

# Shelley's Theory of Mind: From Radical Empiricism to Cognitive Romanticism

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**Abstract** This essay reconstructs Percy Shelley's theory of mind from his letters and many unfinished essays as well as his *Defence of Poetry* (1821), emphasizing his radical insistence on the formal and teleological roles of *analogy* in human cognition, communication, and culture. Adopting the assumptions, method, and terminology he inherited from the vigorous associationist tradition in eighteenth-century British philosophy and psychology, Shelley sought to demonstrate the innate and thus indefeasible foundations of human morality, especially its master principle of social equity. His analysis took him at once to the heart of a range of psychosocial issues that are today studied under the cognitive scientific rubric of "theory of mind," including the developmental interrelations of, and motivations for, social imitation, language acquisition, and mental representation. Taking first a historical and then a theoretical view, I argue that Shelley's elegant solution to one of the major philosophical problems of the empirical age remains surprisingly relevant to central issues in contemporary science of mind.

## **Associationist Moral Psychology as Theory of Mind: Recovering Shelley's Analogy**

Though he was there only a term and a half, Percy Shelley (1792–1822) received at Oxford an intellectual stimulus to which he responded for the remainder of his precocious and sadly arrested career. The stimulant was

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his first-term reading of British metaphysical and moral philosophy, in particular John Locke's *An Essay concerning Human Understanding* (1690) and David Hume's *Essays, Moral and Political* (1741–42). Together with his classmate and friend Thomas Jefferson Hogg, Shelley (1965, 5:300, 8:137) “prepared careful analyses” of these works that he intended to use as a foundation for a series of his own “moral and metaphysical essays,” beginning with “the small metaphysical essay in support of Atheism” that resulted in their joint expulsion from the university in March 1811. In the ensuing decade, Shelley returned again and again to his philosophical project and to the arguments of Locke, Hume, George Berkeley, David Hartley,<sup>1</sup> and other leading names in the new “experimental”<sup>2</sup> science of mind. The problem at which he labored was precisely the relation between metaphysical and moral philosophy, especially if one proceeded with “the strictest” explanatory “materialism” (i.e., Locke’s simple ideas, passively received from experience) and yet aimed to show that a psychological system so grounded could—indeed *must necessarily*—produce “the loftiest” moral “disinterestedness” (ibid., 9:12). Shelley wished to derive the cooperative or sociomoral impulses from the elemental “organization” of human being, and his solution was to reinterpret foundational concepts of empirical psychology such as passion, association, and especially analogy in radical and teleological terms, such that an orientation toward others would be no less natural than an orientation toward the self. Grounding “the true and the beautiful, in a word, the good” in “the relation, subsisting, first between existence and perception, and secondly between perception and expression” (ibid., 7:111–12), Shelley sought to universalize morality and thus to rescue it from what appeared to be the *accidental* logic of association. Given normal development and environmental support, the analogical architecture of human perception and expression would guarantee human morality and predict its cultural-historical augmentation.

Shelley’s radical solution to the problem of associationist moral psychology is fascinating in its own moment and may remain instructive to ours. As Alan Richardson (2001: 184) suggests in his pathbreaking study of

1. Shelley’s letters (e.g., 1965, 9:10, 33, 36) indicate that he owned the major works of all of these figures as part of his personal library.

2. Locke’s (1961 [1690], 1:188) use of the term *experiment* makes clear its etymological connection to *experience* (cf. French *expérience*): “The difference of *intention* and *remission* of the mind in thinking, with a great variety of degrees between earnest study and very near minding nothing at all, everyone, I think, has experimented in himself.” The method of “experimenting within the self” is of course introspection, which is the experiential or empirical method upon which Locke proceeds and which is, Locke (ibid.: 60) believes, replicable and verifiable by any “unprejudiced” reader: “All that I shall say for the principles I proceed on is that I can only *appeal* to men’s own unprejudiced *experience* and observation whether they be true or no.”

Romantic mind science, “Uncovering some of the hypotheses and connections made in the past . . . might provoke new questions for scientific investigation in the present.”<sup>3</sup> Richardson (ibid.) observes, for example, that “links between facial expression, non-verbal communication, and what is now called ‘theory of mind’—the human ability to model the intentions, emotions, and mental dispositions of other human agents—theorized by [Charles] Bell, [Thomas] Reid, and [Joanna and Matthew] Baillie have recently been proposed anew.” This essay will confirm Richardson’s point by supplementing it with further evidence from the associationist tradition, as articulated by the canonical figures (Locke, Hume, Hartley) who shaped and provoked Shelley’s thought, and here too the analysis will reveal remarkable correspondences with, and thus potential implications for, contemporary theory of mind research. In particular, retracing Shelley’s route through associationist epistemology and psychology will urge our (re)consideration of the empirical hypothesis of deep structural connections between such cognitive phenomena as analogy, imitation, language, representation, and theory of mind. In Shelley’s view, as reconstructed from his unfinished essays “On Life,” “On Love,” “A Discourse on the Manners of the Ancients, relative to the Subject of Love,” “Speculations on Metaphysics,” and “Speculations on Morals,” as well as the culmination of all of these, his chef d’oeuvre *A Defence of Poetry* (1821), such domains are better understood as being each a developmental precondition for the next in the ontogeny and phylogeny of human social cognition and purpose.

For efficiency’s sake, I will conduct this argument in the (pre)history and theory of cognitive science under exactly those heads, giving the empirical historical background first, the cognitive theoretical implications thereafter. And for the sake of clarity, I’ll use footnotes in each section to provide a “paratext” in the alternative language: thus in the historical section, parallels in contemporary cognitive theory will be noted, whereas in the theoretical section, parallels from the empirical tradition will be noted. This will help keep straight who exactly claimed what and when, avoiding anachronism without thereby sacrificing the real interest and possible fruitfulness of immediate juxtaposition and comparison.

### 1. Radical Empiricism: The Theory of the Analogical Mind

The problem with Lockean association in its original formulation and various permutations throughout the eighteenth century was that, in refram-

3. Bruhn (forthcoming) pursues this idea in terms of the possible theoretical and experimental implications of Samuel Taylor Coleridge’s and William Wordsworth’s poetics for what is today known as “conceptual integration” or “blending” theory.

ing questions of speculative and practical philosophy<sup>4</sup> in experiential and inductive terms, the theory of association threatened to rob morality of any innate foundation or developmental certainty. Because simple ideas are passively received by the perceiving mind and only then associated into more complex ideas, such as the “mixed modes” that govern thinking and acting in social settings,<sup>5</sup> those complex ideas are no more innate than is the idea of a unicorn. If moral ideas are not innate, then they must be learned, that is, each perceiving mind must passively encounter and acquire the constituent simple ideas and then associate them together in the specific ways that support sociality and morality. The question is, what guides this cognitive assembly process and guarantees its outcome in morally responsible individuals, especially if, besides sense receptors and reflective dispositions such as a propensity to compare ideas, we have nothing else by way of innate endowment but a fundamental selfishness driven by passions of pleasure seeking and pain avoidance?<sup>6</sup>

4. Hume (2000 [1739–40]: 294) makes the distinction at the outset of the third book of *A Treatise of Human Nature*, “Of Morals” (which lays the philosophical groundwork for his subsequent *Essays, Moral and Political*): moral philosophy is practical insofar as it deals with “human passions and actions,” metaphysical philosophy is speculative insofar as it deals with the contents of mind, that is, impressions, ideas, and “the calm and indolent judgments of the understanding.” Meaning to deny a categorical difference between these two branches of philosophical “science,” Shelley (1965, 7:62–63) subsumes both under the name “metaphysics”: “Metaphysics is a word which has been so long applied to denote an inquiry into the phenomena of the mind, that it would justly be considered presumptuous to employ another. But etymologically considered it is very ill adapted to express the science of the mind. It asserts a distinction between the moral and the material universe which it is presumptuous to assume. Metaphysics may be defined as the science of all that we know, feel, remember and believe: inasmuch as our knowledge, sensations, memory and faith constitute the universe considered relatively to human identity” (“Speculations on Metaphysics”).

5. Thus Locke (1961 [1690], 1:243): “These simple *ideas*, I say, of thinking, motion, and power have been those which have been most modified, and out of whose modifications have been made most complex modes with names to them. For action being the great business of mankind, and the whole matter about which all laws are conversant, it is no wonder that the several modes of thinking and motion should be taken notice of, the *ideas* of them observed and laid up in memory and have names assigned to them, without which laws could be but ill-made, or vice and disorder repressed. Nor could any communication be well had amongst men without such complex *ideas* with names to them. . . . To conclude, let us examine any *modes of action*, v.g. *consideration* and *assent*, which are actions of the mind; *running* and *speaking*, which are actions of the body; *revenge* and *murder*, which are actions of both together; and we shall find them but so many *collections of simple ideas*, which together make up the complex ones signified by those names.”

6. Compare Sutton (1998: 231), summarizing the arguments of the cognitive scientists Jerry Fodor and Zenon Pylyshyn: “Because associationist organisms are slaves of context or creatures of the environment in this way, there is no *guarantee* that what is in their minds will develop the kind of constituent structure which, according to Fodor, is required to support the cognitive capacities of inference, reason, and judgment. Learning, for an associationist, is statistical modeling sensitive to the frequency of, for example, co-occurring items pre-

Accepting the premises, the answer can only be environmental constraints in the form of social induction—an argument that would explain the evident variability of cultures and the presence of social institutions of law and order, but that would seem to concede to moral relativism and political coercion. The sociocultural variability of moral standards provides key evidence for Locke's (1961 [1690], 1:31) foundational argument against “innate ideas”: “there is scarce that principle of morality to be named, or *rule of virtue* to be thought on (those only excepted, that are absolutely necessary to hold society together, which commonly too are neglected betwixt distinct societies) which is not, somewhere or other, *slighted* and condemned by the general fashion of *whole societies* of men, governed by practical opinions and rules of living quite opposite to others.” Moral principles and “rules of living” are therefore largely if not wholly learned, by a creature whose natural disposition is appetitive, hence selfish, even outrageously so: “Principles of actions indeed there are lodged in men's appetites, but these are so far from being innate moral principles that if they were left to their full swing, would carry men to the overturning of all morality. Moral laws are set as a curb and restraint to these exorbitant desires, which they cannot be but by rewards and punishments that will overbalance the satisfaction anyone shall propose to himself in the breach of the law” (ibid.: 34).

Despite his more sanguine view of the “confin'd generosity” that supports kinship relations and other local attachments and provides a natural counterbalance to innate selfishness, Hume (2000 [1739–40]: 318, 343) nevertheless concurs in viewing morality as artificial and therefore acquired, and he spells out more clearly than Locke the political implications of such a psychosocial theory. Institutions of government are necessary to render “the observance of the laws of justice our nearest interest, and their violation our most remote,” for “men are not radically able to cure, either in themselves or in others, that narrowness of soul, which makes them prefer the present [their own good and ease, including that of their loved ones] to the remote [the good and ease of perfect strangers]. They cannot change their natures. All they can do is to change their situation, and render the observance of justice the immediate interests of some particular persons [i.e., kings, magistrates, officers, armies, etc.], and its violation their more remote. These persons, then, are not only induc'd to observe those rules in their own conduct, but also to *constrain others* to a like

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sented in experience. . . . This leaves open the possibility that in a hostile environment, or in an unfavourable context of meagre stimuli, such minds would be unable to generate new combinations of existing items.”

regularity, and *enforce the dictates of equity thro' the whole society*" (emphasis added). If the moral principle of equity must be enforced upon the whole society, in what sense, and by what, is it "dictated"?

It is precisely the issue of equity that provokes Shelley's radical critique of empirical and associationist psychology. In his view, far from needing to be enforced, equity is our nature and therefore our destiny. In correspondence with Elizabeth Hitchner in the months following his expulsion from Oxford, the topics of political morality and Lockean psychology converge (in part because Shelley [1965, 8:101] had sent Hitchner the *Essay concerning Human Understanding* in hopes of winning an "ally in Locke"), and their conjunction leads Shelley to the moral rub of what he considers to be Locke's otherwise unassailable position. Acknowledging that, in the aftermath of the French Revolution, "equality in politics like perfection in morality appears now so far removed from even . . . visionary anticipations," Shelley (*ibid.*: 131, 132) nevertheless asserts: "Were I a moral legislator I would propose to my followers that they should arrive at the perfection of morality. — Equality is natural." To Hitchner's demur that "nature has decidedly distinguished degrees among a degenerate race," Shelley (*ibid.*: 143–44) responds with an appeal to Locke but in so doing winds up contradicting his own position that political morality, which is to say "equality," is somehow a "natural" phenomenon or principle:

Admit for a moment that the composition of soul varies in every recipient, still *Nature* must have been blind to give a kingdom to a fool, a dukedom to a sensualist, an empire to a tyrant. If she *thus* distinguishes degrees, how does the wildest anarchy differ from Nature's law . . . or rather how are they not by this account synonymous? — Again: Soul may be proved to be, not that which changes its first principles in every new recipient, but an elementary essence, an essence of first principles which bears the marks of casual [or] of intended impressions. For instance . . . the non-existence of innate ideas is proved by Locke; he challenges any one to find an idea which *is* innate. This is conclusive. If no ideas are innate, then all ideas must take their origin subsequent to the transfusion of the soul . . . in consequence of this indisputable truth, intellect varies but in the impressions with which casualty or intention has marked it. Where is now *Nature*, distinguishing degrees . . . or rather do you not see that Art has assumed that office even in the gifts of the mind.

But if intellect indisputably "varies" according to how "casualty" (i.e., chance or accident) and "intention" (i.e., education) dictate, then in what sense is equality a natural condition? Or more exactly, in what sense is the political theory of equality derivable from cognitive "first principles" or "an essence of first principles" if that principle or those principles are inevitably inflected and delimited by existential accident and sociocultural

exposure? The argument does not bode well for a distinction he had only a month and half earlier copied from Paul-Henry Thiry, Baron d'Holbach's *Système de la Nature* (1770): "Modes of Worship differ, they are therefore the work of man—Morality is . . . *universal* and uniform, therefore it is the work of God'—or as I should say," Shelley (*ibid.*: 124) added, "it *is* *Morality* which I cannot but consider as synonymous with the Deist's God." Again, if minds are in their rudiments constructed from unpredictable accident and variable instruction, in what meaningful sense could morality and its "perfection," equality, be considered either universal or uniform?

Arrived at this impasse, Shelley turns about and begins to question his Lockean premises. "This creation of the soul at birth is a thing I do not like," he declares flatly at the end of 1811, and by the middle of 1812, still before his twentieth birthday, he has explicitly theorized the possibility of "Innate Passions," "co-existent with our organization" (*ibid.*: 205, 328). Innate passions would provide what an earlier letter termed "instinctive . . . motives of action" for those social dispositions—for example, "congeniality, sympathy, unaccountable attractions of intellect"—that "arise independent frequently of any considerations of your own interest" and therefore cannot be explained in "*purely* selfish" terms (*ibid.*: 48). Shelley's unfinished essay "Speculations on Morals" was to develop this hypothesis of innate passions that provide instinctive motives for social actions, and it would thereby have shown, in Mary Shelley's words, "how virtue resulted *from* the nature of man," not despite it (*ibid.*, 5:xi; emphasis added). Percy Shelley's (*ibid.*, 7:71) "Plan" for the essay spells out this literally radical proposal with respect to the two chief divisions of empirical philosophy:

That great science which regards the nature and the operations of the human mind, is popularly divided into Morals and Metaphysics. The latter relates to a just classification, and the assignment of distinct names to its ideas; the former regards simply the determination of that arrangement of them which produces the greatest and most solid happiness. . . . Moral science itself is the doctrine of the voluntary actions of man, as a sentient and a social being. These actions depend on the thoughts in his mind. But there is a mass of popular opinion, from which the most enlightened persons are seldom wholly free, into the truth or falsehood of which it is incumbent on us to enquire . . . before we can ascertain the elementary laws, according to which these thoughts, from which these actions flow, are originally combined.

Morality "is the doctrine of the voluntary actions of man," and "these actions" admittedly "depend on the thoughts in his mind," that is, the conceptual classification and linguistic symbolization of ideas (as described, e.g., by metaphysicians such as Locke and Hume). These thoughts or ideas are "originally combined" according to "elementary laws" and sub-

sequently yield those particular “arrangements” that conduce toward “the greatest and most solid good.” Ascertaining the elementary laws of combination and arrangement would thus effectively heal the popular division of what is after all a unified science by deriving morality from fundamental operations of the human mind.

Moreover, to the extent that these operations were “lawful” in a regulatory as well as a combinatorial sense, they would provide a cognitive foundation for and guarantee of a “universal and uniform” moral endowment in the species, however directed or misdirected by subsequent education.<sup>7</sup> Their demonstration would provide a nontranscendental solution to the philosophical problem that was exercising the best minds of the age. Shelley’s contemporary and fellow philosopher-poet, Samuel Taylor Coleridge, for example, advanced a parallel critique of the moral consequences of associationism, but with almost exactly the opposite result. Coleridge’s concern, like Shelley’s, was that, insofar as it made the mind passively dependent upon variable environments, the mechanistic logic of association threatened to evacuate the constituent concepts and elements of moral thought and action. As John Sutton (1998: 233) has argued, Coleridge believed that the

necessitarian laws of association would not only subordinate final to efficient causes in the human being, but would make the will and “all acts of thought and attention” into mere “parts and products of this blind mechanism” rather than what Coleridge claims they must be: “distinct powers, the function of which it is to control, determine, and modify the phantasmal chaos of association” [citing *Biographia Literaria*]. . . . For Coleridge, the truth of associationism would . . . eliminate rationality, purpose, free will, the soul, consciousness, agency, choice and judgment, self, invention and creativity, art and beauty, prudence, ethics, and responsibility, as well as theology.

With so much at stake, Coleridge wants to insist on *active* and *shaping* mental “powers” that oversee and regulate (“control, determine, and modify”) the otherwise “blind” and arbitrary processes of association, conducting them toward their proper ends or “final causes,” which would thus *not* be subordinated to their efficient causes. In his *Treatise*, Hume (2000 [1739–

7. Shelley (1965, 8:284) was fully aware of the baleful as well as the beneficial potential of education: “I know how much of good there is in human nature, spite of the overwhelming torrent of depravity which education unlooses. I see little instances of kindness and goodwill, almost everywhere, surely education, or impressions intentionally induced upon the mind, might foster and encourage the good, as it might eradicate the evil.” Shelley’s metaphor is accurate: the seeds of kindness and goodwill are not *planted* by education, only “fostered and encouraged” by it (or, conversely, drowned in torrents of moral depravity). The germ of this plant is sown by nature.



40]: 115) had defined efficient causation as “the constant conjunction of two objects” and, as such, a necessary condition for all other kinds of causation (more accurately, judgments of causal relation): “All causes are of the same kind, and . . . in particular there is no foundation for that distinction, which we sometimes make betwixt efficient causes, and causes *sine qua non*; or betwixt efficient causes, and formal, and material, and exemplary, and final causes. For as our idea of efficiency is deriv'd from the constant conjunction of two objects, wherever this is observ'd, the cause is efficient; and where it is not, there can never be a cause of any kind.” Hartley (1971 [1749], 1:114), confining himself more to observational description than to philosophical analysis, asserts simply the “Coincidence of efficient and final Causes.” But Coleridge seeks the directive preeminence of final causes over efficient, that is, an active, self-identical power that can intentionally “control,” “determine,” and “modify” the processes and products of association as they unfold in the course of cognitive development and thus legitimately stand as surety for all those sociomoral first principles and operations that would otherwise be eliminated (“rationality, purpose, free will, the soul, consciousness, agency, choice and judgment, self,” etc).<sup>8</sup> But this self-constituting power, as formal and final cause of association, cannot itself be caused by association—what then, and from whence, is it? Coleridge (1958 [1817], 1:202) decides the issue by fiat rather than argument, declaring that the requisite “living Power and prime Agent of all human Perception” is “as a repetition in the finite mind of the eternal act of creation in the infinite I AM.”

Whatever its rhetorical appeal, Coleridge's transcendental argument<sup>9</sup> would be philosophically dissatisfying to Shelley, who began his inquiry with a skeptical manifesto on *The Necessity of Atheism* and a methodological commitment to the strictest inductive rigor<sup>10</sup> and who would see in any

8. In Sutton's (1998: 246) phrasing, borrowed from “connectivist” or “neo-associationist” cognitive theories, “Coleridge requires a central executive or cognitive central control system to determine actively the ongoing processing of passive items of memory which are kept clearly independent of will, reason, and judgment.” These “independent” powers of will, reason, and judgment cannot be derived from association but must be grounded elsewhere.

9. For an excellent overview and critique of Coleridge's transcendental “solution” to the philosophy of mind, see Bode 2009.

10. Shelley's (1965, 7:63) inductive commitment is implicit in his critique of the modern philosophers, from Locke forward, who have been insufficiently rigorous in their own applications of the method: “Nor have those who are accustomed to profess the greatest veneration for the inductive system of Lord Bacon adhered with sufficient scrupulousness to its regulations. They have professed indeed (and who have not professed?) to deduce their conclusions from indisputable facts. How came many of those facts to be called indisputable? . . . Their promise of deducing all systems from facts has too often been performed by appealing in favour of these pretended realities to the obstinate preconceptions of the multitude, or by the most preposterous mistake of a name for a thing” (“Speculations on Metaphysics”).

case that recourse to the transcendent only deflects and defers the questions it pretends to answer. Rather than leap outside the Lockean epistemological framework to ground agency and identity in something akin (“as a repetition”) to “the eternal act of creation,” Shelley intends to work through that framework, or at least in keeping with it, to a deeper understanding of those “necessitarian laws of association” that so worry Coleridge. The “elementary” laws of association, as Shelley preferred to call them, govern the combinations of thought that, further combined, lead to moral judgments and voluntary actions. Therefore, as Shelley (1965, 7:111–12) said in the *Defence*, morality (“the true and the beautiful, in a word, the good”) must inhere “in the relation, subsisting, *first* between existence and perception, and *secondly*, between perception and expression” (emphasis added). Crucially, as this final formulation makes clear, the explanatory logic is not only chronological (or developmental) but explicitly *relational*, which is to say *analogical*: existence is to perception as perception is to expression, or in other words, there is a “permanent analogy of things,” a set of essential “similitudes or relations” that constitute “all knowledge” (“perception”) and “human intercourse” (“expression”) (ibid.: 111, 115). An appeal to analogy can hardly be surprising in an era in which, as Earl R. Wasserman (1953: 67) long ago demonstrated, “most . . . philosophic roads led to the divine analogy.” But Shelley radicalizes the concept—literally installs it at the root of human epistemology and therefore of human sociality and morality—and likewise *motivates* it developmentally. So much so that his “theory of mind,”<sup>11</sup> as Mary Shelley (in Percy Shelley 1965, 5:xi) called it, challenges her description of it as “more simple, unimpugnable, and entire than the systems” of other writers, including “Berkeley, Coleridge, and Kant.” Importantly, Shelley’s “system” would elegantly derive the moral principles of sympathy, disinterestedness, and equality, and with them that suite of conceptions and dispositions that is studied today under the rubric “theory of mind,” from the relational or proportional (ana)logic that, as its elementary law, drives the system of association.<sup>12</sup>

11. Mary Shelley of course meant “theory of mind” in the broadest possible sense, but given that Percy Shelley’s theory culminated in and subsumed what is today meant more narrowly by “theory of mind,” the confusion is harmless.

12. Shelley’s conception of analogy thus marks a significant departure from most eighteenth-century understandings and applications of analogy, not least because his version makes no appeal to the divine. According as it did with the materialist theory of simple percepts, which combine by laws of association into more and more complex ideas, it likewise skirted the philosophical worry about analogy that increasingly haunted the age. As Wasserman (1953) and others (e.g., most recently, and both on Erasmus Darwin’s complex and conflicted theory and use of analogy, Packham 2004 and Porter 2007) have argued, analogy was a common philosophical stopgap for the moral and theological unmooring that empirical metaphysics, and especially the doctrine of associationism, threatened to occasion. Coleridge

Coleridge (1958 [1817], 1:83) characterized associations as “blind” and “habitual,” but they are minimally constructive and purposive in that they seek similitude or, in Hartley’s (1971 [1749], 1:293) definition of analogy, the “Resemblance, and in some Cases Sameness, of the Parts, Properties, Functions, Uses, &c. any or all, of *A* to *B*.”<sup>13</sup> Under this definition, funda-

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(1958 [1817], 1:83), for example, citing the “process, by which Hume degraded the notion of cause and effect into a blind product of delusion and habit,” worried that “this same process” (i.e., skeptical and inductive argument) “must be repeated to the equal degradation of every *fundamental* idea in ethics and theology.” But these fundamental ideas have to be somehow grounded and propagated, and a common explanatory recourse, evident even in Coleridge’s transcendental formulation, was analogical argument from systematic correspondences in the physical and psychical worlds to a governing order, design, and purpose and thus (the idea of) the regulatory influence of the divine. The analogical argument was essentially a new spin on a very old idea—the hierarchical chain of being, ascending from the grossest matter to the most refined spirit—and its aim was to “reconcile the new rhetoric, the new physics, the new psychology, and the old theology” (Wasserman 1953: 44). Even Shelley (1965, 8:227–28) could deploy it as such, for example, in theological discussions with Robert Southey in late 1811, recounted here in a letter to Hitchner:

I have lately had some conversation with Southey which has elicited my true opinions of God. He says I ought not to call myself an atheist, since in reality I believe that the universe is God. I tell him I believe that God is another signification for the Universe. I then explain:—I think reason and analogy seem to countenance the opinion that life is infinite; that, as the soul which now animates this frame was once the vivifying principle of the *infinitely* lowest link in the Chain of existence, so is it ultimately destined to attain the highest . . . that everything being infinite we can never arrive at its termination. How, on this hypothesis, are we to arrive at a first cause? . . . Southey agrees in my idea of Deity, the mass of infinite *intelligence*. . . I, you, and he, are constituent parts of this immeasurable whole.

But this is analogy in the philosophical sense: as a mode of reasoning best used in cases where experiential evidence is lacking, for example, in Coleridge’s definition of the primary imagination as being “*as a repetition in the finite mind of the eternal act of creation in the infinite I AM.*” The problem is, what assures that the correspondence picked out in any given analogy—Coleridge’s, for example, of the relation of resemblance between finite and infinite acts of consciousness or Shelley’s very similar but more mechanical one that relates individual minds to God as parts to a whole—has ontological and not just epistemological value (Wasserman 1953: 68)? What grounds an analogy and certifies its relational logic as “real” or existentially veridical? To ask that question is to return inquiry upon the process of association that achieves such analogies and to try to discriminate, as Hume did, quantitative differences of frequency, intensity, and vividness among the countless analogies (and indeed levels of analogy) generated in conscious thought.

13. Hartley’s broad definition of analogy has a modern parallel in that of Gentner and Markham (1997: 48), who propose a cognitive “structure-mapping engine” at work in the perception of both similarity and analogy: “In a fundamental sense, similarity is like analogy, in that both involve an alignment of relational structure. . . . The difference between them is that in analogy, only relational predicates are shared, whereas in literal similarity, both relational predicates and object attributes are shared. . . . This contrast between analogy and literal similarity is in fact a continuum, not a dichotomy. Yet it is an important continuum psychologically, because overall similarity comparisons are far easier to notice and map than purely analogical comparisons, especially for novices [i.e., developing children].” Holyoak and Thagard (1995: 5) likewise relate similarity and analogy judgments, and like Shelley, they depict the drive to generate such judgments as foundational. In their view, analogical

mental structures of knowledge—from the percept (or pattern) recognition that constitutes simple ideas, to the relational insights that constitute complex ideas, to the relations of those complex ideas that constitute the mixed modes regulating our social action and communication—all such knowledge structures are created and hierarchically assembled by analogy. Locke (1961 [1690], 2:21) thus explains our categorization of natural objects and events as “the understanding, taking occasion, from the similitude it observes amongst them, to make abstract general ideas, and set them up in the mind, with names annexed to them, as patterns or forms (for in that sense the word form has a very proper signification), to which, as particular things existing are found to agree, so they come to be of that species, have that denomination, or are put into that *classis*.”<sup>14</sup> In addition to object recognition and categorization judgments, Hume likewise derives the concepts of object permanence, relations, and even objective existential status from the perception of resemblance:

When we have been accustom'd to observe a constancy in certain impressions, and have found, that the perception of the sun or ocean, for instance, returns upon us after an absence or annihilation with like parts and in a like order, as at its first appearance, we are not apt to regard these interrupted perceptions as different, (which they really are) but on the contrary consider them as individually the same, upon account of their resemblance. (2000 [1739–40]: 132)

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thinking is guided by three structural constraints: “First, analogy is guided to some extent by direct *similarity* of the elements involved. . . . Second, the analogy is guided by a pressure to identify consistent *structural* parallels between the roles in the source and the target domains. . . . Third, the exploration is guided by the person’s goals in using it, which provides the *purpose* for considering it at all” (ibid.: 9). About the third constraint, they observe that the purpose of an analogy has both local semantic dimensions and more general affective ones: beyond its “compelling” local relation of two specific ideas and/or their internal relational structures, “something more fundamental also seems to be at work. There is something inherently pleasurable about finding a mesh between two superficially unrelated situations. Some basic human joy is triggered by the discovery of unexpected connections” (ibid.). Fodor likewise proposes a “passion for the analogical” as a fundamental feature of the “central processor” of human cognition; for discussion, see Sutton 1998: 237.

14. Gentner and Markham (1997: 53) note that “similarity is often given a central role in [perceptual] categorization,” and Holyoak and Thagard (1995: 12) define the “mental representation of a category based largely on similar relations” as a “schema.” From a neurophysiological perspective, Edelman and Tononi’s (2000: 104) neural group selection theory predicts that basic “perceptual categorization” involves the detection, abstraction, and generalization of “common feature[s] across a variety of . . . percepts” or, more strictly, “common features of [neural] responses to different signals.” The cognitive linguist Givón (2005: 40, 52) suggests that the “adaptive decision-making strategy associated with prototype-based categories may be called *reasoning by feature association*. It is the very essence of cognition and internal representation—mental or otherwise,” and “this is as true of the amoeba’s rudimentary semantic representations of heat, light, touch, and salt concentration as it is of our seemingly open-ended Oxford English Dictionary.”

The first [of the philosophical relations between ideas] is *resemblance*: And this is a relation, without which no philosophical relation can exist; since no objects will admit of comparison, but what have some degree of resemblance. (ibid.: 15)

If sometimes we ascribe a continu'd existence to objects, which are perfectly new to us, and of whose constancy and coherence we have no experience, 'tis because the manner, in which they present themselves to our senses, resembles that of constant and coherent objects; and this resemblance is a source of reasoning and analogy, and leads us to attribute the same qualities to the similar objects. (ibid.: 138–39)

Moreover, and much to Coleridge's dissatisfaction, Hume (ibid.: 63) derives even causality from a "presumption" of resemblance in the conjunctions of entities across nonidentical instances:

The idea of cause and effect is deriv'd from *experience*, which informs us, that such particular objects, in all past instances, have been constantly conjoin'd with each other: And as an object similar to one of these is suppos'd to be immediately present in its impression, we then presume on the existence of one similar to its usual antecedent. According to this account of things, which is, I think, in every point unquestionable, probability is founded on the presumption of a resemblance betwixt those objects, of which we have had experience, and those, of which we have had none.

In sum, the resemblance-seeking operation of analogy is here argued to be the constructive first principle of all ideation, an elementary law underlying basic judgments of object identity and relation, of existence or non-existence, and even of causality.

Though Hume himself never quite drew this grand conclusion from his own analysis, Hartley did less than a decade later, positing analogy as the fundamental engine of associative thinking. As a result, "analogies . . . some more exact and extensive, some less so, present themselves to us every-where in natural and artificial Things"—for example, in the proportional relations of human, animal, vegetable, and mineral bodies; in "Numbers, geometrical Figures, and algebraic Quantities"; in the "several Words of each particular Language," and its "Idioms, Figures . . . Similes, Fables, Parables, Allegories"; in judgments concerning "the Body Politic, the Body Natural, the World Natural, the Universe"; in judgments concerning "the human Mind, the Minds of Brutes on the one hand, and of superior Beings on the other, and even the infinite Mind himself"; and so forth (Hartley 1971 [1749], 1:293–97). Hartley's (ibid.: 296) copious illustrations (barely sampled here) seem to justify his general conclusion that "the Mind being once initiated into the Method of discovering Analogies, and expressing them, does by Association persevere in this Method, and even

force things into its System by concealing Disparities, magnifying Resemblances, and accommodating Language thereto." However disordered and undertheorized, Hartley's "method" or "system" of analogy suggests the *scope* of analogical thinking, its extension from perceived objects and relations (the kingdoms of nature) through symbolic systems for representing those objects and relations (language and mathematics) to sociomoral and intermental or "theory of mind" relations ("the Body Politic," "the human Mind," etc.).

What Hartley's analysis lacks, and what Shelley intended to provide, was a clearly theorized developmental chronology and motivational rationale for these several analogically driven operations of the mind. *How, in what order, and for what end(s)* does the analogical process of association assemble a fully functional and morally operational human mind? In a manuscript fragment associated with the *Defence*, Shelley exploits a physical analogy to query the nature and purpose of the "reciprocal tendency" that drives association. Imagination may be considered, he writes,

as mind combining the elements of thought itself. It has been termed the power of association; and on an accurate anatomy of the functions of the mind, it would be difficult to assign any other origin to the mass of what we perceive and know than this power. Association is, however, rather a law according to which this power is exerted than the power itself; in the same manner as gravitation is the passive expression of the reciprocal tendency of heavy bodies toward their respective centres. Were these bodies conscious of such a tendency, the name which they would assign to that consciousness would express the cause of gravitation. . . . Association bears the same relation to imagination as a mode to a source of action. (Shelley 1965, 7:107)

Just as gravitation is the visible outcome of the "reciprocal" attractive forces of the relative masses of heavy bodies, so the association or combination of the elements of thought is but the visible outcome of the invisible operations of some more essential attractive force. Could physical bodies become conscious of the attractive forces they generate and are governed by, they would know the cause of that which we call gravitation; likewise if the elements of thought could become conscious of the force that draws them into relations, they would know the real cause of their association. Hume (2000 [1739–40]: 21) suggested that this first cause of association was possibly beyond analysis:

Nothing is more admirable, than the readiness, with which the imagination suggests its ideas, and presents them at the very instant, in which they become necessary or useful. The fancy runs from one end of the universe to the other collecting those ideas, which belong to any subject. One wou'd think the whole intellectual world of ideas was at once subjected to our view, and that we did

nothing but pick out such as were the most proper for our purpose. There may not, however, be any present, beside those very ideas, that are thus collected by a kind of magical faculty in the soul, which, tho' it be always most perfect in the greatest geniuses, and is properly what we call a genius, is however inexplicable by the utmost efforts of human understanding.

But Shelley believed that any “accurate anatomy of the functions of the mind” would finally require an account of just this “magical faculty in the soul.” The details of the one he hypothesized can be best explained with reference to contemporary theory of mind; so with the empirical background established, I turn to the cognitive-theoretical implications of Shelley’s analogical theory of mind.

## 2. Cognitive Romanticism: The Analogical Theory of Mind

As currently hypothesized, theory of mind (ToM) is a cognitive capacity or set of cognitive capacities that allows human beings to conceive of other people’s mental states, including states of knowledge, belief, desire, and intention. Because another person’s knowledge, beliefs, desires, and intentions are not directly available to perception, such mental states must be inferred from the person’s behavior and from the social conventions that inform and contextualize such behavior. The question is, how do we achieve such inferences?

As one would expect, there are competing hypotheses about the cognitive function(s) involved, and some of the controversies are so long-standing as to be comprehended in a phrase (much as the overarching theory itself is comprehended in an acronym). Thus there is a central debate between theory theories of mind, which hypothesize a conceptual calculus supporting inferential reasoning from external and conventional signals, and simulation theories of mind, which hypothesize instead a metaphorical or representational generalization from self to other.<sup>15</sup> In a meta-analysis of false-belief experiments (perhaps the most venerable research paradigm for the study of theory of mind), Henry W. Wellman, David Cross, and Julanne Watson (2001: 678) explain the theoretical distinction between the two hypotheses as follows:

The relation between understanding one’s own mental states and understanding others’ has been hotly debated by philosophers and psychologists at least

15. For early articulations of theory-theory and simulation-theory approaches, see Gopnik and Wellman 1994 and Harris 1992, respectively. To get a sense of the diversity of related theories that shelter under these two umbrella terms, see the essays collected in Malle et al. 2001.

since Descartes. Within the areas of theory of mind, the debate is manifest in differences between simulation-theory accounts and theory-theory accounts. Simulation theorists argue that there is a special primacy to knowing one's own mental contents. . . . First-person experience [i.e., direct experience of "one's own mental contents"] not only has an immediacy and vividness that informs an understanding of mind, but understanding of other minds requires using one's own experience to simulate that of others. In contrast, theory-theorists stress the development of an interrelated body of knowledge, based on core mental-state constructs such as "beliefs" and "desires," that apply to all persons generically, that is, to both self and others.

The difference between simulation and theory theories is here captured in terms of the kinds of ideas related and the nature of their relation. In simulation or "like me" theories, mental states are equated through an analogical projection from source (typically, "first-person" experience) to target (typically, the "simulated" experience of the other person). In theory theories, by contrast, humans are hypothesized to be endowed with and/or to compile a semantic domain of generic "mental-state constructs" that are applied inferentially to specific behaviors of "both self and other." One theory describes a relation of analogy between directly apprehended mental states (i.e., one's own) and "simulated mental states" (i.e., those attributed to others), while the other theory describes a relation of inferential super- and subordination involving semantic concepts (e.g., "belief," "desire," "intention") as types and explicit behaviors (e.g., expressions, gestures, and utterances) as tokens of those types.

A related set of "hotly debated" issues concerns the order of acquisition and the scaffolding of cognitive functions that support theory of mind judgments, both in the evolving species and in the developing child (e.g., de Villiers 2007; Farrant et al. 2006; Nelson et al. 2003; Garfield et al. 2001; Dunbar 1998; Worden 1998). For example, does theory of mind depend on language acquisition, or does language acquisition depend on theory of mind? Since both are involved in sociality, is the social environment then a necessary, even sufficient, condition for theory of mind, or is it itself the product of a theory of mind, perhaps even of a theory of mind "module" hardwired in the brain?

Though Shelley declares the topic "foreign to [the] purpose of this treatise to anatomise" (it would have found its proper place in the "Speculations on Morals," if completed), he broaches the problem of theory of mind, and even gives an outline of his analogical solution, in the opening pages of his "Speculations on Metaphysics." His reflections, fragmentary though they are, already implicate—in the etymological sense of "folding together"—*both* theory-theory and simulation-theory terminologies, insist-



ing that the one (deductive inference) is a functional outcome of the other (analogical equation):

We are intuitively conscious of our own existence and of that connection in the train of our successive ideas, which we term our identity. We are conscious also of the existence of other minds; but not intuitively. Our evidence, with respect to the existence of other minds, is founded upon a very complicated relation of ideas, which it is foreign to [the] purpose of this treatise to anatomise. The basis of this relation is undoubtedly, a periodical recurrence of masses of ideas, which our own voluntary determinations have, in one peculiar direction, no power to circumscribe or to arrest, and against the recurrence of which they can only imperfectly provide. The irres[is]tible laws of thought constrain us to believe that the precise limits of our actual ideas are not the actual limits of possible ideas; the law according to which these deductions are drawn, is called analogy; and this is the foundation of all our inferences, from one idea to another, inasmuch as they resemble each other. (Shelley 1965, 7:61)

Shelley proposes that the relation “analogy” or “resemblance” “is the foundation of all our inferences” and that it operates “irresistibly” in ways that conscious decision (“voluntary determination”) can neither “circumscribe,” “arrest,” nor prevent from recurring. It is the inexorable quality of this resemblance seeking and inference drawing that ultimately “constrain[s] us to believe that the precise limits of our actual ideas are not the actual limits of possible ideas.” How could they be, since one thought inevitably, by its irresistible analogical relation to some other thought, infers yet a third thought, whose “precise limit” will be surpassed by a subsequent inference, itself motivated by some inescapable analogy, and so forth? The mind thus generates “masses of ideas,” which themselves “periodically recur,” such that these too may be brought into a still higher, even more complicated relation, a relation of relations,<sup>16</sup> by analogical perception of and inference from their commonalities or regularities.

Shelley has two overarching points of cognitive interest here: first, that analogizing is a foundational and hierarchically scaffolded<sup>17</sup> cognitive

16. Hartley (1971 [1749], 1:77) explains the developmental logic in terms of “simple,” “complex,” and “decomplex” ideas and in the bargain offers a suggestive hierarchical analogy from language: “As simple Ideas run into complex ones by Association, so complex Ideas run into decomplex ones by the same. But here the Varieties of the Association, which increase with the Complexity, hinder particular ones from being so close and permanent, between the complex Parts of decomplex Ideas, as between the simple Parts of complex ones: To which it is analogous, in Languages, that the Letters of the Words [today he would say ‘phonemes’] adhere closer together than the Words of Sentences, both in Writing and Speaking.”

17. Locke (1961 [1690], 1:89) proposes such an architectonic metaphor of the mind: “Thus the first capacity of the human intellect is that the mind is fitted to receive the impressions made on it either through the *senses* by outward objects, or by its own operations when it *reflects* on them. This is the first step a man makes towards the discovery of anything and

operation and, second, that scaffolded analogies, building from a foundation of simple ideas to ideas of ever-increasing complexity and higher relations, ultimately produce our ideas about mind and mindedness, which is to say our “theory of mind.” As Shelley (*ibid.*: 60) puts it in the “Speculations on Metaphysics,” “A scale might be formed . . . according to which all ideas might be measured, and an uninterrupted chain of nicely shadowed distinctions would be observed, from the faintest impression on the senses, to the most distinct combination of those impressions; from the simplest of those combinations, to the mass of knowledge which, including our own nature, constitutes what we call the universe.” At the combinatorial end of the series lies that most profound “knowledge . . . of our own nature” that is the proper object of an integrated metaphysical-moral philosophy, or what might today be called an adequately explanatory theory of mind.

To be adequate, that theory must, for starters, be clear about what it is trying to explain. There are all sorts of phenomena that are social without involving a theory of mind: consider ant behavior, or the grooming and “fighting” behaviors of house cats, or the behavior of a dog playing fetch, who appears to know that his or her master intends to throw a ball (and can thus be tricked by the fake-the-throw-and-conceal-the-ball routine).<sup>18</sup> But of course the dog only *appears* to “know”—in fact he or she has simply recognized a pattern (arm-throwing stimulus) and predicted an effect (ball to be fetched as a global response). Thus, though it can be explained in terms of resemblance relations,<sup>19</sup> behavioral prediction on the basis of pattern

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the ground-work whereon to build all those notions which ever he shall have naturally in this world. All those sublime thoughts, which tower above the clouds and reach as high as heaven itself, take their rise and footing here: in all that great extent where the mind wanders, in those remote speculations it may seem to be elevated with, it stirs not one jot beyond those *ideas* which *sense* or *reflection* have offered for its contemplation.”

18. Cf. Hume (2000 [1739–40]: 255–56): “’Tis evident, that *sympathy*, or the communication of passions, takes place among animals, no less than among men. Fear, anger, courage and other affections are frequently communicated from one animal to another, without their knowledge of that cause, which produc’d the original passion. Grief likewise is receiv’d by sympathy; and produces almost the same consequences, and excites the same emotions as in our species. The howlings and lamentations of a dog produce a sensible concern in his fellows. And ’tis remarkable, that tho’ almost all animals use in play the same member, and nearly the same action as in fighting; a lion, a tiger, a cat their paws; an ox his horns; a dog his teeth; a horse his heels: Yet they most carefully avoid harming their companion, even tho’ they have nothing to fear from his resentment; which is an evident proof of the sense brutes have of each other’s pain and pleasure.”

19. As, for example, in Hume’s analysis of causality as a probability judgment based on the resemblance of different instances of co-occurring entities and events. In the terms of doggy logic: if in the past the overhead extension of an arm and hand holding a ball has frequently been correlated with the projection of the ball some distance and the joyful necessity of its immediate retrieval, then when the dog sees a similar extension of an arm, he or she will anticipate (again and again) a similar projectile effect.

recognition is not (yet) a theory of mind. Theory of mind (additionally) involves a mental representation and attribution of “mindedness,” whether to self or other. Though *you* can think, “I think the dog thinks I’m going to throw the ball,” this is exactly what your dog isn’t doing and can’t do and what, by contrast, any normally developing five-year-old can do: attribute a false belief, that is, a counterfactual mental representation, either to the self (e.g., at an earlier or later point in time) or to another.<sup>20</sup>

Herein lies the problem with both simulation and intersubjectivity theories of mind: the foundations they propose for sociomoral cognition may be developmentally necessary for, but are not sufficient in themselves to produce, a genuine theory of mind. For example, surely the cozened canine and its clever owner, or the two cats in an all-out housewide war, are “sharing . . . experience . . . not only, not even primarily, on a cognitive level, but also (and more basically) on the level of affect, perceptual processes and conative (action-oriented) engagements” (Zlatev et al. 2008: 144); mammals involved in these and similar sorts of engagements are evidently “manifesting pleasure or interest in coordinated interactions” (Susswein and Racine 2008: 144). But as John Barresi and Chris Moore (2008: 40), writing in the same volume, insist,

The kinds of social sensitivity observed in infants as well as in many social animals should be seen as forms of *non-reflective* social understanding, dependent on an array of mechanisms that yield an ability to share mental states with others without necessarily recognizing that those shared mental states are in fact attrib-

20. Jackendoff (2007: 164–65) makes a similar point: “It is important to keep the notion of the social domain distinct from theory of mind, the ability of humans to attribute beliefs, desires, and intentions to others. In human social relations, we typically attribute a mental life to the persons with whom we interact. But theory of mind is broader: we don’t hesitate to attribute desires and intentions to a tiger that is stalking an antelope. It is beside the point whether the tiger *really* has desires: *our* folk theory of mind attributes them anyway. That is, theory of mind extends beyond persons to other animate beings.

Conversely, not all aspects of social relations require a theory of mind: for a person to be a member of a certain clan and therefore to have certain obligations, it does not matter what we think that person believes or desires—it is just an objective social fact. Moreover, it makes sense to attribute some sort of social cognition to monkeys, who, according to much current thinking, lack theory of mind.”

Hume (2000 [1739–40]: 148) made something of the same point but with a good deal more wit: “There is a very remarkable inclination in human nature, to bestow on external objects the same emotions, which it observes in itself; and to find every where those ideas, which are most present to it. This inclination, ’tis true, is suppress’d by a little reflection, and only takes place in children, poets, and the antient philosophers. It appears in children, by their desire of beating the stones, which hurt them: In poets, by their readiness to personify everything: And in the antient philosophers, by their fictions of sympathy and antipathy. We must pardon children, because of their age; poets, because they profess to follow implicitly the suggestions of their fancy: But what excuse shall we find to justify our philosophers in so signal a weakness?”

utable to individual agents. A satisfactory account of the development of social understanding will require an explanation of how these original mechanisms that enable early social responsiveness combine with later developing skills to yield more sophisticated forms of intersubjectivity. In parallel, such an account must specify how engaging in shared understanding or shared mental activities with others facilitates the later more individualistic understanding of mind.

Thus “sharing a psychological state,” a rubric which comprehends the “contagion of emotional states from one organism to another” (e.g., the spontaneous mutuality of laughter, fear, tears, etc., but also the cries of a vervet monkey, the groundhog alert, etc.), “is not the same thing as understanding that state” (ibid.: 56). Simulation theory, which typically proposes innate imitation routines as developmental precursors to theory of mind, runs into the same explanatory trouble: if our adaptive disposition to imitate (e.g., facial expressions, goal-directed actions, etc.) is shared, perhaps right down to mirror-neuron architecture in the prefrontal cortex, with macaque monkeys,<sup>21</sup> how do such innate imitation routines develop into an understanding of mind? At the foundation of many simulation theories is the notion that the social environment of the species provides necessary information (i.e., perceptible spatiotemporal regularities) to an innate intermodal algorithm producing imitative behavior. “The central notion is,” according to two chief proponents of simulation theory, “that imitation, even early imitation, is a matching-to-target process,” whereby infants “can recognize cross-modal equivalences [e.g., the visual-motor coordination involved in grasping an object] between the acts they see others perform and their own tactile-kinesthetic sense of self. Moreover, the cross-modal comparisons run in both directions—infants can imitate (mapping from others to self) and can recognize being imitated (mapping from self to other)” (Meltzoff and Brooks 2001: 177). Misleadingly, given this explanation of bidirectional mapping between self and other, Andrew N. Meltzoff and Rachele Brooks (ibid.: 189) dub this “equivalence detection” function the “like me” analogy and explain that “the ‘like me’ analogy is a discovery procedure that infants use to learn about people, but it is not itself a product of learning. Newborns bring it to their very first interactions with people, and it provides an interpretive framework for understanding the behavior they see.”<sup>22</sup> Still, the question remains, *how* does this innate,

21. See, e.g., Goldman 2001; Meltzoff and Brooks 2001; Moore 2006; Ratcliffe 2007: 130ff.

22. Hartley (1971 [1749], 1:107–8) is fascinating on the developmental role of imitation: “From the Account here given of the Actions of Handling and Speaking, we may understand in what manner the first Rudiments are laid of that Faculty of Imitation, which is so observable in young Children. They see the Actions of their own Hands, and hear themselves pronounce. Hence the Impressions made by themselves on their own Eyes and Ears become

analogical “interpretive framework” develop from the understanding of behavior, a characteristic of most if not all social animals, to the understanding of mind and mindedness (knowledge, belief, desire, intentionality, etc.), an apparently unique characteristic of humans?

Though Shelley’s “Speculations on Metaphysics” does not answer this question directly, the essay helpfully recasts it by clarifying what it must mean, minimally, to “understand mind.” Mind, Shelley (1965, 7:61) insists, can be understood only in terms of its contents, which is to say, in today’s parlance, only in terms of *mental representation*:

We see trees, houses, fields, living beings in our own shape, and in shapes more or less analogous to our own. These are perpetually changing the mode of their existence relatively to us. To express the varieties of these modes, we say, *we move, they move*; and as this motion is continual, though not uniform, we express our conception of the diversities of its course by—*it has been, it is, it shall be*. These diversities are events or objects, and are essential, considered relatively to human identity, for the existence of the human mind. For if the inequalities, produced by what has been termed the operations of the external universe were levelled by the perception of our being, uniting, and filling up the interstices, motion and mensuration, and time, and space; the elements of the human mind being thus abstracted, sensation and imagination cease. Mind cannot be considered pure.

The extract provides a concrete example of what Shelley (1965, 7:111–12) calls in *A Defence of Poetry* the relations “between existence and perception” and “perception and expression.” Existence (“the operations of the external universe”) stimulates the perception and (literal) re-cognition of shapes or patterns, “objects” and “events.” “To express” these perceptual “diversities” and “inequalities,” we have verbal inflections (e.g., “has been,” “is,” “shall be”). Shelley implies that, at least in this capacity, the linguistic system is analogous (relationally proportional) to the perceptual phenomena (in this case, temporality or “motion”) it would express. In other words, because perception or “mind” is characterized by the “diversities” or “inequalities” that we experience as an object-laden and eventful spatiotemporal world, to understand “mind,” to make “mind” an object of thought, is to *re-present* (whether for personal reflection or interpersonal communication) these essential elements of phenomenological experience (“express the varieties of [its] modes,” “express our conception of [its] diversities”).<sup>23</sup>

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associated Circumstances, and consequently must, in due time, excite to the Repetition of the Actions. Hence like Impressions made on their Eyes and Ears by others, will have the same Effect; or, in other Words, they will learn to imitate the Actions which they see, and the Sounds which they hear.”

23. Wasserman’s (1971: 146) analysis of this passage is fully relevant: “Since nothing is but as

Ray Jackendoff has recently advanced a strikingly similar formulation in developing his own theory of social conception and representation. His analysis calls attention to an implication of Shelley's discussion that might otherwise escape our notice: the phenomenological and (hence) representational roles of agency and intention. According to Jackendoff (2007: 161):

The cognition of space involves concepts of physical objects that are located in three-dimensional . . . space, that move in this space, and that exert forces on each other. Among the physical objects are natural objects like rocks and trees and rivers, artifacts with affordances for use like bicycles and tables, and animate objects like ants and worms and rats and tigers. The animates, unlike the rest, are conceptualized as capable of unpredictable self-initiated motion (i.e. volition)—and therefore, perhaps of desires, intentions, and even emotions as well. That is, animates are understood according to the *intentional stance* (in the sense of Dennett 1987).

To put the same point in Shelley's terms, while both agents and objects "are perpetually changing the mode of their existence relatively to us," they are predictably different in that, relative to one's perceptual field, agents change aspect and position of their own volition, whereas objects change aspect and position as a result of our (or another's) volition. Shelley's observation that "we say, *we move, they move*" therefore illustrates not only the diversity of spatiotemporal relations but also the diversity of objective and intentional relations. Thus, in the case of objects, we say "we move (object, e.g., it/ourselves)," of agents, "they move (object, e.g., it/themselves)." Grammatical predication provides a proportional means of expressing the perceptual or phenomenological "diversity" or "inequality" of agent and object. Even prelinguistic infants and nonlinguistic infants of other species have been shown to be hardwired to detect these environmental (ir)regularities,<sup>24</sup> but Shelley, interested as he is in human theory of mind,

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it is perceived and since we do not in fact perceive pure time or space, these supposed entities must be nothing more than the changing relations of our perceptions to each other and to our awareness of ourselves, schemata abstracted from the forms in which our disparate thoughts are arranged."

24. See, e.g., Gallagher and Hutto 2008: 21: "In neonate imitation, which depends not only on a contrast, in some sense, between self and non-self, and a proprioceptive sense of one's own body, but also a responsiveness to the fact that the other is of the same sort as oneself . . . infants are able to distinguish between inanimate objects and people. The fact that they imitate only *human* faces . . . suggests that infants are able to parse the surrounding environment into those entities that perform human actions (people) and those that do not (things). . . . An intermodal tie between a proprioceptive sense of one's body and the face that one sees is already functioning at birth. . . . The early capabilities that contribute to primary intersubjectivity constitute an immediate, non-mentalizing mode of interaction. Infants, notably without the intervention of theory or simulation, are able to see bodily movement as goal-directed intentional movement, and to perceive other persons as agents."

emphasizes the manner in which we *express* or *re-present* such (ir)regularities in grammatical predication relations that have temporal and agentive and thus possibly intentional entailments (“has been, is, shall be,” “we move, they move”). Shelley implies that language itself involves systematic representational analogues of mental experience that may contribute to, or in some sense even constitute, our theory of mind.

To recapitulate: the “elements of the human mind” are, foundationally, those “objects” and “events” construed from the perceptual “inequalities” detected in “the external universe,” such as the phenomena of “trees,” “fields,” and “living beings in our own shape, and in shapes more or less analogous to our own.” These entities are presented in consciousness, thanks to innate analogy-seeking dispositions like pattern recognition and imitation. To corepresent or share such mental phenomena is to conventionalize them in terms of certain irreducible and indispensable (phenomenological) coordinates; these include, to take Shelley’s list in reverse order, “space, time, mensuration, and motion” (with the last decomposing into agent and patient roles or values). As Shelley indicates, predication relations such as temporal inflections serve to “express” perceptually salient aspects of a given entity’s “mode of existence *relative . . . to us*”; language thus refers not to objects and events “out there” in the world but to objects and events as (re)presented “in here,” to mind. In other words, the linguistic code is, at least at the level of its grammatical foundations, mentalistic to begin with. In this sense, language just *is* a theory of mind, because it always already encodes an environmentally constrained and socially conventionalized view of mental experience.

This theory would predict and readily account for the positive effect of temporal markers on young children’s success rates on false-belief tests, which have been a mainstay of theory of mind research. Considered in representational terms, the fundamental task in a false-belief test is to maintain a prior counterfactual representation of a state of affairs in the face of a presently held factual representation of that state of affairs. For example, in one version of the “unexpected contents” experiment, the child is shown what is apparently, judging from the picture on the front, a closed box of raisins. When asked what is in the box, virtually all children say “raisins.” The box is then opened, revealing that it is filled with crayons rather than raisins. Thus a present, factual situation (true belief that the box contains crayons) has succeeded upon a past, counterfactual one (false belief that the box contains raisins). The ensuing false-belief question posed to the child is in effect a demand that the child mentally represent the counterfactual past state of affairs, and the child is demonstrably assisted in this task by the explicitness and redundancy of temporal markers in the ques-

tion—for example, “Remember, when you first saw the box, when it was closed, what did you think *then* was in the box?” (Nelson et al. 2003: 29). This sample prompt contains four mutually reinforcing temporal inflections and a temporal adverb, all of which structure a relation of temporal distance between the represented time (past) and the time of the shared discourse in which the question is being posed (present). Thus, especially through its deictic system, language appears to support just the kind of dual representation (“double-mindedness,” as it were) required by false-belief tests.

The Wellman et al. (2001) meta-analysis of false-belief research provides converging evidence for this hypothesis. The authors coded 178 studies of false belief in preschool children for thirteen kinds of experimental conditions, including such hypothetically salient ones as “the nature of the protagonist” in the experimental script (e.g., the child himself or herself, another person, a puppet, a picture or a videotape of a person, etc.), “motive for the transformation” of the nature or location of the object in question (ranging from no specific motive [the raisin box just happens to be filled with crayons] to explicit deception [“let’s hide these from Maxi while he’s out of the room”]), and “type of question” (whether about where the protagonist will or did look or what he or she would think, say, know, or believe in the particular circumstances). Their aim was to assess which conditions, if any, significantly interacted with the age of the subjects involved to upset an otherwise robustly verified developmental pattern, which predicts routine failure in false-belief tests for children at the age of three but routine success in such tests by the age of five. The discovery that a particular condition significantly interacted with age would (potentially) reveal the extent to which cognitive abilities such as language underlie false-belief understanding, whereas the absence of any such correlations would potentially support a competing view, in which theory of mind develops independently of other cognitive abilities as a more or less “encapsulated” conceptual module. Of all thirteen conditions, only one was found to interact significantly with age: “temporal marking,” that is, “whether [or not] the false-belief question explicitly mentioned the time frame involved” (ibid.: 661). When the question includes explicitly emphasized and often redundant temporal markers, even very young children may improve to above-chance success rates.<sup>25</sup> This finding strongly sug-

25. Though Wellman et al. (2001: 674) found that “temporal marking fails to enhance very young children’s performance, enhancing judgments only for older children,” subsequent research “using temporal language that 3-year-olds would be able to follow” (Nelson et al. 2003: 29) has yielded success rates suggesting that they too can profit from linguistic clarification of the task.



gests that somehow the temporal coding of the language system assists young children in formulating a mental representation of a previously held mental representation or of another person's mental representation (in either case, a counterfactual belief about a particular state of affairs). Why should this be so?

To begin with, we must understand the counterfactual representation not as a preexisting "thing" but rather as a present cognitive process solicited by the false-belief question for the purposes of an ongoing social-dialogic interaction between the experimenter and the subject. The experimental task demand is located in a communicative situation unfolding between an "I" and a "You," who together discuss possible mental representations of a particular state of affairs.<sup>26</sup> This communicative context is necessarily assumed and implicitly correlated in construing the proximal/distal relation ("now" vs. "then") coded in the question's temporal markers, or deixis. Such deixis indexes the present discourse situation and creates a bifurcated conceptual field in relation to it, in which the proximal or "present" can be distinguished from the distal or "past." Most important, this systematic linguistic device that supports dual representation and thus improves children's chances for success in false-belief tests is not a private but an intersubjective and communal property. In this view (discussed in Shelley's terms below), mental representation—at least that higher-order kind that supports theory of mind—involves the *corepresentation* of what is experienced privately in each individual consciousness through pattern recognition, imitation, and other analogical processes, that is, objects and events ("entities") in their actual and/or possible relations. Humans learn and engage in shared acts of representation not for the sake of the representation but rather for the sake of social communion, of what has been called "mind sharing" in partial contradistinction to "mind reading" or "theory of mind."<sup>27</sup> Following Shelley, who insists that mind cannot be con-

26. Given this situation, Thompson (2001: 21) argues for the primacy of the "personalistic" over the "naturalistic" perspective: "By this I mean that our relating to the world, including when we do science, always takes place within a matrix whose fundamental structure is I-You-It (this is reflected in linguistic communication: I am speaking to You about It). . . . the mind as a scientific object has to be constituted as such from the personalistic perspective in the empathic co-determination of self and other." Ratcliffe (2007) elaborates the phenomenological philosophical tradition supporting this view, and Sternberg (1983) describes its deictic foundations.

27. In their recent collection of essays *The Shared Mind*, Zlatev et al. (2008: 2–3) distinguish the "shared mind" theory from more traditional mind reading or theory of mind theories on four counts. In the more traditional theories: "[1] There is a primary separation between the self and (the minds of) others. [2] The individual must bridge this separation either by some form of 'theory' or 'simulation' of the other's mind, a process that is more or less fallible. [3] The main 'bodily' structures that are directly relevant for the process are those innate or

ceptualized apart from its ideational contents, I will prefer the somewhat less mystifying term “shared representation.” Language, in its origins, its acquisition, and its prototypical everyday use, may thus be conceived as a shared representation system designed to structure individuals’ cognitive activity for social-affective interactions and purposes.

Shelley’s conception of linguistic deixis as an analogue coordinate system supporting shared representation and thus mental state attribution surfaces again in his unfinished essay “On Life,” this time with respect to person deixis. Here again, Shelley (1965, 6:196) proceeds from Lockean premises, declaring that perception and mental representation are the proper objects of “intellectual philosophy,” for “nothing exists but as it is perceived.” As such, existential “objects” only appear to be “external” but are in fact, like all other thoughts, “ideas” perceived in the mind:

The difference is merely nominal [i.e., linguistic] between those two classes of thought, which are vulgarly distinguished by the names of ideas and of external objects. Pursuing the same thread of reasoning, the existence of distinct individual minds, similar to that which is employed in now questioning its own nature, is likewise found to be a delusion. The words *I*, *you*, *they*, are not signs of any actual difference subsisting between the assemblage of thoughts thus indicated, but are merely marks employed to denote the different modifications of the one mind. (Ibid.)

Shelley (ibid.) immediately disavows any “idealism-as-radical-solipsism” construction of his meaning and underscores instead the much subtler linguistic point: “Let it not be supposed that this doctrine conducts to the monstrous presumption that I, the person who now write and think, am that one mind. I am but a portion of it. The words *I* and *you*, and *they* are grammatical devices invented simply for arrangement, and totally devoid of the intense and exclusive sense usually attached to them.” Shelley (ibid.,

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acquired ‘modules’ engaged in inferential or simulation processes. [4] Cognition develops essentially ‘from the inside out’, with innate or acquired cognitive skills being eventually transferred or projected onto others for the purpose of explaining and predicting behavior.

In contrast to the four claims listed above, the contributors to *The Shared Mind* broadly agree on the following propositions: [1] Human beings are primordially connected in their subjectivity, rather than functioning as monads who need to ‘infer’ that others are also endowed with experiences and mentalities that are similar to their own. [2] The sharing of experiences is not only, not even primarily, on a cognitive level, but also (and more basically) on the level of affect, perceptual processes and conative (action-oriented) engagements. [3] Such sharing and understanding is based on embodied interaction (e.g., empathic perception, imitation, gesture and practical collaboration). [4] Crucial cognitive capacities are initially social and interactional and are only later understand [*sic*] in private and representational terms.”

8:227) had once stated this idea in the Coleridgean terms of the divine analogy—“Deity, the mass of infinite *intelligence* . . . I, you, and he, are constituent parts of this immeasurable whole”—but here he’s abandoned the theological in favor of the grammatical analogy.<sup>28</sup> Mind is not an “intense and exclusive” property of “distinct” or self-encapsulated individual brains, but rather an experience of phenomenological diversities such as space, time, and person (agent) that is conceptually apportioned to individuals in shared representations structured by language. Like the temporal markers in false-belief experiments, the deictic system of personal pronouns carves up an otherwise unassigned phenomenological field, “mind,” so that representations of mental experience may be located at different addresses *within* representations.<sup>29</sup> To generalize Shelley’s point: in what may be dubbed the representational level of analogy, the systematic and distributional relations that characterize the closed-class linguistic features (e.g., inflections, pronouns, determiners, etc.) are proportioned analogously to the likewise systematic and distributed relations that constitute our phenomenological experience (the “diversities” that are experienced as objects, agents, and events).<sup>30</sup>

Such a view invites us to reformulate a long-standing theory of mind conundrum concerning the “uniform coding” of dissimilar kinds of “information” about “psychological activity.” The developmental psychologist Chris Moore (2006: 24) states the problem as follows:

Commonsense psychology [i.e., theory of mind] is built out of a common set of representations that uniformly code our own immediate psychological activity, the observable psychological activity of other people, and the noncurrent psychological activity of both self and others. We have seen that information pertaining to our own current psychological activity has a different form (first-person information) from information pertaining to others’ psychological activity (third-person information). Information pertaining to noncurrent

28. Hume (2000 [1739–40]: 171) anticipated but never developed this point: “The whole of this [associationist] doctrine leads us to a conclusion, which is of great importance in the present affair, *viz.* that all the nice and subtle questions concerning personal identity can never possibly be decided, and are to be regarded rather as grammatical than as philosophical difficulties.”

29. Sutton (1998: 317) observes that connectivist models of consciousness are bedeviled by “the difficulty of extracting relatively ordered partitions in representational space from certain kinds of input patterns.”

30. In his analysis of this passage, Wasserman (1971: 147–48) appears to advance something of the same case: “The personal pronouns are relational, not substantive, terms. The universal Mind is the same as Existence . . . and all humans are factors of it. . . . Even the discreteness of all individual minds is an illusion resulting from a failure to understand the One Mind, of which they are parts.”

psychological activity is different again because it has to be imagined rather than perceived. Nevertheless, commonsense psychology codes psychological activity of self and others, present and nonpresent in comparable terms.<sup>31</sup>

For Shelley, the developmental problem is not how one comes to generalize across three such different sources of information in order to formulate a uniform or transpersonal coding for theory of mind, but rather how one learns to symbolically distribute an originally unassigned phenomenon (mental experience) for the purpose of shared representation and the kinds of social interaction, including moral thinking and behavior, it supports.<sup>32</sup>

31. Moore, writing with John Barresi, has revised his perspective and position such that they now more closely resemble Shelley's in that the "uniform representational form" comes first in ontological development and individuation, both of self and other, only later: "So far we have advanced from a sub-personal understanding of the simple actions of self and other [i.e., dyadic interactions] that do not explicitly code for agent to the capacity for understanding *shared* IRs [intentional relations]. . . . This sharing entails the existence of representations of IRs that are interpersonal, though probably not explicitly represented as interpersonal. Rather the interrelated and similar IRs of self and other are understood using a uniform representational form that codes for concurrent identity between first-person information of self and third-person information of other. But it is not yet the case that agents are recognized to be individual centres of intentional activity. The next level of understanding . . . requires the ability to reflect on, or imagine IRs as properties of individual agents. According to IRT [intentional relations theory] this requires the use of imagination to fill in the third-person information for IRs of self and first-person information for IRs of others" (Barresi and Moore 2008: 48).

32. In his theory of the conceptual structure supporting "the social stance," Jackendoff (2007: 214, 240) proposes an agentive role "YA" as a nonspecific, generic observer/experiencer, the conceptual type of which the French *on* and German *man* are tokens. To this extent, his theory parallels Shelley's. But he derives this role from the experience of the individual subject rather than, as Shelley does, the concept of individual subjectivity from a more generally conceptualized (unassigned) idea of agency. Jackendoff rather follows Hume (2000 [1739-40]: 371-72), who proposes that our individual points of view are "corrected" to more general, transpersonal ones: "We sympathize more with persons contiguous to us, than with persons remote from us," and this along any number of parameters (spatial, temporal, cultural, class, etc.). If morals depend on sympathy, are our morals therefore likewise variable and more or less in force depending on distance? No, Hume answers, because, as in all things, we learn to generalize across individuals: "Our situation, with regard both to persons and things, is in continual fluctuation; and a man, that lies at a distance from us, may, in a little time, become a familiar acquaintance. Besides, every particular man has a peculiar position with regard to others; and 'tis impossible we cou'd ever converse together on any reasonable terms, were each of us to consider characters and persons, only as they appear from his peculiar point of view. In order, therefore, to prevent those continual *contradictions*, and arrive at a more *stable* judgment of things, we fix on some *steady* and *general* points of view; and always, in our thoughts, place ourselves in them, whatever may be our present situation. In like manner, external beauty is determin'd merely by pleasure; and 'tis evident, a beautiful countenance cannot give us so much pleasure, when seen at the distance of twenty paces, as when it is brought nearer to us. We say not, however, that it appears to us less beautiful: Because we know what effect it will have in such a position, and by that reflection we correct its momentary appearance. . . . Such corrections are common with regard to all the senses; and indeed 'twere impossible we cou'd ever make use of language, or

Jay L. Garfield, Candida C. Peterson, and Tricia Perry (2001: 534–35) advance a very similar hypothesis, emphasizing in the process (as Shelley ultimately would in the *Defence*) the crucial roles of social interaction and linguistic mediation for the development of mental representation and theory of mind:<sup>33</sup>

Our self-knowledge and our knowledge of other minds . . . are of a piece, and are socially and linguistically mediated. Neither is possible without language, and each depends as well on non-linguistic social practices. . . . Neither our own minds, nor those of others are self-presenting phenomena. . . . The mind we perceive is a socially-determined mind, whose genesis is only partially driven by innate dynamics, and so whose ontology cannot be wholly individualistic.

Shelley, I would submit, gives us a more exact and elegant account of the “genesis” of this “socially-determined mind” in that he would derive both “language” and “non-linguistic social practices” from the same “innate dynamics” that produce the individual’s experience of mind. Note that I say “individual’s experience of mind”—that is, the phenomenal experience of mind, which is by definition “self-presenting.”<sup>34</sup> But *the experience of the individual mind*, or more exactly, the mental representation of an individu-

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communicate our sentiments to one another, did we not correct the momentary appearances of things, and overlook our present situation.”

33. The hypothesis, it is worth noting, would predict exactly what the Wellman et al. (2001) meta-analysis revealed—the nonsignificance of certain experimental conditions, conditions that, from both theory-theory and simulation-theory perspectives, *ought* to make a difference to subjects’ success rates. Thus, for example, the conditions “nature of the protagonist” and “type of question” had no significant effect: the test can feature a doll, puppet, picture, real human (self or other), or videotaped human in the starring role and can ask where that protagonist would look, what she or he would say, or what she or he would think, believe, or know, and none of these variables appears to make any important difference. The fact that even inanimate objects like a doll or picture can be understood to have intentions (e.g., to look somewhere or to say something), desires (to find a chocolate, to eat raisins, or to draw with crayons), and beliefs (that an object is in a particular location or that a container contains a particular kind of object) shows that, given the right social-dialogic context, such as a false-belief experimental situation, mental states can be attributed to anything—a doll, a picture, a pet, a car, a god, a brick, etc.—provided that it occupies an agentive role in a socially mediated script.

34. This was a commonplace of empirical philosophy and its introspective method: an act of perception (e.g., of a simple idea or quality, such as color, sound, etc.) is its own indisputable evidence. Thus, e.g., Shelley (1965, 7:342), in a passage from “Speculations on Metaphysics”: “Let us contemplate facts; let us . . . in the great study of ourselves, resolutely compel the mind to a rigid consideration of itself. We are not content with conjecture, and inductions, and syllogisms, in sciences regarding external objects. . . . As in these, let us also, in considering phenomena of the mind, severely collect those facts which cannot be disputed. Metaphysics will thus possess this conspicuous advantage over every other science, that each student, by attentively referring to his own mind, may ascertain the authorities upon which any assertions regarding it are supported. There can thus be no deception, we ourselves being the depositaries of the evidence of the subject which we consider.”

ated mind, whether “our own” or “those of others,” is, Shelley suggests, quite another thing. Tapping the same analogical processes that develop ideas out of sensory impressions and that enable the imitation of social others, the social-linguistic shared representation system builds primitive regularities into ideas of increasing complexity and abstraction (“superordination”). But in this case the primitive regularities and advanced ideas are social-symbolic conventions rather than “natural” categories. This is not to say that the shared representational system is unconstrained by the properties of the biophysical organism or environment; on the contrary, as Shelley argues in the *Defence*, both serve to establish species-specific parameters in which social systems naturally and necessarily develop, phylogenetically as well as ontogenetically. But that which develops within those parameters is neither innate nor modular nor, strictly speaking, genetic. Shelley (1965, 7:137) calls it a “being within our being”—that is, a *social* being within our *natural* being—and from this social being derive our ideas of both our own and other minds.

The second paragraph of *A Defence of Poetry* discloses the full relational logic of Shelley’s (ibid.: 110) hypothesis. It stipulates the analogical adjustment of cognitive architecture to natural and social environments and the scaffolded evolution from the latter of symbolic representation systems, including expression, gesture, and ultimately language:

A child at play by itself will express its delight by its voice and motions; and every inflexion of tone and every gesture will bear exact relation to a corresponding antitype in the pleasurable impressions that awakened it; it will be the reflected image of that impression. . . . In relation to the objects which delight the child, these expressions are, what poetry is to higher objects. The savage (for the savage is to ages what the child is to years)<sup>35</sup> expresses the emotions produced in him by surrounding objects in a similar manner; and language and gesture, together with plastic or pictorial imitation, become the image of the combined effect of those objects, and of his apprehension of them. Man in society, with all his passions and pleasures, next becomes the object of the passions and pleasures of man; an additional class of emotions produces an augmented treasure of expressions; and language, gesture, and the imitative arts, become at once the representation and the medium, the pencil and the picture, the chisel and the statue, the chord and the harmony. The social sympathies, or those laws from which, as from its elements, society results, begin to develop themselves from the moment that two human beings coexist. . . . Hence [humans], even in the infancy of society, observe a certain order in their words and actions, distinct from that of the objects and the impressions represented by them, all expression being subject to the laws of that from which it proceeds. (Ibid.)

35. See Donald 2001: 208 for a properly qualified version of this claim.

To begin extracting the riches of this passage, consider the parity of terms in the first two sentences and in the last. Both the child at play and the human at the dawn of society are presented with “objects” and “impressions”: the “objects” present themselves from without, that is, from what Shelley in the “Speculations on Metaphysics” called “the operations of the external universe,” the “impressions” from within, that is, from the associated affect of such objects with respect to “the passions and pleasures of man.” Shelley (*ibid.*: 111) will presently describe this external/internal relation quite concisely as that “subsisting . . . between existence and perception.” The pleasurable experience of object and affect generates in turn a further and analogous relation “between perception and expression.” Though “expressions,” whether the “voice and motions” of the child or the “words and actions” of the social adult, are “distinct . . . from the objects and the impressions represented by them,” they are nevertheless analogous to them in that “every inflexion of tone and every gesture . . . bear[s] [an] exact relation to a corresponding antitype” in the represented impression or object. Still, any such expression, qua expression, will “observe a certain order” that derives neither from the psychological “order” of the affect nor from the physical “order” of the object, but instead from “the laws of that from which it proceeds.” So gestural, vocal, and verbal expressions, which Shelley here explicitly identifies as forms of “representation,” are analogically related to the cognitive operations that give us the mental presentation of feelings and things but are not immediately structured by these operations. What, then, *does* immediately structure such expression?

Shelley’s final circumlocution only begs the question, but there are, speaking generally but nontranscendentally, only two possible answers: “expression” must derive its fundamental structure from either a psychophysical or a social source, and the remainder of the quotation suggests that Shelley contracts simultaneously for both answers. “Society results” from the elementary laws of “the social sympathies,” yet these sympathetic laws “begin to develop themselves” only “from the moment that two human beings coexist.” Analogy, the sympathetic law of attraction between discrete but resembling individuals (whether [ideas of] objects, events, or agents), provides an innate algorithm, as it were, but requires the input of social interaction to generate that “additional class of emotions” that will in turn “produce an augmented treasure of expressions.” Shelley specifies this “treasure” as “language, gesture, and the imitative arts,” now functioning in a dual capacity, as “at once the representation and the medium.” The child’s (or lonely savage’s) expressive “tone” and “gesture” were already representations, in the sense of analogically reproducing his or her affect-laden (cf. “pleasurable,” “delight,” “passions and

pleasures”) perceptual experiences, but social interaction harnesses such expressions and transforms them into the media of a whole new class of representations. In ontogenetic time, as Romantic theorists explicitly argued, social interaction commences at birth in terms of the (m)other/child relationship; this and subsequent social relationships instantiate and mediate those “laws” to which “all expression,” or representation, is fundamentally “subject.”<sup>36</sup> This is not to say that the irreducible phenomenological categories of space, time, extent, and motion have *no* structural relation to the expressions that would convey them. They do, but these mental categories contribute not their *actual* but only an *analogical* structure to expressions, which are *actually* structured by physical constraints (e.g., the anatomy of the hand or vocal tract) and social conventions (e.g., more or less arbitrary signifier/signified relations).<sup>37</sup> Expressions do not *present* mental experience but *represent* it; it follows that their code cannot be the

36. Richardson (2001: 66) has demonstrated how pervasive this social-developmental hypothesis had become by Shelley’s day: “In 1799 one T. O. Churchill completed his translation of Herder’s *Outlines of a Philosophy of the History of Man*, published in London the next year. Among many remarkable passages, it includes this one on the infant’s creation of an object world through passionate interaction with its mother: ‘The suckling at the mother’s breast reposes on her heart: the fruit of her womb is the pupil of her embrace. His finest senses, the eye and ear, first awake, and are led forward by sound and figure: happy for him, if they be fortunately led! His sense of seeing gradually unfolds itself, and attentively watches the eyes of those around, as his ear is attentive to their language, and by their help he learns to distinguish his first ideas.’” Richardson correlates this passage with Wordsworth’s “Blest the infant Babe!” effusion from *The Prelude* (1799 version) and wonders if in fact there is not some direct line of influence from Johann Gottfried von Herder to Wordsworth, perhaps via Coleridge, who is known to have requested this work of Herder’s in November 1799. But Richardson (*ibid.*: 67) rejects this hypothesis in favor of the more likely argument that Herder and Wordsworth arrived at the same developmental point by each reading widely in “Lockean sensational psychology, Enlightenment anthropology, the vein of French radical thought running back to Diderot, and the new naturalistic and biological approach to mind then prominent in scientific and radical circles. . . . Each [Wordsworth and Herder, and Shelley, I would add] depicts a process of cognitive unfolding that confounds distinctions between reason and emotion and that places the infant in a world of passionate social interaction from the moment of birth.” See also *ibid.*: 75, where Richardson discusses and quotes Thomas Reid’s *Essays on the Intellectual Powers of Man*: “Reid . . . also feels impelled to reground the origin of language in human physiology: ‘Certain features of the countenance, sounds of the voice, and gestures of the body’ make up a language of ‘natural signs’ that we interpret automatically ‘by the constitution of our nature, by a kind of natural perception similar to the perceptions of sense.’”

37. Susswein and Racine (2008: 155) have recently advanced a very similar argument: “Although human reference requires particular mental and neurological capacities, reference is not a mental or neurological phenomenon, but a social one. . . . It is not a mental or neurological event which makes a first finger extended towards X a reference to X. It is the fact that this extended finger is a technique or practice of orienting others towards X in a particular context.”



natural one underlying consciousness but must be an analogically related one founded in and mediated by the sociocultural environment.<sup>38</sup>

In Hartley, particularly, Shelley would have discovered the rudiments of this developmental account of language,<sup>39</sup> including the idea that the same

38. Shelley's ideas here were echoed and elaborated in the mid-twentieth century by the Russian psychologist Lev Vygotsky, whose theories are today enjoying something of a renaissance in theory of mind research. The editors of *The Shared Mind*, for example, cite Vygotsky (specifically his *Mind in Society*) as one of the great precursors for the theories of intersubjectivity developed by the volume's contributors: "Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level: first between people (interpsychological), and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relations between human individuals" (Zlatev et al. 2008: 4).

Garfield et al. (2001: 530–31) likewise acknowledge the influence of Vygotsky and in particular his theory of how the still "higher function" of language originates in "actual relations between human individuals":

Vygotsky argues that language evolves initially out of the infant's instinctive vocal noisemaking (crying, digestive sounds, etc.) into a non-symbolic social coordination device when parents come to treat these noises as a form of communication. . . . Vygotsky's argument is both empirical and conceptual. He emphasises, as we do, that the process of learning to think is a process of skill acquisition, and that the social environment supplies both the initial reason to acquire this skill, and the necessary supports to enable its acquisition. Only later, with sufficient linguistic mastery, is it possible to think autonomously and hence to think about [i.e., re-present] thought.

Moore (2006: 136–37) takes essentially the same tack, recognizing, like Shelley, "two fundamental aspects of language[, ] that it represents and that it is a form of social interaction," and, like Vygotsky and Garfield et al. (2001), construing symbolic representation as a leveraged development from "non-symbolic social coordination":

Just as the triadic interactions [i.e., self/other/object] evident from about 9 months of age involve the coordination of social intentions around objects, so language use involves the coordination of social intentions involving words and their referents. Spoken words are initially the actions that are used to coordinate joint attention to objects. . . . Words serve to regulate interactions in much the same way as gestures and facial expressions do. They are acquired as infants mold their vocalizations through imitation to the sounds they hear others making toward them. In this way, imitation leads infants to adopt the same vocal means as others to regulate their triadic interactions.

Donald (2001: 283–84) similarly concludes that social imitation, or mimesis, is both necessary and sufficient for the development of language, even at the level of the universal grammar: "Linguistic universals spring from the context in which real-world languages are learned and, more important, in which they evolved. . . . Thus . . . the features of Universal Grammar emerge smoothly from an analysis of gesture, mime, and imitative behavior. The 'language instinct' exists, but it is a domain-general instinct for mimesis and collectivity, impelled by a deep drive for conceptual clarification." "Emerge smoothly" is doubtless an overstatement.

39. He would have also found it, in more compressed form, in Erasmus Darwin's *Temple of Nature*, which likewise suggests (but does not explain) fundamental links between imitation, theory of mind, and language: "ever-active Imitation finds / The ideal trains, that pass in

associative mechanism that accounts for ideation in general will likewise account for the acquisition of a symbolic system to represent such ideation. Hartley (1971 [1749], 1:105ff., 271) thus explains phoneme and word acquisition in terms of the associations generated and reinforced by processes of perceptual pattern recognition. But in Hartley (*ibid.*: 106) analogical perception is still derived from “the Recurrence of the same [or as Hume would insist, only similar] accidental Causes,” whereas Shelley wants to derive even the perception of recurrence from some “elementary law” “co-extensive with our organization,” a gravitation-like force of attraction that seeks and discerns resemblances between ideas and individuals. The perception of recurrence would thus depend not (or not merely) on “accidental” efficient “Causes” but rather (or also) on the formal and final causes of analogy. In Shelley’s view, the ontology and teleology of analogy cause those effects of pattern recognition and social imitation that are instinctively deployed by the developing child. First, the child masters thereby a repertoire of as-yet noncommunicative gestures, facial expressions, and vocalizations. Once mastered, these in turn are generalized, using the same analogical matching and inference operations, though now on a different order of inputs (that is, gestures, facial expressions, and vocalizations), to master a repertoire of routines that coordinate shared attention and enact social intentions (e.g., pointing and vocalizing a sequence such as /ðæt/). These routines are in turn generalized to form an increasingly complex and abstracted system of shared representations and so on, through progressive iterations, until the full-blown linguistic system is acquired. The social environment plays a crucial role throughout the process, for it models and constrains the nature of the gesture, expression, or vocalization at each level. Driving the whole process are innate “social sympathies,” the “laws from which, as from its elements, society results”—first in terms of non-symbolic social coordination but ultimately and quintessentially in terms of the language system that structures shared mental representations, which are the *sine qua non* of theory of mind.

This hypothesis may help answer the explanatory demand posed but not quite met by Garfield et al. (2001: 525): “What we need . . . is an account of how we can bootstrap from innately determined capacities, together with skills acquired through development and learning[, ] into the ability to represent mental states and to mind-read.” In the terms of Shelley’s hierarchical and language-first account of theory of mind, the problem at the intermediate stage, between “innately determined capacities” and

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kindred minds; / Her mimic arts associate thoughts excite / And the first LANGUAGE enters at the sight” (quoted in Richardson 2001: 77).

“the ability to represent mental states,” might be stated as follows. Even given the bootstrapping of pattern detection and imitation devices, how does the developing child (or hominid society) learn to reinterpret context-dependent expressions like vocalizations and gestures as symbolic expressions whose values are independent of the spatiotemporal context of utterance or use?<sup>40</sup> For example, how does /ðæt/ uttered as a shared-attentional and -intentional gesture, say, with reference to an out-of-reach object or food item, come to be reanalyzed to support, without additional gestural or visual cuing, the distal distinction in “do you want *this* one or *that* one?”

Shelley's intuitive emphasis on the role of deixis in mental representation, coupled with his understanding of hierarchical generalization (scaffolding) in cognitive development, outlines a fairly specific answer to this fundamental question about how the mind attains linguistic symbolization. In its prototypical form—that enjoyed by (m)others and newborn infants throughout the world—deixis indexes a shared situation of utterance: the speaker (“I”), the auditor (“you”), the space (“here”), and the time (“now”). Over and over in the course of development, and exactly for the purposes of social-affective interaction, the infant will hear utterances such as “look at *this*,” “see *this*,” “what's *this*?” and the like to help focus shared attention on a proximal object and “look at *that*,” “see *that*,” “what's *that*?” and the like to share attention to a distal object. Just as a developing infant can zero in on the phonemic frequencies in the linguistic environment, so can that infant detect usage frequencies for longer sequences.<sup>41</sup>

40. Locke (1961 [1690], 1:126) explained categorical generalization as follows: “The mind makes the *particular* ideas received from particular objects to become general; which is done by considering them as they are in the mind such appearances, separate from all other existences and the circumstances of real existence, as time, place, or any other concomitant *ideas*. This is called ABSTRACTION, whereby *ideas* taken from particular beings become general representatives all of the same kind, and their names, general names, applicable to whatever exists conformable to such abstract *ideas*.” Dedre Gentner and Robert M. French, speaking of verbs but in a way that can be readily extended to the other parts of speech, capture the analogical nature of such generalization: “In a sense, verbs are institutionalized analogies. They are devices for conveying relational structures independently of the concrete objects to which the structures are applied” (quoted in Holyoak and Thagard 1995: 223).

41. See Moore 2006: 61–62: “Using sequences of nonsense syllables, researchers have shown that infants are able to learn sequences that tend to occur together on a reliable basis. This ability, called *statistical learning*, may well be related to the perception of temporally patterned features [of the environment and especially conspecifics], and is probably of rather general significance in infant development.” Hartley (1971 [1749], 1:106–7) already had the basic idea:

It is evident, that an articulate Sound, or one approaching thereto, will sometimes be produced by this conjoint Action of the Muscles of the Trunk, Larynx, Tongue, and Lips [of the developing infant]; and that both these articulate Sounds, and inarticulate ones, will often recur, from the Recurrence of the same accidental Causes. After they have recurred a sufficient number of times, the Impression which these Sounds, articulate and inarticulate, make upon the Ear,

Once infants can reproduce the phonemic patterns themselves, they use such patterns to share attention among objects present in the discourse situation. They normally do so with a high initial error rate for *correct* usage between systematic alternatives (e.g., producing “that” indiscriminately for proximal and distal pointing, referring to self as “you,” etc.) but otherwise with a very high success rate in terms of competence and performance (i.e., using “that” appropriately as a demonstrative gesture, appropriately grounding “you” in one of the two persons in an ongoing dialogue). At this primitive stage, utterances (not only of deictics but of an ever-expanding lexicon of proper names, generic nouns, action verbs, adjectives for qualia and affect, etc.) are not verbal symbols but, as Moore (2006) suggests, vocal actions, akin to brachia-manual gestures like pointing and showing, and thus absolutely context dependent in terms of production and reference. Yet even as this vocal-action system is being practiced and mastered, the very same cognitive operations that enabled phoneme recognition and imitation, then the recognition and imitation of sequential phonemic patterns, are now in the process of detecting regularities among various vocal actions, learning to discriminate types and discovering higher-order relations among those types (for example, the systematic relation of “this/that,” “I/you,” and “now/then”).<sup>42</sup> To appreciate such higher-order categorical relations among signs or signals is, as Terrence Deacon (1997: 79–92) has suggested, a cognitive first step toward symbolic understanding and communication.

Deacon (*ibid.*: 451) argues, moreover, that this “common symbolic

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will become an associated Circumstance (for the Child always hears himself speak, at the same time that he exerts the Action) sufficient to produce a Repetition of them. And thus it is, that Children repeat the same Sounds over and over again, from many Successions, the Impression of the last Sound upon the ear exciting a fresh one, and so on, till the Organs be tired. It follows therefore, that if any of the Attendants make any of the Sounds familiar to the Child, he will be excited from this Impression, considered as an associated Circumstance, to return to it. But the Attendants make articulate Sounds chiefly; there will therefore be a considerable Balance in favour of such, and that of a growing Nature: So that the Child's articulate Sounds will be more and more frequent every Day—his inarticulate ones grow into Disuse. Suppose now, that he compounds these simple articulate Sounds, making complex ones, which approach to familiar Words at some times, at others such as are quite foreign to the Words of his native Language, and the first get an ever-growing Balance in their Favour, from the Cause just now taken notice of; also, that they are associated with visible Objects, Actions, &c. and it will be easily seen, that the young Child ought, from the Nature of Association, to learn to speak much in the same Manner as he is found in Fact to do.

42. Ozçalışkan and Goldin-Meadow (2006) and Sinha and Rodriguez (2008) have recently presented further evidence and theory that converge with this account, the former in terms of the prominent role played by demonstrative pronouns in children's early acquisition and expression of similarity and analogy relations and the latter in terms of the conceptual development of deictic perspective shifting from early dyadic and triadic interactions, such as “peekaboo” and “give-and-take.”

understanding” or “shared code for translating certain essential attributes of memories and images between individuals” is developmentally prior to and essential for theory of mind. Even *self*-representation must be seen as a functional output of—rather than, as simulation or “like me” theorists would have it, input to—the social-symbolic system:

Self-representation, in the context of representations of alternative pasts and futures [as in false-belief tests], could not be attained without a means for symbolic representation. . . . this sense of self emerges slowly as children mature. It becomes progressively more facile in perspective shifting. . . . And, as studies of this process in various mentally and socially handicapped children suggest, the extent to which it is developed depends both on the extent of exposure to relevant social-symbolic experiences and on the symbol-processing capacity of the individual.

“Perspective shifting” is, we should recall, a functional property of deixis—prototypically, it grounds discourse referents in a proximal-distal schema that systematically shifts with changes of speaker and/or the spatiotemporal context of utterance.<sup>43</sup> This is a technically precise way of stating Shelley’s point that the deictic system is structurally designed to assign (acts of) mental representation to individuals for the social purposes of communication and interaction. As Deacon suggests here and Shelley explicitly argues in the “one mind” passage from “On Life,” what is appor-tioned or “shared out” is a conventionalized conceptualization of the phenomenological field (or “feel,” in the sense of Damasio 1999) of mind. One or another dimension of this field (e.g., “motion and mensuration, and time, and space”) is the primitive value underlying the given deictic convention and conception. But because each deictic term participates in a differential system of schematized proximal/distal relations, its primitive and unified value can be carved up into alternate representations that, for

43. For discussion, see Bruhn 2005: 387–97 and references. Levinson (2003: 51, 333) reminds us of Karl Bühler’s “concept of the transposed deictic center” and Charles Hockett’s “design feature of displacement,” linking them via a note to theory of mind: “The ‘theory of mind’ literature suggests that an essential element of human cognition involves the ability to take the perspective of the other—this is what makes teaching, communication, and strategic competition possible.” Farrant et al. (2006) have recently presented experimental results showing a correlation of theory of mind and visual-perspective-taking (VPT) abilities and a developmental role for language in the acquisition of such abilities. Their article concludes with a call for future research investigating “which aspect(s) of language is/are most important for ToM and VPT development. Such research could investigate whether syntax, and in particular, mastery of sentential complements . . . or the more pragmatic aspects of language . . . is more important” (ibid.: 1850). Shelley’s theorizing would predict some fairly specific correlations between mastery of the language’s deictic system and ability to pass various kinds of theory of mind tests (see de Villiers 2007 for a discussion of some of the principal theory of mind experimental approaches employed to date).

purposes of social (and later self-) communication are conceptually allocated to speaker, auditor, or other; here or there; now or then. Thus what is originally an unassigned, but nevertheless socially embedded, mental presentation becomes a differentiated, socially shared representation. Shelley (1965, 6:196) puts the point exactly with reference to the deictic pronouns: “The words *I, you, they*, are not signs of any actual difference subsisting between the assemblage of thoughts thus indicated, but are merely marks employed to denote the different modifications of the one mind.”

The theory that self and other are originally identified or, more exactly, undifferentiated is bolstered by an impressive range of developmental data illustrating the essential selflessness of infant experience,<sup>44</sup> including a fascinating preferential attention experiment that discloses the social bias of innate imitation programs. Such a bias suggests that experience of self literally depends upon and conforms to experience of others:

Philippe Rochat and Rachel Morgan presented their 3- to 5-month-old infant participants with a TV with a split screen showing two live videos, both of their own legs and feet. One of the displays was derived from a video camera opposite the children, the other from a video camera looking down at the children’s legs from above. In this way the two displays showed live videos of the babies’ legs, but one looked as it would from the babies’ perspective and the other looked as it would from someone else’s perspective. The infants preferred to look at the video that showed their legs as they would appear from someone else’s perspective. Not only did the infants look longer but when they looked at the observer’s view, they also tended to move their legs more. (Moore 2006: 66)

The infants’ bias toward information presented from the other’s point of view reveals not just a preference for novelty but an attentional orientation toward what Moore calls “third-person” information, that is, the objec-

44. Especially interesting in this context is the recurrent finding that “children’s correct responses to false-belief questions for self versus other [either] did not differ” (Wellman et al. 2001: 665) or were consistently higher for other across preschool ages (Nelson et al. 2003: 30), which likewise suggests that self-representation emerges from a generalized, undifferentiated theory of mind and not vice versa. Hume (2000 [1739–40]: 228) also remarked on the developing child’s preferential orientation toward the (human) other:

I own the mind to be insufficient, of itself, to its own entertainment, and that it naturally seeks after foreign objects, which may produce a lively sensation, and agitate the spirits. On the appearance of such an object it awakes, as it were, from a dream: The blood flows with a new tide: The heart is elevated: And the whole man acquires a vigour, which he cannot command in his solitary and calm moments. Hence company is naturally so rejoicing, as presenting the liveliest of all objects, *viz.* a rational and thinking being like ourselves, who communicates all the actions of his mind; and makes us privy to his inmost sentiments and affections; and lets us see, in the very instant of their production, all the emotions, which are caus’d by any object. Every lively idea is agreeable, but especially that of passion, because such an idea becomes a kind of passion, and gives a more sensible agitation to the mind, than any other image or conception.

tively perceived actions and behaviors of others. Though both videos in fact present unprecedented information (that is, none of the infants had probably ever watched a video of his or her own legs kicking, never mind from which perspective), the one depicting the kicking legs from “someone else’s perspective” *would appear to depict someone else’s legs*, situated *across from* the infant rather than *below* her or him. The infants’ evident pleasure in what appears to them to be an imitative social interaction lends some support to the “matching to target” hypothesis of the simulation theorists but not to the implicit differentiation and directionality of the “like me” analogy (e.g., Meltzoff and Brooks 2001: 174, 177), which apparently asserts that some sort of original self-awareness antedates and underlies the concept of the other. Instead, the developing infant innately and analogically conforms to others, preferentially attuning himself or herself to their action and (elsewhere) vocalization patterns. The conventional forms of these actions and vocalizations are environmentally mediated and fundamentally shared, “so [their] ontology cannot be wholly individualistic” (Garfield et al. 2001: 535). Indeed their ontology is not only social but also, in its earliest developmental forms, self/other identical. In this view, sociality involves the sharing of one form across multiple individuals rather than the averaging of multiple forms into a transpersonal theory of mind. In Shelley’s terms, social interaction installs “a being within our being,” and it is this “one mind” that underlies both self- and other representation and thus “mind reading” and sociomoral reflection.

This radical analogical identification with the other, with all its attendant “passions and pleasures,” from kicking legs to coordinating attention to sharing mental representations, is thus an innate, then a social, then a symbolically distributed function, but what drives the process, and what is the goal (or functional limit) of its operation? Donald (2001: 214ff.), one of the few contemporary theorists to address this neglected question of the *teleology*<sup>45</sup> of human cognitive development, does so in terms of Locke’s

45. Given the triumph of the evolutionary model in biology, *teleology* has become something of a bad word in scientific circles, but it should not be ruled out just yet (or perhaps needs to be ruled back in), as argued, e.g., by Terrence Deacon and Jeremy Sherman (2007). Their theory is, as they put it, “forward engineered” from thermodynamics to “morphodynamics” (that is, relations, attractions, and effects based upon shape, for example, in molecular bonding and catalysis) to “teleodynamics” (that is, emergent purposiveness in biological systems). Though admittedly “highly idealised and speculative,” their discussion is nevertheless

sufficiently plausible to illuminate the link between mere chemistry and chemistry with a function. To the extent that living, evolving organisms exhibit functions, not merely chemical reactions, we see glimmerings of end-directedness in what they do. We describe even simple organisms as exhibiting adaptations or functions with respect to something like their own good. They encounter favourable or unfavourable environments and have needs or appetites for some of what they find there, and they compete to maintain themselves and their lineage.

eighteenth-century French interpreter, Etienne Bonnot de Condillac. In his *Treatise on the Sensations* (1754), Condillac developed the thought experiment of the Statue, a “virtual mind,” as Donald (2001: 216) characterizes it, with only “two built-in components: sensory pathways, which provided its sole source of experience, and innate capacity, which endowed it with the ability to carry out certain operations on its sensations.” Something akin to Shelley’s “innate passion” of analogy, Condillac’s “innate capacity” describes a developmental “drive system” that seeks certain pleasurable ends in its associative operations (ibid.: 218). Donald (ibid.: 217) explains this cognitive engine in terms of “curiosity”:<sup>46</sup>

Condillac was subtle enough to realize that his Statue could not start its life cycle in a state of complete neutrality or indifference toward sensation. He gave it an innate bias to notice things and to care about what it noticed. Curiosity must be a basic property of any cognizing system, and this presents us with a strong scientific challenge. It is not obvious how a mere brain could have such a property, but clearly many brains have it. There seems to be a self-reinforcing joy in discovery, and curiosity has a subjective, sensual aspect. Its pleasures can be as intense as any others. Without this self-reinforcing feature and the intolerable pain of boredom, there would presumably be no motive force for a mind to exert any effort to understand the world.

In his subsequent elaboration of Condillac’s point, Donald (ibid.: 284, 289) speculates that even higher-order cognitive operations, like the “instinct

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We recognize in organisms, then, the most basic analogues of what in our mental experience we describe as intention, significance, desire, and purpose. For this reason, we should distinguish the special causal features of such systems with yet a further category of dynamics: teleodynamics, or tendencies to change with respect to target states, potentialities, represented possibilities, and so on. (Ibid.: 20)

In an early letter, Shelley (1965, 8:201–2) proposed a rather similar “hypothesis” about the teleology of all “organized beings”:

What is the Soul? Look at yonder flower. The blast of the North sweeps it from the earth; it withers beneath the breath of the destroyer. Yet that flower hath a soul: for what is soul but that which makes an organized being to be what it is,—without which it would not be so? On this hypothesis, must not *that* (the soul) without which a flower cannot be a flower *exist*, when the earthly flower hath perished? Yet where does it exist, in what state of being? have not flowers also some end which Nat[ure] destines their being to answer? Doubtless, i[t] ill becomes us to deny this because we cannot certainly discover it; since so many analogies seem to favor the probability of this hypothesis. I will say, then, that all Nature is animated, that microscopic vision, as it hath discovered to us millions of animated beings whose pursuits and passions are as eagerly followed as our own; so might it, if extended, find that Nature itself was but a mass of organized animation.

46. Sternberg’s (1978, 2003a, 2003b) discourse narratology would immediately enrich and deepen Donald’s theory of “curiosity” by aligning it with two other universal cognitive forces, “suspense” and “surprise,” and illustrating their diverse dynamics in a wide range of discourse-driven situations.



for mimesis [i.e., social imitation] and collectivity” and in turn the “language instinct,” may be “impelled” by this “basic” curiosity, this “deep desire for conceptual clarification” that yields the “raw feel of intellectual satisfaction.” But the structure and dynamics of this innate “desire” and “satisfaction” remain, Donald admits, “major puzzle[s] for cognitive science to resolve” (ibid.: 289).<sup>47</sup>

With less puzzlement, perhaps because he follows greater authorities, notably Plato and Dante,<sup>48</sup> Shelley adopts the traditional term “love” to

47. Writing with Macgillivray, Moore states the problem in different terms but specifically with reference to theory of mind, which can be decomposed into distinct representational and motivational components:

Given that in any social situation, both cooperation and competition are potential tactics, it must be the case that accompanying the representation of non-current interests, there is a desire to act in their favor. If not, then the actor would automatically implement the action that was in the best immediate interests of himself or herself. In short, the individual must be able not only to represent the mental states of others and the future self but also to care about them. There must be a way in which the imagined state of affairs can achieve sufficient motivational power for it to override the motives provided by the current state of affairs. We suggest that the natural tendency to empathize or “feel into” imagined states of affairs provides the necessary motivational power. . . . [However,] This simple distinction between the representational and the motivational components of action organized toward noncurrent interests masks considerable complexity, and we do not pretend to have identified all the psychological processes that are involved. (Moore and Macgillivray 2004: 54–55)

The view that some “natural” empathic tendency motivates theory of mind operations and representations is echoed and enlarged by Evan Thompson, whose hypotheses regarding the relation of “Empathy and Consciousness” accord perfectly with Shelley’s. For Thompson (2001: 1) as for Shelley, “individual human consciousness is formed in the dynamic interrelation of self and other, and therefore is inherently intersubjective”; moreover, “the concrete encounter of self and other fundamentally involves empathy, understood as a unique and irreducible kind of intentionality.” This is an intriguing if riddling suggestion: if empathy is irreducibly a “kind of intentionality,” who or what intends, and what exactly is the “unique and irreducible” structure of that special “kind” of intention?

As Malle et al. (2001: 7) observe, there is also an important “where” question to be considered: “Psychologists have examined the emergence of shared meaning out of individual intentions, a necessary process for successful conversation and social coordination. . . . Interesting questions about the ‘location’ of joint intentions and the ‘location’ of shared meaning arise. One wonders, for example, whether there actually exist group minds that ‘have’ mental states or whether social perceivers merely metaphorically extend their folk ascriptions of mental states to group agents. These puzzles notwithstanding, the ascension from individual to shared mental phenomena is essential to human relations.”

48. Cf., for example, Plato’s *Symposium*, quoted here from Shelley’s (1965, 7:186, 194, 197) 1818 translation: “The desire and the pursuit of integrity and union is that which we call love”; “Love, therefore, and every thing else that desires anything, desires that which is absent and beyond his reach, that which it has not, that which is not itself, that which it wants”; Love “fills up that intermediate space between . . . two classes of beings, so as to bind together, by his own power, the whole universe of things.” Shelley (ibid., 9:279), we know, owned Cary’s (1901 [1814]: *Purgatorio* 18.19–27) translation of the *Divine Comedy* (completed in 1814), which renders Dante’s essentially scholastic (or neo-Aristotelian) conception of love in the correlative terms of what was, by Shelley’s day, canonical empiricism, e.g.: “The soul, created apt / To love, moves versatile which way soe’er / Aught pleasing prompts her,

designate the motive force driving all the scaffolded forms of analogy, from innate pattern recognition to the self/other identification that underlies theory of mind and morality. His several descriptions of love, from his early essay “On Love” through the likewise fragmentary “A Discourse on the Manners of the Ancients, relative to the Subject of Love” to his fully articulated theory in *A Defence of Poetry*, add up to a cognitively compelling account of this many splendored thing. “Love,” Shelley (1965, 6:201–2) claims in the first of these essays,

is the bond and the sanction which connects not only man with man, but with everything that exists. We are born into the world, and there is something within us which, from the instant that we live, more and more thirsts after its likeness. It is probably in correspondence with this law that the infant drains milk from the bosom of its mother; this propensity develops itself with the development of our nature. We dimly see within our intellectual nature a miniature as it were of our entire self, yet deprived of all that we condemn or despise, the ideal prototype of every thing excellent or lovely we are capable of conceiving as belonging to the nature of man. Not only a portrait of our external being, but an assemblage of the minutest particles of which our nature is composed; a mirror whose surface reflects only the forms of purity and brightness; a soul within our soul that describes a circle around its proper paradise, which pain, and sorrow, and evil dare not overleap. To this we eagerly refer all sensations, thirsting that they should resemble or correspond with it.

In a note to this passage, Shelley writes, “These words are ineffectual and metaphorical. Most words are so—No help!” (ibid.: 6:202). The essence of the idea, however, is that the “thirst” that drives everything from the newborn latching instinct to cognitive-scientific reflection is for a condition of relation—“resemblance” or “correspondence”—so complete as to constitute identification, the attainment of “entire self.”<sup>49</sup> In “A Discourse

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soon as she is waked / By pleasure into act. Of substance true / Your apprehension forms its counterfeit; / And, in you the ideal shape presenting, / Attracts the soul’s regard. If she, thus drawn, / Incline toward it; love is that inclining, / And a new nature knit by pleasure in ye.”

49. Shelley’s notion of the cognitive “miniature” thus differs from Hartley’s in being driven not by chance recurrence of similar objects and entities but by an innate passion for analogical identification. Shelley hoped by this move to obviate the moral problem of individual variability (spelled out by Hartley himself), which seemed an inescapable consequence of associationist philosophy. For example, in Hartley’s theory (1971 [1749], 1:64, 81, 370), which proposes that “sensory Vibrations, by being sufficiently repeated, will beget a Disposition to miniature Vibrations [in the ‘medullary substance’ of the brain] corresponding to them respectively,” “it follows . . . that the intellectual Pleasures and Pains may be greater, equal, or less, than the sensible ones, according as each Person unites more or fewer, more vivid or more languid miniature Vibrations, in the Formation of his intellectual Pleasures and Pains,” and from this it follows that our moral dispositions and inclinations cannot but vary:

on the Manners of the Ancients, relative to the Subject of Love,” written after he had completed his exceptionally fine translation of Plato’s *Symposium*, Shelley (ibid., 7:228) clarifies the nature of this “universal thirst” or irreducible intentionality: it is “for a communion not merely of the senses, but of our whole nature, intellectual, imaginative, and sensitive.” However, though love seeks as a type for its “mirror”-like “antitype” (ibid., 6:202), no existing object or social other can perfectly answer the functional demand, and so the “communion” is always incomplete, partial, and still to seek: “This object, or its archetype, forever exists in the mind, which selects among those who resemble it, that which most resembles it; and instinctively fills up the interstices of the imperfect image” (ibid., 7:228).

For Shelley, this resemblance-seeking and difference-abridging operation is the engine that drives all analogies, which for their part inevitably fail to realize the operational goal of identity or perfect indifferenciation and so are continuously surpassed<sup>50</sup>—and hierarchically transcended—by further analogies.<sup>51</sup> “Love” motivates the perceptual and developmental analogies

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By degrees he learns, partly from the Recurrency of these mechanical Tendencies, inspired by God, as one may say, by means of the Nature which he has given us; and partly from the Instruction and Imitation of others; to pursue every thing which he loves and desires; fly from every thing which he hates; and to reason about the Method of doing this, just as he does upon other Matters. And, because Mankind are for the most part pursuing or avoiding something or other, the Desire of Happiness, and the Aversion to Misery, are supposed to be inseparable from, and essential to, all intelligent Natures. But this does not seem to be an exact or correct Way of Speaking. The most general of our Desires and Aversions are factitious; *i.e.* generated by Association; and therefore admit of Intervals, Augmentations, and Diminutions. And, whoever will be sufficiently attentive to the Workings of his own Mind, and the Actions resulting therefrom, or to the Actions of others, and the Affections which may be supposed to occasion them, will find such Differences and Singularities in different Persons, and in the same Person at different Times, as no-way agree to the Notion of an essential, original, and perpetual Desire of Happiness, and Endeavour to attain it; but much rather to the factitious associated Desires and Endeavours here asserted.

50. Cf. Holyoak and Thagard 1995: 131: “The essence of analogies is that if the target domain is sufficiently isomorphic to the source domain, then the mapping can be used to fill in gaps in knowledge of the target. The catch is that for complex realistic situations, the isomorphism between the source and target domains will be approximate at best. . . . the inferences generated by analogy must be evaluated, adapted to the unique requirements of the target, and possibly abandoned.”

51. Locke (1961 [1690], 1:100) had given a theological spin to this psychological fact: “Beyond all this, we find another reason *why* God hath scattered up and down *several degrees of pleasure and pain in all the things that environ and affect us* and blended them together in almost all that our thoughts and senses have to do with, that we, finding imperfection, dissatisfaction, and want of complete happiness in all the enjoyments which the creatures can afford us, might be led to seek it in the enjoyment of Him, *with whom there is fullness of joy and at whose right hand are pleasures forevermore.*” Today’s developmental psychologists, for example, Moore (2006: 45, 59), prefer to describe young children as “*motivated* pattern detectors” with a strong tendency to “novelty preference” or “habituation recovery” (emphasis added). Shelley, alas, seems to have shown such novelty preference in his personal relationships, but of course Locke’s theory, as Dante’s and Plato’s, would predict such dishabituation. An early instance is his

underlying pattern recognition and social imitation and in turn the representational analogies underlying language use and theory of mind.<sup>52</sup> However quaint his terminology, Shelley's theory seems—anachronistically enough—to *specify* and thereby *clarify* Donald's (2001: 277–78) similar but comparatively mystifying comments about the cognitive origins and teleology of our “symbolic-cultural” systems:

The quality of thoughts can be improved with language. But thoughts do not start there or end there, nor are they judged there. Words and sentences define and clarify knowledge that resides elsewhere, in foundational semantic processes that we share with other primates and where the motive force for the evolution of language must have originated. It is easy to swim in our symbolic-cultural sea without noticing this, but our ability to perceive the inadequacies of spoken and written language reveals its deep cognitive roots. Our conscious mind strives after clarity to placate its own inner semantic processes. . . . Consensual symbol systems exist for the purpose of satisfying our deep semantic (metaphoric?) intuitions.

Donald asserts but does explain an essential “motive force,” which apparently equates to “inner semantic processes” and “intuitions” that may be, at base, “metaphoric.” After all the foregoing, it should be clear that this is putting rather woolly new clothes upon a cognitive theory that emerged, embodied in the naked word *analogy*, roughly two centuries ago. Shelley would agree that the “symbolic universe” of human culture, including especially its sociomoral theory of mind, derives from a mind that seeks an ever-clearer image of itself, of its “deeper,” as yet unexpressed or imprecisely expressed and therefore still unsatisfied “semantic intuitions.”

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disaffection from Hogg, here explained in a letter to Hitchner, who would meet the same fate, and permanently, in less than a year: “How I have loved him *you can feel*, but he is no longer the being whom perhaps 'twas the warmth of my imagination that pictured. . . . I love no longer what is not that which I loved” (Shelley 1965, 8:225).

52. Thus buried in Hartley's (1971 [1749], 1:296) exhaustive list of analogies (but, as it were, extracted and radically rationalized in Shelley's analysis) is that crucial series that links all attributions of mindedness, from “the human Mind, [to] the Minds of Brutes on the one hand, and of superior Beings on the other, and even the infinite Mind himself.” This tantalizing suggestion of the analogical relation of theory of mind to (the concept of) omniscience will certainly repay careful study, especially with respect to narrative and narration. Early exposure to and practice in storytelling, as Gallagher and Hutto (2008: 28) have recently (and rather fuzzily) hypothesized, “will normally involve jointly attending to the mentalistic terms such as ‘wish,’ ‘believe’ and ‘know’ and discussing what the story characters know, feel, and want. During this process, children learn how states of mind behave in relation to each other and other terms in the psychological family.” But the questions remain: what does it mean to *represent* a state of mind, and how do specific acts of narration encode and therefore prime such representations? A supremely relevant essay, both for its historical-theoretical purview and its subtle analysis of the constituent dimensions of “omnimentality,” is Meir Sternberg's “Omniscience in Narrative Construction: Old Challenges and New” (2007).

Shelley (1965, 6:202) has something very much to this effect in mind when he discerns “dimly . . . within our intellectual nature a miniature as it were of our entire self,” “the ideal prototype of every thing . . . we are capable of conceiving as belonging to the nature of man.”

But Shelley (*ibid.*, 8:328) is clearer not only about the cognitive foundations and developmental hierarchies of the force that he calls *analogy* in its operational dimension and *love* in its teleological dimension, but also about the social-moral and historical consequence of this “innate passion” that is “co-extensive with our organization.” In the “A Discourse on the Manners of the Ancients, relative to the Subject of Love,” Shelley (*ibid.*, 7:228) states categorically that “Man is in his wildest state a social being: a certain degree of civilization and refinement ever produces the want of sympathies still more intimate and complete. . . . This want grows more powerful in proportion to the development which our nature receives from civilization.” Donald (2001: 324) appears to concur, stating that “human purpose always has a cultural dimension and is inherently distributed in its origins. Ours is a collective teleology, and its creative engine is a conscious mind that has assimilated the algorithms of culture and is thus a vehicle through which the collective cognitive-cultural hierarchy can act.” But for Shelley (1965, 7:110), the “algorithms of culture”—for example, the laws governing expression and shared representation—themselves derive from still more foundational “social sympathies, or those laws from which, as from its elements, society results.” These laws of social sympathy, Shelley continues,

begin to develop themselves from the moment that two human beings coexist; the future is contained within the present, as the plant within the seed; and equality, diversity, unity, contrast, mutual dependence, become the principles alone capable of affording the motives according to which the will of a social being is determined to action, inasmuch as he is social; and constitute pleasure in sensation, virtue in sentiment, beauty in art, truth in reasoning, and love in the intercourse of kind.

How much is claimed here in how little space and how cogently, elegantly, parsimoniously.<sup>53</sup> Here Shelley specifies the “elemental” aims of human

53. Shelley appears to have answered Hume's (2000 [1739–40]: 304) demand for a fully satisfying moral philosophy: “It may now be ask'd *in general*, concerning this pain or pleasure, that distinguishes moral good and evil, *From what principles is it deriv'd, and whence does it arise in the human mind?* To this I reply, *first*, that 'tis absurd to imagine, that in every particular instance, these sentiments are produc'd by an *original* quality and *primary* constitution. For as the number of our duties is, in a manner, infinite, 'tis impossible that our original instincts shou'd extend to each of them, and from our very first infancy impress on the human mind all that multitude of precepts, which are contain'd in the completest system of ethics. Such

cognition, sociality, and history: “equality,” “diversity,” “unity,” “contrast,” “mutual dependence.” These “principles” are themselves derivable, as Shelley (*ibid.*: 61) hypothesized in the “Speculations on Metaphysics,” from analogy, an identity-seeking function that is hierarchically elaborated into clearer and clearer conceptions of the deep structure of the (socio-analogical) mind, that is, its elemental principles and goals of “equality in diversity,” “unity in contrast,” or “mutual dependence.” Such phrases capture the telos of everything from innate pattern recognition and imitation routines (those “pleasures of sensation”) to complex social relations such as morality (“virtue”), creativity (“art”), science (“reasoning”), and first and last, relationship (“love in the intercourse of kind”). Shelley’s comprehensive analysis of mind anticipates and, if you will, anachronistically deepens one of the “dangerous” ideas hazarded by the philosopher Daniel Dennett (1995: 366): “We should note that the memes for normative concepts—for *ought* and *good* and *truth* and *beauty*—are among the most entrenched denizens of our minds. Among the memes that constitute us, they play a central role. Our existence as us, as what we as thinkers are—not as what we as organisms are—is not independent of these memes.” Shelley’s analysis implies, however, that the line between biological organism and moral thinker, individual and society, gene and meme is neither sharp nor straight, but operationally elaborated according to the functional logos of analogy (“proportion”).

This is an explanation not only of human cognitive development (including theory of mind) but of human cultural-historical development (leveraged upon theory of mind), both of which require and foster the “mutual dependence” of society. From this “seed” springs the “plant” of human destiny, whose irresistible growth Shelley traces in the artistic and political innovations of the ancient world,<sup>54</sup> the emancipation of women

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a method of proceeding is not conformable to the usual maxims, by which nature is conducted, where a few principles produce all that variety we observe in the universe, and everything is carry’d on in the easiest and most simple manner. ’Tis necessary, therefore, to abridge these primary impulses, and find some more general principles, upon which all our notions of morals are founded.” Shelley seems equally to have anticipated and fulfilled in advance Jackendoff’s (2007: 187) admonition that the theorist of human sociomoral phenomena “be prepared to discuss the questions openly and thoughtfully, bringing to bear our (hopefully) growing understanding of the sorts of cognitive entities moral codes are, of the role moral codes play in the functioning of a society, and of the innate underpinnings of the social understanding that helps shape moral codes in every culture.”

54. Thus, e.g., “Homer and the cyclical poets were followed at a certain interval by the dramatic and lyrical Poets of Athens, who flourished contemporaneously with all that is most perfect in the kindred expressions of the poetical faculty; architecture, painting, music, dance, sculpture, philosophy, and we may add, the forms of civil life” (Shelley 1965, 7:118); “the true poetry of Rome lived in its institutions; for whatever of beautiful, true, and majes-

and abolition of slavery in the modern world,<sup>55</sup> and perhaps at the far end of history, the equalization and amelioration (despite inevitable setbacks) of the human condition around the globe.<sup>56</sup> Shelley's radical theory (and hope) was that sociopolitical equality would turn out to be a deep-seated and self-fulfilling cognitive prophecy.

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tic, they contained, could have sprung only from the faculty which creates the order in which they consist" (ibid.: 125).

55. In Shelley's (1965, 7:127) account, the "abolition of personal and domestic slavery, and the emancipation of women from a great part of the degrading restraints of antiquity" are historical processes that began in earnest in the late medieval and early modern periods (and were still being worked out in Shelley's day, as they are in ours).

56. Thus, e.g., "justice, as well as benevolence, is an elementary law of human nature. It is through this principle that men are impelled to distribute any means of pleasure which benevolence may suggest the communication of to others, in equal portions among an equal number of applicants" (Shelley 1965, 7:77). The theme (dream) of "a completely-equalized community" and "the equalization of [the world's] inhabitants" persists from the start of Shelley's (ibid., 8:56, 240) career.

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