume that sensory perceptions clearly reveal the nature of their objects (i.e., what they are perceptions of).

Descartes on the Errors of the Senses

judge that the sun is small on the basis of how it looks, we erroneously assume that we can read the sun's size straight off our sensory perception of it.¹³⁴ But in this case, our sensory perception of the sun's size is not just obscure and confused, but false, because it reflects a false constructive judgement. This makes it difficult to think of our perception of the sun as small as simply an obscure and confused perception of its true size.

For Malebranche, then, the preservative function of sensory perceptions explains why they incorporate false judgements. For Descartes, by contrast, the preservative function of sensory perceptions explains why they present their objects obscurely and confusedly. This being so, explaining the falsity of visual perceptions of distance, size and shape in terms of the preservative function of the senses is not an obvious solution for him. Moreover, Descartes's view of sensation as a mode of perception that is obscure and confused, but not false, fits his conception of what follows from God's goodness. Since the faculty of sensation is part of our God-given nature, we should not expect to find falsity in our sensory perceptions. It is quite in order for our sensory perceptions to be obscure and confused, because this reflects the imperfection of our natures as composites of mind and body. Since we are embodied creatures which can be helped or harmed by the bodies surrounding us, information about those bodies needs to be provided in a format that makes relevant features salient and is easy to use for survival.¹³⁵ That is just what the senses provide. The falsity of sensory perceptions is no part of this story. But the constructive judgements involved in our perception of distance, size and shape seem to have a claim to be both natural and false. The fact that they are natural, that they are judgements we have a God-given propensity to make, creates pressure for them to be true. Hence these judgements are problematic for Descartes in a way they are not for Malebranche.

¹³⁴ In the Third Meditation, Descartes contrasts our visual perception of the sun's size with astronomers' calculations of its size to illustrate lack of resemblance between objects and sensory perceptions (AT VII 39, CSM II 27). The example is dialectically useful because it requires no controversial assumptions about the nature of sensible qualities.

¹³⁵ See Simmons, *op. cit.* note 129 for further discussion of the preservative role of the senses.

17. Conclusion

I have argued that Descartes's account of vision suggests that we are subject to a species of error that does not fit his solutions to the problems posed by errors of judgement and errors of nature. If this is right, then the errors of the senses he invokes in the opening paragraphs of the *Meditations*, errors in our perceptions of objects that are very small and very far away, are more problematic than he recognises. Here an obvious question arises: If that is so, why did Descartes himself not recognise it? The answer may lie in his differing concerns as a physiologist and as a philosopher. In the *Optics*, where his account of visual perception appears, he aims to explain how vision works in terms of a mechanism interacting with a mind, without making use of the Aristotelian notion of the transmission of a likeness. Judgement figures in his account because the two-dimensional image alone does not suffice to determine the size, shape, position of the objects that produced it. Information about distance must be acquired and incorporated by processes of inference and judgement. In the *Meditations*, by contrast, Descartes is concerned to combat the Aristotelian view that all the materials of thought come from the senses. He aims to show that the blueprint for our understanding of the underlying nature of the physical world comes from an idea of body that is innate in our minds. We perceive the physical world through our senses in an obscure and confused manner that is designed primarily to aid our preservation. Here his emphasis is on the error of assuming that sensory perceptions clearly reveal the essences of their objects, so that we can read the nature of the physical world straight off them. Our tendency to judge that bodies are exactly as they appear to our senses is not natural, but habitual, so it lacks the divine mandate of innate ideas. From the perspective of Descartes's plan of invoking the errors of the senses to help guide us to a grasp of the innate ideas given by God to lead us to a true understanding of the nature of the world and of ourselves, false judgements of vision are easily overlooked.

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