

RESEARCH

Leibniz and the Molyneux Problem

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The Molyneux problem is one of the major questions addressed by early modern authors. Whereas Locke's response to Molyneux's question has been the subject of extensive scholarly discussion, Leibniz's response has received comparatively little attention. This paper defends an interpretation of Leibniz's nuanced response to the problem and criticizes a competing interpretation that has recently been proposed.

Keywords: Leibniz; Molyneux problem; Locke; sense perception; innate ideas

In Book II of *An Essay concerning Human Understanding* (hereafter: *Essay*), John Locke considers a question posed to him in the summer of 1688 by William Molyneux, an Irish natural philosopher. Consider a blind subject who is newly made to see. The subject has perceived by touch two objects: a sphere and a cube. On the basis of her tactile experience, the subject can identify the objects.¹ Molyneux's question is: could this subject, when presented visually with the cube and the sphere, determine with certainty which object is the cube and which object is the sphere, without touching the objects? Does the subject, in virtue of her knowing how the cube and the sphere *feel*, know how the cube and the sphere *look*? The case is intended to raise a broader question: what is the relation between the one's tactile experience of an object and one's visual experience of an object? Molyneux and Locke respond to the problem negatively: the once-blind subject would not be able to identify the objects on the basis of her visual experience. In his *New Essays on Human Understanding* (hereafter: *New Essays*), Gottfried Leibniz rejects Molyneux and Locke's answer to the problem. According to Leibniz, the once-blind subject would be able to determine with certainty on the basis of her visual experience which object is the sphere and which object is the cube.

Whereas Locke's response to Molyneux's question has been the subject of extensive scholarly discussion, Leibniz's response has received comparatively little attention.² My aim in this paper is not to defend Leibniz's response to the Molyneux problem but rather to answer a series of interpretive questions: why does Leibniz reject Locke and Molyneux's negative response to the problem? What features of her tactile experience and visual experience, according to Leibniz, enable the once-blind subject to identify the objects presented in her visual experience? What cognitive resources, according to Leibniz, does the once-blind subject employ in order to identify the objects? According to the traditional understanding of Leibniz's response, Leibniz holds that the once-blind subject would be able to identify the objects by means of her reasoning about her present visual and past tactile experience of them.³ Moreover, according to that interpretation, Leibniz's disagreement with Locke stems from the former's rationalist commitment to innatism: the once-blind subject would be able to identify the objects by means of reasoning, according to Leibniz, because she possesses certain innate ideas. While this traditional interpretation is widely assumed in discussions of Leibniz's response, it has never received a full defense. My aim in this paper is to provide a comprehensive and definitive statement of the traditional interpretation of Leibniz's response.

¹ I use 'identify' as a success term throughout this paper.

² For discussion of Locke's response, see Brandt-Bolton (1994) and Bruno and Mandelbaum (2010). As far as I am aware, Glenney (2012) is the only sustained treatment of Leibniz's response.

³ Gareth Evans (1985: 364–99) and James Van Cleve (2015: 220–22) each accept the traditional interpretation. However, neither Evans nor Van Cleve offer a full-scale presentation of this interpretation, nor do they situate, as I do, Leibniz's response within his broader theory of mind.

Such a statement is required because the traditional interpretation has recently come under criticism. Brian Glenney (2012) argues that the traditional interpretation is inferior to another: the *common sense interpretation*. According to the common sense interpretation, the faculty of reasoning plays no significant role in Leibniz's response. Rather, the imagination (or 'inner sense') is the faculty in virtue of which, according to Leibniz, the once-blind subject is able to identify the cube and the sphere. According to Glenney's interpretation, Leibniz's response to the problem is, in a sense, strikingly empiricist: sense or imagination, not reason, plays the primary role.⁴ I will argue that the common sense interpretation lacks textual support.

§1 specifies some features of the version of the problem to which Leibniz responds. §2 discusses some passages key to Leibniz's response to the problem. §3 argues against the common sense interpretation. §4 discusses Leibniz's theory of ideas. §5 discusses his theory of images. Drawing on the discussion of Leibniz's distinction between images and ideas, §6 presents my interpretation of Leibniz's response to the Molyneux problem. §7 explains why Leibniz holds that his affirmative response to the problem requires that certain conditions obtain in the case of the once-blind subject.

1. What Molyneux Problem?

There are several versions of the Molyneux problem discussed by early modern authors. When discussing the problem, such authors often leave tacit important assumptions. Before turning to Leibniz's response to the problem, we should specify with what version of the Molyneux problem we will be concerned and what conditions this version of the problem presupposes.

Locke relays Molyneux's question as follows:

Suppose a Man born blind, and now adult, and taught by his touch to distinguish between a Cube, and a Sphere of the same metal, and nighly of the same bigness, so as to tell, when he felt one and t'other; which is the Cube, which the Sphere. Suppose then the Cube and Sphere placed on a Table, and the Blind Man to be made to see. Quære, Whether by his sight, before he touch'd them, he could now distinguish, and tell, which is the Globe, which the Cube. (*E II.9.8*)

There is an adult subject who is typical except for her being born blind. While blind, she learned to distinguish two objects by means of touch: a cube and a sphere. The cube and the sphere are roughly of the same size and are composed of the same material. Next, the subject gains the faculty of visual perception. The subject is then placed some distance in front of a table, on which rest the sphere and the cube. The subject is asked to identify the objects: the sphere as the sphere, and the cube as the cube. She must accomplish this task only on the basis of her visual experience; she is not allowed to touch the objects again.

Leibniz agrees with Locke on most features of the case. Three points of agreement are worth noting. First, the subject is an adult when she becomes sighted. This allows us to assume that the once-blind subject is cognitively typical and, hence, has a normal capacity for reasoning. Were the subject a child, then a failed identification might simply be attributed to her inability to reason sufficiently well. If so, there would still be an open question: could a person who possesses greater intellectual capacities identify the objects on the basis of her visual perception?

Second, in Locke's negative response to the problem, he states that the subject would not be able '*with certainty* to say, which was the Globe, which the Cube, whilst he only saw them' (*E II.9.8*, emphasis added).⁵ We are not interested in whether the subject might be able to guess which object is which. We want to know whether the subject would be able to identify the objects both without guessing and with objective certainty. We want to know whether there is some feature of the subject's tactile and visual experience in virtue of the subject knows which object is which. As argued in §7, this requirement for certain identification plays a role in Leibniz's discussion of a skeptical worry related to Molyneux's question.

Third, as James Van Cleve and Gareth Evans have noted, we should add a condition to the problem (Van Cleve 2015: 220; Evans 1985: 365–66). This condition is not stated by Molyneux, Locke, or Leibniz, but they

⁴ Of course, both canonical 'empiricists' who address the problem (Locke and George Berkeley) respond negatively to the problem. Thus, even on Glenney's interpretation, Leibniz's response differs significantly from Locke's and Berkeley's.

⁵ I take Locke to be using 'certainty' to mean 'with a very high degree of credence and justification.' I use 'certainty' in this sense throughout the paper.

each arguably presuppose it.⁶ Upon her becoming sighted, the subject, as a matter of fact, might not, initially, visually perceive objects at all. Her visual experience might instead be a blooming, buzzing confusion. If so, then the subject would not be able to identify the objects: her identifying the objects on the basis of her visual perception requires her being able to perceive visually the objects. Locke and Leibniz each assume that, when presented with the sphere and the cube, the subject is able to perceive visually the objects.⁷

Leibniz's version of the case appears to differ from Locke's in at least two important respects. First, there are at least two ways to understand the problem as presented by Locke. The first way: could the once-blind subject *see* that one object is the sphere and the other object is the cube? The second way: could the once-blind subject *reason*, on the basis of her present visual experience and past tactile experience, that one object is the sphere and the other object is the cube?⁸ One who is interested in the first question requires that the subject's identification of the objects be, using a distinction drawn by Janet Levine, both *epistemically* immediate and *temporally* immediate (Levine 2008: 6). The identification is epistemically immediate just in case it is achieved not by means of inference or association; it is temporally immediate just in case it is achieved, as it were, instantaneously. One who is interested in the first question requires epistemic immediacy because she is interested in whether the subject could identify the objects only by means of her perception of the objects, and not by means of her reasoning about her perception of the objects. She requires temporal immediacy because, as Levine notes, temporal immediacy is plausibly a reliable indicator of epistemic immediacy (Levine 2008: 6). By contrast, one who is interested in the second question does not require epistemic immediacy. Thus, she also does not require temporal immediacy: she would allow the subject time to reason about her visual and tactile experiences. While Locke does not clearly distinguish these two questions, Leibniz is clearly concerned with the second: he requires neither epistemic nor temporal immediacy. In Leibniz's version, the subject is given time to reason about her present visual experience of the objects and her past tactile experience of the objects prior to her attempting to identify the objects.

Second, Leibniz adds to the case a condition absent from the Locke's presentation. His affirmative answer to the problem, he says, requires that this condition obtains (*NE* 2.9.8; 138). Leibniz stipulates that the subject is told that the bodies presented to her visually are the sphere and the cube (*NE* 2.9.8; 136–37).⁹ The subject knows that the objects she perceives visually are a sphere and a cube and not, for example, a painting of a sphere and a painting of a cube. §7 discusses why Leibniz's affirmative response requires that this condition obtains.

These two differences between Leibniz's version of the case and that of Molyneux and Locke explain, I propose, his *prima facie* perplexing remark that 'Mr. Molyneux and the author of the *Essay* are not as far from my opinion as at first appears' (*NE* 2.9.8; 136). Context suggests that Leibniz claims not to differ as much as may first appear from Locke because he does not deny Locke's answer to the problem insofar as Leibniz's added conditions are not included in the case. Insofar as his added conditions are omitted, Leibniz does not disagree with Locke. In this respect, Leibniz's and Locke's responses to the problem, as stated, are consistent.¹⁰ An interpretation of Leibniz's response, then, must be sensitive to the importance Leibniz attaches to the features peculiar to his version of the case.

2. Key Passages

Leibniz's response to the Molyneux problem occurs in his commentary on the chapter 'Of Perception' in Book II of Locke's *Essay*. We should have at hand four key passages from this discussion.

⁶ Denis Diderot (1916: 120–21) appears to notice this assumption in his *Letter on the Blind*. Leibniz may also notice this assumption. In his discussion of the problem, he says: 'I am not talking about what [the once-blind subject] might actually do on the spot, when he is dazzled and confused by the strangeness ...' (*NE* 2.9.8; 137). References to the *New Essays* use the following format: '*NE* 2.9.8; 137,' '2.9.8' refers to Book 2, Chapter 9, Section 8 and '137' refers to the corresponding page number of the *Akademie* edition, which gives the original French text.

⁷ There is a related question of whether the once-blind subject, upon gaining the ability to perceive visually, would be able to perceive distance visually. George Berkeley (2008), for example, in his *New Theory of Vision*, denies that she would. Leibniz does not address this question. For the purposes of this paper, we will assume that the once-blind subject can perceive visually objects at a distance upon gaining the capacity for visual perception.

⁸ Of course, one might hold that sense perception is a mere species of reasoning, and so reject this distinction. For the purposes of this paper, I set this issue aside.

⁹ Leibniz seems to hold that the objects with which the subject is presented visually are the numerically same objects that she previously touched. However, nothing about his response requires that, for example, the sphere with which the subject is presented visually is numerically identical, as opposed to merely qualitatively identical, with which she is presented tangibly.

¹⁰ Of course, were Locke to consider the case as Leibniz conceives, it is somewhat doubtful that he would accept Leibniz's response to that version of the case, due to his rejection of innatism.

The first key passage is what I will call the Rational Principles Passage:

Rational Principles Passage

... it seems to me past question that the blind man whose sight is restored could discern them [i.e., the sphere and the cube] by applying rational principles [*les peut discerner par les principes de la raison*] to the sensory knowledge which he has already acquired by touch. (NE 2.9.8; 136)

This passage suggests a necessary condition for an adequate interpretation of Leibniz's response. Leibniz claims that the once-blind subject could identify the objects by applying 'rational principles.' The application of rational principles plausibly involves the performance of some act of reasoning. Thus, an adequate interpretation must ascribe to Leibniz the position that the subject identifies the objects in virtue of her performing an act of reasoning. This condition receives further support from Leibniz's implying, in a subsequent passage, that his affirmative response presupposes a subject who is not 'unaccustomed to making inferences [*peu accoutumé à tirer des conséquences*]' (NE 2.9.8; 137).

Call the next key passage the Uniformity Passage:

Uniformity Passage

My view rests on the fact that in the case of the sphere there are no distinguished points on the surface of the sphere taken in itself, since everything there is uniform and without angles [*tout y étant uni et sans angles*], whereas in the case of the cube there are eight points which are distinguished from all the others. (NE 2.9.8; 137)

In this passage, Leibniz claims that his affirmative response to the problem rests on a particular difference between the sphere and the cube. The surface of the cube has numerous points and angles. The surface of the sphere has no points and no angles. The surface of the sphere is uniform, whereas the surface of the cube is not. An adequate interpretation of Leibniz's response should account for this passage: it should explain why Leibniz emphasizes this difference in uniformity between the cube and the sphere.

The Uniformity Passage may appear to provide an easy explanation of Leibniz's response to the problem. The once-blind subject has perceived, by means of touch, that the cube is not uniform and the sphere is uniform. Moreover, the subject perceives visually that the cube is not uniform and the sphere is uniform. Thus, the subject need only match visual uniformity with tangible uniformity in order to identify the objects. This response begs the question that the Molyneux problem intends to pose. According to the subject's tactile experience of the objects, the sphere is *tangibly* uniform and the cube is not. According to the subject's visual experience of the objects, the sphere is *visually* uniform and the cube is not. This response presupposes that there is a correspondence between visible uniformity and tangible uniformity, such that the once-blind subject would legitimately infer that the object that is tangibly uniform—what she knows to be the sphere—must be identical with the object that is visually uniform. Whether there is a correspondence between tangible uniformity and visual uniformity that licenses such an inference is, in effect, the question the Molyneux problem is intended to raise. Charity suggests that we ought not attribute to Leibniz this philosophically uninteresting response.

The third key passage is what I'll call the Geometry Passage:

Geometry Passage

If there were not that way of discerning shapes, a blind man could not learn the rudiments of geometry by touch, nor could someone else learn them by sight without touch. However, we find that men born blind are capable of learning geometry, and indeed always have some rudiments of a natural geometry; and we find that geometry is mostly learned by sight alone without employing touch, as could and indeed must be done by a paralytic or by anyone else to whom touch is virtually denied. (NE 2.9.8; 137)

In this passage, Leibniz gives an argument for his affirmative response to the problem. The argument can be stated as follows:

- (1) If the once-blind subject could not identify the cube and the sphere, then subjects who are either blind or paralytic¹¹ cannot learn geometry.

¹¹ Leibniz's term. As I use it, a paralytic is a paralyzed person who has no sense of touch.

- (2) Subjects who are either blind or paralytic can learn geometry.
- (3) Therefore, the once-blind subject could identify the cube and the sphere.

This is a puzzling argument. (2) is true, but Leibniz gives no justification for (1). Why think that a negative answer to the Molyneux problem entails that subjects with only touch or only vision are incapable of learning geometry? An adequate interpretation of Leibniz's response to the problem should explain why Leibniz, in the Geometry Passage, holds that (1) is true.

The final key passage is what I'll call the Images/Ideas Passage:

Images/Ideas Passage

These two geometries, the blind man's and the paralytic's, must come together, and agree, and indeed ultimately rest on the same ideas [*aux mêmes idées*], even though they have no images in common [*ait point d'images communes*]. Which shows yet again how essential it is to distinguish images from exact ideas, which are composed of definitions. (NE 2.9.8; 137)

Leibniz introduces in this passage a distinction between exact ideas and images. The blind subject's geometry and the paralytic's geometry rest on different images but the same ideas. Leibniz clearly holds that this distinction is at the heart of his response. To understand Leibniz's response to the Molyneux problem, we should better understand the distinction. But let us first consider an interpretation that has recently been proposed.

3. The Common Sense Interpretation

In a recent paper, Brian Glenney (2012) has proposed an interpretation of Leibniz's affirmative response to the Molyneux problem: the common sense interpretation. The common sense interpretation takes inspiration from a passage found in Leibniz's correspondence with Queen Sophie Charlotte of Prussia:

[S]ince our soul compares the numbers and shapes that are in color, for example, with the numbers and shapes that are in tactile qualities, there must be an internal sense in which the perceptions of these different external senses are found united. This is called *imagination*, which contains both the *notions of particular senses*, which are *clear but confused*, and the *notions of the common sense*, which are *clear and distinct* (AG 187, emphasis original).

The 'notions of particular senses' to which Leibniz refers are sensible images. The 'notions of the common sense' are exact ideas. In this passage, Leibniz claims that both exact ideas and sensible images are contained in the imagination or 'common sense.' According to the common sense interpretation, Leibniz's response to the Molyneux problem ought to be understood in light of this passage. Once the once-blind subject has been presented with the cube and the sphere both by touch and by vision, she has in her mind several salient representations: a tangible image of each object, a visible image of each object, an exact idea of a cube, and an exact idea of a sphere. According to the common sense interpretation, upon her possessing all of these items, the once-blind subject's imagination 'perceives' a 'commonality' between, for example, the representations relating to the cube: the visual image of the cube, the tangible image of the cube, and the exact idea of a cube (Glenney 2012: 260).¹² According to the common sense interpretation, the imagination's perceiving the commonality between these items does not involve rational exertion (Glenney 2012: 261). Moreover, when the imagination perceives the visual image of the cube and the tangible image of the cube, it disregards the 'format' of these images: it attends only to the content that they have in common, which includes, per the Uniformity Passage, content as of non-uniformity (Glenney 2012: 260). In virtue of the once-blind subject's imagination's perceiving commonality between these items (and perhaps the exact idea of the cube), the once-blind subject is able to identify the cube.¹³

There are at least three reasons to reject the common sense interpretation. First, a problem concerning the role that Leibniz attributes to the imagination. Apparently, the common sense interpretation holds

¹² The role of the exact ideas of the cube and sphere in Leibniz's response is left somewhat unclear by the common sense interpretation. Glenney says that these items 'avail recognition capability once they are triggered by the senses' (2012: 254). However, it is unclear what role this recognition capability ultimately plays in Leibniz's response, according to the common sense interpretation.

¹³ Glenney claims: 'The function of the imagination when dedicated to perception involves the discovery of commonalities between different sensory representations' (2012: 260).

that the exact idea of the cube and the exact idea of the sphere are each perceived by the imagination.¹⁴ To be sure, this is suggested by the passage from the correspondence with Queen Sophie.¹⁵ However, there is textual evidence that Leibniz, in the *New Essays*, holds that exact ideas are not objects of the imagination. In his commentary on Locke's chapter 'Of Clear and Obscure Ideas,' Leibniz associates the imagination with one's having sensible images (*NE* 2.29.13; 261–62). Moreover, he claims that 'knowledge of figures does not depend upon the imagination ...' (*NE* 2.29.13; 261). Context suggests that Leibniz is claiming here that knowledge of figures does not depend on the imagination because knowledge of figures involves exact ideas, which ideas are not objects of the imagination. If Leibniz holds that exact ideas are not objects of the imagination, then the common sense interpretation renders unclear each exact idea's role in Leibniz's affirmative response to the Molyneux problem.

Second, as noted above, Leibniz's discussion of the Molyneux problem occurs in his commentary on Locke's chapter 'Of Perception' in Book II of the *Essay*. Were the common sense interpretation correct, we would expect Leibniz to mention the faculty of imagination or common sense in his discussion of the problem. But neither 'imagination' nor 'common sense' appear in that discussion. The common sense interpretation appears lacking in textual support.

Third, the common sense interpretation holds that the once-blind subject could identify the objects in virtue of an act of 'inner sense.' As Glenney says, the imagination's discovery of the common content of, for example, the visual and tangible images of the cube 'does not invoke conscious inference, as the imagination is described as a kind of 'inner sense' (2012: 260). The common sense interpretation denies that the once-blind subject's accurate identification of the object requires that she perform some act of reasoning. But, as argued above, Leibniz seems to hold that the once-blind subject would need to perform an act of reasoning in order to identify the objects. This is suggested both by the Rational Principles Passage and by Leibniz's implying that his affirmative response presupposes a subject who is not 'unaccustomed to making inferences' (*NE* 2.9.8; 137).¹⁶ In this respect, the common sense interpretation is inconsistent with textual evidence.

4. Exact Ideas

§3 raised three objections to Glenney's common sense interpretation of Leibniz's response. That interpretation appears textually inadequate. In what follows, I develop a different interpretation, one which, unlike the common sense interpretation, attributes a central role to reasoning in Leibniz's response. This interpretation requires a fuller understanding of what Leibniz means by 'exact idea' and 'image.'

The extension of Leibniz's term 'exact idea' (or, equivalently, 'intellectual idea') is wide. All ideas of arithmetic and geometry are exact ideas. Leibniz counts among exact geometrical ideas the ideas of geometrical figures (*NE* 2.29.13; 261–62). Thus, crucially for our purposes, the idea of a sphere and the idea of a cube are exact ideas. In addition, the ideas of 'being, one, [and] same' are also exact ideas (*NE* 4.4.5; 392, emphasis removed). So too are the ideas of 'Substance, Duration, Change, Action, Perception, [and] Pleasure' (*NE* Preface; 51). Indeed, there is some suggestion that all ideas 'from which necessary truths arise' are exact ideas (*NE* 1.1.15; 81).¹⁷ But what do these ideas have in common, such that they each qualify as an *exact* idea?

We should first answer another, more basic question: what, according to Leibniz, is an idea? Locke defines ideas as 'whatsoever is the Object of the Understanding when a Man thinks' (*E* 1.1.8). Leibniz agrees with this definition to the extent that he holds that ideas are in the minds of human subjects, but disagrees with the implication that all objects of human cognition are ideas (*L* 207).¹⁸ In the essay *What is an Idea?*

¹⁴ It may be that Glenney does not accept this claim. If so, then his interpretation is subject to the same criticism that I raise in this paragraph: the common sense interpretation renders unclear Leibniz's appeal to exact ideas in his response to the problem.

¹⁵ While I suspect that the passage from the correspondence with Queen Sophie is an aberration, my argument against the common sense interpretation does not require this claim. I require only the claim that Leibniz does not, in his response to the problem, appeal to the 'common sense' discussed in the correspondence with Sophie. That is, I do not necessarily reject the claim that Leibniz *could have* appealed to the common sense. What I do reject is the claim that Leibniz *did* appeal to this notion in his response to the Molyneux problem.

¹⁶ Glenney (2012: 261) does claim to offer an alternative interpretation of the Rational Principles Passage. However, he does not explicitly state what this reading is, and it is not clear to me how he thinks the common sense interpretation is consistent with the passage.

¹⁷ It is not clear what, exactly, Leibniz means by a truth's 'arising' from an idea. This notion could perhaps be understood in terms of conceptual containment or logical entailment.

¹⁸ For discussion of Leibniz's rejection of Malebranche's view that ideas exist not in human minds but rather in the mind of God, see Jolley (1988).

(1677) Leibniz identifies several ‘things in our mind’ that are distinct from ideas: ‘thoughts, perceptions, and affections’ (L 207).

While Leibniz denies one Lockean view with respect to ideas, he appears to accept another: that ideas are mental representations. Ideas are not thoughts, but rather are the things about which we think. He states in the *New Essays*:

If the idea were the *form* of the thought, it would come into and go out of existence with the actual thoughts which correspond to it, but since it is the *object* of thought it can exist before and after the thoughts. (*NE* 2.1.1; 109)

Also in the *New Essays*:

If ideas were only the forms or manners of thoughts, they would cease with them; but you yourself have acknowledged, sir, that they are the inner objects of thoughts, and as such they can persist. (*NE* 2.10.2; 140)¹⁹

While Leibniz holds that ideas ought not be identified with (token) thoughts, he nonetheless appears to accept, in these and other passages, that ideas are representations or ‘objects of thought.’

This interpretation is controversial. According to Nicholas Jolley, Leibnizian ideas are not representations, but rather dispositions to have certain thoughts (Jolley 1990: 136–37; 2005: 104).²⁰ According to this interpretation, one’s idea of a cube is identical with one’s disposition to have thoughts of a cube. While there are passages that seem to support the dispositionalist interpretation, the interpretation doesn’t sit well with several claims Leibniz makes with respect to ideas.²¹ First, Jolley’s interpretation is in tension with Leibniz’s ascribing certain properties to ideas. In the *New Essays* and elsewhere, Leibniz claims that each idea has a degree of clarity and distinctness.²² We will discuss these notions in more detail below. For now, it suffices to say that Leibniz clearly means to ascribe the properties of clarity and distinctness to ideas themselves (*NE* 2.29.2–4; 254–55). It is difficult to make sense of a disposition’s having the properties of clarity and distinctness: *prima facie*, a disposition doesn’t have any content that might be more or less clear and more or less distinct. Second, Leibniz holds that at least some ideas are ‘composed of definitions’ (*NE* 2.31.2; 266–67, Ideas/Images Passage). Jolley’s interpretation renders this claim unintelligible: how could a disposition be composed of definitions? This brief discussion is insufficient to rule-out an interpretation on which Leibniz sometimes identifies ideas with dispositions. However, it does suggest that it is implausible that Leibnizian ideas are *only* dispositions. The interpretation of Leibniz’s response to the Molyneux problem presented in what follows treats Leibnizian ideas as representations that are available to reflective attention.²³

Leibniz’s notion of an idea should be distinguished from another, closely related notion: that of a *concept*.²⁴ In the *New Essays*, Leibniz sometimes treats these as equivalent. But there is a difference. In the *Discourse on Metaphysics* (1686), Leibniz says that that concepts are ideas that we ‘conceive or form’ (AG 59). Thus, while all concepts are ideas, not all ideas are concepts: only ideas that one has actually cognized qualify as concepts. As this suggests, Leibniz holds that there are ideas that one can be said to have despite one’s never having conceived those ideas. In what follows, when I speak of ‘ideas’ (either exact or not), I refer to ideas that have already been conceived by the subject who possesses them, unless otherwise noted.²⁵

¹⁹ Some evidence for this interpretation is also found in the much earlier *Meditations on Truth, Knowledge and Ideas* (1684). There, Leibniz speaks of ‘perceiv[ing] ideas’ (L 292; AG 25). This also suggests that Leibniz holds that ideas are things or items about which we think. See also §26 of the *Discourse on Metaphysics* (1686) (AG 58).

²⁰ Robert McRae (1976) and Larry Jorgensen (2019) each accept an interpretation similar to Jolley’s.

²¹ See, for example, L 207.

²² As is discussed below, Leibniz seems to think that, at least with respect to exact ideas, ideas are entirely clear and entirely distinct.

²³ Shane Duarte (2009: 713–17) offers a sophisticated defense of this view, although he does not raise the objections to the dispositionalist reading that I do here.

²⁴ Leibnizian ideas should also be distinguished from what Leibniz calls ‘notions.’ Mere notions have content as of something impossible or contradictory, whereas items of the former sort never do. See AG 56.

²⁵ For discussion of Leibnizian concepts, see Puryear (2009).

Leibniz does not state explicitly the features that distinguish exact ideas from mere ideas.²⁶ But he does suggest three features that exact ideas have in common: they are *distinct*, *clear*, and *innate*.²⁷

In the *New Essays*, Leibniz tells us that he ‘always follow[s] M. Descartes’ language’ with respect to the notion of distinctness (*NE* 2.29.4; 255). Descartes defines a distinct idea (or ‘perception’) as one that ‘is so sharply separated from all other perceptions that it contains in itself only what is clear’ (*CSM* I: 208).²⁸ Descartes’ suggestion is that an idea’s distinctness is a matter both of its being ‘sharply separated’ from other ideas and of its having content that is, in Stephen Nadler’s terms, ‘well defined and delineated’ (Nadler 2006: 98). One’s idea of a cube is distinct if one can distinguish this idea from other ideas and if this idea has content that is sufficiently intelligible.

Leibniz emphasizes the second aspect of Descartes’ account of distinctness. For Leibniz, an idea is distinct only if one can ‘distinguish [its] contents’ (*NE* 2.29.4; 255). Consider an idea of a heap of stones. According to Leibniz, in order for the idea of a heap of stones to be distinct, one must grasp ‘how many stones there are and some other properties of the heap’ (*NE* 2.29.8; 258). Likewise, a necessary condition for one’s idea of a chiliagon’s being distinct is that one know the number of sides the figure has (*NE* 2.29.8; 258).²⁹ In order for an idea to be distinct, one must know the content of the idea and that content must be orderly. Distinctness is a gradable notion: content can be more or less well known and more or less orderly (*NE* 2.1.1; 113; Simmons 2001: 57). Leibniz maintains that exact ideas are entirely distinct.

Leibniz’s claim that exact ideas are entirely distinct is related to his view that such ideas are composed of definitions. Distinct ideas are ideas that contain the definition of their object (*NE* 2.31.2; 266). The exact idea of a cube is distinct insofar as it gives the definition of a cube. Definitions, according to Leibniz, are ‘nothing but a distinct setting out of ideas’ (*NE* 1.2.25–27; 101).³⁰ The definition of which the exact idea of a cube is composed *just is* the content of the exact idea set out in an orderly way, and this definition gives necessary and sufficient conditions for an object’s being a cube (*NE* 2.31.2; 266).³¹ Thus, an exact idea’s distinctness and its being composed of definitions are closely related: an exact idea’s distinctness consists, in part, in its having orderly content, and a definition is the content of an idea set out in an orderly way.

Leibniz claims that ‘distinct ideas distinguish one object from another’ (*NE* 2.29.4; 255). One’s idea of the cube is entirely distinct and is composed of definitions. Such definitions provide the necessary and sufficient conditions for an object’s being a cube. Thus, in virtue of one’s possessing the idea of a cube, one is able to apply these necessary and sufficient conditions to an object in order to determine whether an object is a cube. Because one’s exact idea of a cube is entirely distinct, one’s possessing the idea enables one to distinguish cubes from non-cubes. In addition to their being entirely distinct, exact ideas are entirely clear. In the *New Essays*, Leibniz says:

²⁶ Leibniz does not explicitly state the features by which exact or intellectual ideas are distinguished from other ideas. This is perhaps unsurprising; for Leibniz may hold that *all* ideas possess the features he attributes to exact ideas. That is, Leibniz may hold that all ideas are exact ideas. Duarte (2009) suggests a view of this sort (but see the note below). Stephen Puryear (2005) seems to reject this view. In what follows, I continue to use ‘exact ideas,’ both because Leibniz himself uses this terminology in his response to the Molyneux problem and because there is some evidence (discussed below) that Leibniz rejects the claim that all ideas are exact.

²⁷ This claim may be inconsistent with Duarte (2009). At some points, Duarte seems to hold only that ideas do not admit of various degrees of clarity and distinctness (2009: 707). Elsewhere, Duarte seems to accept the stronger claim that the properties of clarity and distinctness simply do not apply to ideas (2009: 717). I wish to remain neutral here with respect to the weaker claim. The stronger claim seems inconsistent with Leibniz’s discussion of clarity and distinctness of ideas in the *New Essays*. See *NE* 2.29.2; 254–55. For what is perhaps Duarte’s response, see Duarte (2009: 717).

²⁸ As this statement evinces, Descartes defines distinctness in terms of clarity. While Leibniz, as already noted, claims to follow Descartes in his understanding of clarity and distinctness, it is not clear that Leibniz follows Descartes in understanding distinctness in terms of clarity. In presenting Leibniz’s understanding of distinctness before his understanding of clarity, I do not mean to take an interpretive stand on this issue. Notably, Leibniz follows Descartes in holding that an idea may be clear without being distinct. See *NE* 2.29.2; 255. This, however, does not decide the issue of whether he followed Descartes in understanding distinctness in terms of clarity.

²⁹ I here gloss over a complication. On one understanding of distinctness, one’s idea of, say, a cube is distinct if one *can distinguish* its contents. On another understanding, one’s idea of a cube is distinct if one *has distinguished* its contents. Leibniz wavers between these two options, but he seems to more often suggest the latter understanding.

³⁰ Leibniz distinguishes between *nominal definitions* and *real definitions*. Real definitions, unlike nominal definitions, establish the possibility of the thing defined. I suspect that Leibniz is concerned in this context with real definitions. Nonetheless, for the purposes of this paper, I set this distinction aside.

³¹ In addition to essential properties, *propria* may be necessary and sufficient for an object’s being an instance of the idea in question. For example, risibility may be necessary and sufficient for an object’s being an instance of the idea ‘human.’ It is unclear whether Leibniz holds that information with respect to *propria* is included in exact ideas.

I say, then, that an idea is clear when it enables one to recognize the thing and distinguish it from other things. For example, when I have a really clear idea of a colour I shall not accept some other colour in place of it; and if I have a clear idea of a plant, I shall pick it out from others which are close to it – if I cannot, the idea is obscure. (*NE* 2.29.2; 254–55)

According to this understanding of clarity, one's idea of a cube is clear if one can distinguish cubes from non-cubes. If one's possessing the idea of a cube did not enable one to distinguish cubes from non-cubes, then one's idea of a cube would be obscure. This understanding of clarity is, Leibniz tells us, the same as that which he gives in the *Meditations on Knowledge, Truth, and Ideas*. In that essay, Leibniz says that 'knowledge is clear when I have the means for recognizing the thing represented' (*AG* 24).³² Like distinctness, Leibniz takes clarity to be a gradable notion. As I will argue below, Leibniz's affirmative response to the Molyneux problem turns on those exact ideas' being perfectly distinct and does not appeal to the clarity of those ideas. So we need not consider the details of Leibniz's account of clarity, or in what respect this notion differs from the notion of distinctness.

The third property that all exact ideas share, according to Leibniz, is that they are *innate*. All exact ideas 'come from [the mind's] own depths' and hence do not have their source in the senses (*NE* 1.1.1; 74). For example, he says approvingly:

On this view [i.e., the view that all 'pure ideas'³³ are innate], the whole of arithmetic and of geometry should be regarded as innate, and contained within us in an implicit way, so that we can find them within ourselves by attending carefully and methodically to what is already in our minds, without employing any truth learned through experience or through being handed on by other people. (*NE* 1.1.5; 77)

And later in the *New Essays*:

[O]ur certainty regarding universal and eternal truths is grounded in the ideas themselves, independently of the senses, just as pure ideas, ideas of the intellect – e.g. those of *being, one, same* etc. – are also independent of the senses. (*NE* 4.4.5; 392, emphasis original)

The second passage indicates one of Leibniz's central motivations for his holding that exact ideas are innate. Ideas of geometry, for example, are exact ideas. If exact ideas were adventitious,³⁴ then ideas of geometry would be adventitious. But only truths 'grounded in' innate ideas are necessary truths.³⁵ If ideas of geometry were adventitious, then geometrical truths would be merely contingent. Since geometrical truths are paradigmatic instances of necessary truth, ideas of geometry must be innate. Leibniz infers that all exact ideas are innate.³⁶

While Leibniz holds that exact ideas are innate, he denies that every exact idea is immediately available to every subject who possesses it. At least some exact ideas are available to a subject only upon her 'attending carefully and methodically to what is already in [her mind]' (*NE* 1.1.5; 77). Such ideas can be conceived only in virtue of 'the mind's reflection when it turns in on itself' (*NE* 1.1.11; 81). As Julia Borchering explains, Leibniz does not seem to view reflection, as Locke does, as mere introspection, but rather as 'the starting point of a more complex reasoning process' (Borchering 2018: 48). Reflection, for Leibniz, is an active, intellectually sophisticated process whereby one can acquire new concepts and knowledge.³⁷ Leibniz maintains

³² As this quote indicates, Leibniz also ascribes the property of clarity to *knowledge*, not just to ideas. I take him to intend this understanding of clarity to apply also to ideas.

³³ I interpret Leibniz's term 'pure idea' as being equivalent to 'exact idea' and 'intellectual idea.' For evidence that these notions are equivalent, see *NE* 4.4.5; 392.

³⁴ I use 'adventitious' to mean 'not innate' throughout this paper.

³⁵ Leibniz holds, unlike Locke, that necessary truths, if in fact necessary, must be grounded in innate ideas. See *NE* 1.1.5–11; 80. He appears to hold that the senses could not yield ideas that are sufficiently distinct so as to ground necessary truths. See *NE* 1.1.11; 81.

³⁶ Leibniz's view with respect innateness is not straightforward. Jolley (1990) argues that Leibniz offers two accounts of innateness in the *New Essays*: a dispositional account and a reflection-based account. See also Jolley (1988). McRae (1976) attributes to Leibniz a logical account of innateness.

³⁷ This understanding of Leibnizian reflection is not uncontroversial. Robert Sleight (1990: 76), for example, seems to understand reflection as 'brute intuition.' But Borchering's interpretation seems to me to clearly fit better with what Leibniz says in the *New Essays*.

that one genuinely possesses exact ideas that one has not yet accessed by means of reflective attention. Such ideas are like veins in a block of marble, which 'outline a shape which is in the marble before they are uncovered by the sculptor' (*NE* 1.1.23; 86).

Of principal interest, for present purposes, are exact ideas of geometry: in particular, the exact ideas of geometric figures. Leibniz clearly holds that we possess such ideas (*NE* 2.31.2; 267). But he is less clear with respect to the content of those ideas. As I will argue, Leibniz's response to the Molyneux problem seems to require only that the exact idea of a sphere and exact ideas of cube, respectively, have content as of uniformity and non-uniformity. But he seems to hold that these ideas include in their content all of the geometric properties of their respective figures. This is suggested by his claim that the 'whole [...] of geometry should be regarded as innate' (*NE* 1.1.5; 77).

5. Images

Recall that Leibniz, in the Ideas/Images Passage, distinguishes between ideas and images. What, according to Leibniz, are images? 'Image,' in the sense salient here, is a technical term Leibniz used occasionally prior to the *New Essays*.³⁸ In the *New Essays*, by contrast, it is used frequently. Indeed, Leibniz apparently uses a variety of terms to refer to images: 'images' (*NE* 2.9.8; 137), 'images of sense' (*NE* 1.1.5; 77), 'sensory images' (*NE* 4.6.7; 404), 'sensations' (*NE* 2.19.1; 161), 'impressions' (*NE* 4.17.13; 487), 'ideas of sensible qualities' (*NE* 4.4.5; 392), and even the scholastic 'species' (*NE* 2.11.17; 144).

Like exact ideas, images are mental representations. Unlike exact ideas, images are adventitious: they have their source in perceptual experience (*NE* Preface; 53, 2.9.8; 135).³⁹ Indeed, Leibniz appears to hold that images are constitutive of perceptual experience: when one perceives visually a cube, one has an image of a cube. For example, Leibniz says that when we perceive visually a painting, we do not 'immediately see the thing that causes the image.' Rather, Leibniz holds that 'strictly we see only the image, and are affected only by rays of light' (*NE* 2.9.8; 135).⁴⁰ Images do not, however, occur only in perceptual experience: they are also present to us in dreams and in memory (*NE* 2.21.12; 177).

Leibniz holds that images, unlike exact ideas, are not entirely distinct. But does he hold that they are entirely confused? Brian Glenney reads Leibniz as holding that images 'have no content available to consciousness' (Glenney 2012: 255). Glenney apparently holds that images are entirely indistinct. There is textual evidence to suggest that Leibnizian images are entirely confused, and thus lack any distinguishable content. Leibniz claims:

[A]n idea can be at once clear and confused, as are the ideas of sensible qualities which are associated with particular organs, e.g. the ideas of colour and of warmth. They are clear, because we recognize them and easily tell them from one another; but they are not distinct, because we cannot distinguish their contents. (*NE* 2.29.1; 255)

He also claims that the 'clear image' of a ten-sided figure consists 'merely in a *confused idea*' and does not 'reveal the nature and properties of the figure' (*NE* 2.29.13; 262, emphasis original). However, while Leibniz does sometimes speak dismissively of the content of sensory images, there are several passages in which he indicates that he takes the content of images to be at least somewhat distinct. He claims that 'we have very distinct ideas of the solid, *visible* parts of the human body ...' (*NE* 2.29.13; 261, emphasis added). The reference to *visible* parts of the body indicates that Leibniz is referring to visible images with the term 'idea.' Further, Leibniz claims that while the geometrical truths proofs do not depend on 'the testimony of the senses,' these truths are '[made] evident' by 'sense-images' (*NE* Preface; 50). If the images of geometrical figures were entirely confused, such images could not attest to the truth of the claims of Euclidean geometry. And in *On Freedom* (1689),⁴¹ Leibniz speaks of our perceiving a thing 'sufficiently distinctly through the senses' (AG 96).

³⁸ See, for example, the 1669 *The Confession of Nature against the Atheists* (L 113), the 1678 correspondence with Countess Elizabeth (AG 235–40), and the 1698 *On Nature Itself* (L 501).

³⁹ Given Leibniz's theory of pre-established harmony—according to which a substance's perceptual states are a result of its own activity and not of its entering into genuine causal relations with other substances—images, too, are fundamentally innate, in a certain sense.

⁴⁰ There is an alternative way in which this passage might be read. Leibniz might be read as saying here only that we do not, strictly speaking, see the subject of the painting, but that we do see the painting itself. Such a reading would require that Leibniz's use of 'image' in this passage departs substantially from his typical use of the term.

⁴¹ Ariew and Garber list this date as questionable.

What to make of the apparently contradictory textual evidence? A distinction between *conceptual distinctness* and *perceptual distinctness* helps make sense of it (Jorgensen 2019: 121–22).⁴² These forms of distinctness are not necessarily different kinds of distinctness, but rather different standards that lie on the same spectrum.⁴³ Conceptual distinctness is higher-grade distinctness: an item that is conceptually distinct is more distinct than an item that is merely perceptually distinct. Exact ideas are conceptually distinct; sensible images are merely perceptually distinct. An analogy, due to Larry Jorgensen, helps to clarify (Jorgensen 2015: 58). Consider: all math tests have some degree of difficulty, but not all math tests are *difficult*. Likewise, all images have some degree of distinctness. This is why Leibniz often indicates that images are distinct to at least some extent. However, images are not *distinct*, insofar as they never approximate the distinctness of exact ideas: conceptual distinctness. Sensory images, that is, are distinct (perceptually distinct) without being *distinct* (conceptually distinct). Thus, when one has a visual image of a cube, this image has some distinguishable content: it has some content as of the geometrical properties of the cube. However, this content does not approximate the distinctness of one's exact idea of a cube.

Before turning to Leibniz's response, we should consider the relationship between ideas and images. The Ideas/Images Passage perhaps suggests a sharp distinction between ideas and images. But Leibniz sometimes indicates that images are ideas: 'image,' he sometimes suggests, is a species of the genus 'idea.' He tells us that a 'clear image ... consist[s] in merely a confused idea' (NE 2.29.13; 262, emphasis removed). He also talks about 'ideas of sensible qualities' when he clearly has images in mind (NE 4.3.6; 375, 4.4.5; 392). And, when discussing images of straight lines, he says: 'images of this sort are merely confused ideas' (NE 4.7.6; 451). However, there is also substantial textual evidence to suggest that images, according to Leibniz, are not ideas. He rebukes Locke for 'confound[ing]' images with ideas (NE 2.29.13; 261). He goes on to discuss the 'mistake of taking the image for the idea' (NE 2.29.16; 263, emphasis removed).⁴⁴ And, while discussing the 'sensory images' of colors and tastes, he says in a parenthetical remark: '... the truth is that these ought to be called 'images' rather than 'qualities' or even 'ideas' (NE 4.6.7; 404).

Shane Duarte (2009) suggests a way of making sense of this: 'idea,' at least in the *New Essays*, is ambiguous. Sometimes, Leibniz uses it to refer to any mental representation whatsoever. This usage of 'idea' mirrors Locke's, for whom all cognitive contents are ideas. Other times, Leibniz uses 'idea' to refer only to what he calls, in his response to the Molyneux problem, an 'exact idea.' On the former meaning of 'idea,' images are ideas; on the latter meaning, they are not. Leibniz's use of 'idea,' in the *New Essays*, does seem ambiguous. But, I suggest, this ambiguity is the result neither of carelessness nor of mere imitation of Locke, but rather reflects Leibniz's view with respect to the relationship between these two categories. Images and exact ideas differ in source and degree of distinctness. But Leibniz does not understand these items to be of a fundamentally different kind.⁴⁵ Images are not ideas in the sense that they are not *exact* ideas: they do not possess the requisite degree of distinctness. But this, I suggest, does not preclude images' and exact ideas' being species of the same genus: namely, the genus 'idea.' Leibniz often refers to images as ideas because images are ideas: because he recognizes no ultimate distinction in kind between exact ideas and images. On this proposal, exact ideas and images occupy different positions along the same spectrum.^{46,47}

⁴² Margaret Wilson makes a similar distinction, only between of perceptual and conceptual *confusion*. See Wilson (1999: 339). However, Wilson understands perceptual distinctness/confusion and conceptual distinctness/confusion as being different in kind. For criticism of Wilson's distinction, see Puryear (2005: 102–11). My analysis of Leibniz's response to the Molyneux problem does not, I think, turn on any particular answer to this interpretive question.

⁴³ It is unclear to me whether Jorgensen would accept this characterization. That he would is perhaps suggested by his remark that perceptual distinctness and conceptual distinctness are 'continuous' (Jorgensen 2019: 121–22).

⁴⁴ It has been suggested to me that this passage may not provide evidence for Leibniz's denying that images are ideas. Here's how I understand the passage. Philalethes (Locke) asks, with respect to 'the smallest atom of dust [one] ever saw,' whether one 'has any distinct idea ... betwixt the 100,000, and the 1,000,000 part of it.' Leibniz's response, it appears, is that the images of these two parts is the same, due to 'how our bodies are now constituted.' However, he apparently holds that this fact about the images of these parts is beside the point, for our *ideas* of these parts are different. So, Leibniz's claim is that Locke mistakes our *images* of these parts for our *ideas* of these parts, and thus mistakenly attributes a property to the ideas that, in fact, belongs only to the images. Thus, Leibniz's point in this passage involves the claim that images ought not be confounded with ideas.

⁴⁵ One claim that perhaps suggests that they are different in kind is the claim, noted above, that ideas, and not images, are composed of definitions. But this can be understood simply as a way of capturing the different degrees of distinctness that items of each kind possess.

⁴⁶ This proposal coheres well with Leibniz's Principle of Continuity, according to which, on one reading, any natural difference is one of degree. This understanding of the principle is found in Jorgensen (2009) and Jorgensen (2015).

⁴⁷ With respect to, for example, an image of a cube and the exact idea of a cube, I do not mean to claim in this paragraph that the only respect in which these particular perceptions differ is degree of distinctness; for it seems that Leibniz holds that they differ in their content, not merely in the distinctness of their content.

6. Leibniz's Response to the Problem

6.1. The response explained

§4 and §5 provided an account of Leibniz's distinction between ideas and images. Drawing on this account, we can distinguish three stages of Molyneux's case.

Stage 1: The subject is born with a functioning sense of touch but without a functioning sense of vision. She innately has both an exact idea of a cube (EIC) and an exact idea of a sphere (EIS). These ideas, respectively, have content as of the geometric properties of cubes and the geometric properties of spheres. Included in such content is the fact that spheres are uniform (i.e., have no points and no angles) and cubes are not uniform. Thus, EIS and EIC, respectively, have content as of uniformity-in-general and non-uniformity-in-general.

Stage 2: As an adult, the subject is presented with the sphere and the cube. She has tangible images of the sphere (TIS) and the cube (TIC). TIS has content as of tangible uniformity, and TIC has content as of tangible non-uniformity.⁴⁸ She learns that the object that is tangibly uniform is called 'the sphere' and that the object that is not tangibly uniform is called 'the cube.' The subject does not yet have visual images of the sphere and the cube.

Stage 3: The subject gains the sense of vision. She is presented visually with the sphere and the cube, but is not allowed to touch them again. She now has visual images of the sphere (VIS) and the cube (VIC). VIS has content as of visual uniformity, and VIC has content as of visual non-uniformity. Upon her having these images, the subject is asked to say which object that she now perceives visually is the cube and which is the sphere. She is assured that the things she perceives visually are the objects she touched: one of her visual images is an image of the cube and the other is an image of the sphere.

Recall that the Rational Principles Passage indicates that Leibniz holds that the subject could identify the objects in virtue of her performing an act of reasoning. Leibniz holds that the subject could, at stage 3, perform the line of reasoning, such that she could successfully identify the objects. Unfortunately, Leibniz does not tell us, exactly, the line of reasoning he thinks the once-blind subject would perform. Nonetheless, drawing from the preceding discussion, we can construct an argument to whose premises, according to Leibniz, the once-blind subject is entitled:⁴⁹

- (1) TIC has content as of tangible non-uniformity such that it corresponds⁵⁰ to the content of EIC.
- (2) VIS has content as of visual uniformity such that it does not correspond to the content of EIC.
- (3) VIS and TIC are not images of the same object. [1, 2]
- (4) Either VIS is an image of the same object of which TIC is an image or VIC is an image of the same object of which TIC is an image.
- (5) VIC is an image of the same object of which TIC is an image.⁵¹ [3, 4]
- (6) TIC is an image of the cube.
- (7) VIC is an image of the cube. [5, 6]
- (8) If VIC is an image of the cube, then VIS is an image of the sphere.
- (9) VIS is an image of the sphere. [7, 8]
- (10) VIC is an image of the cube and VIS is an image of the sphere. [7, 9]

As a sensible image, TIC has content that is at least somewhat distinct. Included in the content of TIC is the property of (tangible) non-uniformity. This property is also included in the content of EIC. As an exact idea

⁴⁸ I introduce here a distinction between *visible* uniformity and *tangible* uniformity. Leibniz himself does not make this distinction. I do not believe that the present interpretation depends upon the legitimacy of this distinction. The interpretation I present below is consistent with Leibniz's holding that there is no ultimate difference between visual uniformity and tangible uniformity.

⁴⁹ To be sure, it is possible that Leibniz held that the once-blind subject would perform a line of reasoning different from that which I present here. This argument presented below is intended merely as an illustration. As an anonymous referee helpfully suggests, Leibniz might not hold that the subject's line of reason would involve as many *disjunctive* inferences as that which I present here. My interpretation requires only that Leibniz holds that the once-blind subject must perform some kind of reasoning, and the argument below is intended merely a plausible reconstruction.

⁵⁰ The terminology of 'correspondence' does not occur in Leibniz's response to the problem. But Leibniz does suggest something like this notion when he discusses, in the Geometry Passage, 'the blind man's and the paralytic's' geometries 'resting on' the same ideas. The notion of correspondence might be understood in terms of Leibniz's notion of *expression*. See Kulstad (1977) and Swyer (1995) for two influential treatments of Leibniz's concept of expression.

⁵¹ As an anonymous referee points out, if Leibniz does hold that the once-blind subject would perform an inference like that from (3) and (4) to (5), then his response bears some similarity Judith Jarvis Thomson's (1974) modal response.

of a cube, EIC contains content as of all of the geometric properties of cubes. Thus, (1): πC has content such that it corresponds to EIC . vis is also a sensible image, and so also has content that is at least somewhat distinct. Included in the content of vis is the property of (visual) uniformity. This property is not included in the content of EIC : EIC has content that reflects the fact that cubes are essentially non-uniform. Thus, (2): vis has content that does not correspond to the content of EIC . vis and πC do not correspond to the same exact idea. Thus, the once-blind subject can infer that they cannot be images of the same geometric figure. That is, the once-blind subject can infer (3) from (1) and (2).

The once-blind subject is entitled to premise (4) in virtue of a condition Leibniz adds to the case. Recall that Leibniz stipulates that the subject is told that the objects she sees upon her gaining the faculty of visual perception are the same objects that she touched previously. Thus, the subject knows that one of the two visual images that she has in stage 3 of the case, vic or vis , is an image of the cube. Thus, she knows (4): either vis is an image of the object of which πC is an image or vic is an image of the object of which πC is an image. Given (3) and (4), the subject can infer (5): vic and πC are images of the same object. The subject is entitled to (6) because, at stage 2, she knows that πC is an image of the object that is called 'the cube.' From (5) and (6), the subject can infer (7): vic is an image of the cube.

The subject knows (8) because of Leibniz's added condition: she has been told that one of vis and vic is an image of the cube and the other is an image of the sphere. Thus, because, by (7), the subject knows that vic is an image of the cube, the subject knows (9): vis is an image of the sphere. From (7) and (9), (10) follows: vic is an image of the cube and vis is an image of the sphere. Because she knows (10), the subject can straightforwardly identify the sphere as the sphere and the cube as the cube. By means of this chain of reasoning, the subject can identify the objects.

6.2. Remaining questions

The above discussion raises at least four questions. First, as Robert Hopkins (2005: 441) notes, one central question raised by the Molyneux problem is: is there some property represented by both touch and vision? What is Leibniz's answer to this question? Apparently, 'yes': πS and vis , for example, each include content as of the property of uniformity. But Leibniz's affirmative response to the problem does not depend, I suggest, on uniformity as presented tangibly in πS 's being recognizably the same as (or even similar to) uniformity as presented visually in vis . According to the present interpretation, Leibniz's affirmative response does not require that there be a correspondence between visual uniformity and tangible uniformity. His response requires only that vis —which has content as of visual uniformity—and πS —which has content as of tangible uniformity—correspond to the same exact idea. Leibniz's response requires only *indirect* correspondence between visual uniformity as presented in vis and tangible uniformity as presented in πS : correspondence mediated by EIS .⁵² Thus, Leibniz need not answer the question of whether there is *direct* correspondence between visual uniformity and tangible uniformity in order to respond to the problem affirmatively.⁵³ This is a peculiarity of Leibniz's response, but not necessarily a problematic one. Indeed, it seems a feature of Leibniz's response that it does not require his taking a stand on this controversial—and perhaps interminable—issue.

Second, the above discussion has focused on what Leibniz calls 'perception': the mind's having internal representations of external things (AG 208). But Leibniz also holds that human minds have the capacity for what he calls 'apperception': the reflective knowledge or consciousness of such internal representations (AG 208).⁵⁴ What role, if any, does apperception play in Leibniz's response? As shown in §6.1, Leibniz holds that the once-blind subject would be able to reason her way to identifying the objects with which she is presented visually in virtue of her attending to content of the images and exact ideas. While Leibniz does not say as much, it is natural to think that this would involve the subject's apperceiving those representations,

⁵² I understand indirect correspondence roughly as follows: x corresponds indirectly to y just in case there is no direct correspondence between x and y , but there is some z such that x corresponds to z and y corresponds to z . As I suggest above, direct correspondence might be understood in terms of Leibniz's notion of expression: x corresponds to y just in case x expresses y . See Jorgensen (2015) for a helpful discussion of expression.

⁵³ This fits well with the text: in his discussion of the problem, Leibniz says very little with respect to the relationship between visual experience and tactile experience.

⁵⁴ How exactly to understand Leibnizian apperception, and its relation to consciousness, is a matter of interpretive dispute, into which there is not space to enter here. For different accounts, see McRae (1976), Kulstad (1991), Simmons (2001), and Jorgensen (2019).

thereby becoming conscious of their content. Thus, it seems that apperception plays a crucial (albeit tacit) role in Leibniz's response.

Third, what role does reflection, in Leibniz's view, play in the once-blind subject's identification of the objects? Recall that while Leibniz holds that exact ideas are innate, he denies that they are immediately available to every subject who possesses them. At least some, if not all, exact ideas must be 'uncovered' by means of reflection. Thus, Leibniz's response tacitly presupposes another condition: that the once-blind subject has performed the requisite acts of reflection such that she is able to attend to the content of *EIC* and *EIS*. Leibniz's response presupposes, then, a rather sophisticated subject, one who has reflected on geometry to sufficient degree. Further, recall that Leibnizian reflection seems to involve an element of ratiocination. Thus, reasoning is involved in Leibniz's response at two points: it is required for *EIC* and *EIS*'s being available to the once-blind subject, and the subject must reason about the contents of those exact ideas in order to identify the objects.

Fourth, according to the present interpretation, Leibniz's response requires that the once-blind subject compare representations received by the senses (images) with items that are not (ideas). His response requires that the once-blind subject compare experiential content with the content of innate ideas. How is such contact between these contents possible? This question demands a fuller treatment, one which for which there is not space here. But recall the above suggestion that, according to Leibniz, sensory images and exact ideas do not differ in fundamental kind: they are both, for Leibniz, species of the genus 'idea,' ultimately differing just in degree of distinctness. If that suggestion is correct, then there seems no obvious difficulty with respect to one's comparing the contents of perceptions of each kind.

6.3. Criteria of adequacy

§2 considered four passages from Leibniz's discussion of the Molyneux problem. An adequate interpretation of Leibniz's response to the problem ought to account for each of these passages. Let's now consider whether the present interpretation meets this desideratum.

First, the Rational Principles Passage. Recall that, in that passage, Leibniz suggests that the once-blind subject would be able to identify the objects she perceives visually in virtue of her performing some act of reasoning. A subject 'unaccustomed to making inferences,' he implies, would be unable to identify the objects (*NE* 2.9.8; 137). According to the present interpretation, the once-blind subject must complete the chain of reasoning expressed by premises (1)–(9) above. Thus, the present interpretation accounts for the Rational Principles Passage.

Second, the Uniformity Passage. Recall that, in that passage, Leibniz suggests that his affirmative response to Molyneux's question draws on a particular difference between the cube and the sphere: the cube is not uniform (i.e., has numerous points and angles) and the sphere is uniform. According to the present interpretation, this difference between the sphere and the cube (and the images/ideas thereof) enables the once-blind subject to determine that her visual image of the sphere and her tangible image of the cube are not images of the same object. In other words, premises (1)–(3) of the above chain of reasoning turn on the cube and the sphere's differing with respect to uniformity. Thus, the present interpretation accounts for the Uniformity Passage.

Third, the Geometry Passage. Recall that, in that passage, Leibniz gives the following argument:

- (1) If the once-blind subject could not identify the cube and the sphere, then subjects who are either blind or paralytic cannot learn geometry.
- (2) Subjects who are either blind or paralytic can learn geometry.
- (3) Therefore, the once-blind subject could identify the cube and the sphere.

We can now understand why Leibniz holds (1). (1) can be seen as following, by transitivity of entailment, from three conditional claims to which Leibniz is committed:

- (1a) If the once-blind subject could not identify the cube and the sphere, then the subject does not possess exact ideas of the cube and the sphere.
- (1b) If the once-blind subject does not possess exact ideas of the cube and the sphere, then the subject cannot learn geometry.
- (1c) If the once-blind subject cannot learn geometry, then subjects who are either blind or paralytic cannot learn geometry.

- (1) Therefore, if the once-blind subject could not identify the cube and the sphere, then subjects who are either blind or paralytic cannot learn geometry.

Leibniz holds that, at stage 3 of Molyneux's case, *under normal conditions*, if the once-blind subject possesses exact ideas of the cube and the sphere, then the subject could identify the cube and the sphere.⁵⁵ (1a) is the contraposition of this conditional. With respect to (1b), Leibniz holds that geometry is an *a priori* science of necessary truths knowledge of which derives from innate ideas. Knowledge of geometric truths requires innate ideas of geometry. Innate ideas of geometry are exact ideas. Thus, one must have exact ideas of geometry in order to have knowledge of geometric truths. Leibniz would accept that if one has exact ideas of geometry, then one has exact ideas of a cube and a sphere (*NE* 1.1.5; 77).⁵⁶ Thus, if one does not possess exact ideas of the cube and the sphere, then one cannot have knowledge of geometric truths. And if one cannot have knowledge of geometric truths, then one cannot learn geometry. Thus, (1b): if one does not possess exact ideas of the cube and the sphere, then one cannot learn geometry. Leibniz does not explicitly endorse (1c). But it appears uncontroversial. From (1a), (1b), and (1c), (1) follows.

Fourth, the Ideas/Images Passage. This passage suggests that Leibniz's distinction between exact ideas and images is central to his affirmative response to the Molyneux problem. As suggested by this passage, the present interpretation holds that Leibniz's response to the problem depends on the once-blind subject's having certain innate ideas and certain images.

7. An Added Condition

As discussed above, Leibniz adds a condition to Molyneux's case that is absent from Locke's presentation. The condition Leibniz adds to Molyneux's case is that the subject is told that the objects of which v_{ic} and v_{is} are images of the cube and the sphere:

I reply that he will know which is which if he is told that, of the two appearances or perceptions he has of them, one belongs to the sphere and the other to the cube. But if he is not thus instructed in advance, I grant that it will not at once occur to him that these paintings of them (as it were) that he forms at the back of his eyes, which could come from a flat painting on the table, represent bodies. (*NE* 2.9.8; 138)

If this condition does not obtain, then the once-blind subject would not (as least immediately) be able to identify the objects. Why is this so? We have already seen one answer to this question. As discussed in §6, this condition is required by the line of reasoning that the once-blind subject would perform in order to identify the cube and the sphere. Recall premise (4) of the once-blind subject's chain of reasoning: either v_{is} is an image of the same object of which π_{ic} is an image or v_{ic} is an image of the same object of which π_{ic} is an image. Because, in Leibniz's version of the case, the once-blind subject has been told that the objects of which she has visible images are the sphere and the cube, and because she knows that π_{ic} is an image of one of those objects (the cube), the subject knows that either v_{ic} or v_{is} is an image of the object of which π_{ic} is an image.⁵⁷

As the above passage indicates, there is another reason for Leibniz's added condition. Leibniz is plausibly worried about the following alternative version of Molyneux's case. Let stage 1 and stage 2 of the case be the same. In stage 3, let the once-blind subject be presented with mere paintings of the cube and the sphere. The once-blind subject has visual images of a sphere painting and cube painting: v_{isp} and v_{icp} . Leibniz

⁵⁵ The 'under normal conditions' clause is inserted to handle the following problem. Unqualified, this conditional is: if the once-blind subject possesses exact ideas of the cube and the sphere, then the subject could identify the cube and the sphere. In its unqualified form, this conditional is false. A counterexample: the subject possesses exact ideas of the cube and the sphere, but is unable to identify accurately the objects, due to her having a splitting headache. The 'under normal conditions' clause should be understood as: 'with everything is in place for the subject's being able to identify the objects, such that there are no defeaters present for her identifying the objects.' Importantly, the 'under normal conditions' clause does not stipulate that the subject possesses exact ideas of a cube and a sphere. Leibniz does not seem to recognize, in his argument, that the 'under normal conditions' clause is required. Thus, in what follows, I will leave the clause implicit.

⁵⁶ In the cited passage, Leibniz claims that '*the whole* of arithmetic and of geometry should be regarded as innate' (emphasis added). Of course, Leibniz may allow that there are abnormal subjects that have some, but not all, exact ideas of geometry. He at least holds that *typical* subjects possess innately all exact ideas of geometry.

⁵⁷ Leibniz's added condition also gives the once-blind subject access to premise (8) of her chain of reasoning: if v_{ic} is an image of the cube, then v_{is} is an image of the sphere.

holds that v_{isp} and v_{is} would have similar content, and v_{icp} and v_{ic} would also have similar content. Leibniz therefore worries that the once-blind subject could perform a line of reasoning similar to that given above *using v_{icp} and v_{isp} instead of v_{ic} and v_{is}* . The conclusion of this alternative line of reasoning would be that v_{icp} is an image of the cube and v_{isp} is an image of the sphere. This conclusion would be false: v_{icp} and v_{isp} are not images of bodies at all. Recall that the Molyneux problem, as presented by Locke, is concerned with whether the once-blind subject could identify and with certainty the cube and the sphere. This alternative case threatens the certainty of the once-blind subject's identification of the objects.⁵⁸ Leibniz's added condition is intended to rule out this alternative case.

Leibniz holds that it is not strictly necessary for his affirmative answer to the problem that his added condition obtain. He holds that the once-blind subject could, at least in principle, determine that v_{is} and v_{ic} are images of bodies and not paintings

... through applying principles of optics to the light rays, to understand from the evidence of the lights and shadows that there is something blocking the rays and that it must be precisely the same thing that resists his touch. (NE 2.9.8; 138)

Leibniz suggests that the subject could infer, by applying 'principles of optics' to the rays of light coming from behind the sphere and the cube, that the things in her visual field are the sphere and the cube and not mere paintings of the sphere and the cube. He mentions that the subject would be able to do this when 'the source of the light falling on them is moved or the position of [her] eyes changes' (NE 2.9.8; 138).⁵⁹

8. Conclusion

Locke's *Essay* begins with a polemic. The target of this polemic is the view that there exist in the mind innate principles and ideas. Book I of the *Essay* consists in a battery of arguments the aim of which is to demonstrate that there are no innate principles and, hence, that there are no innate ideas. According to the interpretation of defended here, Leibniz's affirmative response rests primarily on two claims. The first is that there is a distinction between sensible images and exact ideas. The second is that representations of the latter sort do not have their source in experience, but rather come from the mind's 'own depths' (NE 1.1.1; 75). The present interpretation thus allows us to see that the source of the Leibniz's optimism with respect to Molyneux's question is not, first and foremost, a disagreement with Locke about the nature of perceptual experience. Rather, his optimism rests on his disagreeing with Locke about our initial cognitive state. For Locke, the mind prior to experience is but a dark room. For Leibniz, it is teeming with metaphysical and mathematical truths. Leibniz's commitment to the latter view, coupled with the claim that the once-blind subject has the inferential capacity to perform the chain of reasoning requisite for her identification of the objects, explains his affirmative response to the problem.

Abbreviations

- AG Leibniz, Gottfried Wilhelm. 1989. *Philosophical Essays*. Edited and translated by Roger Ariew and Daniel Garber. Indianapolis: Hackett Publishing.
- CSM Descartes, R. 1984. *The Philosophical Writings of Descartes*. Vols. 1–2. Edited and translated by John Cottingham, Robert Stoothoff, and Dugald Murdoch. Cambridge: Cambridge University Press.
- E Locke, John. 1975. *An Essay concerning Human Understanding*. Edited by Peter H. Nidditch. Oxford: Clarendon Press.
- L Leibniz, G.W. 1976. *Philosophical Papers and Letters*. Edited and translated by Leroy Loemker. 2nd Edition. Dordrecht: Kluwer.

⁵⁸ Alternatively, the point may be put in terms of justification: the possibility described in the above alternative case threatens the *justification* of the once-blind subject's conclusion, in the original case, that one object is the cube and the other object is the sphere. That is, insofar as the subject does not know that the conditions of the alternative case, rather than the original case, do not obtain, her conclusion lacks justification.

⁵⁹ As an anonymous reviewer points out, Leibniz may need to appeal to optical principles in order to block another skeptical worry, closely related to that discussed above. Consider a familiar case of illusion: a rod half-way submerged in water *looks* bent but *feels* straight. Leibniz would presumably want to hold that one could recognize that the tangible image of the rod and the visible image of the rod are images of the same object, and yet the latter image does not include in its content the property of straightness, while the former image does. Leibniz could appeal to one's applying optical principles to the visible image of the rod in order to obtain the result that the object the image represents is, in fact straight, from which result she could proceed to infer, in the way outlined above, that it is the same object as the object that feels straight: the rod.

- NE Leibniz, Gottfried Wilhem. 1996. *New Essays on Human Understanding*. Edited and translated by Peter Remnant and Jonathan Bennett. Cambridge: Cambridge University Press. DOI: <https://doi.org/10.1017/cbo9781139166874>
 French Text: Leibniz, Gottfried Wilhem. 1923–. *Sämtliche Schriften und Briefe*. Edited by Deutsche Akademie der Wissenschaften. Darmstadt, Leipzig, Berlin: Akademie Verlag.

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Competing Interests

The author has no competing interests to declare.

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