

Sympathetic action in the seventeenth century: human and natural

Chris Meyns*

Department of Philosophy, Utrecht University, Utrecht, Netherlands

(Received 21 December 2017; final version received 21 December 2017)

The category of sympathy marks a number of basic divisions in early modern approaches to action explanations, whether for human agency or for change in the wider natural world. Some authors were critical of using sympathy to explain change. They call such principles “unintelligible” or assume they involve “mysterious” action at a distance. Others, including Margaret Cavendish, Anne Conway, and Gottfried Wilhelm Leibniz, appeal to sympathy to capture natural phenomena (yawn contagion, magnetism), or to supply a backbone to their metaphysics. Here I discuss how concerns about sympathetic actions form at least a partial background for differing seventeenth-century conceptions of what it is to explain action. I argue that critics of sympathy generally insist on an “atomistic” approach to action explanation, which makes primitively relational phenomena come out as problematic. Proponents of sympathy, by contrast, allow for a more holistic approach to action explanation, which allows for such basic connections. Hence, divergent attitudes toward sympathetic action in part explain differences in approaches to explanation. I conclude by showing how some of these core concerns fade into the background when in the eighteenth-century sympathy gets psychologised and individualised.

Keywords: sympathy; sympathetic action; action explanation; natural explanation; early modern; Margaret Cavendish; Anne Conway; Gottfried Leibniz; Adam Smith

1. Introduction

A magnet attracts a nail. A piece of fruit ripens more quickly when placed near another ripe one. I flinch when I hear another person in pain. Motions of the planets affect life on earth. A stringed instrument struck has other strings vibrate. A wound heals by applying a salve to the sword that caused it.

Today, the concept of sympathy finds its main application in the domain of psychology. It is used to mark situations in which someone feels compassion for another, or when people share a common feeling. When I act out of sympathy, this just reveals that there can be a social dimension to individual animal (human) agency. Sympathy is something for people, not shrubs or planets.

From a historical perspective, such segregation of the domain of human or animal action when considering sympathy is an anomaly. When seventeenth-century authors considered sympathetic action, they considered not just my flinching responses or the replication of feeling in groups. They also applied the term to examples of inanimate objects like the ones mentioned above: musical instruments, planets, and swords. Though not

*Email: c.s.meyns@gmail.com

uncontroversially, many thought that sympathetic action occurs whenever one item influences another item at a distance removed from it, apparently in the absence of direct contact.

In this paper I focus on sympathy as a contested category of action explanation in the early modern period. “Action” here is at the outset taken inclusively, as the process of doing something (potentially with some aim), and “explanation” as an account that provides insight. I begin by identifying a case of canonical, psychological sympathy within human agents as it is described in the work of Adam Smith in the eighteenth century (Section 2). Then I identify a much broader, inclusive historical notion of sympathy in early modern authors who apply sympathy beyond the human case, with a focus on the work of Margaret Cavendish, Anne Conway, and Leibniz (Sections 3–4). After considering a number of objections by seventeenth-century critics, I argue that one of their main concerns is that appeal to principles of sympathy can never genuinely explain action (Section 5). However, I show that while these critics generally have an atomistic model of explanation in mind, proponents tend to allow a holistic approach to explanation, within which appeal to primitively relational phenomena such as sympathy can be insightful (Sections 6–7). The core disagreement about sympathetic action revolves around different approaches to explanation. Leading this back to Smith’s canonical approach to sympathy, I suggest that while he keeps some of the characteristic holistic elements, he psychologises and therein individualises the effects of sympathy (Section 8).

2. Sympathy in human action

Within psychology and theory of action, the notion of “sympathy” nowadays designates a condition in which someone has feelings of compassion for another (especially in response to another’s misfortune), or in which people share a common feeling or understanding.¹ Prominent examples of such a psychological take on sympathy can already be found in the work of eighteenth-century authors such as the philosopher-physicist Sophie de Grouchy’s (1764–1822) *Letters on Sympathy* (*Les lettres sur la sympathie*, [1798] 2010), parts of David Hume’s *A Treatise of Human Nature* (1739), and various works from economist and philosopher Adam Smith (1723–1790).

In his *The Theory of Moral Sentiments* (1759), sympathy is used by Smith in his discussion of the principles of understanding action. People lack direct, unmediated access to the feelings of others, Smith notes. I can’t feel whether you’re sad or happy, nor do I directly perceive your internal feelings. Yet still we are able to make sense of other people’s behaviours, and take their feelings into account when acting ourselves. Hence people must have some ability that enables them to make these assessments. Here sympathy comes in. Smith states that “there are evidently some principles in his nature, which interest him in the fortune of others”, regardless of whether they personally benefit from it (Smith 1759, I.I. I§1). Sympathy is a principle of conceiving what we ourselves would feel in a situation that we observe for another person (I.I.I§2). It captures feeling along with others: “Sympathy (...) may now, however, without much impropriety, be made use of to denote our fellow-feeling with any passion whatever” (I.I.I§5). In Smith’s diagnosis, sympathy:

is the source of our fellow-feeling for the misery of others, that it is by changing places in fancy with the sufferer, that we come either to conceive or to be affected by what he feels. (I.I.I§3)

These instances of fellow-feeling or sympathetic understanding in turn help people grasp the rationale for the behaviour they observe in others. They support the social explanation of action. Though Smith thinks his diagnosis is “evident of itself” (I.I.I§3), he also

sees it supported by cases, such as of someone shrinking when seeing another in pain, or cringing when they conceive of themselves suffering the horrors of others.²

Sympathy is facilitated by mechanisms of imagination, says Smith (I.I.I§2). In imagination we can change places with another person, imagining ourselves in the other's situation. Copying impressions from our own senses, we represent to ourselves what would have been our own response had we been in the other person's situation. In virtue of this we come to conceive of what the other person is experiencing. Smith explains:

By the imagination we place ourselves in his situation, we conceive ourselves enduring all the same torments, we enter as it were into his body, and become in some measure the same person with him, and thence form some idea of his sensations, and even feel something which, though weaker in degree, is not altogether unlike them. (I.I.I§2)

Sympathy enables people to perceive the situation that another person is in, and conceive for themselves what they would feel in that same situation. Their resulting feeling may (though need not) be similar to what the person they sympathise with is actually feeling. Hence on this line, sympathy allows us to conceptually assimilate ourselves to other creatures and discern a purpose or aim in their action. Behaviours of others turn out to be not just random flukes. Hence, sympathetic understanding plays a core role in grasping other people's actions.

3. Sympathy's roots in nature

Smith's appeal to sympathy in the psychology of action may easily seem like a fresh start of a research programme, but in fact it extends a long line in the history of philosophy. Authors ancient and modern have regarded principles of sympathy to be useful in understanding everyday effects. However, a difference between Smith's and traditional usages of sympathy is that the tradition is far more comprehensive and inclusive in how it delineates the phenomenon. Earlier authors see the evident influence people have on one another as not very different from influence between inanimate things. For example, Aristotle mentions cases of yawn contagion, "Why do men generally themselves yawn when they see others yawn?" (Aristotle 1984, *Problems* VII.1, 886a25–28), but he groups under the same heading the urge to urinate when we are close to a river and the contagious spread of disease (*Problems* VII.3–4, 886a36–b8). Plotinus describes phenomena like these abstractly as instances of one thing influencing another from a distance, without an intermediary chain of causes (1966, *Enneads* III.1, §§5–7), while certain Stoic authors such as Chrysippus held that all parts of the cosmos as whole are able to influence (indeed "sympathise" with) one another.

Traditionally, then, sympathy was regarded as a principle that could be brought in to explain whole swathes of the natural world. They covered not just my flinching when you're in pain, or (at a psychological level) the contagion of fear or excitement in a group, but also wide-ranging natural phenomena such as ebb and flow; effects of climate on health; celestial influences on earth; magnetism; the expedited ripening of fruit. Within the traditions of explaining natural phenomena with sympathy, human action did not have a special status. Rather, natural, psychological and behavioural processes were thought to lie on a continuum, all joined in involving some form of action at a distance; cases where one thing has an effect on another, even when they are at locations distant from one another. Sympathy was understood as a broad phenomenon that could manifest itself anywhere in nature – be it in stones, animals, plants or humans.

Such a broad, inclusive approach to sympathy is a feature too of at least some early modern discussions in England and on the European continent. Noteworthy contributions

by authors include the *Two Treatises* (1644) by diplomat and natural philosopher Kenelm Digby; various works on sympathy in astronomy, such as work by the French astronomer-physician Antoine Mizauld (1510–1578) (*Harmonia superioris naturae mundi et inferioris*, 1598) and in medicine by the Flemish chemist, physiologist, and physician Jean Baptiste van Helmont (1580–1644) (*De magnetica vulnerum curatione*, 1621; *Ortus Medicinae*, 1652), who not infrequently returned to the case of remarkable wound healing from a distance.³ In his *Dialogues on Metaphysics and Religion* (*Entretiens sur la métaphysique et la religion*, [1688] 2012) Nicolas Malebranche brings up the canonical example that strings of the same pitch move each other by sympathy. While initially dismissive, Malebranche's spokesperson Theodore grants the point: "There is "sympathy" between strings of the same pitch. This is certain since they act one on the other, and that is what the word signifies" (Malebranche [1688] 2012, 180).

Here I will zoom in on three specific cases where early modern authors employed the notion of sympathy as useful in natural philosophy, namely work of Cavendish, Conway, and Leibniz. This will enable a better understanding of how in various traditions and cases sympathy was thought to help explain behaviour, both in human action and natural phenomena more broadly.

4. Early modern naturalistic sympathy

4.1 Cavendish: natural and mental action

Margaret Cavendish (1623–1673), an early critic of the Royal Society's experimental philosophy, does not make sympathy a cornerstone of her work. Nonetheless she does reserve a place for it as a principle in her natural philosophy.

Cavendish is a materialist. Rejecting incorporeal things, she maintains that everything in the universe consists of matter which is (at least to a certain extent) animate, with self-motion. This includes sensitive animate matter which facilitates a capacity for sense, and rational animate matter which enables reason (Cavendish 1655, I.1 §1; I.2 §§1–2, II.42–43 §9). Sympathetic action is no exception to her materialist rule. It is nothing over and above motions of matter: "... Neither is there Sympathy or Antipathy, but by Change of Motion" (Preface). Acting sympathetically is nothing mysterious, but facilitated through the basic motions that animate matter already had anyway. She insists: "... all particular actions whatsoever in nature, as respiration, digestion, sympathy, antipathy, division, composition, pressure, reaction, etc. are all particular perceptive and knowing actions" (Cavendish [1668] 2001, I.35, 139). Sympathetic are those animate motions in nature that in some form involve a relation of influence between two creatures, or different parts of the same creature. She finds sympathetic actions throughout various levels of nature, from growth and digestion to human psychology and social relations.

In her early work, in which Cavendish still endorses atomism, she argues that at the level of element formation, sympathetic actions make atoms conjoin to form "elements" in nature. These divide into: earth (a clustering of flat atoms), water (round atoms), air (long, straight, and sharp atoms), and fire (yet sharper ones) (Cavendish 1653, I.8). A similar sympathetic process on a larger scale amounts to the process of life, which she defines as the condition of creating (auto-generated) motions in animate matter (Cavendish 1655, II.5). About the generation of body she notes:

'T Is several Figur'd Atoms, that make Change,
When several Bodies meet, as they do range:

For, if they sympathize, and do agree,
They joyn togeth'r, and as one Body be. (Cavendish 1653, I.53)

Here sympathy can be understood as “agreement” or “coming together”. Without sympathy, all we would see is malformation, or ultimately disintegration of the organism. (Cavendish later gives up atomism in favour of a view that nature has no ultimate, indivisible parts. See her: [1668] 2001, I.31, 125.)

Psychological processes such as sensation, reasoning and judgement also involve sympathy, Cavendish reckons. She states: “... there is a strong Sympathy, and an Agreement between the Sensitive and Rational motions in one and the same Figure or Creature”, which she attributes to “Animate matter” which facilitates sympathy (Cavendish 1655, II.44). Our mental, rational actions for that reason are not totally “up to us” or due to an individual will, but arise in agreement with acts of perception. When a person judges, “... most of any of the Figures sympathize and joyn for agreement”, she says of a person’s figures or representations (II.17, 58). That is, mental actions such as judgement can be explained at least in part by basic sympathetic relations, or agreement, between parts of nature.

At a wider level, there is also sympathy between creatures, human or otherwise:

... and certainly, there is an Influence amongst all Creatures, for all Creatures being made of the Only and Infinite matter, and there being a Union in its Nature, the Creatures of this Only matter must necessarily have an Influence upon each other ... (III.70 §7)

Cavendish specifically mentions sympathetic coordination of animal behaviour with elements of its environment, noting: “... some Vegetables do so Sympathize to Animals, as the Animals could not subsist without their Assistance” (IV.110 §12). Here sympathy can be understood as a more specific form of agreement, namely one of benefit. These basic agreements with a type of vegetable facilitate the animal’s behaviour. Sympathetic action is possible for Cavendish, because all things are of the same fundamental kind, namely matter.

4.2 Conway: creatures and social action

For some other authors, sympathy gets a place in the analysis of social action, too. A telling example of such an approach can be found in the work of Anne Conway (1632–1679). In her posthumously published work, *The Principles of the Most Ancient and Modern Philosophy* (published 1690 as *Principia philosophiae antiquissimae et recentissimae*⁴), Conway invokes sympathy to capture basic social interactions between creatures:

... for as God made all nations out of one blood, to the end they might love each other, and stand in mutual sympathy, and help each other; so hath he implanted a certain universal sympathy and mutual love in creatures, as being all members of one body, and (as I may so say) brethren ... (Conway [1690] 1982, VI, 52)

While not defining sympathy, the statement indicates that Conway thinks of sympathy as a condition of being co-affected, or being in a state of agreement between creatures; a condition in which there is some sort of agreement between things.

Conway’s claims about sympathy between creatures are framed within her wider metaphysics. She discusses the realm of creatures as making up a single substance distinct from God (the most perfect being) and Christ (a medium between God and imperfect creatures).

These three kinds of beings, Conway says, are sufficient to explain “all the phenomena in the whole universe” (VI, 51).

Also the relation between soul and body must be a sympathetic one, Conway thinks. She challenges Descartes’s view – calling her own position “anti-Cartesian” (VI, 61) – that spirit and body are strictly distinct and inconvertible. Seeing body as a “dead mass”, and soul locus of perception and knowledge, will cause major problems:

For if spirit and body are so contrary one to another, so that a certain spirit is only life, or a living and sensible substance, but a body a certain mass merely dead; a spirit penetrable and indiscerpible [= indivisible], but a body impenetrable and discerpible, which are all contrary attributes: What (I pray you) is that which doth so join or unite them together? (VI, 61)

Instead, she holds that creatures – even specks of dust and grains of sand – have both body and spirit, and all have features of impenetrability, life, sense, and knowledge. Body and spirit are not two distinct substances, but two “principles” (“a more active and a more passive principle”), within the continuum of ways that created substance can exist (VI).⁵ Body is the comparatively coarse, more passive of the two, while spirit is the finer, more active principle. One of the headings of her text reads: “The union and sympathy of soul and body may be easily demonstrated; as also how the soul moves the body from the afore-said principle; that spirit is body, and body spirit” (VIII). Precisely when two things are not fundamentally different, but are parts of a single substance, there is no obstacle to their interaction. A sympathetic relation or union between spirit and body, Conway holds, avoids all theoretical problems (VI, 64).

Conway may be motivated to accept sympathetic agreement based on cases of social action, of creatures loving and helping one another. Observational evidence would suggest that creatures are not in a continual state of discord or disorder – the world does not continually disintegrate or behave totally randomly, but exhibits coordination. This requires some explanation. Sympathetic relations between all creatures in the universe could form the basis of explaining such observed coordination. But what enables sympathy?

Here Conway points to a supposed basic form of unity among creatures. Minimally, she sees this as involving all of them having a joint source or origin. Her reference to “one blood” indicates that she thinks of this a familial relation. Other times she suggests, more strongly, that all creatures are part of the same substance, referring to them as “being all members of one body” and as “real parts and members” of such a single substance (VI, 52). Precisely when all creatures belong to one substance, this avoids problems with inter-substance causation. Hence for Conway, there is a broad metaphysical basis – belonging to a single thing or origin – to creatures’ loving and helping one another, that is, performing social action (see also: III, 10, 20; V, 4; VI, 4; VII, 3).

4.3 *Leibniz: basic agreement*

Somewhat later in the seventeenth century, Gottfried Wilhelm Leibniz (1646–1716) proposes an even broader framework, in which sympathy can figure as something like a background condition for understanding events in the natural world.⁶ In a draft of his *Discourse on Metaphysics* (1685–1686?), Leibniz appeals to sympathy to explain bodily action, in a passage curiously removed from the final version of the text. In particular, sympathy plays a role for the coordination of actions between bodies:

Thus one sees well that, although all the bodies of the universe pertain to us in some manner, and sympathize with ours, we do not attribute to ourselves that which happens to them. (§XIV; L 50)

We can say that bodies “sympathize with ours” in this manner, minimally if they do not conflict with, and potentially match or correspond with, our own.

In a later correspondence with Dutch naturalist Burchard de Volder (1643–1709), Leibniz reaffirms his observation, stating: “What I think about the connection and sympathy of substances I have said to pertain to all things, even if they would not be one specific nature” (Leibniz to de Volder, 27 December 1701; G II, 233). The latter comment is significant, though. It signals that Leibniz is at least not requiring a common substance or nature for things to stand in sympathetic relations. Rather, he allows that things could sympathise even when they do not belong to the same kind. But how is such agreement facilitated, if it does not proceed through some forms of common origin or nature?

Leibniz treats sympathy between substances as having a basis in what he posits as the non-material principles in nature, namely souls. The soul expresses itself, and such expression consists in “a constant agreement and rule between that which one may call the one and the other.”⁷ He notes:

Now this expression occurs, because every substance sympathizes with all the others and receives some proportional change, corresponding to the slightest change which occurs in the entire universe, although the change may be more or less noticeable as other bodies or their actions have more less agreement with ours. (*Leibniz to Arnauld*, 9 October 1687; A II.2B, 241)

What this clarifies is that for Leibniz too, the correspondence between substances lies not in specific interactions between them, but in (mental) representation or expression as performed by the soul. To philosopher Sophie of Hannover (1630–1714), Leibniz underlines this point:

... the action of each [soul] conserves itself in each of all the universe, because of the agreement and Sympathy of all things, the world is entirely in each of its parts, but more distinctly in some than in others. (Letter to electress Sophie, 4/14 November 1696; G VII, 544; trans. Strickland 2011)

At points Leibniz also considers sympathy as the basis for the relation between body and soul. Comparing them to two synchronous clocks, he asks how body and soul could agree so perfectly that there holds a “harmony or sympathy” between them. Rejecting that this is due to mutual influence or due to divine assistance, he argues it is due to their “pre-established agreement”⁸:

... everything that happens to the soul and to each substance follows from its notion, and therefore the very idea or essence of the soul carries with it the fact that all its appearances or perceptions which it must give rise to (spontaneously) from its own nature (. . .) the soul expresses the state of the universe in some way and for some time, according to the relation other bodies have to its own body. (Leibniz 1685–86?, §XXXIII; L 86)

Body and soul agree because there is “a harmony pre-established by a prevenient divine contrivance” between them.

Even in a 1711 dialogue, Leibniz’s spokesperson Philarète still comes to the defence of the “Sympathists” (Fr. *Sympathistes*) in their attributing primitive active force (“life” or “soul”) to bodies; a force which can be understood as a basic precondition for something to act in the first place (G VI, 588).

What all of this brings out is that for Leibniz, considerations about sympathy are intimately tied up with concerns about action in the universe. However, crucially this is for Leibniz not tied to explaining specific types of natural events or behaviours of creatures in the world – say, digestion, sight, or benevolent acts. Rather, he associates sympathy with more basic metaphysical background conditions within which action occurs in the first place. Namely, conditions of agreement between all substances in the universe, with their basis in the activity of the soul.⁹

4.4 *Three lines of sympathy*

Amid all the differences in their approach to sympathy that can be found in the work of Cavendish, Conway, and Leibniz, two common points stand out. First, none of these three seventeenth-century authors understands sympathy as something psychological or peculiar to human action. Human actions are just one among many things that can be facilitated by sympathetic relations. Where sympathy is concerned, they do not have a peculiar standing within nature.

Second, all of the authors discussed here view sympathy as something relational in character. Sympathetic agreements can obtain between creatures or parts of a creature. According to some they hold between creatures of the same nature, according to Leibniz this is no requirement. Still, for all of them sympathy is something relational, going beyond the individual item or part under consideration. One could call it a relational or systems approach to action.¹⁰ For Cavendish the wider system is that of (parts of) matter, for Conway it is the created substances, while for Leibniz it's also all things in the universe. This way, they are working with a broader, relational framework.

5. **Objections to sympathy**

In addition to supporters, sympathy early on had its critics. Francis Bacon (1561–1626), for one, objected to appeals to sympathy in natural philosophy. In his *Novum Organon* (1620), the work meant to replace Aristotelian science, he writes that:

The followers of natural magic, who explain everything by sympathy and antipathy, have assigned false powers and marvellous operations to things by gratuitous and idle conjectures. (Bacon [1620] 2000, I.lxxxv)

Bacon then classifies the notion of sympathy as superstition, “ritual magic” as “irrelevancies” to be done away with (III, 225). Similar concerns can be found in later authors, such as Descartes or in work of the astronomer, physicist and philosopher Pierre Gassendi (1592–1655). Descartes complains about the “marvels” of “sympathetic and antipathetic influences”, calling them “mysterious” (*Principles of Philosophy* IV.187; AT VIII 314–315¹¹), where Gassendi captures sympathy and antipathy as occult causes:

Finally, [there are] qualities that pertain to interior faculties and less sensible operations, such as sympathy, antipathy, magnetism, electricism, and in a word all those said to be occult. (Gassendi [1658] 1727, II.I.VI.i, 329b)

What was so problematic about sympathy? At least for the authors discussed here, the central concern was that principles including sympathy could not be genuinely explanatory. For Gassendi, being “occult” was not as such objectionable. It just meant that a certain

quality is not directly observable, which can include phenomena with unknown causes, such as gravity or magnetism (Gassendi [1658] 1727, II.I.VI.i).¹² However, he did deem it problematic if certain qualities were unknowable in principle which, he thought, was the case with sympathy.¹³

Bacon too had already flagged that an item's alleged capacity to sympathetically influence other things is a "false power", based on false associations (Bacon [1620] 2000, II.1, 218). Calling them "gratuitous and idle conjectures", and "corruptions of philosophy", it is clear that Bacon thinks that postulating sympathies remains problematically unsupported (II.1, 216, 217–218). Elsewhere, Bacon insists:

But this part of philosophy, namely, of the sympathy and antipathy of things is most impure (...) the operation thereof in men is merely like unto certain soporiferous medicines which cast one asleep, and do moreover send and infuse into him merry and pleasant dreams. (Bacon [1623] 1842, 304)

Appeals to sympathy fail, because they do not explain operations in terms of simple structures. Saying that the salve heals the wound because there is a sympathy between them does not yet specify the detailed operations of parts involved in the cure. Talk of sympathy only offers a semblance of explanation, Bacon complains (304).¹⁴

Similar criticisms can be found in Descartes. In *Principles of Philosophy* (1644), after having noted that he has explained the causes of a great number of phenomena in terms of features of the shape, size, position, and motion of particles of matter, he states:

And anyone who considers all this will readily be convinced that there are no powers in stones and plants that are so mysterious, and no marvels attributed to sympathetic and antipathetic influences that are so astonishing, that they cannot be explained in this way. (Descartes 1644, IV.187; AT VIII 314–315)

Only certain approaches to explanation are adequate in natural philosophy, according to Descartes. Postulating sympathetic acts is not one of them. Hence the central objection to postulating sympathy is that it does not explain processes in terms of detailed behaviour of particles. If sympathy does not explain, then it is not doing the job it was meant to do, according to its critics.

6. Atomistic action explanation

Authors including Descartes, Bacon, and Gassendi dismiss sympathy as a principle for being non-explanatory. Are their concerns on point? Stepping back, one can find a more basic divergence between those authors who accept and those who reject sympathy. Their disagreement follows their respective attitudes to what it is to explain something.

A common starting point is that for something to be an explanation, it must provide some information or insight that goes beyond the phenomenon to be explained. However, there are different ways of doing that. One can be called an "atomistic" explanatory strategy, on which acts are understood in isolation, independently of anything external to them.¹⁵ My yawning could be explained atomistically by studying just the yawn and what it consists of, such as my muscles, bones, nerves; the size, shape, and behaviour of the tiny parts that make up my moving body. Generally, an atomistic explanatory strategy would provide further insight by moving to a smaller scale, focusing on how a thing is composed, how its behaviour is built up. Atomism as a stance about action explanation is the

idea that what is ascribed can be attributed locally, by looking at single items, features, or actions in isolation.¹⁶

There is an indication that the critics of sympathy discussed here incline toward demanding a form of atomistic explanation. Bacon, for example, states:

We cannot expect much from discovering the agreements of things before the discovery of the forms and simple structures. For agreement is nothing other than a reciprocal symmetry of forms and structures. (Bacon [1620] 2000, II.1, 216)

following which Bacon insist that “occult properties” or “sympathies” do not yet tell us anything about the operations of things, and that only “the discovery of the forms and simple structures” would do so (II.1, 216).¹⁷ Proper explanation for Bacon is in terms of microstructure.

Gassendi, while nominally allowing sympathies, subsequently insists that they be explained (away) in terms of corpuscular movements. Macroscopic phenomena in nature must be explicable in terms of microscopic items and events:

Also, therefore, to the extent that they are said to be made by sympathy or antipathy, they would still be completed by Physical causes, that is, by something understood. (Gassendi 1649, II.I.xi)

If something does not illuminate knowing the workings of a natural phenomenon in terms of its microstructure, postulating it does not help explain anything. Already in *The World* (1630–1633) Descartes had noted that phenomena – including those of a hypothetical human-like machine – must be explained with reference to the fundamental dispositions of matter, or in short the motion, size, shape, and arrangement of parts; for human action, that involves variations in the abundance, coarseness, and agitation of animal spirits passing through pores (Descartes 1630–1633, §V; AT XI 165–166). Descartes requires that a final statement of sympathetic action must be in terms of the characteristics and behaviour of the smallest parts of matter. Cartesian philosopher Malebranche in the end takes a similar stance. While Theodore in the *Dialogues* accepts sympathy between two distant strings, he pushes further: “But what produces this sympathy? That is where the problem lies” (Malebranche [1688] 2012, 180). Strings with the same sound move one another “... by agreement in their vibrations that move or shake the air in which they are strung” (182). In our reasoning it is best only to reason about body or properties of body based on shapes and motions; all the rest is “bad reasoning” (182), Malebranche contends.

7. Holistic action explanation

Critics of sympathy put their concern as a scientific one, suggesting that appeal to sympathy falls short in terms of the behaviour of parts of matter. However, technically what Bacon and others insist on is not explanation as such, but a very specific form of explanation, namely what is in fact an atomistic form of explanation. Atomistic are those forms of explanation that provide insight by turning to a smaller scale, namely a description of the behaviour of the parts of matter.

A distinct strategy for providing more information is to go beyond the original phenomenon, by taking a step back and considering the thing to be explained holistically, in its wider relations to other things. It considers things not in isolation, but as part of a wider network. This is what would nowadays be called a systems or holistic explanation. Explaining my yawning might just require a statement about my place in my environment, relations

to other objects in the world around me, specifically that other person who yawned just earlier. Holistic explanation takes its insight and further information from a larger scale, by going beyond the individual. It applies when phenomena can be analysed not in isolation, but only as part of a larger set.

Precisely such a holistic approach to explanation can be found with the proponents of sympathy discussed here. Cavendish emphasises the unity of nature, and how there is only a single matter. As noted before, she refers to “there being a Union in its Nature” of the whole of matter, and that “the Creatures of this Only matter must necessarily have an Influence upon each other ...” (Cavendish 1655, III.70 §7).

She argues that to explain an action, one needs to give an account in terms of the characteristics of matter itself, which comprises the whole of nature. She focuses on how parts of matter move in coordination with one another (III.70 §7), and how atoms are “joyn togeth’r, and as one Body be” (Cavendish 1653, I.53). Hence her explanation ultimately prioritises the framework of the whole of nature.¹⁸ Conway too points out that “the creature, or whole creation, is but one only substance or essence *in specie*” (Conway [1690] 1982, VI, 51–52). She endorses a “universal sympathy and mutual love in creatures”, which fundamentally have one essence, one body. This she sees as the basis for explaining creaturely action and interaction (VI). Explanation of action for Conway hence is fundamentally tied to the unity of creation.

At points, Leibniz actually expresses reservations about principles of sympathy. Writing to the philosopher-physicist Christiaan Huygens in 1693, he notes that one should avoid subscribing to “the gravity of Aristotle, the attraction of Mr. Newton, to sympathies, or antipathies, and to a thousand other similar attributes” (Leibniz to Christiaan Huygens, 29 March 1693; A II.2-B, 685). But Leibniz’s criticism in this context is very specific. He dismisses sympathy as non-explanatory of particular causal effects. Sympathy for him should not be invoked to tell us why this particular magnet attracts that nail. Leibniz does however accept sympathy as a metaphysical background principle. He invokes sympathy with respect to broader conditions in the universe, including how all the bodies in the universe are related to ours (Leibniz 1685–186?, §XIV), and that because of universal sympathy, the world is represented and expressed in each part of the world (Letter to Sophie of Hannover, 4/14 November 1696). Sympathy for Leibniz is relevant at a broader level of explanation. His framework builds on (expressed) relational characteristics. Universal sympathy is what enables motion and agency in the first place.

One of the peculiar features of sympathy as discussed is that it involves relational phenomena; agreement or coordination between things or parts of things. A holistic explanatory strategy is suited to capture cases that are fundamentally relational. Precisely within such a holistic approach to explanation, phenomena of sympathy can make sense. It is with proponents of sympathy that we can find an inclination toward such holistic systems explanation. Atomistic explanation, by contrast, is more suited for cases without fundamental dependencies or ineliminable connections between what is to be explained and items external to it. Atomistic explanation, then, is less suited to capture relational actions. The controversial category of sympathetic action helps bring out a divergence in seventeenth-century strategies of explanation, namely between an atomistic and a holistic explanatory strategy.

8. Sympathy psychologised

These discussions of how sympathy can explain action also allow us to put into perspective the more familiar, human-centred conception of sympathy found in Smith. Smith too is

concerned with sympathy in relation to action. When, in his understanding, one person relates sympathetically to another, the content of their feeling involves an assessment of an action in that other person, hence (representationally) reaching beyond oneself to another individual. When we sympathise, we put ourselves in the situation of another, and so gain information about how we would evaluate this situation. Smith sees such conditions as involving an assessment of a property or action, as potentially as a basis for morality.

While Smith wrote against the background of the traditional, more inclusive conception of sympathy which held it to play a role in facilitating specific natural phenomena or even causation in the natural world, he parts with tradition on a crucial point. Different from that tradition, Smith psychologises sympathy, capturing it as a function of the imagination. One consequence of this is that sympathy is conceived not as a phenomenon that occurs throughout nature – common to humans and other beings – but instead as placed only in the domain of psychology. The domain of sympathy hence gets narrowed down to only those actions of things that have a psychology (or more specifically: imagination). Insofar as the imaginative psyche is thought to be omnipresent but peculiar to humans, Smith restricts sympathy to human action. Instead of being among the various phenomena which can be sympathetically explained, human action becomes segregated and gains a peculiar status as a domain within which sympathy can occur.

Further, with sympathy being nothing but a psychological state, any relations must be projected or simulated. Smith insists that he is not concerned with whether any of the experienced states are genuinely shared between people. Sympathy is not a form of emotional contagion – one person “infecting” another with their feeling – because there need be no feeling shared between one person sympathising with another. The person sympathised with may feel the exact opposite of what the sympathiser feels, or have no feeling at all (people even sympathise with the dead, Smith notes) (1759, I.I.1§7, I.I.1§13). There are no genuine sympathetic correspondences between things in the world, but only people’s mere projection or representation. Sympathy ceases to concern actual relations between things in the world.

For the connection between sympathy and explanation, this means that Smith can in principle stay within an atomistic picture, of only looking at the psychological processes and representations within a single individual. By making sympathy nothing but simulation, there is nothing “spooky” to Smith’s approach that would give atomists pause, because there is no actual broader system, but only psychological projection which need not be veridical.

9. Conclusion

The standing of explanations of action in nature with reference to principles of sympathy is controversial in the early modern period. While there were criticisms from those who call such principles “mysterious” or “unintelligible”, some seventeenth-century authors including Cavendish, Conway and Leibniz do appeal to principles of sympathy to capture a broad range of phenomena in the natural world, or even as the backbone of their metaphysics, facilitating the possibility of action in the universe as such. Such conceptions make sense within a more holistic approach, where explanation is of actions not in isolation, but as part of a larger system. At the same time, at least part of the criticism of sympathy stems from a narrow, atomistic view of explanation, which assumes that phenomena can or even must be understood singly, in isolation. Sympathetic principles, where they are invoked, are seen as being fundamentally relational, which does not obviously fit a

requirement that any explanation must be purely atomistic. Hence this explains the status of sympathetic action as a contested category during the early modern period. A core disagreement about sympathetic action has to do with different approaches to explanation.

Much of what had been controversial about sympathy fades into the background by the time we get to more canonical, recognisably “modern” and psychological views of sympathy that gain in prominence in the eighteenth century, including the theory defended by Adam Smith. Having reframed sympathy as a purely psychological phenomenon that plays a role, not for any form of action in nature, but exclusively for the explanation of human conduct, Smith has narrowed down the domain of explanation. Moreover, considering sympathy not as involving actual relations between things in the world, but as solely a simulation of the imagination, Smith steps away from some of the holism. This way, the category of sympathy exposes a number of basic fault lines in early modern explanations of action.

Disclosure statement

No potential conflict of interest was reported by the author.

Notes

1. Sympathy may in twentieth and twenty-first century discussions frequently occur as: a heightened awareness of or orientation toward another person’s feeling, especially their suffering or distressful events. Gerdes (2011) points out that sympathy here often gets used interchangeably with “empathy”. See: Hoffman (1982), Wispé (1991), and more recently de Waal (2009), Singer and Lamm (2009), Clark (2010). Bloom (2016) also refers to sympathy (“empathy”) as feeling along with, or the same as, another person; a “contagion of feeling”.
2. Smith also saw a role for sympathy in assessing the merit or demerit of the actions, which may play a role in the development of social bonding and basic morality (Smith 1759, I.I.II §1). Smith here reflects Hume, who in his *Treatise* notes that “we shall not doubt, that sympathy is the chief source of moral distinctions” (Hume 1739, III.III.vi, 354). Though there has recently been some pushback on the extent to which Hume and Smith coincide (e.g. Forman-Barzilai 2010; Sayre-McCord 2013).
3. Other prominent texts include the work of British surgeon Nathaniel Highmore’s (1613–1685) *Discourse of the Cure of Wounds by Sympathy* (1651); Digby’s *A Late Discourse ... Touching the Cure of Wounds by the Powder of Sympathy* (1658), work by the Scottish medical writer Sylvester Rattray (fl. 1650–1666), *Aditus Novus ad Occultas Sympathiae et Antipathiae Causas Inveniendas* (1660) and obstetrician Paul Chamberlen’s (1636–1717) *A Philosophical Essay upon Actions on Distant Subjects* (1715). In Germany significant contributions came from Johann Rudolph Saltzmann (1573–1656) in *Sympatheia rerum naturalium* (1661) and Jacob Heinrich Gangloff’s *Disputatio physica de sympathia* (1669). A comparatively late appearance comes from the English physician, astrologer and occult writer Ebenezer Sibly’s (1751–c. 1799) *A Key to Physic, and the Occult Sciences* (1795).
4. The work’s full title is: *The Principles of the most Ancient and Modern Philosophy Concerning God, Christ, and the Creatures, viz. of Spirit and Matter in general, whereby may be resolved all those Problems or Difficulties, which neither by the School nor Common Modern Philosophy, nor by the Cartesian, Hobbesian, or Spinosian, could be discussed*. The work was published posthumously by Conway’s colleague Francis Mercury van Helmont (1614–1699), and is currently available in Latin and English translations, derived from a lost English original.
5. Christia Mercer identifies a category of “enhanced sympathy” for Conway, which captures sympathetic relations of moral improvement between creatures (Mercer 2015, 127). I suggest that for Conway, these relations can be understood as standard cases of sympathy at work in the moral domain.
6. Abbreviations for standard editions of Leibniz’s work are given as follows: A = *Sämtliche Schriften und Briefe*. Ed. Deutsche Akademie der Wissenschaften. Darmstadt and Berlin:

Akademie-Verlag, 1923–; G = *Die Philosophische Schriften von Gottfried Wilhelm Leibniz*. Ed. C. I. Gerhardt. Berlin: Weidmann, 1875–1890 (Leibniz 1875–1890); L = *Philosophical Papers and Letters*. Ed. and trans. L. Loemker. Dordrecht: D. Reidel, 1969 (Leibniz 1969); NE = *New Essays on Human Understanding*. Ed. and trans. P. Remnant and J. Bennett. Cambridge: Cambridge University Press, 1996.

7. Leibniz writes to Antoine Arnauld (1616–1694): “I have said that the soul naturally expresses the whole of the universe in a certain sense, and according to the agreement that the other bodies have with its [own]”. Leibniz to Arnauld, 9 October 1687 (A II.2–B, 240).
8. The first option is unintelligible, and the second unreasonably posits divine intervention in nature, Leibniz suggests. In a letter to Basnage de Beauval of 3 January 1696, he paints his preferred option as a harmony “which from the beginning has formed each of these substances in a way so perfect and regulated with so much accuracy that merely by following laws of its own, received with its being, it nevertheless agrees with the other” (G IV, 498–500).
9. Leibniz continues to return to sympathy also in later texts. In his response to John Locke’s *An Essay Concerning Human Understanding*, Leibniz’s spokesperson Theophilus compares sympathy to instinct. Sympathy, Theophilus suggests at this point, is the capacity of bodies devoid of sense to conjoin by inclining towards something suitable (Leibniz 1996, NE III.xi, 351). The statement is odd, because Leibniz here appears to attribute sympathy directly to bodies rather than to the soul. However, it may be seen as a reply prompted more by the context of a constructive, non-dismissive engagement with Locke’s work than a major revision of his views of sympathy.
10. Eric Schliesser makes a similar point, noting: “The very possibility of sympathy presupposes that it takes place among things/events/features that are in one sense or another alike, often *within* a single being/unity/organism (which can be the whole universe)” (Schliesser 2015, 7).
11. Standard abbreviations to Descartes’ work are given as: AT = *Œuvres de Descartes*. Edited by C. Adam and P. Tannery. Paris: J. Vrin (Descartes 1964–1976).
12. Gassendi had been spurred in part by the theologian Marin Mersenne (1588–1648), who objected: “These qualities are occult only to the ignorant (. . .) for learned people do not use these terms, showing that what one calls occult is evident to them”. Mersenne, *Quaestiones Ceberrimae in Genesisim* (1623), cited in Copenhaver (2015, 380). For the discussion of Gassendi and sympathy, see: LoLordo (2007, 167, 220–221), Fisher (2005, 290). Mersenne’s stance on sympathy is discussed in: Clericuzio (2000, ch. 2) and Lenoble (1943).
13. Compare Spinoza, who remarks: “I realize that the writers who first introduced the terms “sympathy” and “antipathy” intended them to mean certain occult qualities.” *Ethics* III, prop. 15, scholium.
14. For further discussion of Bacon’s reactions against sympathy, see: Jardine (1974, 160–161), Willis (2007, 86–89), Shirilan (2008, 70, 77–78).
15. Christopher Peacocke (1979) set out “holism” as a scheme of explanation of action; where atomism can be assumed as holism’s contrary. While the atomism/holism distinction does not map neatly onto the many taxonomies of explanation doing the rounds in contemporary philosophy of science – from top-down/bottom-up explanation, global/local explanation, to unificationist, mechanist and manipulationist accounts (see: Reutlinger 2017 for a recent overview) – it is suited for current purposes. The concern here will be specifically with whether authors accept or reject that one can explain natural or human action by looking at the thing to be explained in isolation.
16. Atomistic explanation can coincide with, but does not require, atomism; a positive doctrine in natural philosophy about the existence of ultimate, indivisible particles. As I will suggest, Descartes adopts atomistic explanation while rejecting atomism.
17. Bacon’s demand can fit with his allowing sympathy in some cases, if it is seen as a disjunctive one: find an explanation in terms of smaller forms and structures, or establish that the phenomenon is properly basic. See also: Gaukroger (2001, 123, 133–137, 144) for discussion.
18. To be sure, Cavendish may sometimes classify sympathy as “Natural Magick” (Cavendish 1664, III.XVI, 298ff). However, as with Gassendi’s references to the “occult”, for Cavendish calling something magical does not mean that it has any peculiar problems; she may equally classify instances of magnetism and even the occurrence of fire this way. It just indicates for her that even when we can account for these natural actions within a larger framework, they still elicit wonder and amazement in us (Cavendish 1655, III.96, 68). Cunning (2006, 122) discusses the status of such natural magic in Cavendish.

Notes on contributor

Chris Meyns does research in early modern philosophy, focusing on questions about mind, metaphysics, and information. They work as an Assistant Professor of Philosophy at Utrecht University. They have written on the analysis of imagination, Leibniz's views on probability, and are currently investigating the history of philosophical debates about information.

References

- Aristotle. 1984. *The Complete Works of Aristotle*. Edited by Jonathan Barnes. Princeton, NJ: Princeton University Press.
- Bacon, Francis. (1620) 2000. *The New Organon*. Edited by Lisa Jardine and Michael Silverthorne. Cambridge: Cambridge University Press.
- Bacon, Francis. (1623) 1842. "History of the Sympathy and Antipathy of Things." In *The Works of Francis Bacon*, vol. 3. Edited by James Spedding, Robert Leslie Ellis, and Douglas Denon Heath, 464–465. Philadelphia, PA: Carey and Hart.
- Bloom, Paul. 2016. *Against Empathy: The Case for Rational Compassion*. London: Random House.
- Cavendish, Margaret. 1653. *Poems and Fancies*. London: J. Martin and J. Allestrye.
- Cavendish, Margaret. 1655. *Philosophical and Physical Opinions*. London: J. Martin and J. Allestrye.
- Cavendish, Margaret. 1664. *Philosophical Letters: or, Modest Reflections Upon Some Opinions on Natural Philosophy, Maintained by Several Famous and Learned Authors of This Age, Expressed by way of Letters*. London.
- Cavendish, Margaret. (1668) 2001. *Observations upon Experimental Philosophy*. Edited by Eileen O'Neill. Cambridge: Cambridge University Press.
- Chamberlen, Paul. 1715. *A Philosophical Essay upon Actions on Distant Subjects. Wherein Are Clearly Explicated. All Those Actions Usually Attributed to Sympathy and Antipathy ...*. London: H. Parker.
- Clark, A. J. 2010. "Empathy and Sympathy: Therapeutic Distinctions in Counseling." *Journal of Mental Health Counseling* 32 (2): 95–101.
- Clericuzio, Antonio. 2000. *Elements, Principles and Corpuscles: A Study of Atomism and Chemistry in the Seventeenth Century*. Dordrecht: Springer.
- Conway, Anne. (1690) 1982. *The Principles of the Most Ancient and Modern Philosophy*. Edited by Peter Lopston. The Hague: Nijhoff.
- Copenhaver, Brian P. 2015. *Magic in Western Culture: From Antiquity to the Enlightenment*. Cambridge: Cambridge University Press.
- Cunning, David. 2006. "Cavendish on the Intelligibility of the Prospect of Thinking Matter." *History of Philosophy Quarterly* 23 (2): 117–136.
- Descartes, René. 1964–1976. *Œuvres de Descartes (12 Vols)*. Edited by C. Adam and P. Tannery. Paris: J. Vrin.
- Digby, Kenelm. 1658. *A Late Discourse Made in a Solemn Assembly of Nobles and Learned Men at Montpellier in France ... Touching the Cure of Wounds by the Powder of Sympathy*. Translated by R. White. London: Lowndes and Davies.
- Fisher, Saul. 2005. *Pierre Gassendi's Philosophy and Science: Atomism for Empiricists*. Leiden: Brill.
- Forman-Barzilai, Fonna. 2010. *Adam Smith and the Circles of Sympathy: Cosmopolitanism and Moral Theory*. Cambridge: Cambridge University Press.
- Gangloff, Jacob Heinrich. 1669. *Disputatio Physica de Sympathia*. Jena: Samuel Adolphus Müller.
- Gassendi, Pierre. 1649. *Syntagma Philosophiae Epicuri cum Refutationibus Dogmatum Quae Contra Fidem Christianam ab eo Asserta Sunt*. Lyon: Guillaume Barbier.
- Gassendi, Pierre. (1658) 1727. *Syntagma Philosophicum*. In *Opera Omnia*. vol. I. Florence: Typis Regiae Celsitudinis.
- Gaukroger, Stephen. 2001. *Francis Bacon and the Transformation of Early-Modern Philosophy*. Cambridge: Cambridge University Press.
- Gerdes, Karen E. 2011. "Empathy, Sympathy, and Pity: 21st-Century Definitions and Implications for Practice and Research." *Journal of Social Service Research* 37 (3): 230–241.
- de Grouchy, Condorcet, and Marie Louise Sophie. (1798) 2010. *Les Lettres sur la Sympathie (1798) de Sophie de Grouchy: Philosophie Morale et Réforme Sociale*. Edited by Marc André Bernier and Deirdre Dawson. Oxford: Voltaire Foundation.
- van Helmont, Jean Baptiste. 1621. *De Magnetica Vulnerum Curatione*. Paris: Le Roy.

- van Helmont, Jean Baptiste. 1652. *Ortus Medicinae, id est, initia physicae inavdita. Progressus medicinae novus, in morborum vltionem, ad vitam longam*. Amsterdam: Elsevier.
- Highmore, Nathaniel. 1651. *The History of Generation ... To Which Is Joyned a Discourse of the Cure of Wounds by Sympathy, or Without Any Real Applycation of Medicines to the Part Affected ...*. London: John Martin.
- Hoffman, M. L. 1982. "The Measurement of Empathy." In *Measuring Emotions in Infants and Children*. Edited by C. E. Izard, 103–131. Cambridge: Cambridge University Press.
- Hume, David. 1739. *A Treatise of Human Nature*. London: John Noon.
- Jardine, Lisa. 1974. *Francis Bacon: Discovery and the Art of Discourse*. Cambridge: Cambridge University Press.
- Leibniz, Gottfried Wilhelm. 1875–1890. *Die Philosophische Schriften von Gottfried Wilhelm Leibniz*. Edited by C. I. Gerhardt. Berlin: Weidmann.
- Leibniz, Gottfried Wilhelm. 1923–. *Sämtliche Schriften und Briefe*. Edited by Deutsche Akademie der Wissenschaften. Darmstadt: Akademie-Verlag.
- Leibniz, Gottfried Wilhelm. 1969. *Philosophical Papers and Letters*. Edited and translated by Leroy Loemker. Dordrecht: D. Reidel.
- Leibniz, Gottfried Wilhelm. 1996. *New Essays on Human Understanding*. Edited and translated by P. Remnant and J. Bennett. Cambridge: Cambridge University Press.
- Lenoble, Robert. 1943. *Mersenne, Ou, La Naissance Du Mécanisme*. Paris: J. Vrin.
- LoLordo, Antonia. 2007. *Pierre Gassendi and the Birth of Early Modern Philosophy*. Cambridge: Cambridge University Press.
- Malebranche, Nicolas. (1688) 2012. *Dialogues on Metaphysics and on Religion*. Edited by Nicholas Jolley and David Scott. Cambridge: Cambridge University Press.
- Mercer, Christia. 2015. "Seventeenth-Century Universal Sympathy Stoicism, Platonism, Leibniz, and Conway." In *Sympathy: A History*, edited by Eric Schliesser, 107–145. Oxford: Oxford University Press.
- Mersenne, Marin. 1623. *Quaestiones Celeberrimae in Genesim ...*. Lutetia: Sebastiani Cramoisy.
- Mizauld, Antoine. 1598. *Harmonia superioris naturae mundi et inferioris, vnà cum admirabili foedere & sympathiea rerum*. Lutetia: Morelli.
- Peacocke, Christopher A. B. 1979. *Holistic Explanation: Action, Space, Interpretation*. Oxford: Clarendon Press.
- Plotinus. 1966. *Enneads, III*. Translated by A. H. Armstrong. Cambridge, MA: Harvard University Press.
- Ratray, Sylvester. 1660. *Aditus Novus ad Occultas Sympathiae et Antipathiae Causas Inveniendas*. Tübingen: Johann Heinrich Reis.
- Reutlinger, Alexander. 2017. "Explanation Beyond Causation? New Directions in the Philosophy of Scientific Explanation." *Philosophy Compass* 12 (2): 1–11. doi:10.1111/phc3.12395.
- Saltzmann, Johann Rudolph. 1661. *Sympatheia Rerum Naturalium*. Argentoratum: Pastorius.
- Sayre-McCord, Geoffrey. 2013. "Hume and Smith on Sympathy, Approbation, and Moral Judgment." *Social Philosophy and Policy* 30 (1–2): 208–236.
- Schliesser, Eric 2015. *Sympathy: A History*. Oxford: Oxford University Press.
- Shirilan, Stephanie. 2008. "Francis Bacon, Robert Burton, and the Thick Skin of the World: Sympathy, Transmission, and the Imaginary Early Modern Skin." *English Studies in Canada* 34 (1): 59–83.
- Sibly, Ebenezer. 1795. *A Key to Physic, and the Occult Sciences. Opening to Mental View, the System and Order of the Interior and Exterior Heavens ... the Sympathy Between Celestial and Terrestrial Bodies*. London: Champante and Whitrow.
- Singer, T., and C. Lamm. 2009. "The Social Neuroscience of Empathy." *The Year in Cognitive Neuroscience 2009: Annual New York Academy of Science* 1156: 81–96.
- Smith, Adam. 1759. *The Theory of Moral Sentiments*. London: A. Millar.
- Strickland, Lloyd. 2011. *Leibniz and the Two Sophies: The Philosophical Correspondence*. Toronto: Centre for Reformation and Renaissance Studies.
- de Waal, Frans B. M. 2009. "Putting Altruism Back Into Altruism: The Evolution of Empathy." *Annual Review of Psychology* 59: 279–300.
- Willis, R. J. 2007. *The History of Allelopathy*. Dordrecht: Springer.
- Wispé, Lauren. 1991. *The Psychology of Sympathy*. New York: Springer.