INSIDE OUT: CAVENDISH ON PERCEPTION, SELF-KNOWLEDGE, AND FIGURE

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ABSTRACT

My dissertation, *Inside Out: Cavendish on Self-knowledge, Perception, and Figure* explores the works of philosopher, poet, and playwright Margaret Cavendish, Duchess of Newcastle (1623-1673). Cavendish wrote extensively on natural philosophy and argues that nature is one material substance imbued with reason, perception, and self-motion. Her theory of matter is novel for her time since her contemporaries, the mechanical philosophers, such as Hobbes and Descartes, frequently claim matter is unfeeling, unthinking, and passive. The orderly mechanisms of the natural world, for them, are explained through matter in motion, specifically collisions from contiguous bodies. For example, billiard balls striking one another explains all natural phenomena. For Cavendish, the order of the natural world is similarly explained through matter in motion, but rather than bodies moved by collisions from contiguous bodies, bodies move themselves guided by their own sense and reason. Nature for her is "entirely wise and knowing" (OEP 2001: 48).

One major recurring theme in both Cavendish's works and the secondary literature is how mind-like and agential nature is given Cavendish's description of nature's knowledge and its ability to perceive and reason. The existing interpretations either assign Cavendishian matter robust mind-like qualities akin to contemporary panpsychism, or they naturalize her theory so that all matter's qualities have a metaphysical explanation based on the nature of bodies. The goal of my dissertation is to provide an alternative interpretation that does not view matter through a panpsychist lens but retains its important mind-like quality, which is knowledge. I aim to show that Cavendish's theory of nature does not explain nature's qualities in terms of human cognition; instead it explains sense

and knowledge that is unique to matter. This unique sense and knowledge is what produces the "peaceable, orderly and wise government" that is nature according to Cavendish (OEP 2001: 232). I argue that this is a viable interpretation by discussing three important phenomena in her theory: perception, self-love, and self-knowledge. We can understand these phenomena as more metaphysical or naturalized, and less mental, by viewing them through two important concepts in Cavendish's theory: sympathy and the nature of bodies, which Cavendish calls "figures."

In chapters two and three, I explain human perception (i.e., patterning) and Cavendish's principle of individuation (i.e., self-love) as metaphysical sympathy. I argue that sympathy for her is naturalized and is constituted by the attraction of figures to each other or the imitation of a figure's actions, behaviors, or properties. The difference between these two phenomena is how much of the figure each imitates: patterning only imitates sensible qualities while self-love imitates the whole figure. Patterning and self-love as sympathy explains these mind-like qualities metaphysically, rather than as mind-like phenomena. Matter does, in my interpretation, retain a mind-like quality, which is self-knowledge. In my fourth and fifth chapters I explain what self-knowledge is for Cavendish, arguing that it is a mental state. I discuss the features of self-knowledge as a mental state and its content, arguing that self-knowledge, for her, is as much about what a subject's body is doing as it is about a subject's mental state.

In my sixth chapter, I return to visual perception in humans and animals and discuss a potential problem in Cavendish's theory. I argue that given Cavendish's commitments concerning causation and the self-motion of matter, light plays seemingly no role. Yet, Cavendish must explain how we see external objects in the presence of light but not when

it is absent. To solve this problem, I argue that our perception of external objects is mediated by light: light produces copies (i.e., patterns) of external objects and we see these patterns. By discussing these details of Cavendish's theory and offering metaphysical or naturalized interpretations, I aim to show that my macroscopic view of Cavendish's theory is plausible. My interpretation restricts mentality rather than removes it entirely from Cavendish's theory of nature.

For Daniel Wu

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LIST OF ABBREVIATIONS

BL	Cavendish, Margaret. *The Description of a New World, Called the Blazing World*. 1668.
GNP	Cavendish, Margaret. *Ground of Natural Philosophy Divided into Thirteen Parts: With and Appendix Containing Five Parts*. 1668.
NP	Cavendish, Margaret. *Nature's Pictures Drawn by Fancies Pencil to the Life.* 1671.
OEP	Cavendish, Margaret. *Observations Upon Experimental Philosophy*, edited by Eileen O'Neill. Cambridge University Press. 2001.
PY	Cavendish, Margaet. *Plays written by the thrice noble, illustrious and excellent princess, the Lady Marchioness of Newcastle.* London. 1662.
PF1	*Margaret Cavendish's Poems and Fancies: A Digital Critical Edition*, edited by Liza Blake. Website published May 2019. http://library2.utm.utoronto.ca/poemsandfancies/
PF2	Cavendish, Margaret. *Philosophical Fancies*. London. 1653.
PL	Cavendish, Margaret. *Philosophical Letters*. London. 1664.
PPO	Cavendish, Margaret. *The Philosophical and Physical Opinions*, edited by Marcy P. Lascano. 1663. https://cavendish-ppo.ku.edu/.
WO	Cavendish, Margaret. *The Worlds Olio Written by the Right Honourable, the Lady Margaret Newcastle.* 1655.

PR	Conway, Anne. 1996. *The Principles of the Most Ancient and Modern Philosophy,* edited by Allison P. Coudert and Taylor Corse. Cambridge University Press.
AT/CSM	Descartes, René. *The Philosophical Writings of Descartes* (Vol. 2), edited by John Cottingham, Robert Stoothoff, Dugald Murdoch. Cambridge University Press. 1984.
TT	Digby, Kenelm. *Two Treatises in the One of Which the Nature of Bodies, in the Other, the Nature of Man's Soule Is Looked into in Way of Discovery of the Immortality of Reasonable Soules.* Paris. 1644.
EW I	Hobbes, Thomas. *The English Works, vol. I* (*De Corpore*), edited by William Molesworth. John Bohn. 1656.
EW VII	Hobbes, Thomas. *The English Works, vol. VII (Seven Philosophical Problems),* edited by William Molesworth. John Bohn. 1662.
HBD	Hobbes, Thomas and John Bramhall. *Hobbes and Bramhall on Liberty and Necessity,* edited by Vere Chappell. Cambridge University Press. 1999.

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CHAPTER 1 INTRODUCTION

1. Introduction

My dissertation, *Inside Out: Cavendish on Self-knowledge, Perception, and Figure* explores the work of philosopher, poet, and playwright Margaret Cavendish, Duchess of Newcastle (1623-1673). Cavendish was one of the most prolific female authors of her time with several complete works on natural philosophy: *The World's Olio (*1655*), Philosophical and Physical Opinions* (1655, revised and reprinted 1663), *Philosophical Letters* (1664), *Observations Upon Experimental Philosophy* (1666, reprinted in 1668), *and Ground of Natural Philosophy* (PPO heavily revised and retitled 1668). Her philosophical fiction works such as *Poems and Fancies* (published in 1653 reprinted in 1664 and again in 1668), the first science fiction novel *Blazing World* (originally published and released with the 1666 version of OEP, reprinted 1668), *Nature's Pictures* (1656, reprinted 1671), and her *Plays* (1662), illustrate her philosophical commitments. Here I draw upon her fiction works and her non-fiction works to elucidate claims that are central to her natural philosophy.

Cavendish's theory of nature is novel for her time since many of her contemporaries (i.e., mechanical philosophers such as Hobbes and Descartes) frequently claim that matter is unfeeling, unthinking, and passive. Cavendish's matter, in contrast, is sensing, rational, and active. She argues throughout her works that this theory of matter explains our observations of the natural world better than unthinking, senseless matter, especially a version of atomism that I explain below. She writes, "Therefore, I am absolutely against the opinion of senseless and irrational atoms, moving by chance" (OEP 2001: 169). To capture the three core concepts of her matter theory, she uses the

phrase "corporeal figurative motions," a phrase she invokes frequently in her later works to explain nature's actions. This term claims that nature is 1) corporeal in a distinctly Cavendishian sense that I explain below, 2) configured or shaped in some way,[1] and 3) imbued with self-motion, the problems of which she solves through occasional causation that I explain below.[2] I take each of these concepts in turn and explain some related claims that Cavendish makes about the natural world, including her theory of causation and the ability of matter to reason and perceive. Although Cavendish's core claims appear to reduce nature to matter in motion, her natural philosophy paints a rich picture of nature in which matter can reason, perceive, sympathize, and act in the orderly manner that we observe.

Since Cavendish wrote extensively on natural philosophy, her philosophical commitments change over the course of her writing career. Generally, her works from 1663 to 1668 (i.e., PPO 1663, PL, OEP, BL, and GNP) are seen as her mature view since she explicitly breaks with atomism in "Another Epistle to the Reader" in her 1663 version of PPO. While her later works do convey a more considered view, I place importance on her earlier works and fiction works for two reasons. The first is that she never abandons them and, in fact, her later works reference her earlier works. For example, in PL Section

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[1] GNP Part 1 Chapter 12 Cavendish claims that she questioned whether nature had an exact figure in her earlier discussions. By the writing of GNP, she concludes that it does (1668: 11).

[2] Cavendish's claim regarding matter as figured might be in response to the idea of prime matter. She writes, "it is impossible for my reason to believe, that matter should be capable of, and subject to all forms, and yet void of all quality, form and species" (OEP 2001: 253). The idea that matter is devoid of qualities, forms, and species seems to describe prime matter which can be defined as pure potentiality.

II (pages 137-233) she refers the reader to PPO and PF1 for her earlier discussions of select topics. In PPO 1663, she takes ownership of her concept of "figures" from PF1, which play a significant role both in the first part of that book and in her later works. The second reason I place importance on her earlier works is due to her alleged break with atomism. This is thought to have occurred in the 1663 version of PPO, but secondary literature on Cavendish disagrees with this strict view of her works as I discuss below. Cavendish edited and reprinted PF1 twice (1664 and 1668) after her break with atomism. Her atomist poems remain in the first part in all printings, although they are reordered.[3] I indicate both terminological and substantive changes that occur over the course of her writing career.

2. Nature as Corporeal

2.1 Plenum

Cavendish argues that nature is wholly material, and no immaterial entities exist in the natural world (OEP 2001: 22). This concept refers to the first term in her phrase "corporeal figurative motions." Her arguments against immaterial entities in nature concern the interaction between two different substances, a move reminiscent of Elisabeth of Bohemia's argument against Descartes' dualism.[4] First, Cavendish similarly claims that an interaction problem exists between the substances: material and immaterial

[3] See Blake's "Textual and Editorial Introduction" in PF1 for the changes over the editions.

[4] Elisabeth's letter to Descartes was written in 1643 so her argument predates Cavendish's (Shapiro 2007: 61).

substances have opposite natures and so cannot interact with each other (OEP 2001: 35).[5] In other words, immaterial entities cannot be part of the causal system in a corporeal nature and so have no existence there. She does not provide a robust list of the differences but material bodies for Cavendish can be divided, whereas immaterial ones cannot (OEP 2001: 35).[6] Second, she argues that we, being material, cannot perceive or even conceive of what is immaterial (OEP 2001: 86, 89). While this claim might seem to assume that we are, in fact, wholly material including our minds, she appeals to simplicity. There is no need to introduce incorporeal or immaterial entities in nature if materiality explains everything (OEP 2001: 272).

Cavendish's claims about the nature of the material world evolve from her earlier philosophical works to her mature, considered view. They undergo one substantive change and one terminological change. As for the substantive change, her mature works claim that nature is material and one substance without empty spaces. Her earlier works, however, include claims that endorse a version of atomism, atoms for the early moderns being small, indivisible material entities. In Part 1 of PF1, she writes several poems indicating that matter consists of atoms.[7] By PPO 1655, however, her views for substance monism appear and she begins to argue against atomism in a preface section titled "A Condemning Treatise of Atoms."[8] Her main issue here with atoms is their

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[5] She claims that if matter contained both corporeal parts and incorporeal parts, the differing natures would cause a confusion rather than explain anything, namely life (PL 1664: 207).

[6] See also PL 1664: 179 and 186.

[7] PPO 1663, she acknowledges that she did endorse atomism in her book of poems in the section titled "Another Epistle to the Reader."

[8] This section does not appear in the 1663 version.

apparently arbitrary actions and she likens atoms to dust blowing at random. Such randomness could never produce the variety we observe in nature. She reiterates this argument in her subsequent version of the PPO but expands the notion of atom to infinitely small and senseless entities that move by chance (1663: xx). She specifically takes issue with two parts of this definition: 1) that atoms are senseless and unknowledgeable and 2) that their actions are random and come about through chance interactions rather than informed by reason. Even if they did not move by chance, she argues, but rather had life, knowledge, and free will, atoms would act as governors but would themselves resist being governed (PPO 1663: xix-xx; OEP 2001: 129). In other words, if atoms did have the positive features that she later explicitly ascribes to matter, such as reason, life, and knowledge, atoms would still not suffice as the basis of nature. They would refuse to cooperate to form the complex bodies we see every day, such as trees and rocks, in the same way that we might believe that powerful political leaders would refuse to cooperate or allow themselves to be overruled. Detlefsen (2006) calls this argument Cavendish's normative argument since it hinges on the idea that senseless atoms would cause disorder in the natural world that we do not observe (207-208).[9]

Cavendish's second argument against atoms concerns the existence of vacuums.[10] She claims that atoms as indivisible entities presuppose the existence of vacuums. Atoms, if they existed according to her, would be indivisible entities separated by empty

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[9] Detlefsen (2007) takes this argument to be proof that Cavendish endorses normative principles in her natural philosophy. I argue against a robust interpretation of normative principles in her theory in chapter 5.

[10] PF2 includes two poems: "There is No Vacuity" on page 8 and "Of Vacuum" on page 9 with a marginal note next to the latter that indicates that the reader may decide which opinion to hold.

spaces. Atoms would then constitute single parts but, she argues, there are no single parts in nature and no vacuums since a vacuum is a pure nothing.[11] If vacuums are nothing, they cannot be measured, contain properties, or have dimensions (OEP 2001: 262).[12] Detlefsen (2006) calls this argument Cavendish's "logico-mathematical" argument since it depends upon vacuums as logically inconceivable (203-204). Lastly, Cavendish argues that indivisibility, a defining feature of atoms, is contrary to materiality. Whatever is material in nature is divisible (OEP 2001: 125).

Thus, Cavendish endorses material monism, meaning that nature is one material substance without empty spaces.[13] This claim about the natural world becomes more explicit in her later works. She writes,

> I conceive nature to be an infinite body, bulk or magnitude, which by its own self-motion, is divided into infinite parts; not single or divisible parts, but parts of one continued body, only discernable from each other by their proper figures, caused by the changes of particular motions. (OEP 2001: 126)

For Cavendish, although matter can be individuated into the different bodies that we observe, nature itself can never be divided into individual substances. There is only one

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[11] She contrasts a pure nothing with a natural nothing. A spirit is a natural nothing, but it exists supernaturally like God. A vacuum is nothing either naturally or supernaturally (OEP 2001: 79).

[12] See also PL 1664: 7 for her argument against vacuums.

[13] Blake (2023) argues that Cavendish never held atomistic commitments contra Clucas (1994) who argues that Cavendish endorses a version of atomism in her later works.

substance, which is nature. Nothing can exist outside of nature, and so the bodies we observe are just parts of the one substance, not substances themselves.[14]

As for changes in terminology, Cavendish's works shift between the term "spirit" and the term "degrees" of matter. In PPO 1655, Cavendish uses the language of spirit to describe matter. For example, Chapter 20 Part 1 in PPO 1655 is titled "Similizing the spirits, or innate matter."[15] Throughout this work she refers to spirits as rational or sensitive, terms that she will retain in her later works. Shaheen (2021) plausibly suggests that her use of spirit is borrowed from chemical language in which an essence of subtle or thin corporeal matter is termed "spirit" (623, f.n. 5). However, the language of spirit only surfaces sporadically in the later 1663 version of PPO and drops out of her later works entirely.[16] In PPO 1663 and PL, she uses the terms rational matter and sensitive matter instead. While the term changes, the concept is the same: rational matter and sensitive matter are two of the three degrees of matter. The degrees of matter serve an important function throughout her works in her theory of nature.

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[14] Schechtman (2016) describes an "ordinary conception of substances" held by some scholastics in which ordinary objects like humans, trees, and rocks are substances (160). Cavendish's view on substance contrasts with this conception.

[15] I retain Cavendish's original spelling and grammar.

[16] It was suggested to me that Cavendish's use of spirits in her earlier works is akin to vital or animal spirits employed by some of Cavendish's contemporaries. Her goal, then, was to use a familiar term rather than claim that any part of nature is immaterial. This is a plausible suggestion. Shaheen (2021) argues that "spirits" drops out of her works to make her materialism clearer (623, f.n. 5).

2.2 Three Degrees

Material monism is not novel to the early modern period as other philosophers argued that nature is wholly material, such as Hobbes.[17] But Cavendish's materialism has a unique feature: matter consists of three degrees in a commixture that cannot be separated (OEP 2001: 35).[18] These degrees consist of two animate degrees, rational and sensitive, and one inanimate degree. She calls the first two degrees animate because matter, for her, is imbued with self-motion (OEP 2001: 34).[19] I return to her theory of motion in section 3 on vitalism. Rational, sensitive, and inanimate matter are degrees of the one material substance of nature and not individual substances. Cavendish sometimes refers to the degrees as matter (e.g., rational matter). Broadly but not exclusively, rational matter is responsible for reason and thought, and is capable of the most motion (PL 1664, 179; OEP 2001: 158, 182). Sensitive matter is broadly but not exclusively responsible for sensory perception, and is less able to move than rational matter (PL 1664: 19; OEP 2001: 82).[20] The inanimate degree of matter has no motion and is moved by sensitive matter.[21] The emphasis here is on degree: they are degrees of matter not kinds of matter and so they are wholly material and cannot be divided from one another

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[17] Cavendish is both a type and token monist: nature is one material substance.

[18] In Appendix to GNP, Cavendish entertains the possibility of worlds made only of one degree of matter, but she is very clear that our world consists of the three degrees.

[19] See also PPO 1663: xxxii; GNP 1668: 4.

[20] She writes, "So sense is a weak knowledge, and knowledge a strong sense" (PPO 1655: 21). This quotation implies that knowledge and sense are not clearly delineated for her.

[21] Cavendish never claims that rational matter moves inanimate matter; this is exclusively a function of sensitive matter.

anymore than Cavendish's one material substance can be divided into multiple substances.[22]

We can think of the differences between these degrees of matter in two different but related ways. Lascano (2021) explains the first way as differences in the amount of freedom of movement each has: rational matter has the most, sensitive matter has a little less, and inanimate matter has none (414). Cavendish claims that sensitive matter is encumbered with inanimate matter and so it lacks the same freedom of movement as rational matter (GNP 1668: 4; OEP 2001: 156). Rational matter only moves itself and so is unencumbered and therefore the freest.[23] The second way to understand their differences is by their respective functions. Cavendish will sometimes use an analogy with building a house to explain the difference between the degrees. Rational matter is the architect, sensitive matter is the workmen, and inanimate matter is the raw materials (PL 1664: 425; OEP 2001: 24). In other words, rational matter gives directions to sensitive matter as we might think that an architect gives a set of drawings to laborers. Sensitive matter moves inanimate matter to fulfill these directions as we might think that laborers bring the drawings to life.[24]

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[22] Shaheen (2019) argues that although the three degrees are completely blended, regions of nature might remain unmixed (3552).

[23] Lascano's (2021) use of the term "free" raises questions about the nature of freedom in Cavendish's theory. These are questions for future research.

[24] PPO 1663, Cavendish uses the metaphor of a ship. Rational matter is the master of the ship, sensitive matter is the sailors, and inanimate matter is the body of the ship (PPO 1663: 285).

Cavendish's arguments for the three degrees of matter stem from her anti-mechanical commitments.[25] The mechanical conception of matter does not explain nature properly, according to her. One main feature of the natural world that mechanism does not explain is the harmony we observe (PL 1664: 107; OEP 2001: 34). She claims that the orderliness and harmony we observe in nature would never come from dull, senseless, and unthinking matter or through chance collisions (OEP 2001: 207). Matter, which moves itself, must know its actions to produce the harmony and the "well-ordered actions" that we observe in nature (OEP 2001: 207).[26] Cavendish claims that rational matter serves this purpose. Since rational matter is largely responsible for reason, matter is quite literally knowledgeable of its actions (PPO 1663: 12-13; OEP 2001: 167). In other words, the regular occurrences such as apples falling to the ground, the sun rising and setting, rain falling, water freezing, etc., are actions guided by reason. Every part of matter contains the rational degree since the three degrees exist as a commixture (OEP 2001: 151, 221). Cavendish will refer to this ability of matter to know its actions as self-knowledge. I discuss self-knowledge in chapters 4 and 5.

As for the sensitive degree of matter, Cavendish argues that self-motion requires perception. Wherever there is motion, according to Cavendish, there must also be sense (OEP 2001: 207). To circumvent some possible problems with self-moving matter, Cavendish claims that the parts of matter must have some knowledge of each other which come from perception (OEP 2001: 207). Perception, she claims, is an exterior knowledge

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[25] See Shaheen (2021) for a detailed look at Cavendish's arguments for animate matter.

[26] Michaelian (2009) interprets Cavendish to mean that the self-knowledge of matter includes knowledge how to do things (46). I discuss his arguments in chapter 5.

of exterior parts (OEP 2001: 41). For example, since everything moves through self-motion, for fire to consume fuel such as wood, the fire and the wood must perceive each other rather than rely on contact. The sensitive degree of matter is largely responsible for perception and so perception is as ubiquitous throughout nature as reason.

As for the last degree, inanimate matter, Cavendish argues that to complete this harmonious picture of nature, there must be a degree of matter without motion that is moved rather than moving (OEP 2001: 26). Inanimate matter has no motion and so provides the balance to animate matter's agility: figures remain through time because of inanimate matter (OEP 2001: 26). If they were made only through animate matter, the implication is that they would go in and out of existence instantaneously, like a thought. For example, my rosebush exists longer than my thoughts about my rosebush, a phenomenon that Cavendish explains using inanimate matter.

Another feature of the world not explained by dull and senseless matter for Cavendish is animal perceptions or human conceptions, and so matter itself must have this ability (OEP 2001: 149). Consequently, for Cavendish, all things in nature can reason and perceive to some extent, such as minerals, plants, and elements like fire.[27] Before I discuss the claim that all things in nature reason and perceive, I must explain how Cavendish differentiates the various things that exist. She does so through the term "figures" which is the second word in "corporeal figurative motions" and a core concept in her natural philosophy.

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[27] Some commentators such as Shaheen (2021), Cunning (2016, 2022), and Duncan (2012) have argued that Cavendish endorses a version of panpsychism. Recently, Peterman (forthcoming) argues against interpreting Cavendish as a panpsychist.

3. Figures

Although matter cannot be divided such that empty spaces or atoms exist, Cavendish claims that matter can be individuated into particular bodies, such as humans, rocks, trees, horses, rosebushes, etc. Cavendish does not give a definition for "figure," rather it is an umbrella term that Cavendish employs to capture various ways in which matter is configured or organized to produce all the variety in the natural world. This configuration or organization comes about through the self-motion of the parts of matter acting together or cooperating (OEP 2001: 109). Although the term "figure" does not have a definition, her usage of it is consistent.[28] In her later works (PPO 1663 to GNP 1668), she uses "figure" in three main ways.

3.1 Bodies as Figures

The first way she uses figure is to individuate things in the material plenum. [29] She writes, "And therefore, when we say, infinite nature consists of an infinite number of finite parts, we mean of such parts as can be distinguished or discerned from each other by their several figures" (OEP 2001: 32). Figures in this sense are interchangeable with the early modern term "body."[30] Bodies and figures are bound portions of matter that we can usually count such as humans, rocks, and trees. I am a human figure, and my

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[28] In "Another Epistle to the Reader," Cavendish claims that "figures" are her own invention in contrast to atoms which have a long history (PPO 1663: xix).

[29] Shaheen (2022) claims that body and figure are one thing for Cavendish (8). This is correct to an extent since bodies are figures for Cavendish but not everything that counts as a figure is a body in the traditional use of the term "body."

[30] Lascano (2023) claims that Cavendish's ontology has two levels: the constituent parts, which are the three degrees, and the effective parts, which are bodies (71-72).

rosebush is a rosebush figure, and these are count nouns since my human figure is distinguished from my neighbor's human figure. Figures are not, however, identical with geometric figures (Peterman 2017: 3539).

Regarding figures like humans and rosebushes, Cavendish acknowledges that while having one main figure, they consist of parts that do not resemble each other (OEP 2001: 80, 228). She calls these main figures "heterogeneous" that are made of multiple different figures or parts (OEP 2001: 80, 228). For example, a flower is a figure even though it is a part of a rosebush; my heart is a figure even though it is a part of me. Parts that we can distinguish but that we might not think of as distinct bodies are still figures for Cavendish. Cavendish writes,

> Most Figures are Lined and Interlined, as I may say, for Expressions sake, some Figures are like a Set or Nest of Boxes, as for Example, half a dozen Boxes one within an other; so every of those Figures hath the same Figure within one an other, the Uttermost Figures being the Largest, the Inmost Figure the Least. (PPO 1663: 118)

In other words, my rosebush has a figure that makes it one rosebush distinct from other bushes or plants. It also has distinguishable parts that are distinguishable figures, such as roses, leaves, stems, and roots. The rose I pick off my rosebush is a distinct figure since it is not identical with the whole bush. Relatedly, my human figure contains the figure of my heart. I am not identical with my heart any more than my heart is identical with me. My rosebush is also a part of my garden (i.e., part of a larger whole); similarly, I am a part of my social circle. Figures for Cavendish are both whole bodies and distinguishable parts of bodies (OEP 2001: 125-126).[31] I discuss individuation in Cavendish's nature in chapter 3.

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[31] Georgescu (2021) affirms this point (622-623).

Not all bodies in nature have qualitatively distinguishable parts. She will refer to the figures of things like water or fire as figures (PPO 1663: 122). These are homogenous bodies or bodies of "all one piece" in nature since they are material things with parts that resemble each other (PPO 1663: 121; OEP 2001: 80). Suffice to say, Cavendish uses figures to refer to all kinds of bodies and all these bodies contain the three degrees of matter.

3.2 Properties of Bodies

The second main way that Cavendish uses figures is for properties of bodies. For Cavendish, however, a body (e.g., a caterpillar) is not radically different from its shape (e.g., a caterpillar's cylindrical shape). The distinction between a body and its properties is rather minimal as evidenced by her descriptions of a body's properties.[32] She writes, "colours are material, as well as steel; so the alternation of corporeal parts, is the alternation of the corporeal figure of colours" (OEP 2001: 80).[33] These things she calls "figures" because the properties or sensible qualities of a body come about through the self-motion of portions of matter acting or cooperating together just as the whole figure itself comes about by the self-motion of matter cooperating together (OEP 2001: 77).[34]

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[32] She refers to sound as a figure (PL 1664: 72, 81).

[33] Peterman (2022) argues that Cavendish does away with properties in her metaphysics. This is correct if we think of properties as attributes, modes, or accidents of bodies, and bodies as the subjects of properties. I use the term "properties" not as metaphysically fundamental but rather as compatible with a deflationary or eliminitivist view since Cavendish references properties throughout her works.

[34] Cavendish also uses the term "corporeal figurative motion" in this causal sense. She writes, "all which several kinds, sorts and particulars, are made by the several changes of corporeal figurative motions of nature, and not by pressure and reaction, or by tending inward and outward" (OEP 2001: 84).

Properties of bodies are just as material as the body and, in fact, Cavendish considers them one with body (OEP 2001: 193-194).[35] Bodies have the properties they appear to have for Cavendish and these properties are arrangements of matter.[36]

3.3 Perception and Thought

The last way she uses figures is when specific degrees of matter are configured. Recall that matter has three degrees: rational, sensitive, and inanimate. Thoughts and perceptions for Cavendish are figures in the degrees of matter (PPO 1663: 91-92).[37] Thoughts are figures in the rational degree of matter since rational matter is largely responsible for reason.[38] Thoughts are as material for Cavendish as anything else in nature and so when I am thinking of something, my rational matter is configured into that thought (PPO 1663: 54, 59; OEP 2001: 150).[39] The same goes for sensory perception. "Patterning" is her term for a sense perception in humans and animals, and patterns are

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[35] Perhaps a difficult question for Cavendish to answer is what portion of matter is responsible for the color of a thing. For example, what part of a red ball is responsible for the red color? This might, however, be an incorrect approach to the question. Just as we cannot isolate the portion of the apple responsible for the shape of the apple, we cannot isolate the portion responsible for the color. That does not make either the color or the shape less material.

[36] See Chamberlain (2019), Allen (2019), and West (2020) for a discussion of bodies as sensuously colored.

[37] Cavendish writes that rational matter and sensitive matter can figure themselves independently despite being in the same composed figure. Thoughts, conceptions, and imagination are figures within rational matter without sensitive matter (PPO 1663: 91). Patterns are figures in sensitive matter that Cavendish sometimes refers to as "prints," but this term does not appear in OEP (PPO 1663: 92).

[38] Cavendish writes, "when the Rational Figures are Voluntary, not made by the Sensitive prints, it is Conception, Imaginations, Fancies, Ideas, and the like" (PPO 1663:58).

[39] Cavendish claims that thoughts and ideas are material (PPO 1663: 86; PL 1664: 12).

the ways in which my sensitive matter imitates an external object. When my eyes perceive my rosebush, Cavendish claims that my eyes "pattern" the figure of the rosebush (PPO 1663: 299; PL 1664: 28; OEP 2001: 175). She writes, "For example, I see an object; the sensitive motions in the eye, pattern out the figure of that object" (OEP 2001: 189). Patterning is a subset of figuring that occurs in sensitive matter. She writes, "all corporeal actions are figurative, whenas patterning is a particular sort of figuring" (OEP 2001: 170). I discuss patterning and Cavendish's theory of perception in chapters 2, 4, and 6.

Thus far, figures in Cavendish's works have received little attention in secondary literature. Two commentators have discussed figures in the first sense as bodies. Peterman (2017) argues that figures for Cavendish are not geometrical figures. Later, she questions how the parts of matter come to form a figure (Peterman 2019: 492-493). In other words, how are things individuated in Cavendish's theory? Peterman (2019) concludes that parthood relations as primitive for Cavendish is an appealing option (495). Shaheen (2022) gives an account of artificial figures and natural figures in Cavendish's theory. For example, a natural figure is my rosebush while an artificial figure is my cell phone. Shaheen (2022) argues that the distinction hinges on self-love: natural figures self-love while artificial figures do not. I explain what self-love is in chapter 3.

In the second sense of figures as properties, Peterman (2022) argues that properties do not exist within Cavendish's theory of nature. If Peterman (2022) is correct, then figures do not refer to properties, only to bodies. Chamberlain (2019), however, discusses colors as figures of matter that are irreducible properties of bodies (327). Lascano (2023) acknowledges patterns as figures in the mind (115, f.n. 29). The

self-motion of matter plays a large role in figures, so I now turn to Cavendish's vitalism and theory of motion.

4. Vitalism

Figures in nature in all the senses I mentioned come about through the self-motion of animate matter according to Cavendish. She writes, "as I have often mentioned, nature has infinite ways of motion, whereof none is prime or principal, but self-motion: which is the producer of all the varieties nature has within herself" (OEP 2001: 74). Motion is the last term in her phrase "corporeal figurative motions." She writes, "but each [figure] has its own particular nature quite different from the other; and these particular natures are nothing else but a change of corporeal figurative motions, which make this diversity of figures" (OEP 2001: 197). This quotation along with her claim that nature is wholly material might seem to align her with mechanism, in which everything can be explained through matter in motion. Cavendish's theory of nature, however, has some key differences.

Matter, as I have begun explaining, is, for her, vital in that it moves itself rather than relies on motion transferred from contiguous figures. Her basic claim about nature applies to motion as well: everything in nature is material and so is motion.[40] There is no rest in nature, she claims, since everything is in motion even if it appears to be at rest (OEP 2001: 149). She arrives at the idea of self-motion through her critiques of the mechanical theory of motion, namely that of Hobbes and Descartes, respectively. She argues in OEP and PL against Descartes' theory of motion in two steps. First, we cannot

[40] Shaheen (2021) argues that animate matter is identical to self-motion (622).

conceive of motion without matter (PL 1664: 97; OEP 2001: 71). In other words, when we think of motion, we think of things moving (e.g., a cat crossing a street), not of bare motion without a figure. Motion, then, is one with figures. Second, when we think of things like billiard balls colliding, we might be tempted to say that motion transfers from one ball to the other upon impact. Since motion is one with figures, if it is to be transferred, then matter must transfer as well (PL 1664: 78; OEP 2001: 75). But Cavendish argues that if motion is transferred in this manner, one ball would lose matter and become smaller while the other would gain matter and become larger (PL 1664: 77-78). Since things do not gain bulk when they gain motion, motion is not transferred between bodies.

Additionally, motion for Cavendish cannot be a change of place. Space and place are not separate from the material plenum for Cavendish: place, magnitude, and body are all one thing (PL 1664: 103; OEP 2001: 48, 193).[41] When figures move, they take their place with them (PL 1664: 57; OEP 2001: 251). She uses the example of a wound in PL. We might think that when we have a wound where our flesh has been removed, once new flesh grows, it takes the place of the old flesh (PL 1664: 102-103). This is not so for Cavendish. Once the flesh is removed, the place is also removed (PL 1664: 103). So, local motion cannot be change of place for her (Peterman 2019: 476).

However, Cavendish does not give an explicit definition of what motion is under her theory. Her claims are left to interpretation, and thus far, only two commentators discuss what motion is for her. Peterman (2019) argues that motion for Cavendish is

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[41] Cavendish writes, "Color, magnitude, figure, place, time, gravity, levity, density, rarity, compositions, division, alterations, etc. are all one and the same with self-moving matter" (OEP 2001: 193).

mereological change, so change in part-whole relations. In other words, motion occurs when figures divide from one whole and join another. When a petal falls off my flower and lands on the floor, the petal moves: it divides from the flower and forms a new whole with the floor. Peterman's (2019) argument hinges on two claims: 1) that Cavendish's account of motion cannot be local motion where local motion is defined as change of place and 2) that composition and division are the basic actions of nature that ground motion. In contrast, Lascano (2021) argues that motion for Cavendish cannot be reduced to mereological change since Cavendish labels phenomena like dilation, contraction, and motions that retain or preserve bodies as motion (182). These types of motion do not require a change in part-whole relations, and yet Cavendish still calls them motions.

5. Occasional Causation

One thing is clear about Cavendish's theory of motion: matter moves itself, and since matter moves itself, Cavendish must explain causation without relying on collisions from contiguous figures. She instead appeals to occasional causation to explain how things come about in the natural world. Her theory of causation, however, is not dependent on God like it is for Malebranche. God plays no role in the order and function of the natural world save the world's creation (OEP 2001: 212). Cavendish explains how things move by explaining what happens when we throw a ball. We might think that our hand causes the ball to move and actively imparts motion into the ball. The ball then passively receives it, thereby launching it into whatever trajectory we desire. Recall that motion cannot be transferred this way for Cavendish. Instead, the hand merely provides the conditions for the ball's movement but is not the causal agent of this change. She explains that the ball perceives the hand and moves by its own motion accordingly (OEP

2001: 140). Cavendish does not deny that collisions occur in nature, but collisions do not constitute causation (PL 1664: 22). Self-moving matter is the only cause for her (OEP 2001: 18). Her arguments for occasional causation arise from her discussion of motion and perception. For example, in the case of visual perception, when I see the figure of my rosebush, that figure does not collide with my eyes, either directly or indirectly through a medium. Its mere presence is the catalyst for my eye's own motion which gives me a visual perception.

Thus far, commentators on Cavendish's theory of causation agree that she does, in fact, endorse occasional causation. They disagree, however, on understanding Cavendish's claims. O'Neill (2001), Michaelian (2007), and Adams (2016) emphasize the importance of self-moving matter over the occasional cause. In the example of the hand tossing the ball, they claim the ball's own self-motion is the important part of Cavendish's theory. In the case of my visual perception of my rosebush, the motion of my eyes and not the presence of my rosebush guarantees perception.[42] In other words, if we focus on the occasion (i.e., the hand or the rosebush), we risk undermining the causal powers of matter.[43] Lascano (2021), however, disagrees. She argues that if we minimize the role of the occasion (i.e., the hand or rosebush), then Cavendish's theory risks becoming full on occasionalism in which external figures have no causal powers (Lascano 2021: 416). For example, I tend to think that my visual perception of my

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[42] Michaelian (2009) and Adams (2016) appeal to necessary and sufficient conditions in this debate.

[43] O'Neill claims the occasion is a moral cause which she defines as a cause that indirectly produces a physical effect like how a general is a moral cause for his troops fighting in a war (OEP 2001: xxxiv).

rosebush is caused by the presence of my rosebush and that my hand causes the ball's trajectory. If, according to Lascano (2021), we focus only on self-moving matter, then the hand and the rosebush become causally inefficacious, which seems contrary to our experience (416). I discuss some implications of this debate, namely the causal role of external objects in Cavendish's theory of perception, in chapters 2, 4, and 6.

Setting aside issues of occasional causation in Cavendish's theory of perception, this debate has implications for other aspects of Cavendish's theory. One question raised by occasional causation concerns the amount of freedom that matter has. Boyle (2018) and Detlefsen (2007) argue that matter for Cavendish has a libertarian freedom. In other words, matter can choose its actions based upon its ability to reason as we might think a human agent can decide their own actions based on their own reasons. Recall that one of Cavendish's arguments against atomism denies that chance collisions or random actions produce the orderliness we observe in nature. Cavendish writes, "Wherefore, it is most probable, and can […] be no otherwise, but that self-moving matter, or corporeal figurative self-motion, does act and govern wisely, orderly and easily, poising or balancing extremes with proper or fit oppositions" (OEP 2001: 35). Matter for Cavendish is knowing, perceptive, and imbued with reason (OEP 2001: 138). Detlefsen (2007) argues that Cavendish's occasional causation and reason in the parts of matter entail a strong libertarian freedom (188).[44] Boyle (2018) similarly argues that Cavendishian matter has a libertarian free will due to its ability to reason, perceive, and self-know (76-78). In other words, matter, as Cavendish describes, has the freedom to

[44] Lascano (2021) argues against Detlefsen (2007) on the grounds that self-motion and reason are compatible with determinism (424).

choose its actions.[45] I discuss some issues of freedom in chapter 3. Boyle's (2018) argument that matter has perception and knowledge highlight the last features of Cavendishian matter which are not covered by her phrase "corporeal figurative motions." These are the features of self-knowledge and perception. I have discussed already that the animate degrees of matter imbue matter with perception and reason. Cavendish connects reason with knowledge. She writes, "But wise nature, although she be full of variety, yet she is also full of reason, which is knowledge" (OEP 2001: 82). Self-knowledge is as ubiquitous in nature as reason and perception.

6. Knowledge and Perception in Matter

Nature for Cavendish is orderly, balanced, and moves regularly (OEP 2001: 34, 199). Nature attains this orderliness through the knowledge and perception of its parts. She writes,

> But to return to knowledge and perception: I say, they are general and fundamental actions of nature; it being not probable that the infinite parts of nature should move so variously, nay, so orderly and methodically as they do, without knowing what they do, or why, and whether they move. (OEP 2001: 139)

Matter for Cavendish needs to be knowing because, as she claims, the orderliness and regularity we observe in natural actions cannot come from dull insensate matter (Cunning 2016: 183). Cavendish claims that figures have knowledge of themselves as well. She writes, "all creatures said they [her thoughts] are composed of many several parts, and every part has its own particular self-knowledge" (OEP 2001: 38). Returning to the

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[45] David Cunning (2016) argues that Cavendish's claims commit her to compatibilism (212). His argument concerns the constraining nature of the plenum: figures lack the freedom of movement necessary for libertarian free since they are surrounded by other figures (Cunning 2016: 212).

example of the hand throwing the ball, the actions of the hand and the ball follow a consistent pattern because both the hand and the ball know themselves and perceive each other. Where there is self-motion, Cavendish claims, there is knowledge.

The nature of self-knowledge for Cavendish has been discussed in secondary literature. The current debate concerns the contents of self-knowledge, ranging from a sparse interpretation in which Cavendish claims there are few, if any, contents to self-knowledge, to a more plentiful interpretation in which the contents include several different but related things. Georgescu (2021) argues that Cavendish has a deflationary view of self-knowledge: it just is an identity claim. This is a distinctly metaphysical approach to Cavendish's theory, on which self-knowledge does not obviously have anything to do with knowledge in the ordinary sense of the word. In contrast, Michaelian (2009) argues that the contents of Cavendish's theory of self-knowledge include a know-how type of knowledge in which the subject knows how to perform actions as well as the activity of other figures. Boyle (2015, 2018) similarly argues that self-knowledge for Cavendish contains three related but different things: a subject knows what actions it is performing, which actions it should perform given the kind of thing it is (i.e., normative principles), and the knowledge that God exists. I explain these positions more thoroughly in chapter 4 and give three features of Cavendish's self-knowledge.

Regarding perception, Cavendish offers a view that is radically opposed to her mechanical contemporaries which, as I have explained, relies on occasional causation rather than the pressure of contiguous bodies upon the sense organs. Commentators have discussed key parts of her theory. Lascano (2023) explains how perception is related to Cavendish's theory of occasional causation, as previously discussed. West (2022)

explores the relation of perception to mental contents arguing that we can only conceive of something if we can perceive it. Literature on Cavendish's color theory from Chamberlain (2019) and Allen (2019) both argue for a kind of perceptual realism in terms of color. This means that both Chamberlain (2019) and Allen (2019) hold that bodies for Cavendish are sensuously colored as they appear. Similarly, Whiting (forthcoming) argues that Cavendish holds a naïve realism theory of perception and that perception is a sympathetic relation between the perceiver and the object of perception. Boyle (2018) and Adams (2016) discuss Cavendish's arguments against Hobbes' pressure model of perception. There is more work to be done, however, such as the broad question of how these key features of Cavendish's theory fit together. I address this question in chapter 2. I address a narrower question of the role of light in human and animal perception in chapter 6.

7. Additional Concepts

Thus far I have discussed explicit claims that Cavendish holds regarding matter, motion, causation, and self-knowledge. These claims paint a rich and unique picture of nature that earns Cavendish the label of an "extremely unusual vitalist" (James 1999: 219).[46] Adding to the richness of Cavendish's theory of nature, two additional concepts guide her discussions, both of which have received little attention in secondary literature but appear frequently in her discussions. A large portion of Cavendish's discussion on

[46] Georgescu (2023) argues against the label of vitalist, following Detlefsen (2007) and Wolf (2021).

figures concerns the distinction between their interiors and exteriors.[47] For example, a baseball has an exterior made of a white leather like material and red stitching, and an interior made of cork and yarn. The second concept is sympathy. Sympathies, or attractions, and antipathies, or repulsions, exist in the natural world as explanatory principles for her. For example, the loadstone turns towards the north because of a sympathetic attraction to the north. I argue that Cavendish uses these concepts as her explanatory framework. Sympathy for her exists on two spectrums: 1) how well something sympathizes with another thing and 2) how thoroughly. Where the sympathetic relation sits on these spectrums concerns what part of the figures are sympathizing: the interiors, exteriors, or both.

7.1 Interiors and Exteriors of Figures

As I mentioned previously, Cavendish doesn't say as much as we might like about figures, and this includes her distinction between the interior and exterior of a figure.[48] Cavendish generally seems to imply that interiors and exteriors fit our common understanding of the terms. For example, I tend to think that my body has an exterior with my skin and hair but also an interior that contains my organs and thoughts. She writes,

> And it is to be observed, that in composed figures, there are interior and exterior parts; the exterior are those which may be perceived by our exterior senses, with all their proprieties, as, colour, magnitude, softness, hardness, thickness, thinness, gravity, levity, etc. But the interior parts are the interior, natural, figurative motions, which cause it to be such or such a part or creature. (OEP 2001: 162)

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[47] Michaelian (2009) frames Cavendish's epistemology in terms of the interior exterior distinction: self-knowledge is interior and perceptive knowledge is exterior.

[48] Lascano (2023) acknowledges that figures have interiors and exteriors.

Here she seems to imply that the exteriors of figures are superficial, giving us something like accidental properties, whereas the interiors are more substantive and contain something like the deep features of a thing, like essential properties, natures, or essences. For example, whether I have hair or what color it is does not constitute an essential property of my being a human, but perhaps something about the internal structure of my body does. Her use of the distinction appears to point to interiors and exteriors as metaphysically fundamental, just as accidents, substantial forms, and properties are for scholastic authors. More work is needed to make this connection and so I leave it as a possibility.

While Cavendish is not clear on what the interior/exterior distinction entails or its ontological status, she provides a more thorough account of the information we can gather of each part. As stated in the above quote, the exteriors are available for our *sense* perception.[49] The interiors, she claims, are not. She writes, "the exterior may partly give a hint of information of the interior […] for, the interior figurative motions of these creatures [composed figures], being not subject to the perception of our exterior senses, cannot exactly be known" (OEP 2001: 175). Crucially, her use of the distinction appears in both her metaphysics and her epistemology: it describes figures in at least the first two senses that I discussed earlier (i.e., bodies and properties), and it describes what we can know of those figures. For my purposes here, I argue that this distinction provides Cavendish with a framework for formulating relations in nature. For example, two metaphysically distinct parts with substantive differences offer Cavendish more

[49] I discuss Cavendish's theory of perception in chapters 2, 4, and 6. Cavendish recognizes different kinds of perception aside from human and animal sense perception.

opportunities to discuss relations beyond relations between figures, specifically sympathetic relations.

7.2 Sympathy

Closely related to the first concept of the interior/exterior distinction is the second concept which is sympathies in nature. Cavendish, especially in her earlier works, appeals to sympathies to explain the behavior of figures, namely, their attraction or their similarities in action. For example, Cavendish uses sympathy to explain the loadstone turning towards the north, flowers turning towards the sun, and love in its various forms. I discuss sympathy in chapters 2 and 3, defining it as a naturalized concept constituted by motions that attract figures or imitate the actions, behavior, or properties of figures.

What stands in the sympathetic relation for her, however, is not just the whole figure but can also be just a part of the figure. This is where the interior/exterior distinction is crucial to Cavendish's use of sympathy. Whole figures can sympathize or just portions of figures can sympathize. For example, sensory perception, I argue, is a strong sympathetic relation but only with a portion of the figure. Sensory perception gives us a likeness of the exterior of the figure only, not the interior. In the two spectrums of sympathy, perception is a strong but superficial sympathetic relation. If anything sympathizes deeply with the interior of a figure, it becomes the figure, resembling it both inside and out. I discuss this case in chapter 3 on self-love.

The benefit to viewing sympathy and the interior/exterior distinction as guidelines in her explanatory framework is that I can provide an alternative to viewing Cavendish's theory as overly anthropomorphized. As I discussed already, Cavendishian matter reasons, perceives, and acts. This has led to interpretations of Cavendish that label her a

panpsychist or viewing matter as capable of human agency. I aim to limit this view of Cavendish by explaining important topics in her natural philosophy through the metaphysical framework she provides rather than emphasizing her analogies to human societies. My aim is not to strip mentality entirely from Cavendish's theory but explain the kind of sense and reason unique to matter. As Peterman (2019) reminds us, there is nothing special about human cognition for Cavendish. While this is true, there is something special, however, about matter since it is not inert and lifeless for her like it is in mechanical philosophy.

To show how this is the case, the plan is as follows: in chapter 2, I discuss Cavendish's theory of perception in humans and animals, arguing that perception for her is metaphysical sympathy. This sympathy constitutes a strong likeness but only with the exterior sense organs and of the exteriors of external figures. In chapter 3 I introduce Cavendish's concept of self-love, which is a metaphysical principle, and key to her explanation of how figures form. I argue that self-love is a passion and passions for Cavendish are sympathies and antipathies. In chapters 4 and 5 I discuss self-knowledge, arguing that it does not constitute a sympathetic relation and stands apart from her theory of perception. It does, however, concern the interiors of figures, and I explain the features of self-knowledge for Cavendish. In chapter 6 I return to her theory of visual perception in humans and animals. I discuss a possible problem with Cavendish's theory of visual perception in which light has seemingly no role. While other commentators have discussed these important parts of Cavendish's theory, I argue that sympathy and the interior/exterior distinction play a significant role in understanding these phenomena.

CHAPTER 2 PERCEPTION AND SYMPATHY

1. Introduction

Perception plays a fundamental role in Cavendish's natural philosophy. It is ubiquitous throughout nature, closely intertwined with her theory of causation, and unusual in its formulation. Cavendish's theory of animal perception is unusual since it incorporates the following three features: 1) occasional causation (i.e., causation that relies on self-motion rather than collisions from contiguous bodies), 2) color realism (e.g., the red rose I see is truly red outside of my experience of it), and 3) object dependence. The last two features are controversial as I explain below. In this chapter, I provide an interpretation of Cavendish's theory of human and animal perception that unifies these three features. I argue that we can understand human and animal perception through the concept of sympathy.

Sympathy, I argue, for her, is like that of her contemporaries in that it explains the behavior of bodies. Sympathy in Cavendish's theory is constituted by motions that attract bodies to other bodies, imitate, or copy. For example, the loadstone turns towards the north because of a sympathetic attraction (PL 1664: 289). Changes in temperature such as when heat melts ice are sympathy (OEP 2001: 117).[50] Perception in human and animals which Cavendish calls "patterning," is, for her, a sympathetic action, specifically an imitation. First, I explain the important elements of her theory of patterning that I argue can be given a unified explanation as sympathy. Next, I show that the concept of sympathy pervades her works as a fundamental concept, she simply uses different terms

[50] She claims here that ice thaws either through sympathetic agreement when the parts of the ice become water or through imitation of a heat source (OEP 2001: 117).

over time to describe it. This change in terms is not limited to sympathy but occurs with other terms fundamental to her natural philosophy. Finally, I show how patterning can be understood as sympathy for Cavendish. I end this discussion by addressing some possible difficulties with my interpretation.

Commentators on Cavendish have done much work already on reconstructing parts of her theory of perception. James (1999) explains Cavendish's claims that all motion is self-motion, namely regarding perception, and that the harmony we observe in nature is due to the self-contained properties of figures. Lascano (2021) shows the relation of occasional causation to Cavendish's theory of perception and contextualizes Cavendish's account with that of Thomas Hobbes. Adams (2016) and Boyle (2019) reconstruct Cavendish's arguments against Hobbes' theory of perception. Michaelian (2007) and Georgescu (2021) distinguish perception from self-knowledge. There is still work to be done, however, and here I offer an interpretation of Cavendish's theory that unifies the three features.

2. Sensitive Perception as Patterning for Cavendish

There are a few reasons that Cavendish's theory of perception stands apart from her contemporaries, especially the mechanical philosophers.[51] For her, when I look at my rosebush, the matter of my eyes makes a copy of visible qualities, such as shape and color, my nose makes a copy of the odor of the flowers, and my hands make a copy of the texture of the leaves and thorns. This perceptual process in humans and animals

[51] James (1999) argues that Cavendish takes elements from Hobbes and Van Helmont's respective theories, such as autokinesis (233-235).

Cavendish calls "patterning" and the perceptions in the sense organs are called "patterns." She writes, "regularly, the animal perception of exterior objects, is made by its own sensitive, rational, corporeal figurative motions; the sensitive patterning out the figure or action of an outward object in the sense organ" (OEP 2001: 150). Two things are important about her theory. The first is that, for her, all matter can perceive but she does not speculate about the nature of non-animal perception (OEP 2001: 140). I restrict this discussion to perception in humans and animals because, as Cavendish notes, perception in humans and animals works through patterning (OEP 2001: 169).[52] The second important thing to note is that perception, like all motions for Cavendish, works through self-motion (PL 1664: 61). Two core principles of Cavendish's theory of nature are that nature is wholly material and motion is self-motion, meaning that figures move themselves rather than rely on collisions from contiguous bodies.[53]

Returning to my brief example of what happens when I perceive my rosebush, there are three important features about perception that Cavendish defends. The first is that an object must be present for me to have a perception. Without the presence of the rosebush, I do not pattern it. She writes, "perception I call an exterior action, because it is occasioned by an object that is without the perceiving parts" (OEP 2001: 171).[54] In

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[52] In chapter 6 I discuss a few instances where Cavendish claims that patterning occurs in perceivers that are not humans or animals: light, air, and reflective surfaces, such as looking glasses.

[53] Lascano (2023) argues that Cavendish's theory of self-motion is a reaction to the inconsistencies with the theories of motion put forth by Hobbes and Descartes, respectively (46-47). Peterman (2019) argues that motion for Cavendish cannot be local motion (475-476).

[54] She writes, "perceptions are occasioned by outward objects" (OEP 2001: 190). See also OEP 2001: 20.

other words, patterning for Cavendish is object dependent. The second important feature is that patterning requires occasional causation. Since Cavendish relies on the self-motions of animate matter, she cannot appeal to models of perception that require contact between the perceiver and the object of perception. The rosebush serves as the occasion that my sense organs move themselves. The last important feature is that Cavendish is committed to color realism. I only know the color of the rosebush because the rosebush is colored as it appears to me.[55] I explain these three claims in turn.

2.1 Object Dependence

The first feature of Cavendish's theory of perception is that patterning is object dependent. For the patterning to occur, there must be an object distinct from the perceiver present to the sense organs. Cavendish affirms this claim in GNP: "*perception* is a sort of Knowledg, that hath reference to Objects: that is, Some Parts to Know other Parts" (1668: 8). Here she claims that perception is object directed and, more specifically, towards an actually existing object.[56] "Parts" here refers to the things in nature: I am a part of nature, and my rosebush is also a part of nature distinct from me.[57] If there is no object, there is no perception.

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[55] Chamberlain (2019: 302) and Allen (2019: 61) affirm this point in their respective arguments that color is a response independent property for Cavendish. Lascano (2021) argues that Cavendish's patterns copy the external object as it is (416-417).

[56] While intention is important for Cavendish, the objects of perception do exist for her.

[57] In other places, "parts" can refer to the three degrees of matter (PL 1664: 34).

Cavendish affirms this claim again in OEP, her work in which she explains her theory of patterning most thoroughly. She writes, "perception extends but to adjoining parts, and their exterior figures and actions" (OEP 2001: 41). Lascano (2023) notes that objects are necessary for perception in Cavendish's theory and argues that once the object is removed, the perception ends (109). While this claim of object dependence appears uncontroversial, O'Neill (2001), Michaelian (2007), and Adams (2016) disagree, claiming that only the self-moving matter of the perceiver causes perceptions. For this to be the case, certain phenomenon, such as dreams and hallucinations, where external objects are not present would have to be considered true perceptions for Cavendish.[58] I take seriously Cavendish's claims that perception, especially patterning, is in reference to external objects, so non-veridical perceptions are not true perceptions. I discuss dreams at the end of this chapter. Her claim of object dependence also excludes idealism and the early modern version of indirect realism (i.e., "veil of ideas"): we are aware of the object, not our idea of the object.

2.2 Occasional Causation

The second important feature of Cavendish's theory of patterning is that it occurs through occasional causation. In occasional causation, the objects of perception act as triggers or catalysts for the perceiver's sense organs to move by their own self-motion. To explain the relevant notion of an occasional cause she writes,

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[58] The feature of object dependence in patterning might also exclude an inner sense as perception. For example, we might classify inner reflections as perceptions: I perceive my own thoughts. However, for Cavendish, these kinds of inner reflections are not instances of patterning. I discuss inner sensations and patterning in chapter 4.

> Therefore when a man moves a string, or tosses a ball, the string or ball is no more sensible of the motion of the hand, than the hand is of the motion of the string or ball; but the hand is only an occasion that the string or ball moves thus or thus. (OEP 2001: 140)

In other words, the rosebush does not need to contact my eyes, either directly or indirectly, to cause the perception, its mere presence in my line-of-sight occasions the sensitive matter of my eyes to move through self-motion.[59]

This feature of patterning is important because it explains how the objects of perception bring about sensory perceptions. One fundamental concept in Cavendish's natural philosophy is that everything moves through self-motion (PL 1664: 95; OEP 2001: 127). Motions are not imparted from figure to figure nor do figures move when struck by another (e.g., billiard balls striking). Matter is imbued with motion and so all motion is self-motion.[60] Since Cavendish relies on self-motion to explain how bodies move, she lacks the same resources as the mechanists to explain how objects of perception interact with our sense organs. For example, she rules out some standard theories of perception, such as perception by pressure from external objects, the species theory of perception, and the extramission theory.[61] She writes,

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[59] Lascano (2021) explains that the perceiver and the object of perception constitute the entire cause: the perceiver moves through its own self-motion and the object occasions that self-motion (417). O'Neill (2001) and Adams (2016) disagree. Adams (2016) assigns the perceiver as the entire cause since even when objects are not present, perceptions can occur, as, for example, in dreams (197).

[60] See Peterman (2019) for an explanation of motion as change in parthood relations.

[61] Cavendish argues that the species theory of perception would require matter in the form of species to leave the object thereby lessening its overall bulk (OEP 2001: 174-175). This argument is like her argument against the transfer of motion: if corporeal motion is transferred between figures, then matter must be transferred as well.

> perception is properly made by way of patterning and imitation, by the innate, figurative motions of those animal creatures, and not by receiving either the figures of the exterior objects into the sensitive organs, or by sending forth some invisible rays from the organ to the organ to the object; nor by pressure and reaction. (OEP 2001: 15)

Adams (2016) details Cavendish's arguments against the pressure model of perception and so I will not reiterate them here. Suffice it to say that for her the objects of perception provide the occasional cause. The sensitive matter of the perceiver then moves itself to pattern the external object.

2.3 Realism

Lastly, Cavendish argues that our perceptual experiences show us the sensible qualities that external figures really have.[62] The sensible qualities are real qualities in the objects of perception. Cavendish writes, "colour is as much a body, as place and magnitude, which are but one thing with body" (OEP 2001: 81). For example, when I look at my rosebush and see the red flowers, the flowers are red outside of my experience of their redness. This makes patterning epistemological: it gives us knowledge of external objects (OEP 2001: 173). I claim here that she endorses a view like, but not identical to, contemporary naïve realism.[63] In Cavendish's theory we 1) are acquainted with external figures and not our thoughts of those figures and 2) experience the sensible qualities that figures actually have. As Chamberlain (2019) notes, the world for Cavendish exists in Technicolor (299).

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[62] Boyle (2015) affirms this point (442).

[63] In contemporary philosophy of perception, naïve realism entails direct realism (Genone 2016: 2). As I explain in chapter 6, on Cavendish's theory of perception, we cannot always be directly acquainted with external objects.

Cavendish has at least two arguments to support the claim that figures have the sensible qualities they appear to. The first concerns our experience of color if something like light were responsible for colors. This argument is in direct response to the philosophers Descartes, Boyle, and Hobbes who argue that our perceptual experience of colors is caused by our interaction with light.[64] She argues that we would not experience the constancy of colors that we do if color was only caused by light (OEP 2001: 77). For example, I might perceive different shades of a red rose on my rosebush depending upon the lighting conditions, but despite this, the rose is always a shade of red. Her arguments to this effect are well documented in Chamberlain (2019) and Allen (2019), so I will not reconstruct them here.[65]

Her second argument concerns a claim that she also attributes to mechanical philosophers that has not been reconstructed by secondary literature. She claims that it is not necessary for color to exist within bodies if it can also exist outside of bodies as, for example, in reflections. She writes, "Again, some modern philosophers are of the opinion, that the subject wherein colour and image are inherent, are not in the object or thing seen" (OEP 2001: 147).[66] For example, we can see the objects in reflections like mirrors, surfaces of water, and other reflective bodies. The point of this argument from

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[64] Chamberlain (2019) notes that Galileo, Charleton, Locke, and Malebranche all hold that colors are not real qualities in bodies (295).

[65] See chapter 6 for an explanation of why light cannot be responsible for our experience of color according to Cavendish.

[66] A marginal note from the CUP edition claims that Cavendish is referencing Hobbes and Descartes (OEP 2001: 146, f.n. 102).

the mechanists is to prove that color does not need to be a feature of bodies to be perceived: it is just motions interacting with our optic nerves. Cavendish argues that this does not prove that color is not in bodies, it only proves that other bodies can make copies just as our eyes do (OEP 2001: 148). The purpose of these two arguments is to show that not only are mechanical theories of color perception inadequate but that bodies are colored as they appear to be.

While I take these arguments to mean that color is a property of bodies, Peterman (forthcoming) denies that Cavendish has an underlying theory of qualities (428). This may well be true if we must posit an inhere theory to explain qualities. As I explained in the introduction to this dissertation, colors are figures of matter, so it is not clear that we need to posit an inherence. One conclusion we might be tempted to make is that Cavendish endorses naïve realism. Indeed, Whiting (forthcoming) argues that Cavendish is a naïve realist because her theory of perception satisfies two criteria: 1) that we are directly presented with objects and 2) that our perceptual experience is constituted by objects (2). The second claim is true of Cavendish: patterning concerns objects, not our ideas of objects. One theory of perception in early modern philosophy was the "veil of ideas" in which we perceive our ideas of external objects, not the objects themselves (Simmons 2015: 91). Cavendish does not endorse the veil of ideas. The first claim by Whiting (forthcoming), however, is not always true of Cavendish. We are not always directly presented with external objects, so our contemporary notion of naïve realism is not a wholly accurate description of her theory. In chapter 6 I explain how this is so with light in visual perception. Important to note about Cavendish's theory is that external

figures 1) have the sensible properties they appear to have and 2) constitute the perceptual experience.

As I have noted, other commentators on Cavendish have acknowledged these three unusual elements of her theory. I offer here a way to unify these claims and explain what patterning is for Cavendish. In the case of object dependence and occasional causation, the connection is more straightforward. The object must be present to occasion a perception. No external object, no perception, although even these features do not entail each other. As for color realism, neither object dependence nor occasional causation seem to require that our perceptual experience tracks any real qualities in the external world. For example, color does not need to be a feature of the external world; it can exist only within the perceiver's mind. I argue that patterning for Cavendish is a sympathetic relationship between the perceiver and the objects of perception. In the next sections, I show that Cavendish appeals to sympathy throughout her works and that patterning is sympathy for her.

3. Sympathy

We tend to think that sympathy is when things or people behave in a similar fashion or have the same feelings. For example, sympathy to our contemporary minds is often an emotional concept: we feel bad when we see another person in pain and may attempt to comfort them. Or we might think of it as an unconscious imitation of another person's actions: yawns or laughter in our vicinity are contagious.[67] For many early modern philosophers, sympathy explains the physical actions of the natural world:

[67] Meyns (2018) uses a similar example: one person flinches when they see another in pain (60).

magnets attracting, the loadstone turning towards the north pole, and the moon affecting ocean tides. Historically, some philosophers have explained sympathy as something added to material nature, like a principle of nature or an immaterial spirit. For example, Van Helmont claims that a spirit from God permeates the universe that keeps harmony among all things (Mercer 2015: 118).[68] The Stoics also believe a fiery spirit ("pneuma") keeps nature in sympathy or agreement with itself (OEP 2001: xxii; Mercer 2015: 118).[69] Cavendish similarly uses the concept of sympathy to explain these different ways that humans and non-human entities in nature behave. For her, sympathy is not an addition to nature. It is constituted by the attraction of figures to each other and when they mimic or copy each other either in their actions, motion, or behaviors (PL 1664: 289). First, I show how sympathy appears throughout Cavendish's works. Then I will explain how Cavendish views the concept of sympathy which is naturalized as part of the material world.

3.1 Sympathy in Her Works

Sympathy appears in her earlier philosophical work in two different but related contexts.[70] The first is how motions or parts within a figure relate to one another for

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[68] Van Helmont also claimed that active spirits of active things sense and feel one another (Mercer 2015: 126).

[69] Broad and Sipowicz (2022), following O'Neill (2001), argue that Cavendish's natural philosophy contains Stoic influences (84).

[70] She also appeals to sympathy in PF1 to explain why like parts of matter work together (see poems in Part 1 "Of the Sympathy of These Four Principle Figured Atoms," "What Atoms Make Change," and "Of the Four Principle Sorts of Atoms").

example, how the motions and parts within a human body function. Cavendish wrote two versions of PPO: the first in 1655 and the second revised and expanded in 1663. She claims in the original version of PPO 1655 that things happen by "sympathetical conjunction," which is a type of sympathy.[71] She writes, "for As there is a Sympathetical conjunction in one, and the same kind of figure, so there is a Sympathetical conjunction in some sorts of figures, but not all" (PPO 1655: 36).[72] In other words, sympathetical conjunction explains when two figures join together and become one. For example, this, Cavendish explains, is why water pools together. Figures of the same sort, like water, tend to sympathize with each other. She writes, "besides, there is a Sympathy between Bodies of a like Nature, as Light bodies to Light bodies, and Heavy bodies to Heavy bodies" (PPO 1663: 128). Cavendish explains in PPO 1655 that sympathetic motions occur only in some kinds of things, and not in all things otherwise the variety we experience in nature would not occur (PPO 1655: 36). We can contrast the water case with oil and water: these are similar figures, but they do not sympathize well with each other.

Cavendish makes a further distinction about the sympathy that occurs within figures by distinguishing between their internal and external "forms" or figures. All figures have an interior and an exterior. Cavendish is not always clear on what the distinction between these is, but it might be useful to think of it spatially (although this is not the only way they could be distinct): a human body has an exterior which is visible

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[71] This term only appears a few times in the 1663 version of the PPO. Peterman (2019) notes that this concept is important in PPO (493).

[72] The chapter containing this passage does not appear in PPO 1663.

and takes on a certain shape but also an interior which contains organs, thoughts, and other things necessary for survival. Change in one doesn't always entail a change in the other. For example, getting a tan or a haircut doesn't affect my internal organs. The cases in which the exterior and the interior do change in tandem, sympathy is the reason for the dual change. Cavendish writes, "In some things, there is such sympathy betwixt the internal form, and the external figure, as the alterations of the one, change the nature of the other" (PPO 1655: 84). In this passage, she is referring to fire, where its external form (i.e., the form we can perceive) is so closely related to its internal form (i.e., nature or essence) that if one is changed, the other is as well.

Later in the same part of PPO 1655, Cavendish writes that sympathies and antipathies are ways in which parts of matter either join or repel each other, using the terms "expel" or "unite," namely within one figure (40-41). The parts of a figure tend to work in sympathy or behave similarly to keep the figure together. Anything that would encourage or help the parts of the figure to behave similarly or to remain united in the same figure is sympathy, and anything encouraging the part of a figure to behave differently, thereby dividing or expelling parts, is antipathy. The case Cavendish mentions might occur when we eat something or when fire consumes fuel.[73] She writes, "yet the natural motions in drugs, and likewise in fire are expulsive, and all that is expulsive, is by antithetical nature, striving to destroy by uniting parts, and all contractive

[73] Cavendish also describes eating and digestion as sympathy. She writes, "The figure is enlarged by nourishing motions, and sympathetical matter, these nourishing motions are digesting motions, carrying those parts which are received by the senses" (PPO 1655: 127).

motions are by a sympathetical nature, striving to unite" (PPO 1655: 161).[74] Here contracting motions, or motions that unite, are explained by sympathy and motions which expel or divide parts are explained by antipathy. For example, if we ingest a deadly poison, Cavendish will consider the poison a dividing or expelling motion since deadly infections strive to destroy our human figure. If we take an antidote to counteract the poison, Cavendish will consider the motions within our bodies as sympathetic since the antidote keeps us alive. Later in GNP, she uses sympathy and antipathy again to explain health: when the motions of a person move sympathetically, the body is healthy, and if they move antithetically, the person is ill (GNP 1668: 84).

The second context in which sympathy appears in her works is between different figures, not just the same figure. In her later philosophical works, PL 1664 and PPO 1663, Cavendish appeals to sympathy to explain why certain things in nature seem to behave like one another or are drawn to one another (i.e., attraction). Sympathy explains the actions of the loadstone and iron: the two figures move in sympathy with one another (PPO 1663: 193).[75] A flower turns towards the sun because of sympathy (PL 1664: 294-5). A sheep runs from a wolf because of antipathy (PL 1664: 293). Self-love, which explains the individuation of bodies, is a sympathetic motion between parts of nature. In the next chapter I explain the sympathy of self-love in greater detail.

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[74] This passage appears in PPO 1663 Part VII Chapter 60. It is not clear why she uses "unite" to explain both antipathy and sympathy here. An option is that to unite by destroying means that parts unite with the fire or the drug.

[75] This passage also appears in 1655 PPO Part III Chapter 96. In OEP, Cavendish also discusses the loadstone in Part I Section VI "Of the "Effluviums" of the Loadstone." In this section, she does not mention sympathy but does refer the reader to PL and PPO for her previous discussions (OEP 2001: 57).

By her last work, GNP, she appeals to sympathy as the basis for occasional causation. She writes, "Also, through Sympathy, Rational Passions will occasion Sensitive Appetites; and Appetites the like Passions" (GNP 1668: 64). In this passage, the important point to note is that she connects sympathy with occasioning. The connection she draws is that sympathy is responsible for occasional causation. In GNP, Cavendish also describes love as sympathy. She writes, "so that the several parts of one Society, as one Creature, have both Passionate Love, and Self-love, as being sympathetically united in one Society" (GNP 1668: 68).[76] In short, sympathy appears throughout her works to explain how figures behave or relate to one another.

3.2 Sympathy and Materialism

Historically, philosophers have used different methods to understand why things appear to act in sympathy with one another. For example, Van Helmont appealed to immaterial spirits as did some Platonists, to explain the concord between all things (Mercer 2015: 115-117). In other words, materiality alone was not enough to explain why things display similar behavior: something in addition to material matter must explain why things sympathize.[77] The Stoics, in contrast, claimed that a "pneuma" or fire permeates the world which allows things to sense each other and have a mutual attraction (Mercer 2015: 117). The physician Galen wrote that all things are in sympathy (Holmes

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[76] See chapter 3 for a more detailed explanation of how love is sympathy for Cavendish.

[77] Sympathy absent an explanation was often considered to be an "occult quality." For example, gravity was an occult quality absent an appropriate explanation. I have argued elsewhere (manuscript) that Cavendish embraces occult qualities in nature.

2015: 61). By claiming that a part of the natural world is responsible for sympathetic relations, they did not have to appeal to anything in addition to matter that would explain sympathy. Another option was to acknowledge that bodies appear to act sympathetically but explain away sympathy with more basic concepts rather than to embrace sympathy as a real explanation.

Notably, Kenelm Digby attempted to mechanize sympathy by claiming that contact from contiguous bodies serves as the basis for sympathetic actions (TT 1644: 165).[78] In other words, he neither appeals to immaterial spirits nor does he accept that sympathy explains the behavior of bodies. Rather, he explains away sympathy through contact. His most notable example is his discussion of the weapon salve. The salve, which is a powder, contacts both the weapon and the wounded person since, as Digby explains, all bodies admit a vapor or steam and that carries the powder from the weapon to the person's wound (TT 1664: 165). Digby can explain how the presence of the weapon which wounded a person can heal that same wound. What appears to be proximity is just contact through vapor.

For Cavendish, matter is wholly material, and so the option to explain sympathy through an immaterial spirit or principle is not available to her. In terms of historical explanations for sympathy, Cavendish aligns more closely with Stoic philosophy since nothing needs to be added to the material world to explain sympathy.[79] However, the Stoics believed that a specific part of the world – pneuma – explained sympathy.

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[78] Cavendish references the weapon's salve PL 1664: 290.

[79] O'Neill's (2001) introduction to OEP argues that Cavendish's metaphysics are indebted to the Stoics. Broad and Sipowicz (2022) also argue that Cavendish's philosophy contains Stoic elements.

Cavendish does not similarly claim that a specific material part of the natural world explains sympathy, rather sympathy is constituted by a similarity of motions.[80] Her claim that sympathy is a similarity of motions does not, however, place her in league with Digby, who attempts to explain away the concept. It is likely that such an explanation was unappealing to Cavendish. She embraces sympathy as a function of the natural, material world. In other words, sympathy is naturalized in Cavendish's philosophy. Now I turn to how patterning is sympathy.

4. Patterning as a Sympathetic Action

In the second section of this paper, I highlighted three unique features of Cavendish's theory of patterning: object dependence, occasional causation, and color realism. I explained what these mean and how other commentators have noted these features in Cavendish's works. In section 3 I showed how sympathy appears in Cavendish's works and what it is for her. Now I turn to my main claim, which is that sympathy explains patterning. My argument is two-fold: I show 1) that sympathy and patterning are both forms of imitation for Cavendish and 2) that perception as sympathy explains how the three features of Cavendish's theory of perception cohere. I also explain how perception can be sympathy when we tend to think of sympathy as a symmetrical concept, but perception is asymmetrical. The upshot of my interpretation is that it can explain another instance of perception in Cavendish's works, which is rational perception. I take each of these points in turn.

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[80] It might be the case that animate matter is analogous to pneuma since both are material parts of nature. This depends upon how closely Cavendish's theory resembles the Stoics and is an area for future research.

4.1 Sympathy and Patterning as Imitation

The strongest reason to believe that perception is a kind of sympathy is that Cavendish describes both patterning and sympathy as imitation.[81] She writes, "Sympathy works no other effects, but a conforming of the actions of one party, to the actions of the other, as by way of Imitation" (PL 1664: 292).[82] Here she clearly describes sympathy as imitation. Similarly, she describes patterning as an imitation. She writes,

> for the motions of the sentient in the act of perception, do figure out or imitate the motions of the object, so that the object is but as a copy that is figured out, or imitated by the sentient, which is the chief agent in all transforming and perceptive actions that are made by way of patterning or imitation. (OEP 2001: 18)

Here the perceiver imitates the objects of perception. She qualifies later that human perception is the kind of perception that she means. She writes,

> Wherefore my opinion is, that the most rare and subtlest parts in the animal sensitive organs, do pattern out the figures of exterior objects, and that the perception of the exterior animal senses, to wit, sight, hearing, tasting, touching, smelling, is certainly made by no other way, than by figuring and imitation. (OEP 2001: 175)

In this passage, she more explicitly claims that human perception, "patterning," is imitation. Returning to the example of when I perceive my rosebush. What occurs when my sensitive matter patterns the bush is that my sensitive matter is acting in sympathy or imitating the rosebush. In PPO 1663, Cavendish describes perception as "copying" (284,

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[81] Patterning is just one kind of sympathetic relation. Not all sympathy is patterning.

[82] Cavendish writes here in the PL that this imitation proceeds from an internal sympathetic love and desire to please which makes her account appear circular (PL 1664: 292).

286, 297) or patterns as "prints" (49, 51, 54, 57, 58, 63). Both descriptions imply a kind of imitation.

Whiting (forthcoming) also acknowledges that patterning for Cavendish is a kind of sympathy. He labels it "formal assimilation" since the perceiver becomes like the object perceived but does not in any way take on material parts from the object of perception (7). He uses the example of becoming sad when a friend is sad, a phenomenon that is possible because two people have a relation (i.e., friendship) (7).

Not all actions, however, are imitations. Cavendish distinguishes actions which are not imitations as those which do not happen by patterning and are done freely (i.e., not occasioned). She writes, "There are, besides exterior perceptions, voluntary actions, both of sense and reason, not made by imitation, but freely and by rote; and these may be called conceptions, rather than perceptions" (OEP 2001: 192). In other words, conceptions are spontaneous actions, but perceptions are compelled.[83] For example, when I look at my rosebush, I don't have a choice about whether I pattern it or not, my sensitive matter simply does.

4.2 Sympathy as Unifying

The second reason that perception is sympathy is that sympathy explains how Cavendish's claims about patterning unify into one theory. As I explained in section 2, perception for Cavendish has three main commitments: object dependence, occasional

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[83] Lascano (2023) also notes that perception is an involuntary act on the part of the perceiver (108-109). I use the term "spontaneous" here to capture Cavendish's meaning of "voluntary." She writes, "I do not mean, that all actions are made by rote, and none by imitation; by voluntary actions I understand self-actions; that is, such actions whose principle of motion is within themselves, and doth not proceed from an exterior agent" (OEP 2001: 19). I take her to mean that the external object is the exterior agent.

causation, and color realism. Thus far, commentators have elaborated on Cavendish's commitments to each. Lascano (2023) notes that objects are necessary for patterning. Adams (2016) explains Cavendish's arguments against the pressure model of perception and for patterning, which relies on occasional causation. Chamberlain (2019) and Allen (2019) explain Cavendish's claim of color realism. There is still work to be done, such as how these different features can be unified into one theory. My interpretation that patterning is sympathy shows how these three features are unified.

Two of Cavendish's claims about perception fit together more obviously. Occasional causation fits well with object dependence: patterning does not happen through contact for Cavendish but rather through the self-motions of animate figures. The self-motions of sensitive matter are occasioned to move by external figures. Patterning, then, requires an external object and so occasional causation fits well with object dependence. Neither of these commitments to occasional causation or object dependence seems to entail color realism, however. Cavendish could have claimed that external bodies occasion a perceptual experience that does not resemble properties that figures have independent of our perception. For example, Hobbes argues that geometrical properties are the only real properties in bodies, but he also holds commitments to autokinesis (James 1999: 233-235). For him, our perceptual experience does not resemble real properties in external bodies. If patterning is a sympathetic relation for Cavendish between the perceiver and the object of perception, then our perceptual experience must resemble figures as they are, independent of our perceiving them. Sympathy, as I have argued, is an imitation for Cavendish. What it means to be an imitation is that our sensitive matter copies external objects as they are.

Sympathy explains how these three features all fit together. My rosebush does not contact my sense organs in any way, either mediated or directly. Without motions, species, or contact occurring between the perceiver and the object perceived, sympathy explains why Cavendish appeals to occasional causation. In her earlier works such as PPO 1655, she will use the term sympathetic conjunction to explain causation. Later in PL, sympathy is an imitation (1664: 292). She claims in OEP that patterning is an imitation (OEP 2001: 18). Occasional causation works through sympathetic relations. And for there to be a sympathetic relation, there must be more than one figure. As she explains in GNP: "*perception* is a sort of Knowledg, that hath reference to Objects: that is, Some Parts to Know other Parts" (1668: 8). This explains object dependence: the perceiver sympathizes with an object or figure that is distinct from the perceiver. I perceive my rosebush and I am distinct from my rosebush. Lastly, sympathy explains color realism. Sympathy is an imitation and so patterning is an imitation of the external object as it is. Cavendish writes, "colour is as much a body, as place and magnitude, which are but one thing with body" (OEP 2001: 81). I pattern my roses as red because the roses on my rosebush are red. Sympathy explains all three claims and how these claims are unified into one theory.

4.3 Sympathy as Symmetrical

We generally think of sympathy, however, as a symmetrical process. When magnets attract, both move. Patterning, however, is an asymmetrical process: the sensitive matter of my sense organs patterns my rosebush, my rosebush doesn't similarly change while being perceived. This lack of change is part of Cavendish's color realism: the sensible qualities of figures are response independent. My rosebush has its color

whether I am looking at it or not. This lack of response in the object of perception makes the process of patterning asymmetrical. For Cavendish, the asymmetrical nature of perception is not a problem because not all the figures involved in a sympathetic relation change. Cavendish writes,

> neither is it required, that all Sympathy and Antipathy must be mutual, or equally in both Parties, so that that part or party, which has a Sympathetical affection or inclination to the other, must needs receive the like sympathetical affection from that part again. (PL 1664: 291)

She goes on to give the example of the needle of a compass and the north pole. The north pole does not turn towards the needle and yet the needle moves (PL 1664: 291). Similarly, one person may have affection for another and that affection is unrequited (PL 1664: 291). While these are all examples of sympathy for her, they are also examples of asymmetrical change just like patterning.

4.4 The Puzzle Of Rational Perception

The significant upshot to my interpretation is that it can explain rational perception, a rather puzzling instance of perception that Cavendish does not explain as clearly as patterning. Recall that for Cavendish the perceptual process works like this: the sensitive matter of a creature's sense organs is occasioned to create a perception, the sensitive matter moves itself using the external object as a blueprint to make a pattern, the rational matter copies this pattern, and the information becomes an idea or thought in the mind.[84] When I look at my rosebush, it is the sensitive matter of my eyes that patterns

[84] Cunning (2016) affirms this point (35). Boyle (2015) denies that rational matter forms ideas as such.

out the objects of perception and it is my rational matter that gives me the idea of my rosebush. But Cavendish also claims that rational matter can perceive. Cavendish mentions in OEP and PL that there is a double perception of both rational and sensitive matter (PL 1664: 19). She writes, "As there is a double degree of corporeal motion, viz. rational and sensitive; so there is also a double degree of perception, rational and sensitive" (OEP 2001: 138). There are two ways to understand this claim. The first is that both rational matter and sensitive matter pattern the external object. This is straightforward: there is no inconsistency in Cavendish's claims to prevent rational matter and sensitive matter engaging in patterning simultaneously but no explanation for why this would be the case.

The second meaning of Cavendish's claim that a double perception occurs concerns an action that rational matter performs which is different from patterning. Patterning concerns the external properties of an exterior body since patterning is sensory perception. Rational perception, however, can go beyond this. Cavendish writes,

> yet, the rational [matter] being a more subtle, active, and piercing perception, by reason it is more free than the sensitive, does not rest in the knowledge of the exterior figure of an object, but, by its exterior actions, as by several effects, penetrates into its interior nature, and doth probably guess and conclude what its interior figurative motions may be. (OEP 2001: 175)

The puzzle to be solved here is what this penetration into the interior of a figure means.

Thus far, no consensus exists in secondary literature about rational perception. Chamberlain (2022), Boyle (2015), and Michaelian (2009) all note rational matter takes information from multiple perceptions to give us a cohesive idea of the external object (PPO 1663: 82-83). For example, when I perceive my rosebush, my sense organs pattern out multiple parts, like the scent, the color, the shape, and perhaps the texture. Rational

matter integrates this information to give me a unified perception of the object.[85] But Boyle (2015) discusses two other instances in which Cavendish appeals to rational perception. The first is as rational matter taking information from sensitive matter (236). In other words, rational matter perceives sensitive matter. The second is as a way for us to be consciously aware of our sensory perceptions (Boyle 2015: 236-237). Rational matter does not always take patterns from sensitive matter, and so we sometimes have perceptions that we are not consciously aware of.

But if patterning is sympathy, as I argue, then we have a way to understand rational perception in humans and animals. It is also a type of sympathy: the patterning from sensitive perception sympathizes with the exteriors of figures while the sympathy of rational matter sympathizes with both the exteriors and the interiors, just in different degrees of imitation. That it can do both makes it different in degree from sensitive perception, but not different in kind: it is still a kind of sympathy. Rational perception can only probably guess at the interiors, however, because having a perfect imitation of the interior of an external figure would make the perceiver identical with the object perceived. I explain in chapter 3 that self-love is a sympathetic relation a figure has with itself. My interpretation, then, is that sympathy exists on two spectrums for Cavendish. These are 1) how well figures sympathize and 2) how much of the figures sympathize. Patterning sympathizes well with the exteriors of an external object. Rational perception sympathizes with more of a figure: it can sympathize like sensitive matter to the exterior

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[85] Cavendish also uses rational matter to explain why we might have perceptions that we are unaware of. She uses the example of man pinched but unaware. This occurs because of a breakdown in communication between rational and sensitive matter. Boyle (2015) notes this role (236).

but can also sympathize with the interior. Its sympathy with the interior, however, is not as strong. Self-love sympathizes both well and with the whole figure.

Cavendish appears to gesture at this very claim of different sympathies regarding different parts of a figure in the earlier version of PPO. She claims that different parts of figures can have sympathies with different parts of other figures. For example, the interiors of figures can have sympathy with the interiors of other figures or the exteriors of other figures (PPO 1655: 40-41). While rational matter is absent from this discussion, rational matter is often seen as part of the interiors of figures. Rational matter is broadly responsible for thought and thoughts are often aligned with the interiors. For example, what I am thinking is not available for another person's sensory perception. Some might, however, be able to guess what I am thinking.

My interpretation of rational perception as sympathy, however, hinges on an interpretation of the interiors of figures being unavailable for sensory perception. Thus far, no commentator has offered a thorough discussion of the definition or the differences between the interiors and exteriors of figures and such an undertaking is beyond the present discussion. Cavendish does seem to imply that whatever the interiors are, they are not available for patterning by sensitive matter. She writes, "the sensitive parts are not so subtle as to make perceptions into the interior actions of other parts […] for, perception extends but to adjoining parts, and their exterior figures and actions" (OEP 2001: 41). Here patterning cannot give us information about the interiors of figures.[86] If

[86] Michaelian (2009) offers a definition of the interior/exterior distinction in the context of Cavendish's epistemology. He describes the interior and exterior as a difference between the type of knowledge available: self-knowledge is part of the interiors while perceptive knowledge is part of the exteriors or sensible qualities (Michaelian 2009: 37).

the interior/exterior distinction is spatial, we can easily understand what she means. The exterior of my figure, such as my skin and hair, is visually perceivable but my thoughts are not.[87] Someone might be able to guess that I am sad and empathize with me, which is a function of rational matter and fits with our common notion of sympathy.

5. Possible Difficulties

5.1 Sympathy in Cavendish's Later Works

My proposal is not without its difficulties. The first possible difficulty for my proposal that patterning is sympathy is that talk of sympathy falls out of Cavendish's later works.[88] Peterman (2019) claims as much (494). This is certainly the case with OEP, the work where Cavendish carefully explains her theory of perception by posing and answering twenty-three questions concerning the details of her theory (155-194). If patterning is sympathy, its omission from her explanations in OEP is a problem for my interpretation.

Cavendish explains patterning as an imitation. Sensitive and rational matter imitate each other (PPO 1663: 51). When she uses the language of "imitation" here, she also uses the language of "print" or "copy," which are other words she sometimes uses for a "pattern," or a perception made by patterning. What these word selections imply is that imitation, sympathy, and printing or copying are all the same phenomena. In the

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[87] Michaelian (2009) refers to the exteriors of figures and the knowledge that perception grants of them as superficial knowledge (38).

[88] Sympathy reappears in her last work GNP.

PPO 1663, she describes the sympathy that rational and sensitive matter have with one another, which she labels "imitation". Cavendish writes, "as also there is an Imitation of Motions between Touches and Thoughts, for Thought is a Rational Touch, and Touch a Sensitive Thought" (PPO 1663: 51). She makes this claim almost verbatim again in OEP. She writes, "thought is a rational touch, as touch is a rational thought" (OEP 2001: 182). This claim is made in similar passages where Cavendish describes how rational matter and sensitive matter work together. In the OEP passage, she describes their respective perceptions: rational matter and sensitive matter *perceive* one another. Such an instance suggests that Cavendish simply changed the term, not the theory.

PL and OEP are the works where Cavendish begins to use the language of "occasional cause." She writes, "Therefore when a man moves a string, or tosses a ball […] the hand is only an occasion that the string or ball moves thus or thus" (OEP 2001: 140). Such detailed descriptions of how things move are not present in her earlier works. In PPO 1663, she will claim that motion is self-motion (38), but these discussions are additions that do not appear in the PPO 1655. She does not explicitly claim that figures occasion other figures to move in her earlier works nor does she give a detailed account of perception. It is possible that sympathy stood for general perception in her earlier works. My project is to explain patterning, which is a specific kind of perception. So, although the term "sympathy" falls out of her explanations in OEP, the theory remains the same.

Such shifts in terminology occur frequently Cavendish's works. For example, in her earlier works, she uses the terms "rational spirit" and "sensitive spirit" to refer to the

two degrees of animate matter.[89] By the 1663 version of PPO, Cavendish uses both matter and spirit to refer to animate matter (e.g., "rational matter" or "rational spirit"). By the writing of PL, she no longer refers to animate matter as spirit, but simply matter or degrees of matter. In PPO 1655, she claims that matter, form, and motion are all one thing.[90] By 1664, she adopts the phrase "corporeal figurative motions," which she uses to explain that matter, figure, and motion are all one thing. She continues to use this phrase in her later works. These changes in terminology don't reflect substantive changes in her theory, but rather different ways of referring to the same thing.[91]

5.2 Perception as Ubiquitous

The second difficulty is that Cavendish claims that perception is ubiquitous throughout matter, not sympathy. Perception is largely (although not exclusively, as I have noted) a function of sensitive matter. Everything in nature is a commixture of the three degrees of matter meaning that perceptual actions are ubiquitous in nature. In other words, things perceive because, at base, matter can perceive. One might argue that Cavendish means to explain sympathy through perception: bodies must perceive one another before they can sympathize. It might be that sympathy falls out of her later works to be replaced with perception.[92]

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[89] See PPO 1663 page 257; PPO 1655 page 7, 11.

[90] See "The Text to My Natural Sermon," a section that is left out of PPO 1663.

[91] See my introduction to this dissertation for her change in matter theory from a version of atomism to a monist theory.

[92] See Kevin Lower's dissertation "Margaret Cavendish's Metaphysics of Action and Passion" for the argument that all actions in Cavendish's nature are sympathy.

For my purposes here, I claim that patterning, which is human and animal perception, is sympathy. As Georgescu (2021) notes, perception as a fundamental action of nature is not reducible to its particular instantiations, and so patterning is not indicative of all perception (622). I believe this is the right approach. Patterning is a subset of perception and not ubiquitous in nature. Sympathy does not need to be as ubiquitous in nature as perception in general to explain patterning.

5.3 Dreams

One question that might remain is how dreams fit into Cavendish's system. It is unclear how Cavendish classifies dreams, whether they are true instances of perception or non-veridical perception. She implies in PL that dreams are an instance of true perception (PL 1664: 19). In some parts of OEP, however, they seem to be cases of non-veridical perception along with hallucinations from distempers (2001: 20). In other parts of OEP, however, she calls dreams perceptions, but not made by patterning or imitation (OEP 2001: 97).

Dreams do seem to violate the first feature of perception as I have described: there is no object dependence in a dream. The truth of this claim, however, lies in what can be considered an external object. Recall that conscious perception for Cavendish operates when rational matter takes patterns from sensitive matter. In dreams, she claims that sensitive matter repatterns figures it had already patterned when the external object was present (OEP 2001: 189). For example, when I dream of a horse, my sensitive matter is repatterning a horse that I had seen while awake. If we consider sensitive matter as the object external to rational matter, then this is an instance of true perception. The pattern in sensitive matter serves as the object of perception for rational matter. Viewing

sensitive matter in this manner is consistent with Cavendish's commitments that different parts of a thing can perceive each other (OEP 2001: 163). For example, when my hand touches my knee, my hand perceives my knee.

However, it is unclear that the example with my hand and my knee is analogous to sensitive matter and rational matter. Cavendish is clear, as I have explained already, that we are aware of the objects of perceptions, not our ideas of objects. Dreams occur within the perceiver, and the sensitive patterns of objects might be too closely related to ideas to count as an external object. If sensitive matter is not a true object of perception, then dreams are not true perceptions. To settle this question, Cavendish would have to give strict criteria for determining the difference between veridical perceptions and non-veridical perceptions. This criterion, however, is absent from her account, and so whether dreams are true perceptions depends on an interpretation of what an external object is for Cavendish. In chapter 4, I discuss internal perceptions in the context of self-knowledge.

6. Conclusion

Many commentators have discussed important aspects of Cavendish's theory of patterning. I argue that perception is sympathy for Cavendish. First, I described the main points of Cavendish's theory that make her view of perception unusual. Next, I showed how the concept of sympathy pervades Cavendish's theory particularly as a viable explanation for physical processes. I then showed how Cavendish describes perception as a sympathetic relation although the specific term "sympathy" falls out of OEP, her major work on perception. Sympathy is imitation for Cavendish and patterning is a form of imitation. Lastly, I discussed some difficulties with my interpretation, namely that

Cavendish does not specifically claim that patterning is sympathy and the idea that perception is asymmetrical while sympathy is symmetrical. An upshot of my interpretation, however, is that Cavendish can explain her elusive concept of rational perception as an action different in degree rather than different in kind from patterning. Rational perception is also sympathy but a sympathetic action in which the rational matter can imitate more of the external object than sensitive matter can. I now turn to self-love and how it is also sympathy for Cavendish but distinct from patterning and rational perception since the parts of matter sympathize to become a figure.

CHAPTER 3 SELF-LOVE

1. Introduction

Cavendish argues that all things in nature are self-loving. She writes, "That as all the Parts of Nature are Self-knowing, so they are Self-loving: Also, Regular Societies beget an united Love, by Regular Agreements, which cause a Rational Fear of a disuniting, or dissolving" (GNP 1668: 71). This quotation suggests that the parts of nature in Cavendish's theory self-love, and that love is important to her theory of individuation. By principle of individuation, I take her to mean what makes parts into a whole. For example, a tree exists because the different parts that constitute it love each other. This refers to figures in the first sense that I discussed earlier: figures as bodies (e.g., rocks, trees, humans, etc.). The temptation, based on Cavendish's language in the above quotation from GNP, is to view Cavendish's description of self-love as an attempt to anthropomorphize the parts of matter that make up composed figures. Indeed, self-love is also important to Cavendish's theory of passion which appears to add further justification for this move. She writes that self-love is the original of all the passions, making self-love central to her theory of passion (WO 1655: 146).

Commentators on self-love agree on its function as part of the individuation of things (Borcherding 2021: 386; Boyle 2015: 91; Shaheen 2022: 10). They disagree, however, on what self-love is. Boyle (2018) claims that self-love is both a passion and an appetite. Shaheen (2022) claims that self-love and sympathetic motions are distinct for Cavendish as he explains in the context of her theory of artifacts. Borcherding (2021) argues that love is a free, active emotion of material subjects that is constituted by natural

sympathetic motions. [93] Boyle (2018) and Borcherding (2021) acknowledge that self-love is related to Cavendish's theory of the passions but neither discusses self-love's specific place in her theory of passion. All three commentators emphasize the social analogy Cavendish uses to describe love.

I discuss these three interpretations of what self-love is and I argue that self-love is not a mental event like a free emotion, but it is metaphysical sympathy. To understand how self-love is sympathy, I situate self-love within Cavendish's account of love and her theory of passions more generally. Self-love is a kind of love and love is a passion. Crucially, the passions are just sympathies and antipathies in her natural philosophy. This definition of passion stands opposed to the idea that passions are emotions, as Broad and Sipowicz (2022) and Borcherding (2021) claim, and provides a substantive distinction rather than a simple terminological dispute. First, I discuss how self-love appears in Cavendish's natural philosophy. I then argue that self-love for Cavendish is a passion and passion is metaphysical sympathy. I end with my argument that viewing self-love as metaphysical sympathy provides an alternative to viewing Cavendish's theory as relying on a more anthropomorphized view of nature. A problem with emphasizing the social analogy of Cavendish's theory is that it invites questions regarding the decision-making power of the parts of matter.

2. Self-Love: Two Contexts

Self-love is an important part of Cavendish's theory of nature. She writes, "of all her [nature's] actions Perception and self-love are her prime and chief actions" (PL 1664:

[93] See also Broad and Sipowicz (2022) for passions as active emotions.

538). Unlike her theory of perception which features in many of her works, Cavendish only briefly explains self-love. While she does not elucidate the concept, it does appear in two different areas of her natural philosophy. First, it appears as a principle of individuation, what make parts into a whole.[94] As I previously quoted, Cavendish writes in the GNP, "That as all the Parts of Nature are Self-knowing, so they are Self-loving" (GNP 1668: 71). In this quotation, she claims that all the parts of nature are self-loving. Parts, as I mentioned, could refer to figures in the first sense as bodies or parts could refer to the constitute parts of matter (i.e., rational matter, sensitive matter, and inanimate matter). I take her to mean both figures as bodies and the constitutive parts. She is clear that parts as figures self-love. She writes, "for certainly every thing hath Self-love, even Hard stones, although they seem Insensible" (PPO 1663: 194). But since she says that as the parts are self-knowing, they are self-loving, I take her to mean both the constitutive parts of matter as well as parts as figures as bodies. All matter, even the inanimate degree of matter, is self-knowing. In the next chapter I explain self-knowledge, and how all matter is self-knowing including the constitutive parts of matter.

Cavendish goes on to claim that love holds figures together.[95] She writes, "Also, Regular Societies beget an united Love, by Regular Agreements, which cause a Rational Fear of a disuniting, or dissolving" (1668: 71). In this quotation, she uses the term

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[94] It is possible to use instead a principle of composition since parts combine into a larger whole. I attempt to remain consistent with terminology by using "individual" or "subject" to refer to the effect of the composition.

[95] Detlefsen (2006) argues that individual things are the parts of matter taking on a certain shape, having an affinity or sympathy with one another, and behaving with the goal of remaining unified (213-214). She does not mention self-love as the sympathy or affinity, but she does endorse interpreting Cavendish as holding a libertarian free will regarding the parts of matter (212).

"regular society." She describes figures as societies of parts. She writes, "Production is only a Society of particular Parts, that join into particular Figures or Creatures" (GNP 1668: 28). "Regular societies" here are figures. Cavendish gives a more specific example of the human figure later in the same work. She writes, "So the Self-moving Parts of a Human Creature, being associated, love one another, and therefore do endeavour to keep their Society from dissolving" (GNP 1668: 75). In this quotation she writes love instead of self-love. I argue below that self-love is a kind of love for Cavendish. There are two important points to note about Cavendish's discussion here of self-love. The first is that all things in nature from the constitutive parts of matter to figures as bodies have self-love. The second is that love is key to keeping figures together.

The second place that self-love appears in Cavendish's natural philosophy is in her discussions of passions. In WO, Cavendish writes, "the nearest perfection of love is self-love because it is the Original of all other Passionss" (1655: 146). She goes on to claim that self-love is the cause of all passions, both vices and virtues, and all love comes from self-love (WO 1655: 145-146). She explains that everything we do has a reference to ourselves and so self-love must come prior to any other passion (WO 1655: 145). In other words, without self-love, there are no other passions. This claim is important to note because it makes her theory of passions directly relevant to what self-love is. I discuss Cavendish's theory of passions in the third section of this paper and explain that for her, passions are forms of metaphysical sympathy. Metaphysical sympathy, as I explained in the previous chapter is, for Cavendish, constituted by the attraction of figures or their imitation of properties, behaviors, or actions. I argue below that this

explains not just mental states we might consider emotions, such as love and fear, but also physical processes such as magnetism, which is attraction.

These two contexts in which self-love appears might not immediately seem to prompt an interpretation of self-love as a human-centric concept, and yet one thing that existing interpretations of self-love have in common is that they all emphasize Cavendish's analogy of figures to human societies or self-directed behavior. Boyle (2018) discusses self-love as a passion and an appetite. An important point from her discussion of self-love is the claim that matter can choose its actions (Boyle 2018: 92). Similarly, Borcherding (2021) claims that self-love is within the free control of matter (389-390). Shaheen (2022) emphasizes that Cavendish's account is a social account of matter (9). Each of these interpretations views Cavendish's theory of self-love through a human or even mentalistic perspective. One reason for this reading is Cavendish's claim that matter is self-moving and active, rather than passive as it is for mechanical philosophers (Shaheen 2021: 622).[96] Matter for the early moderns was variously interpreted as passive or active. For someone like Descartes or Hobbes, matter is passive, and as such, has no internal motion and must be acted upon to move or change.[97] Active matter has an internal principle of motion or is the agent making the change in passive matter.

Indeed, Cavendish describes matter as active in this manner, but uses the term "voluntary" instead of "active." She writes that "natural self-motions are free and voluntary" (OEP 2001: 127). Voluntary she defines in two ways as 1) actions "whose

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[96] Broad and Sipowicz (2022) affirm this point (91).

[97] Hobbes argues that actions are necessitated, not free (HBD 1999: 20).

principle of motion is within themselves, and doth not proceed from an exterior agent," and 2) actions "which are not occasioned, but made by rote" (OEP 2001: 19-20).[98] She clarifies that voluntary actions in the second sense are actions not made by imitation or patterning (OEP 2001: 35). Her use of the term voluntary as well as her claims that matter has self-motion and reason conjure debates about freedom. Questions of the freedom of will in Cavendish's theory are beyond the scope of this discussion. Before we can discuss issues related to the free will, we must determine if matter has the kind of mentality that supports such a will, so I instead focus on interpretations that view Cavendish's claims as robustly mental in the context of self-love.[99]

My overall goal in this dissertation is to offer an alternative to the view that Cavendishian matter is robustly mental or anthropomorphized. I focus on the second sense of voluntary in which voluntary actions are opposed to actions made by imitation. I argue in the previous chapter that sympathy is imitation for Cavendish and here I argue that self-love is sympathy, so a kind of imitation. While self-love has thus far lent itself to a mental or psychological interpretation, I offer a more metaphysical interpretation. I do not aim to remove the mentalistic elements of Cavendish's theory completely, however.

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[98] The secondary literature debates the freedom of matter for Cavendish. Detlefsen (2007) argues that matter has a strong libertarian free will since causation for Cavendish is occasional causation and since matter can reason (188). Boyle (2018) similarly argues that matter has libertarian free will (76-78). Cunning (2016) argues that Cavendish is a compatibilist. The debate on freedom is beyond the scope of this paper and so I limit this discussion to where self-love is voluntary in the second sense that Cavendish mentions in OEP.

[99] Cavendish would have been familiar with the Hobbes-Bramhall debate where Hobbes and Bramhall argued about freedom of action versus freedom of will. See Chapell's (1999) "Introduction" in the CUP edition of *Hobbes and Bramhall on Liberty and Necessity* for a helpful discussion of the main issues of the debate.

The mental pervades the metaphysical for Cavendish, simply not as a human type of mentality. I start by arguing that self-love is a kind of love and that love for Cavendish is a passion. The importance of viewing self-love as a passion is that Cavendish explains passions in terms of metaphysical sympathy, not in mental or psychological terms. I turn now to my main argument that self-love is a passion and passions for Cavendish are principles of metaphysical sympathy.

3. Love And Passion

3.1 Self-Love as Love

I argue that we can view self-love as a kind of love for Cavendish.[100] Cavendish discusses self-love within the context of love and claims that love of other things comes from self-love. She writes that it is the "ground from whence the love of other things springs" and "all love is from self-love" (WO 1655: 145).[101] We can understand what her claim here means with an analogy to self-knowledge. She writes, "self-knowledge [is] the ground of all particular knowledges and perceptions" (OEP 2001: 161). Matter cannot have perception, Cavendish argues, without self-knowledge. Boyle (2018) notes how self-love is innate just as self-knowledge is innate for Cavendish among other similarities between self-love and self-knowledge (93). Self-knowledge is the ground for

[100] Borcherding (2022) affirms that self-love is a kind of love (397).

[101] In her play, *The First Part of Nature's Three Daughters, Beauty, Love, and Wit*, Cavendish's character, Mademoiselle Grand Esprit, makes a speech about self-love. She claims that self-love is the root and original love in nature (PY 1662: 502).

perception meaning that it is metaphysically prior to the action of perception.[102] Cavendish is making a similar claim about passions. She writes, "the nearest perfection of love is self-love because it is the Original of all other Passionss" (1655: 145). Self-love, then, is prior to the other passions. Without love of oneself, there can be no other passions.

Cavendish's claim that self-love is the ground for love of other things should prompt the question of what this love of other things might be. Cavendish recognizes a dual concept of love: "self-love" and what she perhaps unhelpfully calls "passionate love".[103] She writes,

> Self-love, is like Self-knowledg, which is an innate Nature; and therefore is not that Love Man names *Passionate Love*: for, Passionate Love belongs to several Parts; so that the several parts of one Society, as one Creature, have both Passionate Love, and Self-love, as being sympathetically united in one Society. (GNP 1668: 68)

In this quotation, Cavendish implies that each type of love has a different object. The object of the first type of love – self-love – is, clearly, the subject's own self. To help elucidate what this means, she analogizes self-love to self-knowledge. Again, self-knowledge aids our understanding of self-love. The importance of this analogy with self-knowledge is two-fold. First, it is to claim that self-love is innate in the subject or figure just as self-knowledge is innate in the subject or figure in her system.[104] Second, it is to claim that self-love is also a kind of love just as self-knowledge is a kind of knowledge

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[102] Georgescu (2021) argues the self-knowledge is metaphysically and existentially prior to perception (625).

[103] Boyle (2018) also recognizes Cavendish's dual conception of love (93).

[104] OEP page 166 Cavendish claims that self-knowledge is innate.

and is referential to the self. In other words, self-love is love which is directed only at the subject or figure just as self-knowledge is directed only at the subject or figure.

The second type of love that Cavendish mentions in this quotation is passionate love. Passionate love is directed at an object other than the self. This is a love between numerically distinct parts.[105] She writes, "Passionate Love belongs to several Parts" (GNP 1668: 69). She goes on to claim that passionate love is something which exists between different entities. Cavendish writes, "Also, not only the Parts of one and the same Society, may have Passionate Love to each other; but, between Societies; and not only several Societies of one Sort, but of different Sorts" (GNP 1668: 69). Here passionate love is love directed at entities or parts distinct from the self. According to Cavendish, a subject can and does have both passionate love and self-love. What this love amounts to, she explains as a similarity of motions (GNP 1668: 71-72) or an imitation of action (PL 1664: 292). In the previous chapter I explained patterning as sympathy using Cavendish's descriptions of patterning as an imitation. Below I discuss love as sympathy. We might think of this dual conception of love as Cavendish's way of explaining how the parts relate to or move in relation to each other in a figure (i.e., through passionate love) vs. how individual parts relate to or move in relation to themselves (i.e., self-love).[106]

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[105] Parts here could mean either the integral parts of a figure or distinct figures as parts of nature.

[106] Peterman (2019) notes that Cavendish similarly uses "sense and reason" in two ways, as an intrinsic capacity of matter and as the sense and reason a composed figure has (494).

This dual concept of love might seem immediately problematic. First, something is either an individual or it is not. It seems contradictory that something can have both self-love which is for composed figures and passionate love which is for parts. However, the relation of parts and wholes in Cavendish's nature is complex. Georgescu (2020) argues that everything for Cavendish is ontologically both a whole and a part (639). For example, I am a whole person, and my heart is a whole organ. I can think of myself as a part of a family, and my heart is a part of my body. So, my heart has self-love since it is a finite whole but experiences passionate love with my other organs which also have their own self-love. My human figure, then, has its own self-love since it is a unified whole but experiences passionate love with the members of my family. For Cavendish, figures can be both parts and wholes, so they can have both passionate love and self-love without issue.[107] What is at issue, however, is whether Cavendish has a further account of love. Love for her, I argue, is a passion.

3.2 Self-Love as Passion

Self-love is a kind of love and love is a passion for Cavendish. Cavendish does not give an exhaustive list of passions but names a few of them such as love, hate, grief, joy, and fear (PPO 1663: 259; GNP 1668: 66). She elaborates later that love, which she describes as the prime passion, is just motion within rational matter.[108] She writes, "I will

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[107] Boyle (2018) argues that self-love of the whole figure or society arises from the passionate love of the parts and self-love accounts for the unity of the figure over time (93). Georgescu (2023) questions what it means for self-love to be innate if it arises from the passionate love of parts (7).

[108] In her philosophical fiction, *She-Anchoret*, Cavendish's main character claims that there is only one passion, and that passion manifests itself differently depending upon the object or subject of the passion (NP 1671: 632).

begin with the prime passion of Love, as thus, when as the Rational matter and motions in the Heart, make and move like Notes set, or as set Notes in Musick, Harmoniously, it is Love" (PPO 1663: 60-61).[109] Love appears in this quotation, not self-love. I have argued that self-love is a kind of love just as self-knowledge is a kind of knowledge. If love is a passion, I believe we can infer that self-love is also a passion. Cavendish goes on in WO to connect love, self-love, and passion. She writes, "the nearest perfection of love is self-love because it is the Original of all other Passionss" (WO 1655: 145). In this quotation, self-love is the original of all the other passions. By using the phrasing "other passions," I take Cavendish to mean that self-love is also a passion.

In contrast, Boyle (2018) argues that self-love is both an appetite and a passion.[110] She explains the difference between a passion and an appetite: "[Cavendish] refers to "Sensitive Appetites" and "Rational Passions," suggesting that an appetite is a motion of the sensitive matter, while a passion is the motion of rational matter" (Boyle 2018: 91). Indeed, Cavendish assigns different roles to the types of matter. Consequently, one could be responsible for appetites and one for passions. Cavendish frequently elucidates the roles of rational matter and sensitive matter with an analogy to building a house (OEP 2001: 24). Rational matter is like an architect and gives commands to the sensitive matter. The sensitive matter then carries out those commands like construction workers using inanimate matter as something like building materials. Motions in both the rational matter and sensitive matter must resemble each other in some sense for the figure to

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[109] See also PPO 1663: 59 for claims that love is the prime passion.

[110] Cavendish gives examples of figures that consist of one degree like thoughts which are figures in rational matter (PPO 1663: 57).

come about. For example, a completed house will bear a strong resemblance to its blueprint. The same can be said of appetites and passions: my desire for a piece of chocolate will resemble my appetite for a piece of chocolate.

Boyle (2018) does not elaborate on what passions or appetites could be further than offering the examples of desire as a passion and, hunger is an appetite. For example, she does not indicate whether self-love is expressed differently at different times so that it might be a passion sometimes and an appetite at other times. It is also possible that she could mean that all instances of self-love are both appetites and passions. Since she discusses the difference between appetites and passions as motions in the different degrees of matter, the implication, then, is reductive: they are only motions in matter. In other words, passions and appetites are explained solely as motions that exist within the different degrees of animate matter. This, however, is the totality of the distinction for Cavendish: appetites and passions are motions within their respective degrees of matter. She writes,

> Appetites are made by the Sensitive motions, and the Passions and Imaginations by the Rational motions. Likewise the Sensitive motions in making of Appetites do so resemble the Rational motions in making of Passions, as there is Little difference, only the Sensitive matter and motions make Appetites on the Inanimate matter, and the Rational makes Passions on its own Substance. (PPO 1663: 263)

In this quotation, Cavendish claims that there is little difference between the two entities. She goes on in GNP to claim that the wisest philosophers will puzzle over the distinction between appetites and passions (1668: 63). The implication here is that this puzzle does not have a solution. Boyle's (2018) interpretation of self-love as both an appetite and a passion align with Cavendish's claims, but this is a distinction with little difference. Boyle (2018) is correct, however, that all three degrees of matter must participate in the

formation of figures if figures refer to the first sense as bodies or the second sense as properties such as color that I discussed earlier. Figures in the third sense as either patterns (i.e., figures in sensitive matter) or thoughts (i.e., figures in rational matter) only involve one degree of matter and so in these cases, this distinction does not apply. Appetites and passions as motions within the respective degrees of matter offers an interpretation of what self-love is. This account, however, is reductive whereas I argue that passions are metaphysical sympathy. I explain my argument that self-love as a passion is metaphysical sympathy.

4. Sympathy

4.1 Self-Love As Sympathy

I have argued that self-love is a kind of love and that love is a passion. Here I explain that passion for Cavendish is metaphysical sympathy. Historically love was sometimes understood as universal love which was a force in the natural world that could not be explained in terms of physical or material phenomena (Mercer 2015: 125-127). Sympathy as a power, spirit, or an active principle that binds nature together appears in the Platonists, and even in Van Helmont (Mercer 2015: 110-113; Moyer 2015: 84-87). Sympathy as a power of nature appears in Stoic philosophy. For Cavendish, sympathy cannot be a spirit or anything over and above the material world.[111] The idea of sympathy naturalized as a metaphysical principle is well documented in Cavendish's time

[111] This claim brings Cavendish's theory closer to the Stoics'. See Broad and Sipowicz (2022: 86).

as I discussed in chapter 2.[112] To reiterate what sympathy is for Cavendish: it is constituted by the attraction of figures to one another or when figures imitate or copy each other's actions, motions, or behaviors.[113]

Cavendish frequently claims that love, as well as the other passions, are a kind of sympathy. Cavendish writes, "Wherefore, as I said in the beginning, Sympathy is nothing else but natural Passions and Appetites, as Love, Desire, Fancy, Hunger, Thirst, &c. and its effects are Concord, Unity, Nourishment, and the like: But Antipathy is Dislike, Hate, Fear, Anger, Revenge, Aversion, Jealousie, &c. and its effects are Discord, Division, and the like" (PL 1664: 293). In this quotation, she suggests that passions can be understood through the concept of sympathy. Certain emotions like love and desire are sympathies, which produce the effect of unity and concord. This claim is consistent with Cavendish's claims regarding self-love: individuation brings the of the parts of matter together into figures. In other words, a composition of parts. In contrast, divisions and discord are what we might call emotions like dislike and hatred which are antipathies.

But occasionally Cavendish does seem to claim that there is a causal relationship between sympathy and passion. She writes,

> I take Sympathy, as also Magnetisme or attractive Power, to be such agreeable Motions in one part or Creature, as do cause a Fancy, love and desire to some other part or Creature; and Antipathy, when these Motions are disagreeable, and produce contrary effects, as dislike, hate and aversion to some part or Creature. (PL 1664: 289-290)

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[112] Digby also attempts to naturalize sympathies specifically attractive motions like the loadstone to the north by explaining the phenomenon in terms of bodies in motion (TT 1644: 175-185).

[113] I argue elsewhere that Cavendish is comfortable using sympathy as an occult quality (Shaheen et al manuscript).

Here she seems to suggest that sympathy causes passions like love and that sympathy is just a motion. She claims that there are many kinds of sympathies just as there are many kinds of motions. In the PPO, she also appears to claim that sympathy causes passion. She writes, "to the Creating of those Passions that Sympathize, as Love, and Hope, and Joy, and the like, the Rational Animate matter doth as it were Spread and Dilatate it Self" (PPO 1663: 260-261). The claim that sympathy causes passions seems to go against what she claimed earlier that the passions just are sympathies and antipathies, and their effects are either unities or divisions between parts. Cavendish is more consistent, however, that passions are sympathies and antipathies. For example, she argues that the fear a sheep feels for the wolf is an antipathy meaning that the passion of fear is just an antithetical motion (PL 1664: 294). She writes, "For this Antipathy is nothing else but fear in the Sheep to run away from the Wolf (PL 1664: 293). Here it might be possible to read her as claiming that antipathy is only fear, but since antipathy is a more general concept, I believe her to be claiming that fear is antipathy.

Cavendish also claims that a resemblance exists between a cause and an effect specifically with sympathy. She writes, "for Sympathy doth not produce an effect really different from it self, or else the sympathy betwixt Iron and the Loadstone would produce a third Creature different from themselves, and so it would do in all other Creatures" (PL 1664: 292).[114] Here the cause of sympathy is not different from the effect of the sympathetic relation. Passions as sympathies and antipathies are consistent with her claims regarding the nature of passions as well as the nature of cause and effect.

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[114] It is unclear what Cavendish means by a third creature in this quotation.

Two accounts of self-love, however, conflict with my interpretation of self-love as a passion and passion as metaphysical sympathy. The first interprets passion or self-love as an emotion. Recently, scholars have commented on Cavendish's theory of passion and self-love. Broad and Sipowicz (2022) have argued that the passions for Cavendish are active emotions (91). Borcherding (2022) argues that self-love is an active, self-directed emotion (390). Claiming that either passion or self-love is an emotion is claiming that it is a feeling or mental state caused by the self-moving matter of the subject in question. I focus on Borcherding's (2021) interpretation here since she discusses self-love specifically, but my discussion of passions as emotions extends to Broad and Sipowicz's (2022) interpretation as well, since they also focus narrowly on passion as active emotion.[115]

Borcherding (2021) does not provide much justification for passions as emotions other than to contextualize Cavendish with other accounts of sympathy. Borcherding (2021) writes, "For many early modern philosophers, by contrast, love still figured as much as a metaphysical concept as it did as an emotion" (381). She characterizes love as an active emotion (Borcherding 2021: 381).[116] Borcherding (2021) also agrees that self-love unifies figures in matter and self-love serves the function of self-preservation (Borcherding 2021: 399). She gives a further account, however, of what constitutes self-love: she argues that self-love for Cavendish is sympathetic motions. Sympathy in

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[115] Lower and Sharp (manuscript) discusses passions in greater detail. See also Lower's dissertation, "Margaret Cavendish's Metaphysics of Action and Passion" for a helpful discussion of Cavendish's theory of passion.

[116] For the remainder of her paper, Borcherding (2021) uses the term "passion" instead of "emotion." I take that to mean the terms are interchangeable for her.

Cavendish's natural philosophy is not immaterial nor is it above nature: it is naturalized as a material motion (Borcherding 2021: 390). This motion is both an emotion and a principle of metaphysical sympathy. Love is an anthropomorphized emotion, and this emotion is explained in terms of metaphysical sympathy: it is the attraction of figures.

I agree with Borcherding (2021) that love is naturalized as metaphysical sympathy for Cavendish. What it means to naturalize passion is to make it as much a part of the material world as physical things. Love, for Cavendish, is a kind of metaphysical sympathy, but she naturalizes the concept of sympathy so that it is no longer above or outside of nature but rather explained as a physical principle.[117]

Considering passions as only active emotions, however, is too narrow a category for Cavendish's passion.[118] There are two reasons to support this claim. The first is that Cavendish will include things on the list of passions that are not typical human emotions. In PPO, for example, she lists the will and opinions as passions (1663: 258). The second is that entities other than humans experience passions in her natural philosophy and she appeals to passions to explain physical phenomena. She writes, "Passion and appetite are also the cause of the sympathy which is in the Loadstone towards the Iron […] The same may be said of the Flower that turns towards the Sun." (PL 1664: 294-5). Here sympathy explains the movement of the loadstone and the movement of a flower as it follows the sun. Neither of these instances concern the mental states of the loadstone or the flower, rather they concern what actions the loadstone and the flower are performing. While

[117] See also Lower and Sharp (manuscript).

[118] See also Lower and Sharp (manuscript).

emotions can be included within passions, passions are a more general concept used also for physical phenomena.

The second interpretation that conflicts with my own does not view self-love as sympathy. Shaheen (2022) discusses self-love in the context of artifacts. The focus of his project is to give a positive account of Cavendish's theory of artifacts, which are unnatural figures. She does not define artifacts but lists things like ships, watches, and telescopes. Similarly, she does not define natural figures simply lists creatures, humans, trees, and rocks. In his discussion of artifacts, Shaheen (2022) gives an account of how natural figures are individuated. He writes,

> The parts [of matter] first love one another, and then because they love one another, they start behaving in sympathy, and that sympathy ends up preserving the united creature. Cavendish's panpsychism is reflected in this account of creaturely unity: it is a social account. (Shaheen 2022: 9)

In the case of artifacts, their individuation works differently. Artifacts are inherently different from natural figures because an artisan does not have the power to make the parts love each other (Shaheen 2022: 10). Figures, then, have two different generative sources: natural and unnatural. Shaheen (2022) claims that artifacts are unstable figures which is part of the reason that Cavendish takes artifacts to be inferior to natural figures (11). Shaheen (2022) uses Cavendish's poem "A Dialogue Between an Oak and a Man Cutting Him Down" as evidence that his assessment is Cavendish's view.[119] In her poem, the tree is cut and formed into the pieces that make up a ship. The tree laments

[119] Boyle (2018) does not make this distinction between artifacts as lacking self-love and natural figures as having it. She writes, "Self-love is the basis of Cavendish's account of unity over time of societies of matter comprising humans, other animals, minerals, plants, and artifacts" (2018: 127).

that it remains a tree that experiences pain and discomfort because it is forced into an unnatural shape rather than change its identity into that of a ship.

He does not explicitly identify self-love as Boyle (2018) or Borcherding (2021) does, but implicit in his account is that self-love is a kind of feeling or mental state. What this feeling or mental state might be is unclear. Self-love could be a passion, an emotion, or an affection. Importantly, self-love on Shaheen's (2022) account is distinct from the sympathetic relations that the parts of matter have with each other in one figure. Self-love is not identical with sympathy. Love and self-love, on his account, encourage sympathy among the parts, but neither self-love nor love are sympathy. Natural figures on Shaheen's (2022) account sympathize first, then love one another passionately, and lastly sympathy explains why the figure is preserved. I agree that sympathy is essential to the formation of figures, but self-love is sympathy; it does not give rise to sympathy as it does on Shaheen's (2022) account. As I have tried to show, passion is metaphysical sympathy for Cavendish and self-love is a passion. The distinction between sympathy and self-love does not hold. Self-love is a kind of metaphysical sympathy like patterning.

4.2 Self-Love and Patterning

I argued in chapter 2 that patterning is sympathy, and I argue here that passion is sympathy. These arguments threaten to conflate self-love and patterning. There is one crucial difference, however, which is where the interior/exterior distinction is important for Cavendish's discussions. Patterning as sympathy, I argue, concerns the exteriors of external figures to produce a strong likeness of sensible properties. When we perceive something through patterning, we only perceive the exterior of a figure, not the interior. In the case of rational perception, we can perceive some of the interior, but the likeness

produced is not as strong as in patterning. Self-love, however, concerns the entire figure for two reasons. The first is that self-love is innate just like self-knowledge is innate (GNP 1668: 68). Cavendish does not explicitly state that self-love is an interior phenomenon just as self-knowledge is, but her analogy of self-love to self-knowledge suggests that this is the case. The second reason is that self-love is Cavendish's principle of individuation which, I claim, is what makes parts into a whole. Whole figures are composed of interiors and exteriors and so the sympathy of self-love includes both the interior and the exterior of the figure. The imitation includes properties, actions, and behaviors of both interiors and exteriors. On the scales of sympathy, self-love produces a strong likeness (i.e., the parts become the figure), and the likeness is extensive (i.e., both interior and exterior). Patterning and self-love are sympathetic relations but with patterning, the relation is asymmetrical and with self-love, the relationship is symmetrical since the parts imitate each other. Self-love, in my interpretation, is metaphysical rather than purely mental.

5. Social Accounts of Matter

There is an important reason for my attempt to interpret self-love as metaphysical sympathy for Cavendish rather than a mental state. Thus far, the accounts of self-love have emphasized Cavendish's analogies to human societies, and by doing so, have given matter agential or mental abilities.[120] Boyle (2018), Borcherding (2021), and Shaheen (2022) accounts differ in the details but agree in this view of self-love.

[120] Georgescu (2023) argues that we can understand creatures as societies of parts without taking societies as analogous to human societies: they are societies of parts because parts cannot exist singly in Cavendish's nature (6).

Boyle (2018) argues that self-love is a passion and an appetite and since the motions in each do not always agree, matter has the freedom to choose to self-love. She takes it to be true that the parts of matter have decision making powers and can chose to act or not. She writes, "Cavendish maintains that all the parts [degrees] of matter have the freedom to choose how to act" (Boyle 2018: 92). So, while there may be a passion present in rational matter, if it does not exist as an appetite in sensitive matter, the parts of matter will not act to fulfill the desire (Boyle 2018: 91-92). For example, I might be hungry for some chocolate because I know the taste is pleasant but if I am preoccupied, I might not act on that appetite. Since they are not always acted upon, Boyle's (2018) interpretation claims the passions and perhaps also appetites are within the realm of control. Self-love, then, would also be within the matter's control according to her. If both degrees of matter decide not to exercise self-love, then no figures form.

Figures, however, do not always seem to have the ability to choose whether they engage in love or not. For example, figures dissolve frequently from what appears to be outside influence. Creatures are susceptible to diseases which can lead to death; plants can be eaten by animals; rocks can be ground into dust. Boyle (2018) acknowledges this potential problem with her interpretation of self-love as a volitional passion and appetite. She asks, "But if the parts of a creature naturally love each other and want to maintain the creature, how can she [Cavendish] also hold that death and disintegration are natural and regular? Why would the parts stop feeling this love for each other?" (Boyle 2018: 94-95). Part of the function of self-love, according to Boyle (2018) is self-preservation. Boyle (2018) questions why if self-love is free and self-preservation is part of self-love, figures would cease their preservation. To resolve this dilemma, Boyle (2018) appeals to

normative principles. She claims that within the self-knowledge of figures is the knowledge of how long a figure should last. She uses the example of a carrot: because of the kind of thing it is, the carrot will disintegrate after a certain amount of time (Boyle 2018: 95). Boyle's (2018) appeal to normative principles avoids the tension between self-love as free, and death and dissolution as natural: things ought to die or dissolve. Matter follows these principles instead of whatever desires it might have.

Borcherding (2021) similarly emphasizes the social analogy of self-love and admits that this gives Cavendish's nature a rather fragile structure (394). This is fragile structure, she explains, is that the parts of matter only adjust their self-motions if they so desire (Borcherding 2021: 394). The implication of her claim here is that rather than natural laws that govern the body of nature, it is the psychological states of matter that determine things like figures. Borcherding (2021) bases this claim that self-love is self-directed because of the self-motion of animate matter (394). Matter, for Cavendish, is active and Borcherding (2021) takes this to entail freedom. This claim is like the claim that Boyle (2015) makes regarding matter's ability to choose to self-love. Borcherding (2021) cites as evidence that sympathy stands in opposition to compulsion with a passage from PPO 1655. Cavendish writes, "now the question will be, whether the Load-stone turns it Self towards the North, or the North turns by Compulsion, or by Sympathy" (PPO 1655: 68).[121] Borcherding (2021) interprets this sentence to have an exclusive "or" meaning that sympathy and compulsion are opposites. It is also possible to read this sentence as asserting that both sympathy and compulsion are opposed to the loadstone

[121] This passage also appears in PPO 1663 although there are other changes to the chapter (168).

turning itself, or that Cavendish is offering three options: the loadstone turns itself, the north turns it by compulsion, or it turns by sympathy. This passage is inconclusive, and Cavendish does not write about compulsion again either version of PPO. She does, however, discuss sympathy in many contexts.[122] It is not clear that Cavendish means to oppose sympathy with compulsion and so this passage cannot be taken to suggest that sympathy is always a free action.

Shaheen's (2022) view of natural figures also depends upon the social aspect of Cavendish's descriptions, and these descriptions as taken literally not metaphorically: the matter that forms a composed figure for Cavendish is analogous to a human or animal society. We can understand this social analogy by thinking of the parts of nature as people or animals.[123] Each has their own autonomy but chooses to cooperate with each other to form a figure. Elsewhere, he entertains the question of whether Cavendish's animism is a "veneer of cognitive and vitalist metaphors" or if her language can be backed up by substantive philosophical claims (Shaheen 2021: 624-625). He concludes that it is fully capable of rational activity like human agents (Shaheen 2021: 636). This claim that Shaheen (2022) makes brings his interpretation close to Boyle's (2018). The parts of matter have some kind of ability to choose whether they self-love.

My interpretation of self-love as metaphysical sympathy resolves this dilemma from these respective interpretations: if natural processes such as individuation and magnetism rely on love as a psychological state, how can Cavendish explain 1)

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[122] Cavendish mentions "sympathy" over twenty times in PPO 1663.

[123] Cavendish's "Animal Parliament," which concludes PF1, depicts the parts of an animal as autonomous agents working together for the good of the animal.

orderliness in nature or 2) death and disintegration? Recall it was articulated by Boyle (2018): what would make the parts of matter cease their love for one another? In other words, why would things die if they did not have to do so? This problem arises in Borcherding's (2021) interpretation as well (394). Nature becomes volatile like a human society. This description of nature, however, does not match Cavendish's: nature is peaceful and orderly.

These worries only arise if we take Cavendish's analogy to societies literally. The temptation there is to think of the societies of parts as *perfectly* analogous to human societies. As Peterman (2022) points out, within Cavendish's theory, there is nothing special about human or animal cognition and using human societies as analogous to figures of matter is potentially misleading. In the case of self-love, I argue that this analogy has become misleading because it injects the notion of mentality and from mentality, questions of freedom into Cavendish's account. I argue that we can take Cavendish's analogy seriously as an explanation of how the parts of matter relate to each other *sympathetically* as in a similarity of actions and motions, not *emotionally* as in a similarity of psychological states. In other words, the parts of matter do not have the same mentality that we take humans to have. For example, Cavendish claims that self-love is innate just as self-knowledge is innate (GNP 1668: 68). This claim suggests that figures do not have a choice in self-love: it exists despite what a figure may want. Self-love is part of Cavendish's natural philosophy, not just her theory of passions, which I and Borcherding (2021) have argued, can be naturalized.[124] It need not be made into a mental state.

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[124] Lower and Sharp (manuscript) argue for this as well.

Boyle's (2018) worry might be partly motivated by another claim about nature that Cavendish holds. That is the idea that nature does not run into extremes, meaning that nature's actions are balanced by contrary motions. Peterman (2022) recognizes as much. She writes, "Cavendish frequently writes that nature is "poised and balanced"; I think this is a poise and balance between the part and the whole, unity and diversity, and variety and composition" (Peterman 2022: 21). If figures as bodies form because of the free will of matter, it is likely that nature would run into extreme circumstances (e.g., animals might never die) and Cavendish would not have the resources to explain the apparent orderliness that we observe. If self-love is metaphysical sympathy, however, the question of freedom does not apply.

My aim, however, is not to strip mentality completely from matter. Recall that all matter for Cavendish is imbued with perception and reason. According to her, "all actions are knowing and perceptive" (OEP 2001: 167). Knowledge and perception are mental. This mentality, however, is not the same as human mentality. Self-love as a principle of sympathy allows Cavendish to retain the mental phenomenon inherent in all matter without sacrificing the physical effects. To return to my previous example, I might desire some chocolate, but I do not act on that desire. A mental event does not necessarily produce a physical event. In the case of self-love, the mental and the physical are the same.

6. Conclusion

Self-love plays a significant role in Cavendish's natural philosophy. It is part of her principle for individuating figures in nature and it is the cause of all passions. What self-love is, however, is not straightforward in her works. Boyle (2018), Borcherding

(2021), and Shaheen (2022) offer interpretations of what self-love might be. The concept of the mentality of matter in a social sense appears in all three interpretations, and this is the reason that freedom enters all three interpretations.

I argue that while these interpretations highlight important claims that Cavendish makes, each incorrectly interprets the concept of self-love. Boyle (2018) is correct that self-love is a passion. Shaheen (2022) is correct that sympathy individuates figures. These concepts are not different however: self-love is sympathy in Cavendish's natural philosophy as Borcherding (2021) argues. To understand how self-love is sympathy, I situate self-love within Cavendish's account of love and her theory of passions more generally. Self-love is a kind of love; love is a passion; the passions just are sympathies and antipathies in her natural philosophy. This makes self-love a metaphysical principle of sympathy. Understanding self-love as metaphysical sympathy alleviates Boyle's (2018) worry about the consequences of freedom without having to appeal to normative principles. Questions of freedom do not enter self-love if it is metaphysical sympathy rather than an emotion or mental state that figures choose to have.

In chapter 2 I discussed patterning as sympathy: it is an imitation of the exteriors of external figures. Here I discuss self-love as sympathy. The crucial difference is that that parts of matter sympathize completely. Regarding the two spectrums of sympathy, self-love produces a strong likeness and is extensive: this sympathy concerns the exteriors and the interiors of figures. The parts of matter become the figure thereby imitating actions, properties, and behaviors. In the next chapter I discuss self-knowledge, which, I argue, is part of the interiors of figures but is not a sympathetic relation because it is non-perceptual in any sense.

CHAPTER 4 SELF-KNOWLEDGE AS NON-PERCEPTUAL

1. Introduction

Self-knowledge is central to Margaret Cavendish's mature natural philosophy since she constructs a system in which self-knowledge is ubiquitous. In OEP, she writes, "first, it is to be observed, that matter, self-motion, and self-knowledge, are inseparable from each other, and make nature one material, self-moving, and self-knowing body" (2001: 137). By focusing on matter that moves and knows itself, Cavendish provides a refreshing contrast to the mechanical philosophy of her contemporaries such as René Descartes, Thomas Hobbes, Robert Boyle, and others, who conceive of matter as inert, passive, and dull. Where the mechanists explain the order and function of the natural world through laws of nature, Cavendish has no such resource to explain the apparent regularity we observe. Her conception of matter relies on self-knowledge as an explanatory tool; nature behaves in a seemingly regular manner because it is quite literally self-knowledgeable.

Although self-knowledge features prominently in Cavendish's philosophy, thus far, the secondary literature has not discussed what is unique about her theory. Boyle (2015) discusses Cavendish's epistemological commitments and argues that Cavendish holds a knowledge of normative behavior as part of the content of self-knowledge. Michaelian (2009) addresses knowledge through the interior/exterior distinction of material bodies and argues that knowing how to perform an action is part of Cavendish's theory of self-knowledge. More recently, Georgescu (2021) explores the relationship between self-knowledge and perception and offers a metaphysical interpretation of self-knowledge in which self-knowledge can be deflated to an identity claim. Each of these

respective papers have, importantly, noted Cavendish's sharp distinction between self-knowledge and perception. Nevertheless, these discussions have not fully explained why Cavendish has made such a distinction. Georgescu (2021) provides an alternative to the perceptual model of self-knowledge by claiming that self-knowledge and perception are metaphysical notions for Cavendish; the difference being that self-knowledge is wholly self-referential and perception is relational (622-623). I agree with Georgescu (2021) that perception is relational, but I attempt to preserve the epistemological nature of self-knowledge so that it is not a purely metaphysical notion.

Here I reconstruct Cavendish's arguments against the perceptual model and discuss what can be known via self-knowledge. I begin with a discussion of perception and show that Cavendish's arguments about the nature of perception contrast with her arguments about the nature of self-knowledge. I claim that from her arguments we can infer three properties of self-knowledge for Cavendish: non-perceptual, transparent, and infallible. Specifically, I argue that these properties differentiate Cavendish's self-knowledge from the perceptual model of self-knowledge. The perceptual model admits of a process, whereas I argue that self-knowledge for Cavendish does not. Crucially, what is unique about Cavendish's theory of self-knowledge is that it is as epistemological as perception, simply structured differently.

2. Perceptual Self-Knowledge

There are two reasons for delineating perception from self-knowledge in Cavendish's natural philosophy. The first concerns Cavendish's place within the early modern tradition. Many early modern philosophers, notably Descartes and Locke, have been interpreted – controversially – as subscribing to the perceptual model of self-

knowledge.[125] On this view, one's mental states are the objects of reflection in much the same way that external bodies are the objects of perception. [126] The subjects of nature come to know themselves through a type of inner sensation.[127] One possible source of confusion relates to the contemporary understanding of the term "perception." Today perception is often identified with sensory feeling alone. If I see an apple, I have a visual perception of that apple; and if I touch that apple, I have a tactile perception of it. In contrast, perception for early modern philosophers generally encompassed more than simply sense perception: it was often construed as awareness of any kind, including of one's mental states. So, just as the external object is distinct from the perceiver's thought of the object, the person's own self is taken to be distinct from their thoughts or mental states. I can see a red apple and have a visual perception of the red apple, but I can also reflect on my visual perception of that apple and draw conclusions about that perception. In other words, my means of accessing my inner life parallels my means of accessing my

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[125] See Udo Thiel's 2011 book *The Early Modern Subject: Self-consciousness and Personal Identify from Descartes to Hume* pages 111-112. Deborah Brown (2011) also explores the meaning of the perceptual model and how it relates to the idea of "inner sense" in her chapter in *Consciousness: Perception to Reflection in the History of Philosophy;* see also the chapters by Jari Kaukua and Taneli Kukkonen, and Vili Lähteenmäki in the same anthology.

[126] The contemporary philosopher Sydney Shoemaker defines the perceptual model as "the existence of mental entities and mental facts is, logically speaking, as independent of our knowing about them introspectively as the existence of physical entities and physical facts is of our knowing about them perceptually" (Goldberg 2015: 20).

[127] Paul (2019) claims that Descartes is often read as holding a "transparency-through-introspection" view of self-knowledge which means that inwardly attending to a thought guarantees knowledge of that thought (1084).

external world: through an awareness like perception or reflection of which the mind's mental states are *objects*.[128]

Crucially, perception features prominently in Cavendish's natural philosophy, and she distinguishes between different kinds of perception beyond the sensory perception of humans and animals. Perception, in general, encompasses any awareness just like it does for her contemporaries. The temptation might exist to also interpret Cavendish as claiming the subjects in nature come to know themselves through a type of inner sensation, just as we might be tempted to interpret her contemporaries.

The second reason it is important to delineate perception and self-knowledge in Cavendish's natural philosophy concerns claims she makes regarding the respective functions of the animate degrees of matter. Recall that sensitive matter is broadly but not exclusively responsible for perception, and rational matter is broadly responsible for reason. Although perception largely occurs for Cavendish in sensitive matter, rational matter can also perceive in a process that Cavendish calls rational perception. It might be reasonable to assume that rational perception affords Cavendish the kind of inner awareness that would make self-knowledge for her follow the perceptual model. As I mentioned in chapter 2, dreams for Cavendish might count as instances of true perception if we interpret the process of dreams as sensitive matter acting as the external object for rational perception. In other words, dreams might count as a type of inner awareness. Once we allow for this possibility, in which true perception occurs within the subject and

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[128] Reid claimed that in theories of perception ideas are the objects of perception rather than external objects (Simmons 2015: 91). Whiting (forthcoming) affirms that this view is complicated, but that "thought" was understood as perception (2). In this way, our means of accessing our inner lives mirror our means of accessing our external worlds.

not just between a subject and an external object, we might have cause to believe that, according to Cavendish, self-knowledge is also a type of inner awareness in which rational matter perceives.

I argue here that self-knowledge is not perceptual in any sense of the term perception. Other commentators on Cavendish have noted that self-knowledge is not perceptual. Michaelian (2009) notes that self-knowledge is never perceptive in her system (47). Boyle (2015) indicates that Cavendish uses "knowledge" in two senses: as self-knowledge and as knowledge of external objects, the former of which does not involve perception (440). While these commentators highlight that self-knowledge is not perceptual, none of them explain her arguments for why this must be so. One claim, however, is clear for Cavendish: perception requires certain enabling conditions that self-knowledge does not. First, I discuss what these enabling conditions are, and then I turn to Cavendish's arguments that self-knowledge does not require these same conditions. I argue that self-knowledge has the features of transparency and infallibility, features that do not apply to perception for her.

3. Perception for Cavendish

3.1 External Objects

Cavendish claims that self-knowledge is different from perception by explicitly contrasting self-knowledge with perception. She does this by noting two enabling

conditions that are required for perception which are not required for self-knowledge.[129] The first is that perception requires an object distinct from the perceiver.[130] She writes, "perception extends but to adjoining parts, and their exterior figures and actions" (OEP 2001: 41). She affirms this definition in GNP: "*perception* is a sort of Knowledg, that hath reference to Objects: that is, Some Parts to Know other Parts" (1668: 8). The important part of this definition is that perception gives the subject knowledge of objects or bodies external to the subject. This knowledge is of the exterior of those bodies, so the sensible properties of external bodies. For example, when I see an apple, I obtain knowledge of the apple's color. Cavendish states clearly that all types of perception involve gathering information about external bodies. She writes, "That perception, perceptive knowledge, and exterior knowledge, are all one thing, and that I take them indifferently" (OEP 2001: 173). Here she clearly defines perception as referring to external objects.

Cavendish further clarifies that a subject cannot be its own object: "nor is it proper to say, a part may perceive itself, or have a perception of itself; But by perception, I mean an exterior or foreign knowledge; that is, a knowledge of other parts, figures, or actions" (OEP 2001: 163). Here she explicitly describes perception as concerning an object distinct from the subject. Perception, then, refers only to external objects and not

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[129] In the OEP Section XXXVII Several Questions And Answers Concerning Knowledge and Perception, Cavendish poses and answers several questions clarifying knowledge and perception (2001: 155 – 194). The first question addresses the difference between self-knowledge and perception stating they are in a cause-and-effect relationship. I return to this in the next section. For a helpful discussion of the relation of self-knowledge and perception, see Georgescu (2021).

[130] Boyle (2015) affirms this point: perception pertains to external objects (439; 2018: 106).

to the self since the self cannot be an external object. Cavendish claims that self-perceptions do not occur in nature (OEP 2001: 163). I return to this claim in the next section, along with her argument on self-knowledge as transparent.

It is important to note that in each of the above quotations Cavendish uses the term "exterior." Exterior knowledge here means of anything external to the subject. A subject's mental states do not meet this criterion. Michaelian (2009) rightly notes that Cavendish frequently appeals to the interior/exterior distinct of bodies or figures to explain the difference between self-knowledge and perception (50). Recall that Cavendish does not give a clear definition of what the interiors and exteriors of figures are. What Cavendish likely means here is that the interiors of bodies align with our common notion of the mind or mental contents, while the exteriors align with the sensible qualities or properties of a body.[131] For example, my thoughts about what I ate for dinner last night are interior to myself while my hair color is an exterior property. One is available for perception (i.e., my hair color), and one is not (i.e., my thoughts). Cavendish is clear that if we know anything about the interiors of other bodies, it is by guess. She writes, "if they [the perceivers] know anything of their [external bodies] interior parts, figures or motions, it is only by guess" (OEP 2001: 41). What this will entail in terms of a subject and the subject's mental states I return to in the next section. In summation, perception requires an external object for Cavendish.

[131] Boyle (2018) claims that the natural interior motions of bodies, which are one part of the interiors for Cavendish should not be considered spatially but as the inherent nature of a thing (89). Boyle (2018) is correct in noting that this is not a strictly spatial distinction.

3.2 Imitation

The second important feature of perception in humans and animals for Cavendish is that perception requires imitation.[132] As I discussed in chapter 2, the process of perception is what Cavendish calls "patterning". This is when the sensitive matter makes a copy of the external object. Cavendish sometimes refers to this copy as a "pattern" or a "print", or simply a "copy". The sensitive matter of the perceiver is occasioned to make this copy by the presence of an external object. Cavendish writes,

> for the motions of the sentient in the act of perception, do figure out or imitate the motions of the object, so that the object is but as a copy that is figured out, or imitated by the sentient, which is the chief agent in all transforming and perceptive actions that are made by way of patterning or imitation. (OEP 2001: 18)

As Lascano (2021) notes, the presence of the external object is not the only cause of perception, but the self-motion of the subject and the motions of the external object together cause perception (418). Instead of the mechanical theory of perception in which the motions of the external object interact in some way with the subject, the external object merely occasions the subject to make a copy of the object "as it is" (Lascano 2021: 418). For example, if I see a red apple, the sensitive matter of my eye copies the visual properties of the red apple, thereby giving me a visual perception of the apple.

Lascano's (2021) assessment here highlights an important point: the perceiver and the object are both required for perception to occur. The perceiver, when patterning, imitates an external object, otherwise there is no perception for Cavendish.[133] As I

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[132] I argue in chapter 2 that this imitation is sympathy.

[133] Michaelian (2009) and Adams (2016) argue that cases of non-veridical perception support the claim that the occasional cause is not necessary for perception.

explained in chapter 2, two distinct entities are required for patterning which I claim is a sympathetic relationship.[134] In the next section I explain why Cavendish might not be willing to claim that a perceiver and their thoughts are distinct. I now turn to Cavendish's argument against the perceptual model.

4. Four Arguments Against Perceptual Self-Knowledge

4.1 A Thought Experiment

The first argument that Cavendish gives against the perceptual model comes from her last work, GNP, in the form of a simple thought experiment. She writes,

> but, put an impossible case, as, That there could be a single Corporeal Motion, and no more in Nature; that Corporeal Motion may make several Changes, somewhat like *Conceptions,* although not *Perceptions*: but, Nature being Corporeal, is composed of Parts, and therefore there cannot be a want of Objects. (GNP 1668: 8)

Here Cavendish asks the reader to imagine a world in which there is one indivisible part or one subject. That thing would be a single subject that could have conceptions or thoughts, but it could not have perceptions.[135] Conceptions are rational matter figuring itself, not sensitive matter patterning an external object.[136] Recall from the previous section that one of the enabling conditions for perception is an external object for

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[134] See Whiting (forthcoming) for an argument that patterning is sympathy.

[135] Georgescu (2021) notes that for Cavendish, self-knowledge can exist without perception, but perception cannot exist without self-knowledge (625). Georgescu (2021) takes this as a point towards grounding relations: self-knowledge grounds perception insofar as perception cannot exist without self-knowledge (625). I take Georgescu's (2021) reading here as a compatible starting point with my own: self-knowledge precedes the action of a subject, which I discuss in the third section of this paper.

[136] Lascano (2021) also makes this distinction between conceptions and perceptions: conceptions come about through figuring and perceptions through patterning (9).

Cavendish. Without external objects, there is nothing for the subject to pattern; so, in a world of only one thing, there are no perceptions, including self-perceptions. The perceiver does not pattern themselves; motions here are referred to as "conceptions" by Cavendish, not "perceptions."[137] As the last line of this quotation suggests, nature consists of divisible things, or, in other words, an abundance of objects. That makes this thought experiment an impossible case for her. In nature according to Cavendish, there are an abundance of objects which makes perception as ubiquitous as self-knowledge. These two phenomena, however, are still clearly distinct for her.

However, her thought experiment is not immune to criticisms and is simplistic in nature. We could ask whether Cavendish believes that the self is distinct from their thoughts. This is how we might think of reflection: I am not identical with my thoughts, and so I can reflect upon my thoughts in a sort of inner sense perception. This is precisely what the perceptual model argues. But Cavendish does not firmly distinguish the self from their thoughts or conceptions. Since everything is material for Cavendish and everything material has a figure (i.e., configured into some shape), Cavendish would most likely be committed to the idea that the self is just matter figured in some way which includes the figure of thoughts.[138] She writes in the OEP that the mind is material and gives the example of a man simultaneously grieving the death of one son and

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[137] Michaelian (2009) claims that conceptions can be thoughts about external objects (48-50). Boyle (2015) takes issue with Michaelian's use of the term conception as thoughts about external objects. She argues that conception refers to the motions of rational matter which can be about external objects or about things never perceived (Boyle 2015: 444). I believe Boyle's (2015) assessment is correct and aligns with my point: conceptions are internal cognitions.

[138] In PPO 1663 pages 57-59 and OEP 2001 page 150 she claims that thoughts are figures of rational matter.

rejoicing in the safe return of the other (2001:145). The mind itself, she indicates, divides physically, not just metaphorically. A complete account of what the self is for Cavendish is beyond the scope of this discussion; suffice to say that Cavendish does not give an apparent distinction between a subject and that subject's thoughts. Without a robust distinction, her thought experiment demonstrates what Cavendish desires: if there is nothing external to the subject, perceptions do not occur.

It is important to note that Cavendish's claims extend to reflection and introspection. The subjects of nature do not obtain their self-knowledge through reflection, which is a different term for inner perception. This denial of reflection as a source for self-knowledge is not a claim that Cavendish believes that subjects cannot introspect.[139] They can and do, but this is not the kind of self-knowledge that explains orderliness in the world. For example, I can reflect on my situation and draw conclusions about myself, such as where I live, my marital status, and whether I enjoy my current occupation. However, this is knowledge I reach through inference and is contingent upon my relations to other things and people in my environment. We might also be tempted to think that my hand touching my knee counts as self-perception and therefore is self-knowledge. This example is just a sensory perception for Cavendish: my hand perceives my knee, and vice versa since neither part is identical with the other. It does not refer to the kind of self-knowledge specific to Cavendish's system upon which she builds order in nature. Further, Cavendish gives another argument against self-perception on the

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[139] The section of the OEP "Argumental Discourse" is written as a sort of explanation of Cavendish's own internal reflection upon her philosophical commitments. She uses the terms "former thoughts" and "latter thoughts" to show her internal dialogue. Clearly, she accepts that reflections and internal conversations occur.

grounds that perception implies ignorance and subjects cannot be ignorant of themselves. I discuss what she means by this claim in greater detail at the end of this section regarding her argument for the infallibility of self-knowledge.

4.2 Self-Knowledge as Prior

The second important argument that Cavendish makes against the perceptual model is to argue that self-knowledge precedes perception, and that perception depends on self-knowledge. Cavendish writes, "for, though perception presupposes an innate self-knowledge as its ground and principle, yet self-knowledge does not necessarily require perception, which is only caused by self-motion" (OEP 2001: 30). To have perception, the subject must first have self-knowledge. Self-knowledge is, in some sense, prior to perception which means we do not attain our self-knowledge through perceptual means. But the important question is, what kind of dependency relationship Cavendish is describing.

Frequently, Cavendish seems to imply that this is a causal relationship: self-knowledge causes perception. She writes,

> For, though self-motion be the occasional cause of particular perceptions, by reason it is the cause of all particular actions of nature, and of the variety of figures; yet self-knowledge is the ground, or fundamental cause of perception. (OEP 2001: 155)

Here Cavendish seems to take two possibilities as one: self-knowledge is the cause of perception, and this causal relationship is the same as a grounding relationship. Georgescu (2021) notes that what is important for Cavendish's discussion is that self-knowledge can exist without perception, but perception cannot exist without self-knowledge. Georgescu (2021) takes this as a point towards grounding relations and away from a causal relation: self-knowledge grounds perception insofar as perception cannot

exist without self-knowledge (625). Importantly, Georgescu (2021) notes that inanimate matter has self-knowledge but does not have perception since it does not have self-motion (626). She argues from this point that perception depends upon self-knowledge, not the other way around (Georgescu 2021: 626). This interpretation correctly notes that perception is metaphysically prior according to Cavendish's commitments.

The claim that self-knowledge is prior to perception is an important reason that the perceptual model of self-knowledge does not apply to Cavendish. For Cavendish, something cannot be explained in terms of something antecedent. She writes,

> And this is the difference between the cause or principle, and the effects of nature, from the neglect of which, comes the mistake of so many authors, to wit, that they ascribe to the effects what properly belongs to the cause, making those figures which are composed of the aforesaid animate and inanimate parts of matter, and are no more but effects, the principles of all other creatures; which mistake causes many confusions in several men's brains, and their writings. (OEP 2001: 206)

Here she is clear that people become confused when they take effects to be causes. Self-knowledge and perception are not identical phenomena, but distinct, with perception grounded in self-knowledge. In other words, if self-knowledge can exist without perception, that makes the perceptual model of self-knowledge unapplicable.

4.3 Transparency

Cavendish's third argument against the perceptual model is that self-knowledge for the subject is transparent, meaning that a subject immediately has knowledge about

themselves.[140] How might one come to know oneself if self-knowledge is non-perceptual? The locution "come to know oneself" is misleading: this implies a process which Cavendish's self-knowledge, I argue, does not admit, since we already always have knowledge of ourselves. Instead, Cavendish endorses transparency.[141] Here transparency means that having a thought guarantees knowledge of that thought. For example, if I experience a strong emotion, that is clear to me, and I do not have to reason my way to that knowledge. I might not be aware of the exact nature of the emotion or its cause – Am I angry? Jealous? Both? Is it because someone ate the last donut or because I was late to work? – but it will be clear to me that I am experiencing a strong emotion of some kind. In more recent literature in epistemology, the standard example for transparency is a sensation of cold.[142] If a subject has the experience of being extremely cold, they are guaranteed knowledge of that sensation since it is vivid and immediate. Cavendish accepts similar claims about self-knowledge, and so this is her third argument against the perceptual model: that self-knowledge is transparent while perception is not.

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[140] My formulation of transparency is like Paul's (2019) definition of "transparency-through-having" in which merely having a thought guarantees knowledge of that thought (1083). Paul (2019) takes this to mean that self-knowledge is "easy" and "inevitable" (1085). The idea of inevitable implies infallibility. Indeed, this is like Cavendish's formulation, but she employs separate arguments for infallibility which I cover in the next section.

[141] Contemporary literature refers to a similar concept call "luminosity." This is when my mental states are immediately and directly apparent to me, something very similar to "transparency." See Goldberg (2015) and Gertler (2021) for helpful discussions on the contemporary understanding of luminosity.

[142] This example comes from contemporary literature on luminosity. See Goldberg (2015) and Gertler (2021).

Her argument in favor of transparency and against the perceptual model is 1) that, for her, having to perceive something implies coming from a state of ignorance, and 2) that self-knowledge is innate. Regarding the first, Cavendish argues it is not how self-knowledge works. She writes,

> neither do I mean an interior self-perception, which can neither be in nature, because perception presupposes ignorance; and if there cannot be a self-ignorance, there can neither be a self-perception, although there may be an interior self-knowledge. (OEP 2001: 163)

Here Cavendish is arguing that self-ignorance does not exist in nature. The implicit premise of this argument is that the subject necessarily possesses knowledge of itself, so it is impossible to have self-ignorance. Earlier in the OEP, Cavendish claims that errors do not follow from a lack of this interior self-knowledge. She writes,

> the former [her thoughts] answered, that although errors belonged to particulars, as well as ignorance; yet they proceed not from interior self-knowledge, but either from want of exterior particular knowledges, or from the irregularity of motions; and ignorance was likewise a want not of interior, but exterior, knowledge, otherwise called perceptive knowledge. (OEP 2001: 40-41)

Here, again, Cavendish confirms that errors and ignorance stem from either a lack of perceptive knowledge or from the irregularity of motions, but not from a lack of self-knowledge.

In thorough, Cavendishian fashion, she claims there is an alternate way that a subject can be ignorant. This is through division: the act of dividing up a body causes an ignorance between the parts of the body (OEP 2001: 20).[143] Cavendish believes that

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[143] The actions of composition and division are important actions in Cavendish's natural philosophy. Peterman (2019) argues that motion for Cavendish is just this composition and division or mereological change. Indeed, the concept of mereological relations appears frequently in her works one of which is here in her epistemological commitments.

knowledge can be increased when parts are added together. For example, the collective knowledge of a social group increases when people come together and diminishes when people leave the group. Self-knowledge, however, cannot be divided. She writes,

> for, as matter cannot be divided from being matter, or self-motion from being self-motion; so, neither can self-knowledge be divided from being self-knowledge; nor can they be separated from each other, but every part and particle of natural matter, has self-knowledge and perception, as well as it hath self-motion. (OEP 2001: 163)

A subject can be ignorant of external bodies but cannot be ignorant of itself. Errors occur for Cavendish through the process of perception and through division.

Regarding the second part of her argument that self-knowledge is transparent, Cavendish frequently describes self-knowledge as "fixt" or "innate" (OEP 2001: 16, 38-39, 40, 163, 166-167, 176, 194). The use of the term "innate" seems to imply its accepted epistemological usage as knowledge that comes prior to any empirical knowledge.[144] Indeed, she claims that perception and perceptive knowledge arise from self-knowledge. She writes,

> The like for self-knowledge: for, self-moving matter can but know itself; and as matter is the ground or constitutive principle of all the parts and figures in nature, (for, without matter, there could be no parts, and so no division) and self-motion is the ground or principle of all particular actions, so is self-knowledge the ground of all particular knowledges and perceptions. (OEP 2001: 161)

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[144] When Cavendish refers to metaphysical properties, she uses the language of "inherence" especially in OEP. This is usually in reference to properties such as color which she claims are one with body or, in other words, that bodies are as sensuously colored as they appear to be. See Chamberlain (2019) and Allen (2019) for Cavendish's color theory.

This is her argument which I covered above when discussing self-knowledge as prior to perception, but it bears repeating in this context: everything a subject knows starts with self-knowledge. Nowhere in her works does this admit of a process, but it is something that a subject simply has or gets for free. Unlike perception, Cavendish never gives conditions under which a subject must attain their self-knowledge; she simply describes it as interior, fixed, and innate. These two claims taken together (i.e., self-knowledge is prior, and self-knowledge has no enabling conditions) seem to commit Cavendish to self-knowledge as transparent. In other words, the absence of an explanation of a process by which a subject attains self-knowledge seems indicative within her natural philosophy of there being no such process. For example, she is committed to one subject being unaware of the knowledge of another subject. She writes, "every part has its own particular self-knowledge, as well as self-motion, which causes an ignorance between them; for, one part's knowledge is not another part's knowledge; nor does one part know what another part knows" (OEP 2001: 38-39).[145] However, she interestingly gives strict – and perhaps obvious – criteria for how one subject can attain the knowledge of another subject. She writes,

> But this is to be observed, That all Informations, Trade and Traffick in the Mind and Body, are presented from the one to the other often to and again, but the Mind in one Body cannot inform the Mind in another Body, as for one Man to express his Mind to another Man, but by the Sensitive motions and Sensitive passages, as by the Arts of Words, Letters, Hieroglyphicks, Lines, Notes, Numbers, and the like. (PPO 1663: 50-51)

Here she clearly states the obvious: communication through sensitive matter in the form of language is required to convey knowledge between minds. This quotation shows that

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[145] See also OEP 2001: 20, 39-40, 137-138, 155-194; PL 1664: 114; PPO 1663: VII-VIII, 46, 68-69, 170-173; GNP 1668: 51-52 for a repetition of this similar claim.

she has an account of what it means to gather knowledge about other minds. She is clear that there is a process of perception, and she is clear that there is a process for subjects to convey knowledge to each other. There is, however, no process to attain self-knowledge. The criteria for how a subject knows itself is notably absent, so, for Cavendish, the subject's knowledge is transparent; one is guaranteed knowledge of oneself.[146]

4.4 Infallibility

Cavendish's fourth argument against the perceptual model is that self-knowledge is infallible while perception is not. The idea that one cannot be wrong about having a mental state, whether one knows what that state is, or whether its contents are veridical, conjures Descartes' foundational claim: I cannot doubt that I am doubting.[147] This sort of epistemic certainty can, in fact, be inferred from Cavendish's descriptions. Moreover, Cavendish's claims regarding self-knowledge occupy a unique status within her general epistemology. Generally, Cavendish's epistemology does not allow for much certainty. In her view, the best that we can hope for is "probable opinion", which arises from a combination of rational and sensitive knowledge, or, in other words, from perception and reasoning.[148] Self-knowledge, on the contrary, is certain. This certainty is like, but

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[146] Cavendish also appears to claim that self-knowledge serves as a foundation for other mental states. She writes, "in short, conception, imagination, remembrance, experience, observation, and the like, are all made by corporeal self-knowing, perceptive self-motion, and not by insensible, irrational, dull, and moveless matter" (OEP 2001: 149). What this quote means is that matter is self-knowing and self-moving first and foremost, and then it can have mental events such as imagination, memories, and even perception. For a more detailed account of the priority of self-knowledge see Georgescu (2021).

[147] AT VII 28 19/CSM II Med. 2:29

[148] See Boyle (2015) for a helpful discussion of why Cavendish endorses probable opinion rather than certainty in her epistemology (447).

distinct from, transparency. The certainty of infallibility can exist without transparency. For example, I can be certain of geometric truths, like all triangles have angles measuring a total of one hundred eighty degrees, but this truth is by no means transparent.

There are two reasons to believe that Cavendish endorses infallibility about self-knowledge. The first is that she makes clear that if a subject changes, its self-knowledge changes as well. She writes,

> and since there is no part or particle of nature, but is self-knowing, or has its particular self-knowledge, it is certain, that as the interior nature of the figure alters by the changes of motion, the interior self-knowledge of that figure, alters too: for, if a vegetable should turn into a mineral, it cannot retain the self-knowledge of a vegetable, but it must of necessity change into the self-knowledge of a mineral, for nothing can have knowledge of itself other than what it is. (OEP 2001: 166)

This means that once the parts of matter that make up the subject change their figures and become something else (e.g., a vegetable figure into a mineral figure), their self-knowledge also shifts according to what they were and what they are now.

Precisely what this means, however, hinges on the reading of "change". Cavendish could be claiming that the parts of matter, once they change figures, acquire the experiences possessed by their new figure; consequently, their self-knowledge changes. To use a fantastic example of what this means, imagine that I am transfigured into a cat. I would have self-knowledge of myself as a human before the transfiguration, with all my thoughts, feelings, perceptions, and communication abilities. I would also now have the self-knowledge that comes with having a completely different perspective on the world due to a smaller stature, better eyesight and hearing, and an inability to form words. If I remain a cat, my self-knowledge might lapse completely into that of a cat. Now, we might assume that there would be some overlap, during which I would have an

awareness of both the self-knowledge of a human and that of a cat. But I do not believe this is what Cavendish means. Since she specifically states in the above quotation that matter cannot *retain* the self-knowledge of what it is not, there would be no overlap in my self-knowledge. The mental change is as stark as the bodily change. As soon as I became a cat, the human self-knowledge would become inaccessible, and vice versa.[149] If I were changed back into a human, my cat self-knowledge would then be inaccessible.

By itself, this strong connection a subject's figure has to its self-knowledge does not prove that self-knowledge is infallible for Cavendish. The second reason to believe that self-knowledge is infallible for Cavendish is her claims about perception that cannot apply to self-knowledge. She endorses three claims about perception that strongly suggest that self-knowledge is infallible. She claims 1) perceptions are subjected to error; 2) self-perception does not occur because perception implies ignorance of something; and 3) perception is directed toward bodies external to the subject. The second and third claims I explained earlier. As for the first, for Cavendish, perceiving objects gives us knowledge of them, but she is committed, without controversy, to the idea that while sensory perception is generally veridical, it can admit errors.

These errors arise from either the organ doing the perceiving or from non-ideal environmental conditions (OEP 2001: 110, 226). These errors come from the process of perception. She writes,

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[149] Cavendish might allow for the possibility that self-knowledge can be temporarily inaccessible. She writes that when a person is in a swoon or trance, their rational matter moves to a different kind of knowledge that becomes inaccessible once the swoon or trance ends (PPO 1663: 272-273).

> 'Tis true, the Mind creates the Figure of the Apple, either in Whole or in Divided parts, as the Senses do present the Object, and the Senses present the Object truly as it is, unless the Sensitive motions and passages be Distempered and Irregular. (PPO 1663: 83)

Here she claims that sensory perception gives a subject true information about an external object, except for when the sense organs themselves are defective in some way. If I am nearsighted, I might have a visual experience of what appears to be an apple, when I am, in fact, looking at a ball. Or I could be looking at a red apple, but, if the light is too dim, I might be unaware of its color. In either case, the perceptual properties of the object come to me through a process, and some aspects of that process threaten to obscure sensible properties of the object. Also, according to Cavendish, we are not always aware of our perceptions, and so they cannot be transparent, thereby acknowledging perceptions are a process. She gives the example of a man who is pinched but who doesn't realize it (OEP 2001: 150). In this case, the subject had a perception, but that perception was not registered. This is not the case with self-knowledge: self-knowledge does not require a process that might distort the information, and none of these cases could apply to self-knowledge.

Cavendish's fourth argument that self-knowledge is infallible is closely related to self-knowledge as transparent. If knowledge is not transparent, it admits errors. Two of her claims taken together, that 1) as a subject changes, its self-knowledge changes also, and 2) that she holds her three claims about the potentially erroneous nature of perception, strongly indicate that self-knowledge is infallible.

5. Conclusion

I have argued that Cavendish's theory of self-knowledge does not admit of the perceptual model, but it is a genuinely epistemological phenomenon, simply structured

differently. Commentators on Cavendish have acknowledged the non-perceptual nature of self-knowledge but have not provided a detailed account of why this is the case. Here I have reconstructed four of her arguments to show why this is the case. These include a thought experiment, self-knowledge as prior to perception, self-knowledge as transparent, and self-knowledge as infallible. From these arguments, it is clear that Cavendish has an interesting alternative to the perceptual model that distinguishes her from her contemporaries. In chapter 4, I discuss the contents of self-knowledge for Cavendish that admit of these features.

CHAPTER 5 THE SCOPE OF SELF-KNOWLEDGE

1. Introduction

In the previous chapter, I discussed some features Cavendish's theory of self-knowledge and argued that self-knowledge for her has three features: it is non-perceptual, transparent, and infallible. Here I explore the contents of self-knowledge in Cavendish's theory that admit of these features. Cavendish most often claims that a subject knows itself and its actions. Thus far the secondary literature remains divided on what this entails. Importantly, interpretations of Cavendish's theory agree that self-knowledge for her includes a minimal metaphysical claim (i.e., I exist). Interpretations disagree on what this means, and whether this is all the self-knowledge entails for Cavendish.

Georgescu (2021) claims that self-knowledge for Cavendish can be deflated into an identity claim. A subject identifies itself as itself. So, for example, I know that I am me. Michaelian (2009) argues that self-knowledge for Cavendish is know-how knowledge in which a subject knows how to respond to the activity of external figures. So, for example, my keyboard knows how to respond to the pressure of my fingers against the keys since it knows my fingers are moving. Boyle (2015) argues that self-knowledge includes a knowledge of the normative behaviors appropriate for the subject. As a human, I know that I should walk, and I am deficient if I do not do so. Recall that for Cavendish, where there is self-motion, there is knowledge (OEP 2001: 258). These interpretations of the contents of self-knowledge in her theory attempt to show the explanatory role of self-knowledge that guides self-motion and allows nature to behave in a regular, consistent manner.

I argue here that the content of self-knowledge for Cavendish is three related but different things: that a subject exists (e.g., I exist), what a subject is currently doing (i.e., present actions), and what a subject can do (i.e., possible actions). For example, I know that I exist, that I am currently typing on my computer, and that I can stop typing to perform actions such as speaking or walking. My interpretation differs from Boyle (2015) and Michaelian (2009) because these are only *possible* actions, not actions that a subject knows *how* to perform based on external stimuli or knows that they *should* perform them. Notably, these actions are as much about what my body does and is doing as they are about my mental contents: what actions a subject is performing gives self-knowledge a bodily aspect, rather than a purely mental one. Cavendish claims that a subject's actions are part of self-knowledge to explain the apparent orderliness in nature. Nature acts with regularity because it quite literally knows "its work" (OEP 2001: 159, 170).

In section 2 I explain the contents of self-knowledge for Cavendish that include a knowledge of actions and cohere with the three features I described in part 1. In section 3 I discuss what is not self-knowledge which, as Boyle (2015) argues, is the claim that God exists. I argue that this claim shares the features of self-knowledge but is not self-knowledge. I end this discussion by leaving open, as a possibility, that past and futures states also exist as part of a subject's self-knowledge. The benefit of my interpretation is that it retains the epistemological features implied by Cavendish's use of the term "self-knowledge" by viewing it as a mental state contra Georgescu's (2021) interpretation. However, as the features I listed in the previous chapter show, this mental state is minimal not robust like we might expect from human cognition.

2. What Is Self-Knowledge For Cavendish?

Self-knowledge for Cavendish is non-perceptual for the four reasons I discussed in the previous chapter: 1) Cavendish's thought experiment showing that in the absence of external bodies, internal perceptions do not occur; 2) self-knowledge is prior to perception; 3) self-knowledge is transparent; and 4) self-knowledge is infallible. These features capture the kind of mental event that self-knowledge is. I turn now to the contents of self-knowledge for Cavendish such that they adhere to these features of non-perception, transparency, and infallibility. For Cavendish, self-knowledge contains three different but related pieces of knowledge. Self-knowledge is 1) a knowledge of existence (e.g., I know that I exist), 2) a knowledge of a subject's current actions (e.g., I know that I am currently writing), and 3) a knowledge of what actions a subject can perform (e.g., I know that I can leave my desk). I take these each in turn.

2.1 Existence

Cavendish is clear on 1) that a subject knows itself (OEP 2001: 39, 138). She writes, "so every part and particle has a particular and finite self-motion and self-knowledge, by which it knows itself" (OEP 2001: 138). For example, I know that I exist; my cat knows that it exists; my rosebush likewise knows that it exists. All subjects in nature have knowledge of their existence at any given moment, and this knowledge is unique to each subject. Cavendish writes,

> for, no part can give away to another its inherent and proper particular nature; neither can one part make itself another part; it may imitate some actions of another part, but not make itself the same part: which proves, that each part must have its own knowledge and perception, according to its particular nature. (OEP 2001: 141)

I interpret "particular nature" here to be a subject's existence which is particular to that subject. I myself, as a part of nature, can imitate the actions of a cat (e.g., meowing), but I cannot will myself into becoming my cat or something like my cat because my existence is distinct from my cat.

This knowledge of the subject's existence contrasts with other facts about the subject that might emerge through reflection. As mentioned in the previous chapter, Cavendish has a transparent view of self-knowledge. This is not to say that reflection plays no role at all in her theory; a subject is capable of reflection to varying degrees. But this reflection is not part of self-knowledge.[150] While I might not need to reflect upon the fact that I exist, I could reflect upon my current situation in the world and draw some conclusions. I could determine that I am part of a family, that I have a job at a university, and that I live in a certain area of the United States. This knowledge, however, requires me to know things about the external world and my relations to them which is knowledge gained through perception. She writes, "all knowledge of exterior parts, comes by perception" (OEP 2001: 39). Cavendish would likely agree that these are beliefs I can have about myself; but would argue that they differ from self-knowledge, as they are based on my relation to other things which requires perception of other things. This knowledge would amount to something closer to probable guess: it is highly likely that I am correct about this information, but, since it is based on perception, it is also

[150] Cavendish does not distinguish between knowledge and belief, nor does she clearly outline truth conditions for our beliefs. She does allow for personal beliefs that might not be true (e.g., I believe that I am a likeable person, which is an inference I make after social interactions), but she does not give a robust account of beliefs as we understand them in contemporary philosophy.

possible that I could be wrong.[151] I do not have to reason my way to the knowledge that I exist; nor does my cat have to reason that it exists. This knowledge of what a subject is currently is transparent, infallible, and non-perceptual.

The literature on Cavendish agrees on this point: Michaelian (2009: 46-47), Boyle (2015: 441), and Georgescu (2021: 638) all affirm that a subject knows itself as a minimal metaphysical claim. Whereas Georgescu (2021) takes this claim to mean that a subject self-identifies (e.g., I know that I am me), I take a slightly more minimal reading of this claim which is that a subject knows its existence. The reason I take a slightly more minimal approach to this claim is that self-identification could imply a relational knowledge that a subject knows that it is *not* something else. Boyle (2015), however, argues for a more robust view of this claim that a subject knows the kind of thing it is. For example, I know that I am a human; my cat knows that it is a cat; my rosebush knows that it is a rosebush.

This view of self-knowledge, however, depends on a robustly normative view of natural kinds.[152] How to distinguish kinds is absent from Cavendish's work. For example, for Cavendish's contemporary Descartes, humans are distinguished from other creatures by consisting of a material body and an immaterial mind. This distinction is explanatorily deep: humans have cognition because of their immaterial minds.

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[151] Cavendish uses the language of probable guess when things are likely but not certain (OEP 2001: 100).

[152] Boyle (2018) argues for a robust view of natural kinds in chapters 4 and 5 regarding humans and creatures for Cavendish. Her argument for humans as natural kinds distinct from other types of creatures depends upon Cavendish's claims that humans desire fame.

Cavendish has no such criteria to distinguish humans from animals.[153] Cavendish claims, however, that nature delights in variety and that there are infinite motions in nature (OEP 2001: 85, 238-239). The claim of variety in nature means that Cavendish's theory does not neatly classify nature into species that follow certain acceptable behaviors.[154] The most robust criterion that she offers to distinguish anything is that humans desire fame whereas animals do not (PF1 2019: Part 2). This criterion, however, is explanatorily superficial. It explains nothing of features essential to humans only one of their desires which is to be remembered after death. Desire is by no means exclusive to humans for her.

It is possible that Cavendish uses the language of natural kinds without having a definition of kinds. However, her discussions of self-knowledge do not claim that subjects know what kind of thing they are, only that they know themselves. I turn now to 2) a knowledge of actions.

2.2 Knowledge of Current Actions

In addition to what a subject is, Cavendish is also clear that self-knowledge includes 2) a knowledge of a subject's current actions. Cavendish employs several different terms to describe this, such as each part knowing its own "office," "actions,"

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[153] Lascano (2023) argues that Cavendish has a theory of natural kinds because the interior nature of a subject determines its shape and abilities (76). I discuss shape and abilities in section 4 of this chapter.

[154] It might be that there are infinitely many kinds in nature. Cavendish would still have to provide an account of what natural kinds are for this to be the case.

"job," "work," or "duty" (OEP 2001: 39, 81, 138, 143, 151, 156, 170, 187).[155] She writes, "Nevertheless, each part knows itself and its own actions" (OEP 2001: 39); "every part knows its own work" (GNP 1668: 17); and "every part of the body knows its own office" (PL 1664: 189). Michaelian (2009: 47) and Boyle (2015: 441) affirm this point as well: a subject's self-knowledge includes a knowledge of what it is currently doing. There are two further points to note about Cavendish's claim. The first is that this makes the content of self-knowledge bodily: the subject knows its actions in its present state. For example, if my cat is purring, my cat's self-knowledge includes it is currently purring.[156] Knowledge of a subject's actions is knowledge of what the subject's body is doing.

The second important point to note about Cavendish claims is that this knowledge of actions is how Cavendish explains orderliness in nature and constitutes her alternative to mechanical motions. The parts or subjects of nature know their actions and these actions do not result from chance collisions between two bodies, subjects, or parts of matter; they are the result of matter that knows what it is doing since all actions in nature are "knowing and perceptive" (OEP 2001: 15, 139, 167, 174). Cavendish writes, "neither am I able to conceive how there could be a motion by chance, or an irrational and senseless motion; no more than I can conceive how motion can be without matter or body" (OEP 2001: 169). This quotation highlights a basic commitment of Cavendish's

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[155] Boyle (2015) cites this passage as evidence for a subject knowing what it is currently doing (441).

[156] Michaelian (2009) considers a knowledge of current actions to be behavioral, not bodily (41).

metaphysics: matter moves the way it does because it is rational (knowing) and sensitive (perceptive).

The temptation might be to interpret Cavendish as implying that a subject knows itself and *perceives* its own actions. For example, I might be tempted to say I know that I exist, that I am not one with my computer, but I can see that I am typing on my computer. This is not the case. What Cavendish means here is that I know that I have fingers, and I know that my fingers are moving. I can perceive my fingers moving, but my knowledge of my fingers moving is not rooted in perception: as I mentioned in the last section, self-knowledge and perceptive knowledge are separate for Cavendish. Michaelian (2009) also indicates that this is not a perceptual awareness of how a subject is behaving (46). Since it is not perceptual, a knowledge of what a subject is currently doing is still consistent with the three features of self-knowledge which are infallibility, non-perceptual, and transparent.

Georgescu (2021), however, argues that Cavendish's theory of self-knowledge cannot contain knowledge of actions. It is deflationary: self-knowledge is an identity claim only; self-knowledge just is the identity of the subject at a given time (638). She argues that inanimate matter also has self-knowledge but has neither self-motion nor perception, so for self-knowledge to apply to all of matter, it can only be a minimal identity claim (Georgescu 2021: 634). In other words, inanimate matter's ability to have knowledge is limited because it has none of the features of animate matter, most importantly, self-motion. Georgescu (2021) rightly acknowledges that for Cavendish, self-knowledge can exist without self-motion (632). Georgescu (2021) then argues from this claim that the only type of self-knowledge all the degrees of matter can have, is

limited to identity (638). Her argument makes self-knowledge distinctly metaphysical and removes its epistemological content.

I argue, however, that the claim that a subject knows what it is doing currently is compatible with Georgescu's (2021) reading. The idea that a part of matter knows what it is doing does not entail that it must, in fact, do something. If a subject does something, then that action will be part of the subject's self-knowledge. If it does nothing, then the contents of its self-knowledge are simply more limited, just as we might imagine that the contents of self-knowledge for my rosebush, for example, are more limited than my cat. Further, Cavendish leaves open the possibility that inanimate matter has a richer subjective experience than we might initially believe. She speculates on the possibility that inanimate matter worships and adores God just as all the parts of matter worship God. She writes, "the inanimate part may, after its own manner, worship and adore God, as much as the other parts in their ways" (OEP 2001: 38). She does not specify what it would mean for it to worship or adore God without being capable of motion. Now I turn to the last content of self-knowledge which is 3) actions a subject can perform.

2.3 Actions a Subject Can Perform

I first indicated that self-knowledge for Cavendish includes 1) a knowledge of the subject's self which all commentators on Cavendish acknowledge but disagree on what it entails. Self-knowledge also includes 2) a knowledge of current actions which Michaelian (2009) and Boyle (2015) acknowledge but Georgescu (2021) denies. This leads to 3) self-knowledge includes actions that a subject can perform. The knowledge of the actions a subject can perform is a non-normative knowledge of a subject's potential actions and these actions are directly related to the shape of the subject. One of

Cavendish's basic commitments is that matter, motion, and figure are all one thing. She captures this claim in her term "corporeal figurative motions." I discussed already that Cavendish uses "figure" in three senses: as a body, as properties of a body such as color, and as thoughts or patterns. Figure is not identical with shape in either of these senses since all subjects are figures, and figures can include shape.[157] This is important because Cavendish describes a causal connection between a subject's shape and its actions. She writes,

> as the Shape of Birds causes them to Fly, the Shape of Fish causes them to Swim, the Shape of Worms causes them to Creep […] and some particular Sorts in one and the same kind, as Fish, Fowl, Beasts, Worms, and the like, are more Agil or less Agil. (PPO 1663: 39)

In other words, the shape that a subject is, determines the kinds of actions it can perform. For example, a spherical shape can roll whereas a triangular shape cannot do so. This adds another dimension to the bodily aspect of Cavendish's account of self-knowledge: I know that I exist and that I can type, walk, or read, etc.[158] This has to do with the shape that I have: the shape of my body allows me to walk rather than remain rooted to the ground like my rosebush.[159]

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[157] The constitutive parts (i.e., rational, matter, sensitive matter, and animate matter) are no exception since they not only constitute figures but as I explained, rational matter is figured into thoughts and sensitive matter uses inanimate matter to form patterns and non-human or animal perceptions.

[158] Weinberg (2016) in her book *Consciousness in Locke*, notes that Locke and Descartes held something like a 'mental transparency thesis' which excludes a bodily aspect and only includes awareness of mental states (4).

[159] Cavendish claims that a figure's external shape rather than its interior figure or nature is responsible for its external actions and faculties (OEP 2001: 63). She uses the example of a ship that floats due to its shape rather than the nature of wood (OEP 2001: 63).

For Cavendish, nature "delights in variety," which includes actions (OEP 2001: 203). She writes, "but nature, being various, not only in her parts, but in her actions, it causes a variety also amongst her creatures" (OEP 2001: 221). One action that is ubiquitous, however, is perception and Cavendish is clear that everything in nature save inanimate matter has perception. Crucially, the subject's shape determines the kind of perception it can have. In the case of human and animal perception, I am a human and have visual perceptions because the properties of a human include eyes, while a bat has echolocation because the properties of a bat include ears that are highly receptive to the reverberation of sound waves.[160] Georgescu (2021) notes the grounding relation between self-knowledge and perception, and argues that Cavendish smuggles in a causal relationship between self-knowledge and perception (625). In other words, a subject's shape causes its perceptions. Self-knowledge, Georgescu (2021) claims, is sufficient but not necessary for perception to occur (626). She takes this to mean that subjects do not have self-knowledge of actions including perceptions since self-knowledge is only sufficient but not necessary for perception. I take this to mean that knowledge of the actions a subject can perform is consistent with inanimate matter having self-knowledge but having no actions: everything has self-knowledge but not everything has self-motion. If something has self-knowledge and self-motion, the actions it can perform come from its shape.

Let me take a moment to clarify what my interpretation entails. My interpretation is that subjects know what actions they can perform, not *how* to perform an action in

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[160] Cavendish claims that a human's upright shape makes it able to perform local motions and speak (PPO 1663: 41).

what contemporary theories call "knowledge how." Michaelian (2009) ascribes this view of knowledge how to Cavendish: a knowledge of actions includes a knowledge of how to respond to the activity of external objects (2009: 46). For example, Cavendish's theory of causation states that external objects occasion subjects to action. When I touch the keys on my computer, my fingers are the occasion for the keys to move themselves, I do not impart motion to them. Michaelian (2009) claims that this know-how type knowledge has two components: 1) knowledge of the behavior of external objects and 2) knowledge of the subject's self (45).

There are two difficulties with the claim that self-knowledge for Cavendish includes a know-how type knowledge. The first is that know-how type knowledge is anachronistic, and it is not clear in Cavendish's works that she anticipates the distinction between the different types of knowledge (i.e., propositional and know-how or practical knowledge).[161] The second is that according to Michaelian's (2009) formulation, knowledge of the activity of external figures is part of self-knowledge. I have already argued that this type of exterior knowledge comes from perception, not from self-knowledge. Self-knowledge is self-referential and cannot include the activities of external figures. It might be the case, however, that a subject knows how to perform some actions such as simple actions or actions that appear automatic. For example, respiration appears automatic upon birth and horses appear to know how to stand and

[161] Cavendish will sometimes refer to a type of knowledge we might gain by being acquainted with an external object. Whether this can be called knowledge by acquaintance is an area for future research.

suckle immediately.[162] Cavendish is clear, however, that even actions specific to a certain shape (e.g., speech to humans) must be learned (OEP 2001: 29). Georgescu (2021) rightly notes that Michaelian's claims leave open the question of how a subject might even obtain this knowledge as well as getting the priority relations incorrect: self-knowledge is prior to self-motion (634).

A further disambiguation is needed here: Boyle (2015) makes a similar claim regarding the knowledge of a subject's actions but instead of knowing *how* to do things, she claims that subjects know what they are *supposed* be doing (441). I, as a human, know that I am supposed to walk, talk, breathe air, etc. On Boyle's (2015) reading, a subject knows the normative principles of behavior for the kind of thing that it is. Of interest here is that Boyle's (2015) theory offers a solution to where this knowledge comes from where Michaelian's (2009) does not (Georgescu 2021: 634-635). Boyle claims that self-knowledge includes a knowledge of normative principles which are bestowed by God (2015: 442).[163] Indeed, Cavendish allows for the possibility that subjects know that God exists. She claims that the parts of matter, including inanimate matter, know that God exists (OEP 2001: 38). Boyle (2015) takes the discussion of God as evidence that subjects do indeed have a knowledge of the normative principles proper to their figures (442). This gives self-knowledge the content of not just what actions a subject performs, but what actions a subject *should* perform. Boyle (2015) argues that for

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[162] Cavendish uses the example of a four-legged animal standing and suckling as soon as it is born (OEP 2001: 29).

[163] Karen Detlefsen (2007) also argues that Cavendish's natural philosophy contains norms and standards of behavior making some actions fall short of these standards and thus "wrong" (175).

the parts of nature to coordinate in their orderly manner, there must be normative principles of behavior in Cavendish's system, and the subjects of nature must know these principles (441). This means that I, as a human, ought to perform such actions as speaking and walking. If I do not perform these actions, I am in some way deficient. Likewise, if my rosebush began walking, it would also be considered deficient or going against its norms. This is also consistent with the features of self-knowledge: a knowledge of normative principles as Boyle (2015) describes can be non-perceptive, transparent, and infallible.

However, arguing that self-knowledge contains these principles is also placing too much content into Cavendish's theory of self-knowledge for two reasons.[164] The first is that, as I mentioned above, Cavendish's theory does not admit of a robust definition of natural kinds. Normative principles generally follow from natural kinds and so without a definition of natural kinds in her theory, it becomes difficult to ground any discussions of what subjects should or ought to do.

The second reason that normative principles are not part of Cavendish's theory is that while Cavendish's works discuss the existence of God, they are absent any appeal to divine influence that usually dictates norms.[165] She is clear that God plays no role in nature outside of nature's creation. She writes, "Wherefore the notions of God can be no

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[164] Georgescu (2021) also argues against the normative reading because she argues that we can understand self-knowledge without adding normative principles (635).

[165] A third concern might be whether disorders exist in Cavendish's theory. For instance, Cunning (2016) claims that no irregularity and no disorders exist in Cavendish's nature because these are concepts that we impose upon nature due to our incomplete picture of the whole (172). If this is true, then it provides another difficulty for the robustly normative reading of Cavendish.

otherwise but of His existence; to wit, that we know there is something above nature, who is the author, and God of nature" (OEP 2001: 89). Georgescu (2021) also notes Cavendish's claims that we cannot understand in intentions or nature of God (635). Indeed, the subjects of nature know only that God exists, not what norms he wishes nature to follow. Since normative considerations are typically bestowed by supernatural means for the purpose of reaching a moral goal, Cavendish's nature should include such commitments. For example, the subjects in Anne Conway's nature strive towards divine perfection (PR 1996: 32). There is a clear goal for her subjects, and so there are actions that are considered right and actions that are considered wrong.[166] For Cavendish, however, no such considerations exist, making a knowledge of norms not part of a subject's self-knowledge. Self-knowledge for her is limited to what a subject is currently, the actions it performs, and the actions it can perform. These are the contents which a subject knows without perception, transparently, and infallibly. Cavendish does, however, discuss how much nature's subjects can know about God. In section 3 I argue that subjects have a knowledge that God exists, but this is not self-knowledge. It simply shares the features of transparency, infallibility, and non-perception.

3. What is Not Self-Knowledge

Thus far I have discussed what the contents of self-knowledge are for Cavendish that also adhere to the features of self-knowledge that I explained in the previous part.

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[166] We might be tempted to claim that a more local version of normativity is present that does not depend upon divine influence: we observe that trees grow, and they are deficient if they do not. Whether this is a normative principle needs elaboration. For example, Cunning (2016) argues that no true disorders exist in nature for Cavendish so a tree not growing does not violate a normative principle for trees.

Here I turn to what is not self-knowledge. Cavendish claims that all creatures in nature have an inherent knowledge of God (OEP 2001: 15-16). It is probable, she claims, that everything has this knowledge as self-knowledge (OEP 2001: 15). She writes, "it is probable that they [the parts of nature] may also have an interior self-knowledge of the existency of the eternal and omnipotent God, as the author of nature" (OEP 2001: 16). It is important to note here that Cavendish calls this knowledge self-knowledge. Boyle (2015) argues from this claim that knowledge of norms exists within a subject's self-knowledge. She argues that subjects have this knowledge of God as part of their self-knowledge.[167]

Later in the same passage, however, Cavendish explains that the parts of nature can neither perceive God nor have knowledge of his essence (OEP 2001: 17). They simply know that God exists. She ends the discussion by clarifying that the parts of nature have the knowledge of God as innate and inherent just like self-knowledge. She writes, "but I do believe, that the knowledge of the existency of God, as I mentioned before, is innate, and inherent in nature and all her parts, as much as self-knowledge is" (OEP 2001: 17). The last part of this quotation is important, and distinct from the beginning of her discussion: she is no longer identifying this knowledge as self-knowledge, rather just analogizing it with self-knowledge.

Contrary to the beginning of her discussion, Cavendish is not entitled to claim that the knowledge of God's existence is self-knowledge. The reason that she cannot make

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[167] Detlefsen (2007) also argues that normative principles exist in Cavendish's natural theory because of her argument against a chaotic world of atoms (207-208). The idea is that nature ought to behave regularly and the only way that it would do so is if the figures of nature know how they ought to behave.

this claim is because she is clear that the parts of nature only have self-knowledge about themselves. God does not exist as a corporeal entity within nature and, as Cavendish claims throughout her works, nature is not identical with God.[168] Therefore, no part of nature is God. It follows that the only thing that can have a self-knowledge of God is God himself, not the finite parts of nature or, presumably, nature itself, since Cavendish is committed to these being two separate entities: God as immaterial and nature as material. So, it cannot be the case that a knowledge that God exists is part of a subject's self-knowledge.

What can be the case and what Cavendish is entitled to claim is that these types of knowledge (i.e., self-knowledge and the knowledge that God exists) share similar features. The knowledge that God exists is non-perceptual since she argues that nothing in nature can perceive God. God is infinite, has no parts, and is immaterial which, she claims, makes him unavailable for perception (OEP 2001: 38). She claims also that inanimate matter has a knowledge of God but since inanimate matter has no motion, that knowledge isn't gained through perception (OEP 2001: 38). Self-knowledge is also knowledge that a subject has which is non-perceptual and something known innately. The knowledge that God exists is consistent with her claims that self-knowledge is non-perceptual.

The knowledge that God exists is also transparent for Cavendish since no part of nature can reason its way to God's existence. For example, Descartes, in *Meditations 3*, famously includes his argument for the existence of God. This argument begins with the

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[168] No part of nature would have as inherent in their self-knowledge their dependency on God. As I argued in the previous chapter, self-knowledge is non-perceptual which means non-relational. No part of nature can know inherently its relation to God.

knowledge that the self exists, and, from this foundation, Descartes argues that God exists necessarily. In Cavendish's theory, there is no such starting point: this knowledge is not gained reflectively. The subjects in nature do not base their knowledge of the existence of God on an argument. All the subjects in nature have it inherently just as they have knowledge of their own existence.

Lastly, subjects can have this knowledge infallibly. The knowledge of God is a simple proposition: God exists. This proposition is all that the subjects in nature know of God and Cavendish claims this knowledge is "fixt" (OEP 2001: 38). Cavendish is clear that no part of nature can know the essence of God or his intentions, something that Boyle (2015) also notes (442). In other words, subjects have only this simple claim inherent in their knowledge that can either be true or false. This claim mirrors the claim that a subject exists. Since neither claim depends upon a line of reasoning, Cavendish can say that it is infallible. The knowledge that God exists is not self-knowledge, it simply shares the same features. I now turn to knowledge that is possibly self-knowledge according to Cavendish.

4. The Possibility of Past and Future Self-Knowledge

Thus far, I have discussed the contents of self-knowledge for Cavendish. I argued that self-knowledge includes 1) an existence claim, 2) a knowledge of current actions, 3) and a knowledge of what actions a figure can perform. These contents make Cavendish's self-knowledge bodily rather than simply mental since they are about the ways in which a subject's body can and does move. I also discussed what is not self-knowledge despite an ambiguous claim on her part and an argument from Boyle (2015). The knowledge that God exists simply shares the features of self-knowledge, but Cavendish isn't entitled to

claim that it is self-knowledge. I now turn to a claim Cavendish makes regarding figures that I argue pertains to self-knowledge and leaves open the possibility that subjects know their past and future states. I leave this open as a possibility and the best interpretive option is that subjects know their past and future states because, as I have discussed, Cavendish's absence of natural kinds complicates discussions of what a subject is. Thus far, the close connection I have drawn between figures and self-knowledge indicates that this is the best way to understand her claims.

Cavendish claims that figures remain within the parts of nature after a figure has dissolved or, in other words, after the composed body of the subject ceases to be (PL 1664: 148). Here I am referring to figures in the first sense as bodies such as humans, plants, minerals, animals, etc. I, as a human, have the figure of a human; my cat has the figure of a cat; my rosebush has the figure of a rosebush. In several of her works, Cavendish claims that these figures persist even after they appear to have dispersed. She writes:

> but some will say, when a House, for example, is pull'd down, by taking asunder the materials, that very Figure of the House is Annihilated; by my Opinion is, that it is not, for that very Figure of that House remains in those materials, and shall do Eternally, although those materials were Dissolved into Atoms. (PPO 1663: 96)

What this quotation means is that after a house ceases to be the figure of a house, that figure is not lost entirely; it remains in matter in some sense. Later, in the PL, she makes two separate but related claims. The first is that the power of the figure remains within matter after that figure dissolves. She writes, "nevertheless the house being not there, it cannot be said that either place or house are annihilated[…]for the house remains still in

the power of all those several parts of matter" (PL 1664: 57).[169] Her second claim is that all figures that ever were or will be are in matter. She writes, "truly, if nature be eternal, all the material figures which ever were, are, and can be, must be also eternal in nature; for the figures cannot be annihilated unless nature be destroyed" (PL 1664: 148). Nature here is nature as a whole, which Cavendish claims cannot be destroyed (GNP 1668: 11; OEP 2001: 69). The second part of this quotation could indicate her basic commitment: matter cannot exist without being figured in some way.

Cavendish makes a similar claim again in OEP. She writes,

> Neither are they [creatures] created anew, because they are of another form or figure than when composed into one concrete body: for, there's nothing that is material, which is not pre-existent in nature, no, nor figure, motion, or the like, all being material, although not always subject to our human sensitive perception. (OEP 2001: 236)

This is like the claim from PL that all figures which have existed or will exist are eternally in nature. I have argued thus far that a subject's self-knowledge includes a knowledge of bodily states such as what the subject's existence, what it is doing, and what it can do. I argue here that these claims Cavendish makes about a figure subsisting in its parts after it ceases to be is a claim about knowledge. A subject's existence and what a subject can do are linked to its figure or arrangement of corporeal parts. Cavendish is clear on this point:

> and since there is no part or particle of nature, but is self-knowing, or has its particular self-knowledge, it is certain that as the interior nature of the figure alters by changes of motion, the interior self-knowledge of that figure, alters too: for, if a vegetable should turn into a mineral, it cannot retain the self-knowledge of a vegetable, but it must of necessity change into the self-knowledge of a mineral. (OEP 2001: 166)

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[169] She makes a similar claim in GNP. She writes, "But, mistake me not, I do not say those [particular] Figures are lost, or annihilated in Nature; but only, their Society is dissolved, or divided in Nature" (GNP 1668: 28-29).

Here, Cavendish links figure with self-knowledge. She goes on to claim that a figure cannot have knowledge of anything other than what it is, and claims that as a figure changes, so too, does its self-knowledge (OEP 2001: 166). Of composed bodies, figures in the first sense as bodies, she writes,

> each would have such knowledge and perception, as the nature of their figure required: for, self-knowledge alters as their own parts also; perception alters as the objects alter; figures alter as the actions alter; and the actions alter as natures pleases, or is decreed by God to work. (OEP 2001: 171)

This is an important distinction since Cavendish uses "figure," as I mentioned, in three senses: bodies, sensible properties, or thoughts and patterns. A complex body, such as a human, consists of many different figures (e.g., thoughts, bones, blood, organs, etc.) that make up one whole figure (i.e., the figure of a single human). The word "part," however, could denote several different things in Cavendish's metaphysics. It could, for example, refer to one of the three degrees that compose matter in her system, (i.e., the rational degree, sensitive degree, or inanimate degree).[170] These degrees of matter have their own self-knowledge. This means that, for example, the inanimate part knows that it is the inanimate part, but when it assumes the figure of a human, for example, it has the self-knowledge of constituting a human figure. The term "part" could also refer to finite things in nature such as creatures or inanimate objects. I, for example, am a part of nature and am a finite creature. In either case, parts and figures are subjects, but I will continue this discussion using the term "figure" in a way that excludes the constitutive

[170] Occasionally Cavendish refers to these as the constitutive parts of nature (OEP 2001: 27).

parts of nature since the finite creatures or bodies of nature are at issue, not the composition of matter itself.[171]

I return to the question as issue: how can a figure remain within the parts of nature? A few interpretations present themselves here. She could mean the literal figure, which is the figure of my cat, for example, will endure in nature. For example, all the cats that have ever been still materially present in nature. This interpretation is unlikely, however, because Cavendish recognizes that bodies change, that creatures do not live forever (PL 1664: 350).

She could also mean that the species of the figure, for example the human figure, remains in existence if there is but one instance of that species. If there is at least one human alive, the human figure remains within nature. Indeed a few passages in OEP suggest that Cavendish is committed to this more metaphysical view of figures, and this has nothing to do with epistemology. She writes:

> nor doth the race of mankind seem either more or less now, than it was in former ages: for, every species of creatures, is preserved by a continued succession or supply of particulars; so that when some die, or dissolve from being such natural figures, others are generated, and supply the want of them. (OEP 2001: 134)

This view hinges on the definition of a natural kind. I have already given reasons to suggest that a robust view of natural kinds does not exist in Cavendish's theory. This cannot be what she means when she claims that figures exist eternally within nature.

Instead, I argue that Cavendish commits herself to the claim that the parts of matter retain the knowledge of these figures. This view that I am defending is that matter

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[171] The constitutive parts cannot change from what they are and retain their respective functions. The rational part will always be the rational part, sensitive always the sensitive, and inanimate always inanimate.

has the power to retain these figures but specifically, this power belongs to the self-knowledge of matter. Generally, materialists are not entitled to claim that anything persists after a body is dissolved. For materialists, there is no immaterial soul, and the material stuff goes on to make up another body. This is mostly true for Cavendish as well. Once a body disintegrates or dies, its matter becomes something else (PL 1664: 218). For example, once a flower on my rosebush has bloomed, it falls and becomes part of the soil. Yet, this claim that figures persist in nature still needs to be understood. Another explanation, and the one that I argue is correct, is that the knowledge of these figures remains within the parts of matter. Once the parts that constitute a flower on my rosebush have turned into soil, they retain the knowledge of being a flower. I base this interpretation off the close connection that Cavendish draws between figures and self-knowledge, and by eliminating other possibilities such as the eternal existence of the literal figure or the natural kind of a figure.

My interpretation, however, threatens to conflict with the idea of transparency. I am a finite creature or finite composition of figures, and so the matter that makes up my human figure was something else before it was me. Even the apple I ate this morning was matter that did not belong to my figure until I had consumed it. But I can seem to recall only the knowledge of being a human. I do not have the knowledge of the apple I ate, nor can I recall any knowledge of what my matter was before. I, also, cannot seem to anticipate the knowledge of being whatever else my matter might become after my human figure dissolves. How could I have this knowledge without it being transparent to me? One possibility is a type of natural language translation. Cavendish writes,

> also Rational motions may Move as to another Sort or Kind of Knowledge, like as Different Languages, so Different Knowledges, not understanding each other, like as a Point or Pen, that Writes upon a Table-book, so the Animate matter may Write Several Knowledges, which can be Rubb'd out or Writ in, as often as the Pen and book remains. (PPO 1663: 273)[172]

She continues, arguing that knowledge in a different language remains knowledge whether it can be understood or not. So, for example, Descartes' works in Latin contain the same information as the English translations. One I can read, and one I cannot; but if I had both copies, I would not claim that one does not contain information simply because I cannot read it. Cavendish provides a distinct example of this type of natural language translation error occurring in a person whose figure has not changed into a different type of body, that of a man in a swoon: his natural language changes so that his rational matter briefly cannot translate the knowledge (PPO 1663: 270-271). She argues that the rational and sensitive matter of the person move to the *use* of the reason and sense of another figure, and this is the cause of the swoon (PPO 1663: 271). This knowledge, then, can exist within the parts of matter, but since the parts are not presently engaged in that figure, the knowledge is not transparent. Cavendish already has the resources to explain how this knowledge can be disused since she employs the same reasoning with motion that is not currently in use. She claims that motions are not annihilated in nature either, simply disused, but that particular motion can be used again (PPO 1663: 96).[173] Knowledge, like motion, can be currently in use, or it can be used but not gone.

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[172] This claim appears in PPO 1655 in Part 1 Chapter 40.

[173] It was indicated to me that Adams (2021) incorrectly reads Cavendish as claiming that motion is "diffused" rather than "disused" (504).

My interpretation also creates the possibility that knowledge of future states and figures inheres within the parts of matter. If all the figures that will ever be exist within matter, then the knowledge of them must exist as well. This claim seems weaker than the claim that knowledge of past states exists within the parts of nature, but it is a claim I argue she endorses. Cavendish is committed to the idea that nothing new will ever be created (OEP 2001: 69). She claims in the OEP, "but nature is and continues still the same as she was, without the least addition or diminution of any the least thing or part" (2001: 69). So, for example, no new species of animal will be added to nature: all the animals that ever will be, have already existed.

Two features of Cavendish's nature complicate my interpretation. As already mentioned, Cavendish does not provide a robust definition of kinds with which to bolster my position. This complicates my proposal in that if the knowledge of figures exists within matter, the process by which figures come about either must be in a deterministic sense or in a teleological sense. The former implies that my matter was always going to come together to make *me* specifically while the latter implies that my matter has a knowledge of humankind. For example, the existence claim that I am me does not elucidate as much about a figure in question. If the actions a subject performs and can perform hinges on shape rather than the kind of thing something is, we get a physical explanation rather than a metaphysical explanation of identity, which is less substantive. For example, figures only remain in matter if a subject changes from the kind of thing it is into a new kind. I leave it open as the best interpretive possibility that Cavendish means that knowledge of the figures that matter was or will be exists within its parts. Cavendish does see nature as orderly, and her natural philosophy explains this orderliness

through perceptive, knowing, and self-moving matter (OEP 2001: 145). Having knowledge of the figures that matter will become would explain the orderliness of nature without appealing to teleology. This remains problematic, however, because it hinges on a more developed account of kinds and species than is present in her works. It remains unclear whether in her theory if the shapes of figures are as explanatorily strong as natural kinds.

The second feature of nature that complicates my interpretation is Cavendish's theory of time. Her theory has yet to be understood but she suggests that time does not unfold in a linear fashion as we might assume. She writes, "neither is there such thing as Time in Eternity, but only what change of Motion makes" (PPO 1663: xxix). Earlier in PF2, she doubts that anything but the present exists. She writes, "In Nature there is no such thing, as Number, or Quantity; for Number, & Quantity have only reference to division: neither is there any such thing as Time in Eternity; for Time hath no reference but to the Present, if there be any such thing as Present" (PF2 1653: 4). If only the present exists for Cavendish, then there cannot be knowledge of past and future states. Since it is unclear, however, how to interpret her theory of time, I cannot say definitively that time does not exist for her. Her theory of time is beyond the scope of this discussion, so I again leave it open as a possibility that a subject has knowledge of past and future states.

5. Conclusion

My interpretation that Cavendish's theory of self-knowledge is non-perceptual as well as transparent and infallible leaves open the question of what content admits of said features. Additionally, secondary literature is divided about the contents of self-

knowledge for Cavendish. Boyle (2015), Georgescu (2021), and Michaelian (2009), respectively, have argued for interpretations of Cavendish's theory, and each have rightly noted some features. Georgescu (2021) rightly argues that self-knowledge includes a minimal metaphysical claim, and Boyle (2015) and Michaelian (2009) rightly argue that self-knowledge includes a knowledge of a subject's actions. While Georgescu (2021) interprets self-knowledge as wholly metaphysical, I argue that self-knowledge is genuinely epistemological, which is the key to explaining the orderliness of nature for Cavendish. Boyle (2015) and Michaelian (2009) argue that a knowledge of behaviors, either in the form of norms, or knowledge how, is included in self-knowledge to explain the regularity of nature. In contrast, I argue that this builds too much content into Cavendish's theory. Cavendish's works do not support a reading of normative behaviors, and so the content of self-knowledge is limited to a knowledge of actions.

Cavendish's claims regarding what is known through self-knowledge commit her to self-knowledge having a bodily, as well as a mental, aspect. I, as a human, have the self-knowledge that I exist, but I also have knowledge of what I am currently doing and what I am currently capable of doing. More controversially, I argue that Cavendish's metaphysical commitments coupled with her epistemological commitments, open the possibility that the subject has knowledge of its past and future states. While these past and future states might hinge upon a robust definition of natural kinds, which Cavendish does not articulate, the idea of the parts of nature knowing their past and future states allows Cavendish to conceive of nature as regular without appealing to teleology. Nature operates regularly because it knows what to do. In the next chapter, I return to

Cavendish's theory of perception and discuss a potential problem with visual perception in humans and animals.

CHAPTER 6 VEIL OF LIGHT: THE ROLE OF LIGHT IN VISUAL PERCEPTION

1. Introduction

Nature's Dress

The Sun crowns nature's head with beams so fair:

The Stars do hang as jewels in her hair.

Her garments made of pure bright watched sky,

Which round her waist the zodiac doth tie.

The polar circles are bracelets for each wrist;

The planets round her neck do twist.

The gold and silver mines, shoes for her feet,

And for her garters are soft flowers sweet.

Her stockings are of grass that's fresh and green;

The rainbow is like colored ribbons seen.

The powder for her hair is milk white snow,

And when she comes, her locks the winds do blow.

Light, a thin veil, doth hang upon her face,

Through which her creatures see in every place.

-Margaret Cavendish, *Poems and Fancies*[174]

[174] This poem has three different editions: 1653, 1664, and 1668. I use here the online critical edition edited by Blake (PF1) which considers the changes made over the three publications.

Light plays an important role in theories of vision since we typically need it to see.[175] In the early modern period, mechanical philosophers such as Hobbes and Descartes appeal to light or the medium in their causal explanations of visual perception and, more specifically, of perceptions of color. On the mechanical story, motions from the objects of perception are transferred through the mediation of light to strike the sense organs causing visual perception and the appearance of colors. Cavendish, however, claims that perception works differently from the mechanical story. For her, motions do not strike the sense organs causing visual perception but rather, the cause of perception is the self-motion of animate matter. The objects of perception merely occasion the perceiver's own self-motion. One potential troubling implication of her view is that light seemingly plays no role in visual perceptions. Cavendish, however, cannot ignore simple empirical facts: we tend to need light for visual perceptions. She must explain why this is the case if light does not play a causal role in visual perception.[176]

Cavendish does not completely ignore this empirical fact. She writes that light "presents" or "reveals" objects to our optic nerves. She claims in OEP, "but light only doth present exterior objects to our view, so as we may the better perceive them" (2001: 77). The goal of this chapter is to determine the role of light in visual perception for Cavendish and explain what the locution of "presents" means given her views that 1)

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[175] A version of this chapter appears in *Ergo*: https://doi.org/10.3998/ergo.5188.

[176] There are two senses of the term medium: one in which something allows for the transmission of light and the other in which something is an intermediary for vision. For Cavendish, this term refers to the latter, but, as I explain in section 4 of this paper, she struggles with this distinction.

animate matter has self-motion and that 2) bodies are "sensuously colored", that is, colored in the way they appear to be.[177]

The plan is as follows. In section 2 I explain why it might seem that light has no role in visual perception by explaining the main features of Cavendish's theory of perception. I show that for her, light cannot have the same roles that it does for mechanical philosophers by discussing two of her contemporaries, Hobbes and Descartes, whose works she argued against. In section 3 I explain the ontological status of light, and the related phenomenon of darkness, and the medium as Cavendish describes. I draw out her claims that these all must be bodies themselves with their own motions and sensible properties. I argue that the medium is a heterogenous body consisting of light, air, and sometimes water. In section 4 I propose that the role light plays in visual perception for Cavendish is that of a "chameleon" or reliable copier. This means that light makes a copy of an external body like a mirror, and the object of visual perception is this copy in the body of light rather than the external body itself. Instead of being directly acquainted with external bodies, we are directly acquainted with light, and these copies made in the body of light. In section 5 I discuss some possible objections to the idea that we perceive copies of objects in the veil of light.[178]

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[177] Allen (2019) and Chamberlain (2019) argue bodies for Cavendish are colored as they appear in our visual perception. I take the locution "sensuously colored" from Chamberlain's (2019) paper (295).

[178] A common early modern concern was the with the "veil of ideas" in which it appears that we are not acquainted with objects but rather only with our own ideas of objects (Simmons 2015: 91). The title to my paper is both a play on this concept and from Cavendish's own description of light in her poem "Nature's Dress."

2. Perception As Patterning

Cavendish's account of perception stands apart from many of her contemporaries. As I mentioned in chapter 2, her theory of human perception is unusual because of the three main features of occasional causation, object dependence, and color realism. Here, I focus on occasional causation and perception in general that is ubiquitous in matter, not just human and animal perception. First, because of self-motion, matter does not require collisions from contiguous bodies for motion. She writes, for example, that when a hand tosses a ball, the hand is the occasion of the movement, and the ball moves itself (OEP 2001: 140). Cavendish's account of occasional causation provides her framework for perception: the objects of perception merely occasion the sense organs to move themselves and produce a sensory perception. Second, perception is ubiquitous throughout matter. The aforementioned example of a hand moving a ball is an instance of perception for Cavendish: the ball perceives the hand and then the ball moves itself accordingly.[179]

For this to work, Cavendish's material system is built upon three degrees of matter existing in a blended commixture which cannot be separated. For my purposes here, the three degrees have two main differences: differences in motion or movement, and differences in function. The three degrees of matter that Cavendish recognizes are rational, sensitive, and inanimate degrees. Lascano (2021) describes the three degrees of matter as differences of freedom in terms of movement: rational matter has the most

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[179] O'Neill's "Introduction" argues that Cavendish's occasional causation is like the Stoics in that the nature of the ball is the principle and perfect cause of the ball's motion (OEP 2001: xxxii). Lascano (2021), in contrast, argues that the perceiver (i.e., ball) is not the entire cause but that the external object (i.e., hand) plays a role as well (418-19).

freedom while inanimate matter has the least (414). In other words, rational matter has the most motion, sensitive matter has less motion, and inanimate matter has no motion. In terms of function, broadly speaking, Cavendish usually aligns the rational degree with mental events like thoughts, ideas, conceptions, remembering, etc. whereas the sensitive degree is largely responsible for sensory perception through a process called "patterning" (OEP 2001: 182; PL 1664: 26). Since inanimate matter has no inherent motion, it is moved by sensitive matter (OEP 2001: 157; GNP 1668: 5). I discuss the freedom of rational matter in greater detail in the next section.

The entire process of perception, however, requires all three degrees of matter. The process starts when the sensitive matter of sense organs is occasioned by an external object. The sensitive matter makes a "pattern" or a copy of the external object and then the rational matter imitates that pattern to create ideas in the mind.[180] The inanimate degree of matter is moved by the sensitive matter to create these patterns (OEP 2001: 24). Cavendish writes, "My sense and reason does observe, that the animal, at least, human perception, performed by the sensitive and rational motions in the organs appropriated for it, is made by patterning or framing of figures, according to the pattern of exterior objects" (OEP 2001: 169).[181] For example, when I touch some sandpaper, the sensitive

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[180] Adams (2016) and Lascano (2021) discuss whether the external object causes patterning. Michaelian (2009) defines patterning as an imitation or copy of external objects (39).

[181] Cavendish mentions two processes: figuring and patterning. Figuring is an umbrella term for the actions of self-moving matter and patterning is just a species of figuring (OEP 2001: 170). Patterning is exclusive to sensory perception since sensitive matter patterns external objects. Figuring includes the motion of thoughts as when rational matter figures itself into a thought. Cavendish considers dreams and generation, which are both actions of sensitive matter, figuring and not patterning.

matter of my skin patterns out the texture, the rational matter then takes that pattern, resulting in the feelings of the texture becoming an idea in my mind.[182] Rational matter's role also includes compiling different sensory experiences together into one object.[183] For example, when I have a sensory perception of a single object like sandpaper, my eye patterns the color, my nose the scent, and my hand the texture. Rational matter binds these into one coherent picture in my mind (PPO 1663: 82).

Although there is generally a division of labor between the degrees of matter, some overlap exists between the functions of rational and sensitive matter. Sensitive matter can move without the presence of external objects such as when we dream. Rational matter, as I discussed in chapter 2, can sometimes perceive external objects in what Cavendish calls a "double perception" (OEP 2001: 150).[184] This overlap allows her to account for many instances of perception in general, not just sensory perception. My discussion, however, concerns the basic act of sensory perception and, more specifically, visual perception, such as my eye patterning color.

The part of Cavendish's process of sensory perception at issue here is how patterning is occasioned. This part of her process indicates a potential problem. When I see a red apple, according to Cavendish, my optic nerves copy the apple making a pattern or print of it. Nothing else is seemingly needed for visual perception on Cavendish's account other than an external body to occasion the sensitive matter of my eyes. But a

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[182] Lascano (2021) notes that for Cavendish there are two causes of perception: the external object and the self-motion of the perceiver (418).

[183] See chapter 2 for a discussion of rational perception.

[184] See chapter 2 for a discussion of double perception as rational perception.

simple fact remains that Cavendish must account for: I tend to see when light is present and not when it is absent. Because of this simple fact, theories such as the mechanical theories of visual perception tend to give light a causal role. In fact, for two of Cavendish's mechanical contemporaries, Hobbes and Descartes, light has two important roles. The first is to cause visual perception. For example, Hobbes claims that sensory perception requires pressure from the objects of perception on the sense organs. Hobbes writes, "The cause of sense is the external body or object which presseth the organ proper to each sense, either immediately, as in taste or touch, or mediately, as in seeing, hearing and smelling" (1651: 1–2). In the case of seeing, he offers a more in-depth discussion in the EW I that involves resistance within the perceiver. He writes,

> the sun doth by its simple circular motion thrust away the ambient ethereal substance sometimes one way sometimes another, so that those parts which are next the sun, being moved by it, do propagate that motion to the next remote parts, and these to the next, and so on continually [. . .] the foremost part of the eye will at last be pressed; and by the pressure of that part, the motion will be propagated to the innermost part of the organ of sight, namely, to the heart; and from the reaction of the Heart, there will proceed an endeavour back by the same way, ending in the endeavour outwards of the coat of the eye called the retina. But this endeavour outwards [. . .] is the thing which is called light, or the phantasm of a lucid body. (1656: 448)

Here motions from a light source transfer through the medium to the eye and impact the eye. The resistance of the body's own motions against this motion from a luminous body is light for Hobbes.[185] Descartes similarly takes light to be motions transferred through the medium and which strike the eye causing sight. He writes, "I would have you consider the light in bodies we call 'luminous' to be nothing other than a certain

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[185] In EW VII, Hobbes indicates that when a perceiver rubs their eye, light is produced (1662: 27).

movement, or very rapid and lively action, which passes to our eyes through the medium of the air and other transparent bodies" (*Optics I*, AT VI 84/CSM I 153).

For Cavendish, however, light cannot play this role in visual perception. Occasional causation and self-motion, not impact or a transfer of motions, explain sensory perception including visual perception. She writes in the PL, "for Perception is but the effect of the Sensitive and rational Motions, and not the Motions of the Perception; neither doth the pressure of parts upon parts make Perception" (1664: 18). Her criticisms are well documented in the works of Adams (2016) and Boyle (2019) so I will not elaborate on her arguments here. Broadly, Cavendish views what Boyle (2019) terms the "pressure model of perception" (PMP) which Hobbes furthers as unable to explain the variety of sense perception (238).[186] Adams (2016) affirms this point and highlights the case of sight at a distance and details Cavendish's claim that Hobbes's pressure model should not cause perceptions at a distance when, clearly, we are able to see things far from us (198). This means that for Cavendish, pressure in the form of light does not need to strike the eye to cause visual perception.

The second role that light plays for the mechanical philosophers is in the explanation of colors, correlating kinds of light and the colors perceived. Hobbes and, to a larger extent Descartes, made light responsible for our sensory perception of color.

[186] Adams (2016) affirms this point claiming that Cavendish's diversity of motions (i.e., composition, division, dilation, and contraction) provide a greater explanatory potency than Hobbes's simplistic model (210).

Descartes argues that light's interactions with our optic nerves produces the colors we see.[187] He writes,

> Among the latter, again, some bodies cause the [light] rays to be reflected without bringing about any other change in their action (*viz*. bodies we call 'white'), and others bring about an additional change similar to that which the movement of a ball undergoes when we graze it (*viz*. bodies which are red, or yellow, or blue, or some other such color). (*Optics I,* AT VI 92/CSM I 156)

Colors—or, better, our experiences of colors—are caused when light rays strike a body, are reflected at differing angles, and enter the optic nerve. In the case of black, light is not reflected to our eyes, and since this does not occur, we do not have a visual perception (*Optics I,* AT VI 92 CSM I 156). Hobbes takes a similar view in the EW I writing that white is the presence of light and black is the absence of light (1656: 464). He admits, however, that his account gives no detailed information about the formation of other colors. They both agree that black is privation: we see the color black when either no light is reflected off a body or when there is no light present.

Light as responsible for our visual perception of colors, however, is not a role that light can play in Cavendish's theory, either. For her, bodies are typically colored as they appear to be.[188] She writes, "colour is as much a body as place and magnitude, which are but one thing with body" (OEP 2001: 81). For her, our visual perception of color uses external bodies as literal patterns as I discussed in chapter 2. The copy or representation of color which occurs in our visual experience resembles the actual object in a kind of

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[187] It was brought to my attention by an anonymous reviewer at *Ergo* that Cavendish mentions nature's geometry and mathematizing perception (OEP 2001: 77, 87) which could be an allusion to theories of refraction that make visual perception a function of geometric calculation.

[188] This point is affirmed both in Allen (2019: 61) and Chamberlain (2019: 299).

naïve realism. The world exists for her, as Chamberlain (2019) puts it, in Technicolor (299).

One of Cavendish's main arguments for why light cannot be responsible for colors concerns how the mechanical philosophers explain black and darkness. Hobbes's and Descartes's view that light is causally necessary for visual perception implies that there cannot be any visual perception in the dark. For Cavendish, when it is dark, we do have a visual perception: we visually perceive the body of darkness (OEP 2001: 77).[189] Her claim has the interesting conclusion that not only is light not the cause of perception, but it is also not necessary for visual perceptions in general. But here I want to focus on her argument that the perception of black is, in fact, a positive visual perception. Cavendish affirms this point in the OEP by arguing against the claim that we have no visual perceptions in the absence of light. She writes,

> They will say, We perceive darkness only the absence of light: I answer, if all perception of the optic sense did come from light, then the perception of night or darkness would be no perception at all; which is a paradox, and contrary to the common experience, nay, to sense and reason; for black requires as much perception as white, and so doth darkness and night. (OEP 2001: 77)

For her, the color black or darkness is an object of visual perception. This is more in line with our common locution as she indicates (i.e., "I see black"). Relatedly, a perception of black, then, does not necessarily entail an absence of light.[190] Cavendish writes, "But if a fair white lady should bruise her arm, so as it did appear black, can anyone believe that

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[189] See Allen (2019) for a helpful discussion of this argument (70).

[190] This distinction between Cavendish's arguments that 1) light is not necessary for perception and 2) the perception of black should entail an absence of light for Descartes was indicated to me by an anonymous reviewer at *Ergo*. This distinction also appears in Allen (2019: 71).

light would be more absent from that bruised part than from any other part of her arm that is white?" (OEP 2001: 75). Cavendish holds that there is just as much light on the bruised part of her arm as opposed to the unbruised part.[191]

While light cannot be either the cause of perception or responsible for the color of bodies, Cavendish acknowledges that light has some role in visual perception. She writes, "but light only doth present exterior objects to our view, so as we may the better perceive them" (OEP 2001: 77); "the property of Light is to divulge Objects" (GNP 1668: 213); and "the sensitive Motions cannot find the outward objects to pattern out without exterior light" (PL 1664: 67). Light's role is to divulge or present objects to our visual perception and to aid our sensitive matter in finding the objects, but what this means given Cavendish's commitments to occasional causation is not straightforward. To explain what she means, we must first look at what light is for Cavendish, and the other bodies that could affect visual perception such as the medium.

3. The Nature of Light, Darkness, and the Medium

Cavendish acknowledges a few different bodies that might affect visual perception and they each have their own features. Imagine this scenario: you are sitting at your computer at night and your desk is illuminated by a lamp. There are several elements in this scenario: you, your computer, the lamp, its light, the darkness in the background, as well as whatever exists between yourself and your computer. You as the

[191] We might worry that Cavendish is not entirely clear about the ways in which objects reflect and absorb light. But she was certainly not alone in this in the 17th century.

perceiver are a material body, as is your lamp and computer.[192] But, perhaps surprisingly, the light, the darkness, and the stuff between you and your computer are also material bodies for Cavendish.[193]

The claim that all these are bodies is consistent with her view that the world is a material plenum: there are no empty spaces, only material bodies.[194] Cavendish claims that light is itself a material body, not simply bare motions or a property of another body.[195] She writes, "I desire you to consider, Madam, that light is a very subtil, rare, piercing and active body" (PL 1664: 203). Similarly, she writes, "But were not Light a Body, it would not be subject to Sight, for although all Bodies are not subject to Sight, yet Sight cannot possibly see what is not a Body" (PPO 1663: 183).

Indeed, Cavendish argues that if we can perceive something such as light, then it must be a body.[196] This is true of darkness as well. She writes, "darkness has a being as well as light has, and that it is something, and not nothing, by reason we do perceive it" (OEP 2001: 77). Not only is darkness a material body, but this argument implies that we have visual perceptions in the absence of light, contra Descartes and Hobbes. She writes,

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[192] Cavendish is clear that all matter perceives and so all the entities in this scenario do have perceptions, but I focus on the visual perceptions of humans and animals here.

[193] Kenelm Digby (1644) argues in TT that light is a body as well. He claims that light is the purest version of fire (TT 1644: 41).

[194] See Cunning (2016) for a reconstruction of Cavendish's arguments that the world is a material plenum (141-80).

[195] Adams (2022) affirms this claim (5).

[196] West (2022) explores Cavendish's commitments that relate existence to perceivability, arguing that nature is perceivable so if it cannot be perceived then it does not exist (466).

> Dark and Black Clouds will obscure the Sun's light, not only by Grossness of the Body, but the Dark or Blackness of the Body, for a Thin, Dark substance will obstruct the Bright piercing Light; but the Motions of Darkness seem to be Intermixt, or Intangled, or Troubled motions. (PPO 1663: 185)

The motions of the body of darkness give it the ability to obscure. The thinness or perhaps intangible nature of darkness does not affect its ability to hinder our visual perception of light or other bodies: the nature of its body is to obscure or conceal things from our vision. Cavendish describes the motions of light as the opposite: "but, as the Figurative Motions of Light, in my opinion, are rare, straight, equal, even, smooth Figurative Motions" (GNP 1668: 213). The nature of these bodies affects how visual perception occurs.

This brings us to the last element in the above scenario: the stuff between you and your computer, which is the medium. For Cavendish, the medium is a heterogenous, mixed body formed of several different bodies, the mixture of which varies depending upon the situation. It may consist of air, light, darkness, and to some extent water or water vapor.[197] This makes the nature of the medium somewhat complex for Cavendish since it consists of multiple bodies that form a heterogenous body.[198] It is important to note that Cavendish describes it as heterogenous rather than homogenous since for her the bodies that make up the medium retain their own natures. So, for example, the medium is more like oil mixed with water than salt mixed with water. She writes,

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[197] Cavendish acknowledges water vapor in the air (see PPO 1663: 221 and GNP 1668: 211). In GNP, Cavendish claims that when smoke and vapor join the air, we think of it as corruptible air (1668: 111).

[198] This claim is different than someone like Descartes who also holds a plenist view but on his view, the medium is "absolutely subtle" matter (Bennett 2003: 14).

> Natural Air seems to be made by such Kind of Motions, as Spiders make Cob-webs, for the Animate matter's motions Spin from a Rare degree of Inanimate matter, small Lines, interweaving those Lines into a Clear substance [. . .] also this sort of Air is the Chief substance, that the Sun-beams spread and dilate upon, or through, I say upon, for the Sun-beams do not Intermix, for what is Intermixt, doth nor cannot suddenly Separate, besides it would make a Confusion between the Light and Air, insomuch as the Light and Air would be so Perturbed, as all the Region or Hemisphere would be of millions of several Colours, and not any Pure, Clear light, for that which makes the natural Light so Pure and Clear, is, that it is not of a Mixt substance, nor hath Perturbed motions in it self. (PPO 1663: 183–84)

In this quotation, Cavendish claims that the body of light is distinct from the body of air which means that these bodies can easily separate from each other. The purity of the bodies of light and air explains their clearness or transparent nature: more homogenous mixtures for her lead to disrupted motions which lead to colors and darkness. This is most likely how Cavendish explains light being blocked through clouds or shade: the body of light retracts, and the body of darkness takes its place.

Importantly, in the above quotation, when the medium is light and air, it is a material, transparent body just like glass or a clear stone. While we can see and touch a transparent stone, it is much more difficult to notice the medium, with perhaps the exception of darkness. Cavendish writes that air is subjected mostly to our respiration rather than our other senses, making part of the medium difficult to detect (GNP 1668:188). This seemingly gives us the ability to see through it while mostly being unaware of its presence. When I hold a stone and look through it, that is something I consciously do.

But there is a difficulty with Cavendish's commitments for using the locution of "looking through". Transparency as we understand it generally means that a body allows light to pass through. Light, however, is itself a transparent, material body, not simply

motions in the medium, which means that it cannot pass through other bodies any more than water or earth can pass through other bodies. I explain in more detail how light's inability to pass through bodies affects visual perception in section 4. But a second, distinct problem for Cavendish is that, for her, transparent bodies should not exist in the first place.

3.1. The Problem of Transparent Bodies

As previously mentioned, colors inhere within bodies for Cavendish, so they are as colored as they appear in our visual perception. When I look at a red apple, the red I see is not just in my mind, but is within the apple as well.[199] Allen (2019: 62) and Chamberlain (2019: 302) both consider colors to be a mind independent quality of bodies for Cavendish. Indeed, she argues that this must be the case because we cannot even conceive of a body that isn't colored.[200] Allen (2019), Chamberlain (2019), and West (2022) all note that Cavendish's argument for the inconceivability of colorless bodies has one rather important inconsistency: Cavendish herself discusses the existence of transparent or clear bodies.[201] She even gives a cause of transparency in the PL: "As for Transparency, it is caused through a purity of substance, and an evenness of parts: the

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[199] There is more work to be done on precisely what it means for colors to inhere within bodies for Cavendish. As West (2022) notes, colors are figures for Cavendish. Whether this is a reductive or non-reductive account remains unclear (West 2022: 472-473).

[200] See Allen (2019), Chamberlain (2019), and West (2022) for reconstructions of Cavendish's conceivability argument.

[201] For Cavendish, inconceivability entails impossibility. For example, she will claim that we cannot conceive of motion without body (OEP 2001: 194; PL 1664: 97). See West (2022: 462–63) for a helpful discussion of Cavendish's commitment to the claim that inconceivability entails impossibility.

like is glossiness, onely glossiness requires not so much regularity, as transparency" (1664: 464). Transparency or clearness here seems to entail colorlessness. As I noted earlier, she considers light and air to be transparent based on their respective purity. She does not, however, attempt to reconcile the existence of clear and transparent bodies with that of her commitment to all bodies being colored. This seems to suggest that Cavendish holds competing claims: 1) all bodies are colored, and 2) colorless or transparent bodies exist.

Chamberlain (2019) hesitantly offers a solution to this problem. He posits that transparency does not entail colorlessness (Chamberlain 2019: 309). The transparent body rather takes on the colors of other bodies like a chameleon in what I will term the *chameleon effect* (Chamberlain 2019: 308). On this model, when I look at a transparent body, I see the bodies on the other side as patterned by the transparent body.[202] I do not, in fact, see through a transparent body at all. I see the copies of other bodies in the transparent body. For example, I look out my window and see my lawn. What I am seeing is not the green color of the lawn itself, but a copy of the green lawn in the glass of my window. This copy in the glass changes: if a black dog ran across my lawn, I would see the copy of the black dog in the glass of the window. The window reveals to my eyes

[202] Chamberlain (2019) bases his interpretation off Cavendish's discussions of reflections OEP page 147, PL 80–81, 88–89 (308-9). He also mentions that Aristotle's similar view appears in Thomas Stanley's *History of Philosophy,* which Cavendish was likely familiar with (Chamberlain 2019: 308 f-n 30).

whatever is on the other side. Since these copies are very accurate, this makes transparent bodies reliable patterners for Cavendish.[203]

If the chameleon effect holds, transparent bodies like light and glass have a color but not necessarily an inherent color or unchanging color. Whether the chameleon effect is Cavendish's answer to the conceivability argument as Chamberlain (2019) proposes is an issue for those discussing her color theory. For my purposes, it provides a clue as to what role light plays in visual perception for Cavendish. The important questions I will take up in the next section are: 1) does light have this chameleon effect and 2) does this explain why we see external bodies in the presence of light whereas we only see the body of darkness when light is absent? In the next section I give reasons to believe that this is indeed the case for Cavendish.

4. The Veil of Light

4.1. The Chameleon Effect

I argue that light is a chameleon or reliable patterner, and that light's role in visual perception is to present patterns of external objects to our optic nerves or, in other words, to help us find those objects. Light patterns objects and we see these patterns. My argument consists of three stages. The first is to show how Cavendish describes this

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[203] West (2022) argues that bodies which appear transparent are not, in fact, without color but rather we cannot see the color because the color is too subtle or too small for human optic perception (472). West (2022) admits that Chamberlain's proposal would make Cavendish's view more consistent but ultimately argues this is not the view that Cavendish holds (472). Regardless, the chameleon effect does not negate her view that bodies are sensuously colored, and I leave the details of her conceivability argument for those working Cavendish's theory of color.

process in two other transparent bodies: glass and air. This description applies to light since she is explaining how transparency works *in general* in her system. Secondly, I indicate where in Cavendish's works she appeals to patterns of patterns to explain perceptual phenomena. Lastly, I discuss some nuances with her theory of color such that this role of light as a reliable patterner allows her to explain color constancy as well as its failures, namely, color inconstancy.

Cavendish describes how transparent bodies operate when light and air themselves are material bodies. She writes,

> Since I write in my last [letter] that Light did disturb the figures of External objects presented in Transparent bodies; you were pleased to ask, Whether light doth penetrate Transparent bodies? I answer, for, anything I know, it may; for when I consider the subtil, piercing and penetrating nature of light, I believe it doth; but again when I consider that light is presented to our sight by transparent bodies onely, and not by duskish and dark bodies[. . .] I am half perswaded that transparent bodies, as Glass, rather present the Light by patterning it out, then by giving it passage. (PL 1664: 88)

One point I highlighted in the previous section is that the medium is a heterogenous body of light, air, and sometimes water. One question this might elicit is how these bodies interact with each other. Does the body of light penetrate the body of air or vice versa? This seems to be just the question Cavendish addresses in this quotation: do transparent bodies give passage to other bodies, or do they rather pattern out other bodies? Today, we generally think that light comes from a source like the sun and penetrates certain bodies making them transparent.

Here Cavendish seems to admit of a possible inconsistency in her work: if a body is as subtle and piercing as light, then it would make sense for light to penetrate or pass through other bodies. This, after all, is what "piercing" implies. However, light would

then be able to pierce or penetrate all bodies. This is not the case with something opaque like a dark or "duskish" body.[204] What Cavendish appears to give up is the idea that bodies pass through other bodies in this way rather than claim that light can pass through some bodies but not others. The important part to note at the end of this quotation is that the transparent bodies pattern out other bodies rather than let the bodies pass through.

In the same letter, Cavendish similarly describes how light interacts with glass. She writes,

> Also I am of a mind, that the air in a room may pattern out the Light from the Glass, for the Light in a room doth not appear so clear as in the Glass; also if the Glass be any way defective, it doth not present the Light so perfectly, whereas, if it were the penetration of light through the glass, the light would pass through all sorts of glass alike, which it doth not, but is more clearly seen through some, and more obscurely through others, according to the goodness or purity of the glass. (PL 1664: 88)[205]

In this passage, not even glass allows light to pass through. For Cavendish, bodies do not pass through other bodies. This quotation shows that she is committed to the idea that transparent bodies do, in fact, exhibit the chameleon effect by patterning out the bodies around them. The argument is this. Consider the experience of seeing light through a transparent body, as when we see a light shining through a window. Either the transparent body allows light to pass through, or it patterns the light. But bodies cannot

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[204] An immediate objection might be that the nature of the body is the issue since a hard body like a book might be more difficult for light to penetrate. A pane of glass, however, is hard and dense but light seems to penetrate it while a dark cloud is not quite as hard and dense, but light has a difficult time penetrating that.

[205] As I discussed in chapter 2, patterning is sensory perception in humans and animals. We might worry that Cavendish is not entitled to say that light patterns. She claims, however, that we simply cannot conclude that all perception is made by patterning (OEP 2001: 140).

pass through bodies. Therefore, the transparent body patterns the light. If transparent bodies pattern the light we see in them, they thereby exhibit the chameleon effect.

What holds for one transparent body holds for another. When there is light in front of the glass, we see the light present the glass to our visual perception. She admits as much at the end of the same letter. She writes, "But you may say, that the light divulges the imperfection or goodness of the glass; I answer, so it doth of any other objects perceived by our sight; for light is the presenter of objects to the sense and perception of sight" (PL 1664: 88–89). Light is the patterner here of glass and any other objects that we might see.

Light is especially suitable for making copies of external bodies because it can move freely, or, in other words, it can pattern many objects. Cavendish describes light in two ways to satisfy this criterion. First, she describes light as a rare body, not something dense and potentially immoveable like granite. She writes, "also Light being a very Rare body, can Dilatate and Contract with facility, and with an Extraordinary agility" (PPO 1663: 184).

Second, Cavendish describes light as subtle in PL. She writes, "I desire you to consider, Madam, that light is a very subtil, rare, piercing and active body" (PL 1664: 203). What this means is that light can figure itself freely.[206] Cavendish employs the same term in her descriptions of rational matter, the abilities of which she indicates more

[206] She goes on in GNP to contrast air with water in its ability to change its properties. She writes, "Also, Natural Air is not apt to change and rechange, as Water: for, though it can (as all the Elements) divide and join its Parts, without altering the Property of its Nature: yet, it cannot readily alter, and alter again, its Natural Properties, as Water can" (1668: 103). For Cavendish, water can do many things from taking different shapes to changing into snow, ice, or vapor while retaining its own nature. Air, however, cannot change its properties as much and remains for the most part itself.

clearly. She writes "for sense and reason doth plainly perceive, that some parts are more dull, and some more lively, subtle and active: the rational parts are more agile, active, pure and subtle than the sensitive" (OEP 2001: 25). Rational matter is defined by its activity and ability to operate voluntarily, unlike sensitive matter which must be occasioned by an external object. For example, in sensory perception, I am bound by what I encounter, while in imagination I have the freedom to think of all sorts of things which I have never perceived. In Cavendish's terms, thoughts are figures in rational matter.[207] My rational matter has the freedom to figure itself in ways that my sensitive matter is unable to.[208] "Subtlety" is a quality or ability of a thing to be figured seemingly without constraint. This ability is shared by rational matter and light: where rational matter is the most subtle of the three degrees of matter, light is the most subtle body of nature. Light can figure itself into all kinds of properties of visual perception like color, shape, etc. whereas something like wood does not have a similar subtlety. Subtlety gives it the ability to imitate other external bodies such that it provides a reliable copy.

On my reading of Cavendish, then, we are directly acquainted with light rather than bodies themselves. In other words, we see through a veil of light. This might explain why Cavendish mentions that sight must occur at a distance. She writes, "As for example, in the animal perception, taste and touch are only perceptions of adjoining objects, whenas sight and hearing do perceive at a distance; for if an object be

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[207] See Chamberlain (2022) for a discussion of how rational and sensitive matter can take on different figures.

[208] She writes "for the Rational Animate matter makes millions of Figures and Motions in the like Time, Place, or Space of Sensitive Creation Figures or Motion, being Purer, Agiler and Freer" (PPO 1663: 90).

immediately joined to the optic sense, it quite blinds it" (OEP 2001: 184). This is just how visual perception works: in the case of tactile perception, our hand must contact a body while in visual perception, the eye must be some distance from a body so there is enough room for the body of light.

4.2. Examples of Patterns of Patterns

The idea of patterns of patterns is not an invention of my own but already exists within Cavendish's works.[209] She appeals to patterns of patterns as an explanatory mechanism for other forms of sensory perception. Cavendish claims that we perceive patterns made in other objects in two specific instances.[210] The first is in the case of echoes. She writes, "The same with Ecchoes; for the air patterns out the copy of the sound, and then the sensitive corporeal motions in the ear pattern again this copy from the air, and so do make the perception and sense of hearing" (PL 1664: 81).[211] Here she is explaining how we can come to hear an echo if an echo cannot be something like motions

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[209] Cavendish describes light as engaging in "patterning," which, I argued in chapter 2, is how she labels human and animal perception. If light patterns, then we can think of its process of perception as sympathy: light imitates the sensible properties of other figures.

[210] There might be a third instance in which we see the patterns of patterns. Cavendish briefly mentions rainbows in the PL. She claims that these are reflections in watery bubbles (PL 1664: 263). Her argument here is more that rainbows have a natural cause rather than being a pattern in water.

[211] Here air can pattern as well, so if my argument from chapter 2 holds, means that air imitates sensible properties as well.

propagated through the medium. Instead, the body of air patterns the sound made from the source and our ears pattern this pattern.[212]

The second instance in which we perceive the patterns of patterns is in the case of reflections.[213] She writes,

> But to cut off tedious and unnecessary disputes, I return to the expressing of my own opinion, and believe, that the glass in its own substance doth figure out the copy of the face, or the like, and from that copy the sensitive motions in the eyes take another copy, and so the rational from the sensitive; and in this manner is made both rational and sensitive perception, sight and knowledg. (PL 1664: 81)

This quotation suggests that patterns of patterns occur in the entire process of perception. In the case of seeing a reflection in a glossy substance such as a glass, we see, in a manner of speaking, the glass's perception of an object. This makes the reflection the glass's own perception which we then perceive. The process continues: the sensitive matter of the perceiver makes a pattern, and the rational matter of the same perceiver makes a copy of that pattern. Here, patterns of patterns explain two phenomena: reflections and how sensory perceptions are transmitted from the sense organs to the

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[212] Cavendish writes earlier in the same work: "The same doth the Ear, by patterning out Ec-choes, which is but a pattern of a pattern" (PL 1664: 74). Here she uses the locution "pattern of a pattern."

[213] Cavendish also writes that we can see reflections in the eyes of other creatures like humans and some animals (OEP 2001: 174).

mind or rational matter of the perceiver.[214] My suggestion is that patterns of patterns occur throughout the visual medium as well.

4.3. The (In)Constancy of Color

The view that light is a reliable patterner has payoffs for Cavendish's color theory and her explanation for the diverse appearance of colors. Allen (2019) and Chamberlain (2019) focus on Cavendish's arguments that constancy of colors suggests that bodies are sensuously colored. An orange, for example, can appear to have a constant color through various changes in illumination. At the same time, changes in illumination *can* make a difference to the colors the objects appear to have. Philosophers who argue that bodies are not sensuously colored often take the inconstancy of color to mean that bodies cannot really have the colors they appear to have.[215] We might worry that Cavendish has simply overlooked this phenomenon.

Neither Allen (2019) nor Chamberlain (2019) discuss how Cavendish might account for the apparent inconstancy of colors. It seems clear to us that in different lighting situations, objects do appear to have different shades of the same color. For

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[214] Cavendish goes on in the OEP to affirm this point using the term "copy" instead of "pattern." She writes, "which if so, then a looking glass, that patterns out the face of a man; and a man's eye, that patterns again the copy from the glass" (OEP 2001: 141). This is again a description of a reflection in glass. She gets more specific when she writes, "for the reflexion of the sun in water or glass, is but a copy of the original, made by the figurative perceptive motions in the glass or water, which may pattern out an object as well as we do; which copy is patterned out again by our optic perception" (OEP 2001: 147). The important point to note in this quotation is that these objects (water and glass) may pattern out bodies as well as our own optic nerves. In other words, this is another instance in which a non-human or non-animal perceiver can pattern.

[215] Chamberlain (2019) reconstructs Walter Charleton's argument against inherent color (322). Allen (2019) mentions that mechanical philosophers like Boyle appeal to color inconstancy but can allow for some constancy (62).

example, in the lighting departments of home improvement stores there is often a display showing how the same picture appears under florescent bulbs, incandescent bulbs, LED lights, and even sunlight. Cavendish can easily explain this, however, because we see not just the patterns in light, but we see the body of light itself. This body has its own motions and does not just take on the motions of other bodies when it creates a pattern. Cavendish claims that our visual perception patterns out light as well as the pattern of the object.[216] This is most explicit in her descriptions of the different kinds of light. Cavendish claims that light from the sun is not the only kind of light. She lists several kinds. She writes,

> But there be as many several Lights and Airs as of other Creatures, as some I will express; for Example, as Sun-light, which I name Natural light, then fixed Stars light, then ordinary Fire-light, Meteor-light, Glow-worm light, Rotten wood-light, Cats eyes-light, Fish scales-light, and Fish bones-light, Diamond light; also there be many Reflected lights, as from the Planets, and several Lights that are not known to Men. (PPO 1663: 183)

When we visually perceive these bodies, we also perceive light. Since these examples do not use the sun as their source, these lights are made by their own motions (PL 1664: 64). For example, when we see a glowworm in the dark, we pattern out the light of the worm. This holds for other types of light as well: they have their own motions not just the motions which make patterns of objects. She writes, "These Shining Bodies, as Water, Metall, or the like, are not perceived in the Dark, but when Light is cast thereon, we do not onely perceive the Light, but their own natural Shining Quality by that Light" (PPO 1663: 121–22). Here she is explicit that we see the qualities of the objects of perception

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[216] Cavendish also has the resources to explain why we might be blinded by light: in the presence of too much light, we can only pattern out the body of light and not its pattern of other bodies.

as well as the body of light itself. For example, if I see a reflection of an apple in a mirror and the same apple in a reflection on a body of water, my eyes pattern the mirror, the water, and the two different reflections of the apple. The reflections will make the apple appear slightly different since different mediums (i.e., water or mirror) are doing the reflecting. The same phenomenon occurs when viewing an apple in different types of light, for example, sunlight as opposed to candlelight. Under different lighting conditions, then, I pattern out the different bodies of light such as the candlelight or sunlight, as well as the pattern of the apple.

This recognition in her account of our ability to pattern light as well as the patterns of objects in light allows her to account for the effects of illumination. Sometimes light itself appears to make colors, a phenomenon which Cavendish acknowledges. She writes, "light is not essential to colours [. . .] but those colours that are made by light are most inconstant, momentary, and alterable, by reason light and its effects are very changeable" (OEP 2001: 80). This provides an explanation for the richness of our visual perception by acknowledging the light we see as well as the patterns of objects in the body of light.

5. Possible Difficulties

5.1. Light vs. Air

Of course, my proposal is not without its difficulties. The first potential problem is interpretive. Cavendish is often inconsistent and noncommittal about the nature of the medium. This might be attributed to the material composition of the medium at a given time. In some portions of the medium, light will be the dominant body, in others water, and in still others air or even darkness. And she does not consistently ascribe the role of

reliable patterner to light. Sometimes she will claim that air patterns external objects and the patterns in air are the patterns we see.[217] She writes, "But yet it seems also probable to mee, that the parts of the Air may onely pattern out the figure of light, and that the light we see in the Air may be onely patterns taken from the real figure of the light of the Sun" (PL 1664: 202). In this case, the mechanism seems correct: part of the medium is patterning another body and it is the pattern that we see not the body itself. This is also consistent with her claims about transparent bodies as patterning other bodies such as when glass patterns light. Cunning (forthcoming) argues that perception at a distance such as in visual perception occurs like Newton's Cradle:[218] in a material plenum the patterns of external objects must be patterned by the medium whatever that medium happens to be.

However, Cavendish more consistently identifies light as the object of visual perception over air. In the GNP, she claims, for example, that air is not susceptible to our visual perception. She writes, "Light is not so Rare and Fluid, as pure Air is, because it is subject to that sort of Human Perception we name *Sight*; but yet, it is not subject to any of

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[217] Cunning (forthcoming) argues that air plays this role in all sense perception. He writes, "In sense perception and other cases of occasional causation, information passes through the air from one body to the next, but not in the form of (unintelligent) light that stamps an impression on passive and inert sense organs." I take him to mean that the medium consists of air and that air is then necessary for all perception and occasional causation. This gives a larger role to the medium than Cavendish endorses and seems to place her more in the realm of Hobbes: interaction is through contiguous bodies. Visual perception, however, must occur at a distance for Cavendish.

[218] Newton's Cradle is a small device which has five balls individually suspended in a row. When one ball at one end strikes the row of balls, the ball at the other end is the only one which moves. As that ball swings back and strikes the row, only the ball at the other end moves. This continues until friction causes the motion to stop. The device is used to show conservation of energy and momentum.

the other Perceptions: and, pure Air is only subject to the Perception of Respiration, which seems to be a more subtil Perception than Sight" (GNP 1668: 212).[219] Earlier in the PPO, she writes of the different knowledge of sense organs. She claims, "we imagine by the Touch the Interior nature of Fire to be composed of Sharp Points, yet our Sight hath no knowledge thereof; so our Sight hath the knowledge of Light, but the rest of our Senses are utterly ignorant thereof" (PPO 1663: 115). She goes on to suggest that air might be visible but only because of its interaction with light. She writes,

> Air is not a Shining Body of it self, but as the Lines of Light shine upon it; it is Smooth, and may be a Glossie Body, but not a Shining; for though there are Infinite several sorts of Brightness and Shining, yet two I will describe. As there are two sorts of Shining figures, some that Cast forth Beams of Light, as bright shining Fire, and likewise from some sorts of Stones, Bones and Wood, so there are some sorts of Figures that onely Retain a bright shining Quality in themselves, but Cast forth no Beams there from, or else so weak and small, as not useful to our Sight, but what is represented to us thereon by other Lights. (PPO 1663: 121)

Here the air's shining quality is only visible through the interaction with light. I take her to mean in these passages that light is the object of our visual perception. Air can be patterned out in certain circumstances with the assistance of light. Light is the reliable patterner since it has the subtlety to take on many and multiple figures of external bodies but is not so rare a body that it is beyond our ability to visually perceive.

5.2. Microscopes and Telescopes

The second difficulty with my reading arises from Cavendish's own arguments. Her work, OEP, is a critique of the experimental philosophy that was gaining traction during her day. In OEP and its accompaniment, BL, she argues against the use of

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[219] Air is, however, subject to hearing because of echoes.

microscopes and telescopes for investigating the natural world. But the way microscopes and telescopes operate is very similar to how I argue that light operates: by presenting the perceiver with a pattern of an object via a lens which is a transparent body.

For Cavendish, the idea of an instrument providing a pattern of a pattern invites error. She writes,

> I say, the picture, because it is not the real body of the object which the glass presents, but the glass only figures or patterns out the picture presented in and by the glass, and there mistakes may be easily committed in taking copies from copies. (OEP 2001: 51)

This quotation suggests that all bodies presenting the pattern of another body are subject to error and that copies of copies are not reliable. We might worry, then, that my reading makes visual perception similarly unreliable, given that we perceive patterns in the veil of light.

Given all the examples that Cavendish offers of patterns of patterns (or copies of copies) in the natural world, her arguments against microscopes and telescopes need further clarification.[220] Why in one instance are patterns of patterns acceptable and in another they are epistemologically untrustworthy?[221]

There are a few possible answers that Cavendish could offer. The first deals with the more specific mechanism at work. In the case of microscopes and telescopes, the

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[220] It is unclear what she might think of natural magnifiers such as rain drops or translucent stones like amber. She might be committed to the idea that a natural pattern and an artificial pattern is a matter of degrees. For instance, a natural magnifier still distorts a figure, but it might be more truthful than an artificial one.

[221] In BL Cavendish's Empress dismisses telescopes immediately and orders their destruction (1668: 27). Microscopes, however, do not receive such treatment. The Empress engages with her subjects on their uses although she is still hesitant to proclaim they are epistemically truthful (BL 1668: 31–32).

objects are magnified or, to use her term, dilated.[222] This is an alteration of a figure and Cavendish appeals to dilations and contractions as an explanatory mechanism for other natural phenomena. For example, the contraction and dilation of the figure of water changes it from liquid to solid ice to snow (OEP 2001: 110).[223] It is possible that dilations of a natural figure such as the figure of a louse would lead to a completely different figure. Light, however, does not tend to distort a figure in such a manner. The cup that I see on my desk thanks to the body of light retains its shape and size; light does not magnify or dilate my cup.

The second justification that she could give for treating microscopes and telescopes differently is that natural bodies are superior to artificial bodies. Cavendish reiterates this point throughout her works: what is artificial is less "perfect", "wise", or "effective" than what is natural.[224] She writes, "Wherefore the best optic is a perfect natural eye, and a regular sensitive perception; and the best judge, is reason" (OEP 2001: 53).[225] This encompasses all manner of artifice from logical and arithmetic to instruments and aided sensory perception. She writes, "and therefore that particular

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[222] Dilation and contraction are changes in motion or changes in figure, not the addition or subtraction of parts (OEP 2001: 125).

[223] Here she writes, "which motions in the congelation of water, do not alter the interior nature of water, but only contract its exterior figure into the figure either of ice, snow, hail, hoarfrost, or the like" (OEP 2001: 110).

[224] Cavendish claims that "all such Arts prove rather ignorant Follies, than wise Considerations; Art being so weak and defective, that it cannot so much assist, as it doth hinder Nature" (GNP 1668: 294).

[225] She makes the same claim regarding artificial means throughout her works. See PPO 1663 "A Preface Concerning the Rules of Art, and Explaining the Nature of Infinite, together with some other Terms, for the better Understanding of this Philosophical Work:" OEP 2001: 178; BL 1668: 58; Appendix to GNP 1668: 294.

sensitive knowledge in man, which is built merely upon artificial experiments, will never make him a good philosopher, but regular sense and reason must do it; that is, a regular, sensitive, and rational inquisition, into the various actions of nature" (OEP 2001: 100). If we desire the truth of nature, we must use our own natural means of investigation. Thus, Cavendish could simply claim that microscopes and telescopes are unnatural bodies whereas light is a natural body and therefore a more reliable patterner.[226]

5.3. Skepticism

There is one last difficulty with my reading: the threat of skepticism. The idea of patterns of patterns might appear to commit Cavendish to skepticism. If we only see the veil of light and not the objects themselves, how do we know our sensory perception is veridical? Cavendish is not shy about embracing some skepticism. She writes, "And although it do sometimes err, (for there can be no perfect or universal knowledge in a finite part, concerning the infinite actions of nature) yet it may also probably guess at them, and may chance to hit the truth" (OEP 2001: 100). By virtue of being a finite part of matter, human and animal knowledge will always be imperfect. Boyle (2015) discusses Cavendish's general epistemological views and concludes that according to Cavendish, even perfect sense perception and reasoning capacities in creatures fall short of perfect knowledge (444-5).

This is not to claim, however, that our sense perception is systematically deceptive as it can be for Descartes. For Cavendish, if we perceive something red, we can be reasonably certain that the object is in fact a shade of red, whereas Descartes holds

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[226] Shaheen (2022) defines artifacts for Cavendish as bodies that do not come together through the natural sympathy of self-love (10).

that bodies are *never* colored in precisely the way they appear to be. Cavendish also acknowledges that the senses can provide us with information. She writes,

> I say, many times, because reason cannot be always assured of knowing the truth: for, particular reason may sometimes be deceived as well as sense; but when the perceptions both of sense and reason agree, then the information is more true. (OEP 2001: 226)

In other words, when our sense perception and our cognition affirm that a situation is the case, we can, according to Cavendish, believe that it is the case.

6. Conclusion

Cavendish's views about visual perception give rise to a possible difficulty: how does light figure into visual perception? She claims that light "presents", "reveals", or "helps to find" objects. I argue this means that light plays the role of reliable patterner by way of the chameleon effect, and that we perceive these patterns of bodies in the body of light. For Cavendish, we see a veil of light rather than the objects themselves. This claim that we see by the veil of light is consistent with her explanations of other sensory phenomena such as echoes and reflections which are also instances of our sense organs patterning copies of objects in other bodies. One upshot of this view is that Cavendish can explain the inconstancy of colors as well as their constancy. When we visually perceive something, we also perceive the body of light and so in different lighting conditions, colors can appear as different shades.

Since light is not necessary for visual perception, we can entertain a hypothetical situation for Cavendish. If there were no bodies (i.e., light, air, the medium, etc.) between my optic nerves and a red apple, what would perception look like? My eyes would likely just pattern the apple directly. Perception operates through occasional causation and so no other bodies are necessary for perception, unlike the mechanists, who

must posit local motions and contact. However, Cavendish is a plenist, so this hypothetical situation would never exist. There will always be a body between a perceiver and external objects, and for her, that body is material. Here she shares similar commitments to Hobbes: the world consists of material bodies. If there were no body of the medium, then my optic nerves would be occasioned by the object of perception, not the body of the medium. But since these bodies exist, Cavendish must explain how they fit into her perceptual system. As bodies, they are available for our perception. Light, specifically, is available for our visual perception and so when we pattern out objects in our visual field, we pattern them from the veil of light.

CHAPTER 7 CONCLUSION

1. Introduction

Cavendish offers a rich view of the natural world in which matter has vital features, such as self-motion, reason, and perception. Commentators are divided on how to interpret these features. Some read her as claiming that matter has a robust mentality or agential power (Boyle 2016; Cunning 2016; Shaheen 2021; Borcherding 2021) while others read her language of mentality metaphorically (Georgescu 2021; Peterman forthcoming). Here I offer an interpretation that restricts the mentality of nature, rather than removes it entirely. I discuss three core concepts in her natural philosophy: perception, self-love, and self-knowledge. I offer an interpretation of these concepts that presents them as more naturalized, rather than robustly mental or agential, but retains the epistemological elements, namely in her theory of self-knowledge. My goal is to show that Cavendish's theory of nature does not explain nature's features in terms of human cognition, rather explains the kind of sense and knowledge that is unique to matter, which produces the "peaceable, orderly and wise government" that is nature (OEP 2001: 232). By explaining the details of her theory, I aim to show that this larger view of Cavendish's works that does not depend upon anthropomorphizing sense and reason provides an alternative to existing views.

2. Perception

I argue that patterning is sympathy by showing that both patterning and sympathy are described by Cavendish as imitations (OEP 2001: 18). I claim that sympathy is a concept present in her earlier works, which she retains through the term "patterning" in her later works. Sympathy for her is constituted by motions that attract or imitate either

actions, behaviors, or properties. This definition of sympathy paints the concept as a naturalized principle in Cavendish's theory of nature rather than something added to, or, over and above, the natural world. The benefit of my interpretation is two-fold. First, I can explain rational perception, a kind of perception that appears to be more cognitive or speculative. Rational perception is also sympathy, but instead of sympathizing with the exteriors of figures, rational matter sympathizes with the interiors. That sympathetic relation is not as strong as sensory perception and so rational perception produces a weaker likeness.

Second, I can offer a unified theory of the features of patterning: occasional causation, object dependence, and color realism. Sympathy is a relation between two things, which explain occasional causation and object dependence. The relation is between the perceiver and the object of perception, so patterning is occasioned when there is an object present. Sympathy also explains color realism. Our sense organs only imitate the sensible properties that objects of perception have. In chapter 6 I explain a possible problem with visual perception related to Cavendish's color realism. The problem is that light seemingly plays no role. My argument here is that Cavendish is not a direct realist because in visual patterning, we are directly acquainted with light rather than with external figures. Since she is not a direct realist, she cannot be a naïve realist since naïve realism means that we are directly acquainted with external figures (Genone 2016: 2). She still can and does hold that figures have the sensible qualities they appear to have, and so our patterns of figures are imitations of these properties.[227]

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[227] Since Cavendish claims that a few non-human or animal entities pattern (i.e., light, air, looking glasses), my interpretation of patterning as sympathy explains how these entities can engage in this type of perception.

My argument for patterning as sympathy depends on two things. The first is that these features of occasional causation, object dependence, and color realism are indicative of her theory. I provide textual evidence as well as support from other commentators to show that Cavendish claims that these are features of patterning. The second is that patterning and sympathy are both imitations. I have provided textual evidence to support that claim from her most extensive work on perception, OEP. Patterning, however, is not the only sympathetic relation in Cavendish's natural philosophy. Self-love, which is also important to Cavendish's metaphysics, is also sympathy, but with a crucial difference.

3. Self-Love

Similarly, I argue that self-love for Cavendish is also sympathy. I explain self-love in the context of Cavendish's theory of passion. Self-love is a passion and passions are sympathies and antipathies. My interpretation stands in contrast to theories of self-love that view passions and, by extension, self-love, as emotions (Borcherding 2021; Broad and Sipowicz 2022) or theories that view self-love as an anthropomorphized phenomenon (Boyle 2016; Shaheen 2022). I argue that my interpretation captures more than just a terminological difference, but a substantive difference in how to understand self-love. Self-love as an emotion anthropomorphizes Cavendish's theory. Self-love, then, becomes a psychological phenomenon that starts to paint Cavendishian matter as robustly agential. The benefit of my interpretation is that self-love remains a metaphysical principle and avoids this overly anthropocentric interpretation. Self-love remains naturalized.

My interpretation threatens to conflate self-love with patterning: if they are both sympathies, then my interpretation fails to capture the differences. The difference, however, is guided by Cavendish's interior/exterior distinction. Sympathy, I argue, for Cavendish exists on two spectrums. These spectrums are 1) how strongly figures sympathize with other figures (i.e., how much of a likeness is produced), and 2) how extensive the sympathetic relation is. The interior/exterior distinction of figures provides the criterion for the second. Figures can sympathize with the exteriors of other figures, their interiors, or both. In the case of patterning, the sense organs sympathize well to produce a strong likeness, but only with the exteriors of other figures. The sympathetic relation is not extensive since it is limited to one part of a figure (i.e., exterior). Rational perception, however, sympathizes with more of the figure. Rational perception can "probably guess" at the interiors so the likeness is not as strong as patterning (OEP 2001: 175). It is more extensive, however, because rational perception sympathizes with the interiors and, in the case of rational matter patterning, the exteriors. Self-love produces both a strong and extensive sympathetic relation. The parts of matter become the figure which entails sympathizing with both interiors and the exteriors.

Sympathy is a large part of Cavendish's theory, I argue, but it does not explain everything in her natural philosophy. It does not explain another phenomenon that is also important and ubiquitous throughout nature. Self-knowledge I distinguish from perception in any sense of the term perception, and unlike self-love, self-knowledge does not sit on the spectrums of sympathy.

4. Self-Knowledge

Self-knowledge, just like perception and self-love, is ubiquitous in nature for Cavendish. Here I argued that self-knowledge is a mental state that is non-perceptual, transparent, and infallible. I reconstruct four of her arguments against the perceptual model of self-knowledge to support my claim that these features are indicative of her theory. My interpretation depends upon self-knowledge being a mental state in the minimal sense of the term, not in an anthropocentric sense that might negate my arguments concerning patterning and self-love. In other words, self-knowledge is not fully naturalized on my interpretation as it is for Georgescu (2021) and Peterman (2022).

One benefit of assigning these features to self-knowledge is that they offer a guideline for discussing the contents of self-knowledge. I argue that what a subject can know transparently, infallibly, and non-perceptually is three related but separate things: that the subject exists, the actions it is currently performing, and the actions it can perform. I emphasize that these contents are bodily and not just purely mental. I offer a speculative argument that subjects also know past and future states. This knowledge of past and future states explains Cavendish's claims that figures exist eternally in matter. The benefit of my interpretation is that self-knowledge, as a mental state, retains the epistemological elements of the concept. This is important because Cavendish argues that matter must be knowing if it is self-moving (OEP 2001: 30). My interpretation depends upon Cavendish's theory not admitting of robust natural kinds as Boyle (2016) argues. I discuss Cavendish's claims and show that Cavendish's theory is not only lacking a definition of natural kinds, but understanding phenomena in her theory does not depend upon a definition of natural kinds, as Georgescu (2021) also notes.

While self-knowledge does not sit on the spectrums of sympathy that I argue are important guides for understanding Cavendish's theory of nature, self-knowledge does concern the interior/exterior distinction. It is a wholly interior phenomenon and only the subject has access to their own self-knowledge. As I mentioned, Cavendish does not give a thorough definition of the interiors and exteriors of figures and I have only gestured at possibilities here. It is unlikely that the interiors of figures are constituted solely by self-knowledge since Cavendish will claim that interiors can consist of motions (OEP 2001: 59) or natures (OEP 2001: 63). What future research reveals the interiors to be, however, must include self-knowledge.

5. Figures and Sympathy

Returning to my argument that sympathy and the interior/exterior distinction guide her discussion, the benefit of my argument is that instead of placing emphasis on her analogies of matter to human societies, we can place the emphasis of her explanations on concepts within her theories. Her analogies elucidate her claims but should not overshadow the concepts in her theory. As Peterman (forthcoming) notes, Cavendish's nature is often viewed as a version of panpsychism. Aside from this interpretation being anachronistic, it places too much emphasis on Cavendish's analogies of matter to human societies. Peterman (2019) rightly notes that humans have no special place in Cavendish's theory, and so this metaphor is misleading. Peterman (forthcoming) explains Cavendish's theory in terms of part-whole relations. Georgescu (2021) explains perception and self-knowledge as metaphysical, deflating self-knowledge into an identity claim. While we should not view Cavendish's nature as too anthropomorphic, Cavendish does claim that some kind of mentality exists. My interpretation attempts to retain the

basic mentality without overinflating her theory into something robustly agential. I have attempted to show how this is the case by explaining important parts of her theory of nature (i.e., perception, self-love, and self-knowledge) which can be important concepts in theories of mind. Although these can be important to theories of mind, it does not entail that Cavendish's theory of nature is a theory of mind like contemporary panpsychism. In other words, I hope to show that this macroscopic view of Cavendish's natural philosophy is a viable interpretation by explaining the specifics of her theory as metaphysical, but not wholly devoid of mentality. I have attempted to show this in Cavendish's theory both inside and out.

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