4 Stories of Creation

> Human language does, in fact, have this almost mystical power. It can describe the infinite particularity of the world as we perceive it. Language doesn't do this through words, giving a unique name to each individual thing. It does it through sentences, through the power to combine words, what linguists call syntax. Syntax is where the magic happens.
>
> —David Adger, *Language Unlimited*

In the various glosses on the concept of Davidsonian triangulation I have mentioned so far, I have emphasized one aspect that I think has been relatively unexplored—that of the relation between teacher and learner in initial triangular interactions. From the anomalous monist perspective, in order for human thought to emerge we have to be shown how to use language. Without this social dimension, whatever innate proclivities we have for language would never grow. What's more, for Davidson, the "teacher" in initial triangular situations is the one who shows the "learner" how her utterances can correspond to the shared world around them.

These utterances do not come by themselves but in narrative packages or stories. Though parents and actual teachers are important, we often learn more of the core narratives—for example, about our family or home—from older siblings and peers who constitute our social environment. Engaging in these stories starts the learner down the road that will give semantic content to her communication, content tied to the particular historical circumstances under which she learned to use those words.

We have seen that Davidson sees social learning in the form of triangulation as something special in human cognition. Indeed, the human capacity for detailed social imitation has at times been seen as the X-factor in

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human cognition (Heyes 2018, chapter 6; Tomasello and Herrmann 2010). Not just pure mimicry but also the developing ability to project mental states, to mentalize or read intentionality into the world, has been tied closely to specifically human cognition. In previous chapters I argued that this ability has a much broader etiology than previously understood. But whether one sees it as a recent change in human cognition or something that traces back to the origin of cognition, it is clear that much of what we understand as human cognition would simply not be possible without learning—that is, without education. Likewise, the emergence of new institutionalized forms of education involving working with oral and written texts was one of the most important factors in the development of societies over the past three thousand years. The technologies of reading and writing were especially significant in this process (G. Levy 2014; see also Heyes 2018, 19–23, 148–151).

Such social institutions transform religion as well. Whatever innate tendencies, evolutionary endowments, or DNA information programming that provides the background for religion, without the social dimension and indeed the triangular situation between teacher and student, religion would never grow and there would be no content. In previous chapters, I argued that the semantic content of religion is the same as any other content. The content of religion is fictional but just as real and part of the universe as other kinds of content. What was missing from this account is the role that social education—particularly triangulation between teacher, student, and texts—plays in creating that content. In this chapter, I argue that neither science nor religion would be possible without such social generation.

I begin with a focus on ethnomathematics, which leads into a discussion of the speculation on generation found in the ancient scientific text *Sefer Yetzirah*, or *Book of Creation*. This text deals with information, creation, and permutations at the root of space, time, and the mind. I then move on to the topics of narrative, communal singing, and joking, which I think provided the early platform for our species to step from natural information to holistic semantics, though they could never provide a perfect bridge. I conclude the chapter touching on what I call the religion of Joe Rogan.

Mathematics gives us an insightful illustration of a human capacity that is both strongly biological and strongly cultural at once. In the updated version of his groundbreaking book *The Number Sense*, Stanislas Dehaene (2011) notes that all humans and many other animals have a number sense. We

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can keep track of quanta in quite sophisticated but approximate ways. This "evolutionarily ancient system" (263) undergoes a number of recognizable changes when humans are brought up in the education systems certain cultures have built up over the last few thousand years. Once we have this education, we are able to conceive of "exact numbers" and eventually the computations of higher mathematics that rely on these concepts. Dehaene emphasizes that this "transition" is not automatic but rather a "cultural invention" involving training that promotes "a conceptual integration of approximate number representations, discrete object representations, and the verbal code" (266).

In the absence of this conceptual integration, the older number sense is apparently far less linear than ours. Dehaene and his colleagues have closely studied the mathematical abilities and concepts of remote indigenous cultures, finding they do just fine with sophisticated approximations. Like all humans and some other nonhuman animals, they are able to "represent quantities as a mental 'number line,' a linear space extending continuously from small to larger numbers" (Dehaene 2011, 264). Interestingly, their number line is different from that used by those of us who have had a "western" numerical education; it is curved (Dehaene et al. 2008). Dehaene and colleagues showed the Mundurukù, an indigenous community in the Amazon, "a line segment on a computer screen, with one dot on the left and 10 dots on the right" (264) and found, for example, that when asked to place "5" spatially, they did not place it in the middle of the line, but rather closer to where we would put "3." Thus, "their entire pattern of response was curved, not linear [figure 4.1]. They seemed to think that 8 is much closer to 9 than 1 is to 2. In fact, their representation was closely approximating a logarithm function, not a line" (Dehaene 2011, 265).[1] The researchers found the same curve associated with uneducated western children; the line begins to straighten, become more linear, with more western education.

The reason for the curve, Dehaene suggests, is that "the spontaneous representation of approximate number that we and other animals share is mentally compressed. Two large sets, with 8 versus 9 items, seem more similar than two small ones comprising, say, 1 versus 2 items. . . . Numbers are organized in terms of their ratios: A set of three objects is to one, as nine is to three; hence, number three falls, in a certain sense, 'in the middle' of 1 and 9" (265). This ratio sense is in effect trained out of humans in certain education systems, making way for what Dehaene calls the "successor

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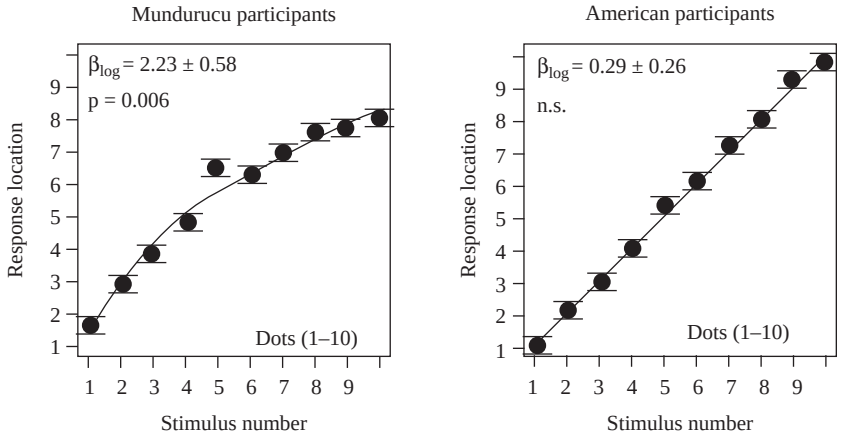

Figure 4.1
Linear versus curving number cognition (originally from Dehaene et al. 2008).

function," the powerful idea that each integer is separated from the next by the same value, the same distance. This counterintuitive idea, combined with "the verbal code," paves the way for the sophisticated mathematics we can now do (266).

A great deal more can be said about ethnomathematics (Bender and Beller 2020), but for now, I bring these observations up to put forward the suggestion that human mathematical ability is generally a combination of an evolutionarily ancient number sense, language, and specific cultural inventions. Cultures with written language, and especially those with an alphabet, were put on a particular trajectory. There is evidence that the development of written language was connected to economic "counting" (see G. Levy 2014, 151–152). Reading, writing, and arithmetic have been associated since their earliest emergence in the historical record, which makes sense in relation to Dehaene's research, because having discrete written symbols can only help learning discrete number concepts. Early on, this was probably a closely guarded secret of scribes, economic planners, and seal-makers, but it has more recently become relatively democratized. I say "relatively" because there is clearly an unequal distribution of this type of knowledge around the globe. Richer people get better educations.

Two points in particular from Dehaene and colleagues are pertinent to the arguments in this book. First, in order to account for the origin of mathematics, we have to integrate cultural and biological levels, but there

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will be limits on how far this can be pushed because the relation between the material and the conceptual levels is not linear. Second, information evolves or changes over time.

If the dual-aspect monists from previous chapters, Davidson or Nagel, are right, we have seen there is reason to think that information is part of nature. We also have seen that thinking this way helps to avoid an anthropocentric bias about the various forms of agency, such as nonhuman persons (e.g., animals) and other superhuman agents, central to religion. Some older religious perspectives avoid the bias, but we also see perfectly normal sciences like biosemiotics and cosmology are able to avoid it. As noted, the difference between Davidson and Nagel is that the latter understands the continuity of nature, life, and mind in metaphysical terms, while for Davidson it has more to do with language. We can leave this disagreement open for now.

The Book of Creation

It is in the context of an anomalous monist approach to ethnomathematics that I want to situate the main subject of this chapter, the ancient Middle Eastern text known as *Sefer Yetzirah* (SY). Religion and math have a deep sympathy in the period when this text was composed, probably because it was especially trippy to be discovering connections between new culturally derived mathematical concepts and nature. If mathematician Graham Farmelo is right that the universe speaks in numbers, since math is a combination of a number sense, discrete ordering, and language, we should also say that the universe speaks in natural language (Farmelo 2019).

Though SY possibly existed in some form, either oral or written, before the tenth century, that was when the first commentary on it was written by Saadya Gaon, one of the most important early medieval scholars and president of the Talmudic academy of Sura in Babylonia. Subsequently, many different recensions have been discovered over the years. The most recent translator, Peter Hayman, consulted at least nineteen different recensions in making his critical translation, though he focused on three of these: Ms A in the Vatican, Ms K in Parma, and Ms C in Cambridge (Hayman 2004).

Different recensions probably indicate that there was not really an authoritative version by the time *Sefer Yetzirah* showed up on the desk of Saadya Gaon, a prominent voice within the Jewish world of his day. It was his choice to comment on the text that set it apart as an important text for Jewish and

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non-Jewish intellectuals in the Middle Ages and beyond. Saadya likely found it interesting because it was a text that spoke in the scientific terms of the day at the same time that it used Judaic concepts. By "scientific," I mean it was some combination of ideas recognizable from Egypt, from Philo; it was an account of creation echoing, for example, the monologue of Timaeus in the dialogue by that name, but also "Pythagorean" ideas, which saw an alignment between arithmetics and creation.[2] Whatever the origin of such ideas and speculation, they were certainly well in circulation in that part of the world at the time. By "Judaic," I mean that the deity in the text is no other than "Yah," a living superhuman agent, referred to with names similar to other "Israelite" texts at the time. Also, no less significant, the language of creation in the text is Hebrew.

Since there is no evidence that the text had a definite form before the tenth century, dating it has been extremely difficult; dates range from the second century BCE until the tenth century CE, immediately before commentaries started being written. Some scholars note a text of a similar name mentioned earlier in the Talmud and related to similar combinatorial speculation, so it is possible that ideas of this type go very far back in rabbinic thinking (Weiss 2019). However, dating of Talmudic texts precisely is nearly impossible, so this does not give us much to go on.

In his commentary, Saadya Gaon notes nine different theories about the origin of the universe. His seventh, eighth, and ninth are the most important for my purposes in this chapter. The seventh echoes Pythagorean theories, or the idea that the cosmos is fundamentally composed of numbers and can be understood as arithmetic and geometric (ben Joseph Al-Fayyumi 1891). The eighth, which Saadya endorses but does not think is the full picture, is the one he sees in SY. The cosmos is fundamentally composed of both numbers and letters; in SY these are ten numerals and the twenty-two letters of the Hebrew alphabet, so a total of thirty-two basic elements. These elements are combined in various ways by Yah/God to create everything, a fundamental idea, such that if a human could study these combinations, she might be able to have similar but far weaker creative powers. The ninth theory, the one Saadya completely endorses, is that the cosmos was created all at once out of nothing, with Torah. According to Raphael Jospe's reading of Saadya, the eighth culminates in the ninth (Jospe 1990).

In its very first sentence, SY names the basic element or elements of creation with the Hebrew root SFR. It says Yah created the universe "with ספר

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and ספר and ספר." Saadya translated *seferim* into Arabic as אשיא, as "things" (*devarim*). Since ancient Hebrew texts are rarely vocalized (they have no vowels), the root in question has a number of possible meanings. Hayman gives three or four possible options for translating the term. In the first case, *sefer* could mean *letter*. Second, it could mean the "three modes of reality" expressed by the root ספר: *sefer*, *s'far*, *seepoor*. That is, Yah carved out thirty-two paths by means of three types of media: writing, number, and speech (Hayman 2004, 63–64). Third, by the time we reach verse 59, we see that the three things could be the Hook (תלי), possibly referring to a constellation or something in infinite space (עולם); the Celestial Wheel (גלגל) in time (שנה); and the Heart (לב) in living things or humanity (נפש), corresponding to the tripartite division of the alphabet in SY (תלי=עולם לב=נפש שנה=גלגל, see 177). This way of categorizing the alphabet corresponds to three spheres of creativity recognized by SY: infinite space, time, (see §18), and (human) life.

Saadya Gaon addresses the meaning of *sefer*, as do all commentaries. He says the three seferim correspond to the three ways that all things can be recorded (ben Joseph Al-Fayyumi 1891, 42). But there is inconsistency because he also finds that the sages counted four ways: substance, words, writing and thought. For example, he says of the sefer *man*, it can refer to an actual man, saying "man" (the sound), the written form MAN, and the concept *man*. So why does SY only give three? Saadya says it is because the first and last are the same: the "substance" and "thought" are the same (in this case, the actual man and the concept *man*).

Curiously, Saadya therefore concludes that the three seferim for SY are letters, numbers, and language (or speech). This makes sense of his interpretation that the eighth and ninth theories can be integrated, for the Torah can be seen as a combination of all three. This innovation, combining SY with the idea of Torah as blueprint of the universe, is what sets rabbinic thought decisively apart from other cosmogonies at the time, whether Pythagorean, neo-Platonic, *Timaeus*-inspired, or Aristotelian. Saadya combines elements of all these into a rabbinic understanding in which the Torah, a materially embodied text in the world, replaces the demiurge and wisdom as the mediator in creation. Language is built into the universe and into life. In particular Hebrew, and the rabbinic method of interpretation, is a way to observe its structure. For Saadya, SY is thus a text trying to explain how the Torah creates.

Is the universe made of *seferim*? Maybe. As noted, this depends on how we conceptualize numbers, mathematical formulae, calculations, and

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permutations. For example, the website physics.info has a thorough list of the most commonly used equations and their related constants.[3] These equations and constants are extremely accurate descriptions of events we observe in this universe; different constants would produce different universes. As soon as numbers are discovered, in any culture, it seems likely that people will wonder how it is that the numbers and combinations of numbers are such good descriptors. They will also start to recognize that numbers and equations are not very good at describing language. For that you will need letters and phonemes.

SY takes these observations one step further. Just as one can theoretically count all the integers by using the equation (n + 1), in a similar way, if one combines and permutates these letters or sounds, one theoretically can map all the sentences of the language (Blumenthal 1980).[4] So basically, with letters (or phonemes) and numbers, you can build the whole cosmos—space (תלי=עולם) and time (גלגל=שנה)—and you can also build "artificial" intelligences or minds (לב=נפש) (see Idel 1990, chapter 2, and Zweig 1997). But Saadya also recognizes the problem that even if you have intelligence, something is missing—namely, Torah. I take him to be saying that you cannot have cosmos and intelligence without teaching, without instruction and learning, the most basic meaning of the word *torah*. In order to have generative learning, you have to have learning first.

Invariance in Semantic Spacetime

In the book *Einstein's Jewish Science: Physics at the Intersection of Politics and Religion*, Steven Gimbel examines the figure most associated with the term "Jewish science," Albert Einstein (Gimbel 2012). He explores a few pertinent questions—for example, Is the theory of relativity pregnant with Jewish concepts? To this question he answers resolutely no, for very little of the "intellectual ammunition" Einstein relied on came from Jewish sources. However, Gimbel does think that we nevertheless see a glimpse of a Jewish "style of thinking" in Einstein's work that I would summarize in three ways: (1) its method of truth, (2) its monism, and (3) its attitude to invariance.

First, in terms of Einstein's method of truth, Gimbel sees it not as deduction, which he associates with a Catholic Descartes and Euclid, nor as induction, which he associates with Protestants such as Bacon and Newton. Rather Einstein's method was some mixture of both, perhaps closer to

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Peirce's abduction, but generally involving a "rabbinic" form of dialogical reasoning that takes a step back from a problem and locates it in a particular context and perspective (86–87). There is truth, but not a singular truth, and God does not have a monopoly on it. Truth is not simply a pregiven feature of the world, but instead, of sentences uttered in dialogical opposition and in a specific context.

Second, there is only one world, but it exhibits radically different properties depending on how we look at it. This point comes out most clearly in Einstein's 1905 paper "On a Heuristic Viewpoint concerning the Production and Transformation of Light," in which he postulated the paradoxical nature of light, where sometimes it acts as if it is a wave and sometimes as if it is made up of particles (Einstein 1905). According to Gimbel, light does not really act in either way, but the behavior is dependent on the context in which we ask the question.

Gimbel intimates a third characteristic that concerns the notions of covariance and invariance. Einstein did not call his theory by the name we know it today: relativity theory. This was a name given by Max Planck. Rather, Einstein called it "invariant theory." Einstein's genius was to reshuffle the Cartesian/Newtonian deck with regard to covariant and invariant descriptions of nature. Part of this entailed recognizing the role that language plays in deciding which features of nature are covariant and which are invariant.

To illustrate this point, Gimbel gives the example of Mount Rushmore, the rock sculpture busts of four US presidents in the state of South Dakota (see figure 4.2). If we ask with regard to the sculpture whether Abraham Lincoln is to the right or left of George Washington, the answer depends on whether we are in front of or behind the sculpture, whereas Thomas Jefferson's position is invariant with regard to where we stand because it is in between them (87). The concepts of covariance and invariance thus concern both our positionality and the embeddedness of language in nature. Einstein recognized this when conceptualizing far more radical ideas such as what our experience would be like if we could approach the speed of light. Einstein drew his most profound conclusions purely with thought experiments, though of course he was up to date on the latest scientific discoveries and was extremely good at math. (It is fake news that he wasn't.)

Philosopher Samuel Wheeler has called Davidson's anomalous monism a "rabbinic philosophy of language," so it is a Jewish-style of thinking, even though Davidson was not Jewish (Wheeler 2000, chapter 7). As noted

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Figure 4.2
The Mount Rushmore monument as seen from the viewing plaza.

in previous chapters, Davidson's (and Quine's) notion of language entails the idea that no sense can be made of the dualism between scheme and content with regard to language; in other words, language is not a scheme for making sense or organizing the world. In the language of this chapter, different sets can describe what goes on in the world; they are covariant. What is invariant is the basic core "grammar" (for lack of a better word) that all languages share: notions such as truth, falsity, temporal markers, part of speech, and the like. Without some core of agreement grounded in this semantic-syntactical "grammar," no sense could be made of disagreement and falsity, and thus no content would be possible. If we give up scheme-content dualism, in addition to the three other so-called dogmas of empiricism, we see that, in a similar sense as Einstein's theory, language is built into the universe. More precisely, propositions are shapes that are embedded in the universe. Humans make those shapes through our verbal and bodily utterings and mutterings. We cannot pull ourselves out of those shapes and see this dimension of language; rather, we see it only in glimpses, much as Einstein and Hermann Minkowski did with respect to space-time.

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For Einstein, in other words, the problem with Descartes and Newton was not about science, but rather about interpretation and translation. The concepts previously thought to be invariant (e.g., distances, durations, and masses) became covariant, and a new context for invariance was devised—namely, a unified picture of space and time, space-time, which could only be grasped by the human mind allegorically or through mathematics. To put it simply, "Jewish-style" reasoning is heuristic and playful, less top-down, with language engrained into nature. There is truth, but it is less about absolutes and more about seeing the relation between invariance and covariance; furthermore, it is impossible for an individual human being alone to glimpse.[5]

Genesis

The Hook in Space—תלי בעולם

Despite naïve physicalism in the natural sciences today, the philosophical questions that underlie the various "theories" that Saadya presented in the tenth century are alive and well. Disciplines such as the cognitive science of religion and much evolutionary psychology, despite the valuable work they do, often make claims that human cognition is best explained by examining our so-called environment of evolutionary adaptedness (EEA). The term conveys not a specific place or time, but rather the general environment of selection pressures under which our ancestors lived for a broad period of time, basically corresponding to the Pleistocene. This environment was what gave rise to specific hominid adaptations (Tooby and Cosmides 1990, 386–388).

I have argued that it is myopic to focus exclusively on the hominid EEA when trying to account for something like religion. One could say SY makes the same point. Most of our cognition, even our most basic concepts (seferim), quite possibly go back to the beginning of the cosmos. From a Davidsonian perspective, as we saw in chapter 3, the beginning of the cosmos might mean when we first formed propositions. Does it make sense to say this beginning occurred all at once, in a kind of semantic big bang, or can it be traced back even further? That particular project Davidson was loath to do, but we can still try.

According to the genealogy worked out in the last chapter, we saw that it makes sense to think of communication in the context of a continuum of information. The continuum stretches from information in inanimate

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things, which is described by principles of thermodynamics, to animal information, where information is described by both thermo- and evolutionary dynamics. Animal information coincides with a primitive version of Davidsonian triangulation based in primordial behavioral primes that derive from agency. Emerging from this genesis, our first human ancestors, wayfinding using permanent fixtures in heaven and on earth, kept track of other animals' migration patterns, along with a host of other rhythms in the natural world over which they had no control. They communally composed narrative oral texts, probably musical in nature, memorializing this natural information. Once in place, the narratives were there to triangulate with. The bedrock of true shared beliefs that make natural semantics possible was there in these collective narratives before it was instantiated in any particular belief.

At that point, primitive triangulation makes way for the primitive semantics elucidated by Anna Wierzbecka and colleagues, and Davidson's four necessary linguistic concepts enter the picture (concept of truth, names and predicates, truth-functional connectives, and quantification). These new concepts allow for the decoupling of an individual's beliefs from the collective and thus for the emergence of robust triangulation. Now the idea of particular beliefs becomes possible. Truth was important for establishing the holistic bedrock of intersubjectively shared beliefs, but falsity was the key to differentiating individual beliefs from that collective.

Any particular belief in that shared bedrock may turn out to be false. Cracking through it is difficult. It is only at this moment that we can be truly surprised, in Davidson's sense, meaning a prior attitude has friction with a given situation. It is for this reason the role of the teacher is essential—not just for showing the truth, but rather for surprising the student by lifting off some of the bedrock's weight and training away the tendency to accept tradition's given truths. Once these elements are there, individualized propositional attitudes start to take more concrete shape. For some reason, at least since the last ice age, it is in the long axial period in the first millennium BCE that all over the world classes of people start to engage in this task of questioning. Most of the systems we designate as the classical religions get their start at this time, along with systematic education in science and mathematics. It is likely that, for better or worse, as Dehaene and colleagues showed, in the context of this process, minds become less logarithmic and more linear.

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The Celestial Wheel in Time—גלגל בשנה

As we saw in the previous chapter, at root there must be some organizing principles that are simply postulated by natural cosmological science. The physicist Sean Carroll thinks one candidate could be the second law of thermodynamics, which accounts for the "arrow of time" and what he calls the "Past Hypothesis": "[The reason why] the entropy of the universe was lower yesterday was because it was even lower the day before that. And this logic stretches all the way back to the origin of the universe" (S. Carroll 2010, 378).

Why is the universe like this, with an arrow of time, a past and future? Carroll says modern cosmology should be able to explain this, not just posit it. As it stands presently, he gives two answers: either we just do posit it, meaning the explanation "comes down to an assertion that the early universe simply is that way" (378), or we have to go back further and recognize that the big bang was not the beginning of the universe but that the universe is eternal. This is equally difficult for us to conceptualize, but we are not given other options. My point is that positing this background condition about the second law and the arrow of time tells us that there is a conceptual outside, a kind of surprising cosmological version of Gödel's incompleteness theorem, even in a purely physicalist explanation. In the conditions of set theory, the set—of cosmological order and disorder in this case—cannot contain itself (Zweig 1997; S. Morris 2018).

The Heart in Life—לב בנפש

The epistemological innovation in SY, surely inspired by cosmogonic texts such as Plato's *Timaeus*, was that letters and numbers were the building blocks of the cosmos. Saadya thought this was almost right but that what was missing was that these letters and numbers had a form, and this form was Torah. Over the course of the next few hundred years another doctrine began to emerge based on this position. The idea, which came to be branded as Kabbalah, was that the Torah was a code that mapped how the universe and everything in it came to be.

The code was universal and recursive, much in the way the linguist David Adger describes the simple innovation that allows for all human language, what he calls the "principle of self-similarity" (Adger 2019, 209) as a gloss on Chomsky's concept of Merge. The fractal quality of this organization occurs throughout nature: "when life or matter is organized in a hierarchical way, we see smaller structures echoing the shape of the larger

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ones that contain them" (3). It is not evolution but nature that is responsible for language: "From slime mould to mountain ranges, from narwhale tusks to the spiraling of galaxies, Nature employs the same principle: larger shapes echo the structure of what they contain. . . . Human language is also organized in this way" (3).

While Adger is interested in understanding syntax, the Kabbalists were more interested in semantics. They explained the ongoing creation of the universe and everything in it as the coming into being of aspects of personality, using a term derived from the fundamental information building block (SFR/ ספר) in *Sefer Yetzirah*: SeFiRot. Traditionally there are ten or eleven sefirot, depending how we count them, with "male" and "female" characteristics: Keter (crown, will); Ḥokhmah (wisdom, beginning); Binah (understanding or intelligence, womb) Da'at (knowledge; sometimes placed fourth); Ḥesed (love); Gevurah (judgment or power); Tif'eret (beauty or compassion); Netsaḥ (eternity or endurance); Hod (splendor); Yesod (foundation or righteousness); and Malkhut (divine presence or community) (see figure 4.3). The sefirot have a structure, which architectonically maps cosmos, divinity, and humanity all at once.

In order to build a cosmos or an *anthropos*, concepts have to be present from the very start. We may call these primitive concepts. The Kabbalists came up with different concepts from those we saw from modern linguists looking into primitive semantics, but the idea that complex concepts have to be built out of building blocks of simpler ones is the same (Goddard, Wierzbicka, and Fabréga 2014). Taking a close look at these Kabbalistic concepts, it would be hard to imagine a form of manufactured (i.e., artificial) intelligence that did not also have them. This is partly why Kabbalists entertained myths that they could build such machines, the most famous of which is the *golem* (Idel 1990). In terms of the history of our species and the development of individuals (phylogenetic and ontogenetic), we must ask when concepts like these emerged. It is more of a stretch to think like the Kabbalists, that God (in some sense), human beings, and the universe are all built out of these concepts fractally repeated, but if Nagel is right, surely some nontheistic version of this idea must be correct.

Heptapods and Tralfamadorians

In episode 1159 of the podcast *The Joe Rogan Experience*, the host talks with Neil deGrasse Tyson, director of the Hayden Planetarium. They get onto the

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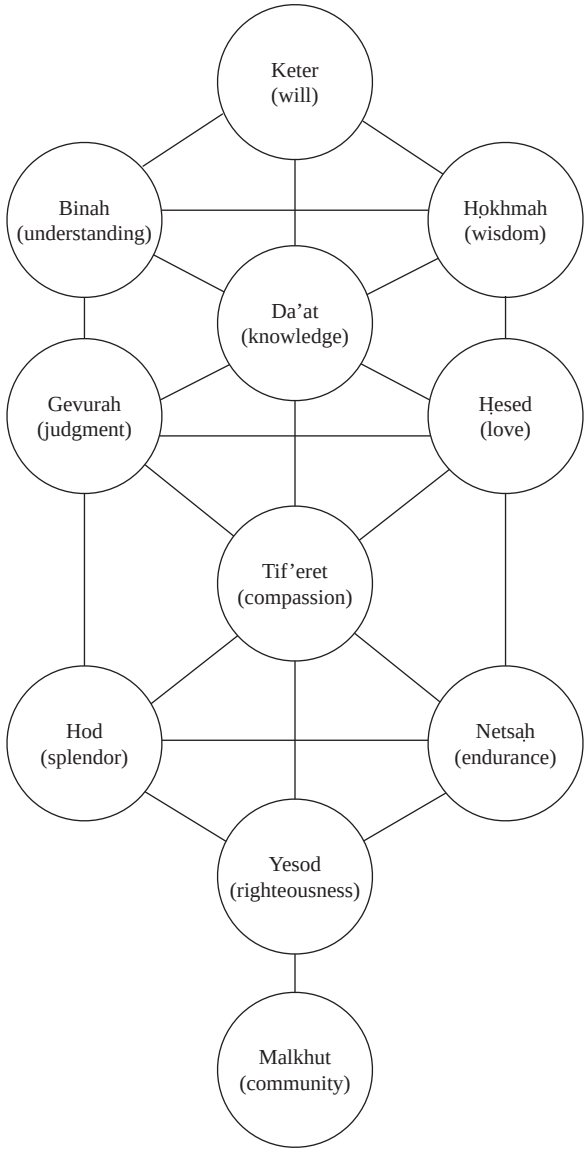

Figure 4.3
Sefirot.

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topic of the film *Arrival* (2016), based on the novella *Story of Your Life* by Ted Chiang (2016), author of the story about Hillalum and Babel mentioned in the introduction of this book. The plot of *Arrival* revolves around an alien visitation. The aliens seem to be trying to communicate with humans, but they are unable to understand. The main character and narrator, Dr. Louise Banks, is a linguist who eventually manages to comprehend them. Tyson disses the movie, claiming that if he could send scientists to talk to the aliens, he would rather send an astrobiologist and a cryptographer.

If Tyson were a humanist, he might have read the novella instead of, or in addition to, watching the film. The novella makes it clear why a linguist is necessary in this situation. It turns out that the aliens' language and physics are connected and teleological. The analogy in physics that the linguist uses to make her breakthrough is Fermat's principle of least time, that a beam of light moving from one point to another will always travel the path that takes the least time. This is true even when it moves through different media (like water). The beam seems to "know" the best path right when it starts off on its travels. Much like the Tralfamadorians in Kurt Vonnegut's *Slaughterhouse Five* (1969), who see all of time as a finished landscape, the alien language in Chiang's story is similarly teleological, where thoughts are given as a whole and word order does not matter. As Banks puts it, "The physical universe was a language with a perfectly ambiguous grammar. Every physical event was an utterance that could be parsed in two entirely different ways, one causal and the other teleological, both valid, neither one disqualifiable no matter how much context was available" (Chiang 2016, 133).

As Banks comes to learn more of the alien language, which actually is two different languages (Heptapod A and B), one spoken and one written, she comes to think differently about time. She seems to experience time as one invariant moment, one big sentence or thought in the alien language in which she can see the past and future. As Banks puts it, "Occasionally I have glimpses when Heptapod B truly reigns, and I experience past and future all at once; my consciousness becomes a half-century-long ember burning outside time. I perceive—during those glimpses—that entire epoch as a simultaneity" (141). Much as her daughter wants to hear the proper version of the story of Goldilocks from beginning to end even though she knows how it will go, or how we know how a performative ritual will go before starting, these aliens still act even though they know how things will go: "They act to create the future, to enact chronology" (137). I read these

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aliens as anomalous monists who have studied *Sefer Yetzirah*. From this perspective, the story makes sense because we already "parse" utterances in two entirely different ways, in terms of physical causes and in terms of teleological mental states. As in *Sefer Yetzirah*, information and language are embedded in space, time, and life.

The question concerning the relation between the language one speaks (or reads) and thought has been central in philosophy. The most radical answer, one brought up in the film *Arrival* but not the novella *Story of Your Life*, is known as the "Sapir-Whorf hypothesis." Though this term does not accurately reflect the views of Sapir or Whorf (and neither of them coined it), it serves as a stand-in for the idea of linguistic relativism (Scholz, Pelletier, and Pullum 2016). This is the idea that two agents—whether animal, alien, or superhuman—who speak incommensurable languages must have such different thought processes that they experience the world as radically different from one another. There can be stronger and weaker versions of this relativism concerning how much our languages affect our thoughts and experiences. In the case of *Arrival*, learning the alien language affects Banks's thoughts and experiences in radical ways. She begins to think like the aliens.[6]

As we have seen in previous chapters, taking an anomalist monist stance precludes the idea that there could be radically incommensurable languages. There are at least two reasons for this. The first is that a language by definition is translatable. If some sounds or visual gestures are impossible to translate into my language, I have no basis for saying that those sounds or visual gestures are language. Part of what constitutes language is its translatability. The second reason comes from our giving up of scheme-content dualisms. Language does not organize experience in the sense of a scheme organizing some previously unorganized content. Our allied theorists, Nagel and Kripal (chapter 3), may entertain the idea that the neutral thing beyond our dualism is precisely this unorganized thing that language comes in and organizes. From a monist perspective that gives up the four dogmas of empiricism, most notably the idea of the "given," this position cannot hold. Whatever the neutral thing (the monism of anomalous monism) beyond dualism is, it is not an organizing scheme, nor is it unorganized content, though perhaps somehow it is a mixture of both. Davidson discusses this point most forcefully in his essay "The Myth of the Subjective" (Davidson 2001b, chapter 3).

As noted in the previous chapter, animals are the original aliens. In her chapter entitled "On Reading Signs: Some Differences between Us and the

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Others" in the book *Evolution of Communication Systems*, the philosopher Ruth Millikan tries to understand the cognitive differences between humans and other animals (Millikan 2004). She concludes that one of the most characteristic differences is that "we [humans] appear to be compulsive collectors of all kinds of junk" (28). I regard most religion—and with regard to this chapter, the rabbinic conception of Torah as embodied in the Talmud—as a classic example of such meaningful "junk." This "general disposition to collect junk," Millikan thinks, does have some use. It is a necessary by-product of our propensity to "play games in our minds[,] . . . tinkering with the collected junk to see what might be built out of it that would be useful or help fulfill otherwise empty dreams" (28). Such dreams are sometimes, by luck, fulfilled, and this is where Millikan thinks their evolutionary explanation lies.

Taking a few steps back in her argument, we find that Millikan thinks human communication, though similar in almost every respect to communication in other animals, is especially different in the way that learning takes place; in particular, what differentiates human learning routines is that our "representations" can be "open-ended" (23), meaning not dictated by innate and specific programming, nor "learned according to built-in triggers" (22). While mammals in general exhibit fluidity in this respect, reflected in the fact that mammals tend to play more than other animals, human mammals seem particularly invested in play, specifically linguistic and mental play. As the fictional William of Baskerville claims in his quest to find Aristotle's lost book on comedy, this type of play explains the fact that humans are probably the only animal we know that can laugh at a joke (Eco 2014, 211, 527). Humor is perhaps the most human thing.

As it applies to the questions of this chapter, of course, religion—and rabbinic Judaism, which I have taken as an exemplar—can be understood as quite serious. Fear, as opposed to humor, is an important part of education. When we are afraid, life becomes more salient, and amygdally dependent animals like us freeze, flee, or fight (usually in that order); if that does not work, we "play dead." In humans, the order also depends on personality (Bracha 2004; Rupia et al. 2016). The fear can be used to induce specific and probably very ancient routines in humans. Fear is indeed a core motivator in traditional education systems, like the one built around Torah. "You shall fear your god" is repeated seven times in the Hebrew Bible (Lev. 19:14, 19:32, 25:17; Deut. 6:13, 10:20; 2 Kings 17:36, 17:39).

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Humor and Memory

The production of the Torah should be situated in the historical context of other developments happening globally in the first millennium BCE, a period when the core institutions of most of the major world religions formed, sometimes called the Axial Age. The term has been controversial as a description of this period because it makes it seem as if some radical transformations took place quickly, when instead most of the changes seen in this period were gradual and are still with us (Bellah 2005, 2011). The term also has a tinge of Eurocentrism because it is often assumed that Europe is the main heir to those developments.

This is not true. For example, alphabetic literacy, which was invented in Western Asia following thousands of years of development (see G. Levy 2014), spread throughout Asia and Africa. Written language continues to develop or possibly evolve into the present day. Whether in alphabetic or other forms of literacy, one trend that really got going about 3,000 years ago is education systems—that is, *school*. These systems were usually reserved for the wealthy or kept controlled as technologies for specific guilds (scribes, priests, and monks of various sorts). Nevertheless, this is the period when education began to be systematized and technologized, the period when human beings started reflecting on the best ways to learn. During this period, human beings, as far as we know, started thinking about thinking; but far more importantly, we started learning about learning.

One way to learn is by rote memorization. In contrast, some education systems used dialogical performance as a good way to learn—for example, in the Platonic Academy. Other systems found that creating interesting narratives was the best way to learn. Games were recruited for all these purposes. As education systems became more adept, and especially now, teachers have come to realize that play, fun, and humor make a far better platform than fear for education.

Though humans appear to be the only species that make jokes, there are deeper continuities with other species. In the same book as Millikan's essay, Robin Dunbar argues that laughter emerged as a form of social grooming in human beings (Dunbar 2004, 271). Dunbar is famously known for his social explanation of language. That is, language emerged in sync with the growing size of human groups, replacing grooming in primates. Our primate relatives tend to have smaller trust networks. Dunbar has argued that

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our cognitive power and the size of our neocortex grew together in order to keep track of more numerous intimate relationships (259). It thus enabled human clans to grow such that most of us have a maximal intimate network of about 150 people.

Dunbar finds that laughter was important in this story because it is one of the main means by which we bond with one another socially in the absence of physical grooming. The increased cognitive ability is not so much about memory, he says, but mapping relations—that is, "the manipulation of the animal's knowledge about the state of a given (dyadic, perhaps even triadic) relationship, and how this is updated in light of the continuous flow of information about social events that an animal receives" (259). Language is more efficient because we can speak to (i.e., "groom") one another while doing other things, with multiple people at once, and relay information about nonvisible social events and people (i.e., gossip) (261).

Dunbar thinks musical chorusing and communal singing were intermediate steps between nonhuman animal vocalization and human speech (261–262). The bridging of the gap, he argues, did not take place all at once but was probably gradual and should be seen as "the culmination of a process of increasing diversification of social bonding mechanisms based on natural forms of communication" (263). In the next phase he thinks laughter is a better candidate than smiling as an elicitor of prosocial endogenous endocrines (mostly naturally produced opioids and oxytocin), because whereas smiling in our closest primate cousins mostly signals fear, laughter is morphologically related to "the facial expressions given by chimpanzees during play ('round open-mouthed face, or ROM')" (264).

But joking in humans came to rely increasingly on our special social cognitive capacities. Dunbar argues, "Jokes commonly depend on creating surprise either by the outcome or through a play on words (by exploiting our ability to comprehend metaphor or double meanings)" (269). We saw in chapter 3 that for Davidson surprise is essential for attributing propositional content to rational creatures, and that for Friston it may also be central to the economy of free energy in any self-organizing system. For Davidson, only animals that can be truly surprised should be considered candidates for semantic thought. So Davidson the anomalous monist philosopher, Friston the neuroscientist, and Dunbar the evolutionary psychologist all point to surprise as a key to human cognition.

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Humans, as noted, seem particularly good at recursion, at embedding cognitive chunks within other chunks. This same ability applies to intentionality. Dunbar notes that joking often involves multiple layers of such recursion. Each new embedding can be thought of as one "order" of intentionality. Dunbar and his colleagues have found this ability relates to his arguments about the size of human groups—basically our ability to keep track of social relations—but it also relates to our ability to tell good jokes. Thus, "whereas chimpanzees can, at best, only aspire to second-order intentionality, humans can habitually cope with fourth-order intentionality" (269). He thinks two orders would be plenty for "parsing speech and comprehending the factual meaning of utterances," so the additional two orders must have something to do with "understanding metaphor and hidden meaning" (270).

Indeed, these extra recursions, apart from telling jokes, perhaps more importantly help embed jokes in larger chunks—namely, narratives. It is likely that entertaining narratives, both in the form of gossip about members of one's community, including members who no longer exist, and gossip about "fictional" agents we have relations to, such as superhuman agents, were the main vehicle for the new forms of grooming that Dunbar speaks about. These "myths," perhaps in musical or at least rhythmic form, were precursors to human language as we know it and likely followed the period of communal singing Dunbar notes.

The Religion of Joe Rogan

If information is part of nature, so is comedy. At its core, the human relation to nature is comic. The human predicament in nature leads us to conventional thinking, while comedy provides a platform to cut through these conventions, to see the "true" nature of things. Humor emerges in incongruencies where we notice certain truths and falsities. These truths and falsities are entertaining in part because they are surprising.

The communal singing that once provided the platform for thought and language now occurs mostly on the Internet. My fifteen-year-old son even argues that the school education system is outdated because of it. At the present time in the early 2020s, we have had the Internet for a number of years now. Mine was the last generation born before the birth of the Internet. I went to college in the 1990s at Dartmouth in New Hampshire,

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which was one of the first nongovernmental institutions to "plug in." In the beginning, we mostly used it for email, even though the term "email" did not exist at the time. Ever so gradually, the Internet got bigger and more useful. Presently, one of the most common uses for it is listening to podcasts and audiobooks. It is easier to listen than to read written texts. This provides the context for one of the most popular media personalities, Joe Rogan.

As Devin Gordon, writing for *The Atlantic*, points out, Joe Rogan is immensely popular, but mostly among men (Gordon 2019). Donald Trump even tweeted that he wanted Rogan to host a presidential debate between him and Joe Biden (8:43 a.m. EST, September 14, 2020). Playing off the immense, religious-like appeal of Oprah (Lofton 2011), Rogan is referred to as the Oprah for men, or "Broprah" (see hashtag #Broprah). Gordon thinks he fills a gap as a relatively good role model for men in a time when masculinity is under pressure. Though he focuses on the USA, speaking from personal experience I can say many men all over the world regularly listen to and watch the Rogan show. There has not been a sociological study of this phenomenon yet, but there surely will be. One productive way is to understand Rogan as an unlikely teacher, guru, or role model.

The Joe Rogan Experience show, recently purchased by Spotify, has helped launch a number of online careers. Those include hard-nosed scientists like Sam Harris and firebrands like Jordan Peterson and Gad Saad, but also comedians like Duncan Trussell. In episode 317 of Trussell's podcast, *The Duncan Trussell Family Hour*, Tony Hinchcliffe, another comedian who got his start through Rogan, discusses with Trussell the recent explosion in the popularity of stand-up comedy. Trussell goes on a long riff playing with the idea that the Comedy Store in Los Angeles is something like a religious temple. In this temple, there is an initiatory system to become a performer. The induced laughter, which as Hinchcliffe says is the sound we make when we are "childishly surprised," is like religious chanting; it even sounds similar. Trussell says the comedian is like a shaman who "channels honesty," and just that is enough to make a wounded person walk out and say, "It's OK to be human." The two then get to a discussion of Rogan, "one of the lead warlocks at the temple." They both regard him as a master who teaches them to open their eyes wider. But just as the Comedy Store does not know it is a temple, Rogan does not know he is a "mystical teacher" (Hinchcliffe 2018).

While all "honesty" probably involves a great deal of dishonesty, we can say stand-up comedy is the performance of a particular type of surprising

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honesty. The theme of honesty runs through Roganworld in a number of ways: in terms of (1) psychedelic drugs, (2) mixed martial arts, and (3) speech.

The first connection to honesty concerns psychedelia. The narrative is that when one does psychedelic drugs one is opened up to parts of one's mind that were previously more controlled. Under the influence of the drug we have less control over our thoughts, which makes them potentially dangerous for individuals who already have trouble controlling their thoughts, such as people who suffer from schizophrenia. Paradoxically, this can also be dangerous to people who are *overly* controlling about their thoughts, who often live in strong forms of denial.

A good example of someone overly controlling is Richard Dawkins. In *The Joe Rogan Experience* episode 1366, in a conversation that centered on religion, Rogan broaches the question of psychedelics with the famous skeptic. Dawkins admits he has never tried them. He goes on to say, "I've been offered to be accompanied on the trip by a very nice woman friend and I've never so far dared take her up on it." When Rogan asks why, Dawkins answers that it is because he is afraid of having a bad trip:

> I asked advice of a cousin of my father, who just recently died who was a major expert on psychedelics, and I think he was the one who introduced Aldous Huxley to mescaline, for example, and he judiciously advised against. He said the horrors of a bad trip were so awful that he wouldn't advise somebody to go into it. My friend who's offering me this trip says it would be a relatively low dose and she would take another low dose so she could kind of accompany me and stop me jumping out a window or anything. (Dawkins 2019, 15:56–16:53)

Since we all are somewhere on the overly controlling spectrum, there is the potential for anyone to have a bad trip, and some a horrible trip. A horrible trip, as Rogan says, is when one tries to control the drug rather than letting the drug control you and accepting what it shows you. Some of the things you see might be paranoid fantasy and illusion. But as Rogan says, he likes to be paranoid. He sees it as a mental exercise, a way to challenge his mind and grow from it. Some of the paranoia is real, and one must look at it. So it is not that psychedelic drugs take us to a whole other reality. The point is that there is one reality, but we do not want to see it. This is the first sense: psychedelic honesty, in Roganworld. The problems of rationality such as weakness of the will and compartmentalization of the mind that we saw in previous chapters as so central to religion—these rigidified patterns of thinking and acting—get loosened up by psychotropic chemicals (Smail 2007) acting on our bodies and our brains.

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The second form of honesty is physical. Mixed martial arts is exemplary of the idea that there are physical differences between organisms in nature. Unlike aesthetic martial arts, which are more like choreographed dancing, mixed martial arts is just what the name says: a combination of all the known forms of hand-to-hand fighting. There are almost no rules in mixed martial arts, though there definitely are some, such as no attacking the genital or eye areas, and there are special rules when the opponent is already on the ground. In this way, it is right to describe it as the "purest" professional form of fighting; the closest to a street fight (Howley 2014). As Rogan repeatedly emphasizes, one of the ways to make this form of fighting even more honest is with weight classes. This is because even a bad heavyweight fighter would most likely have little trouble beating a much better (in terms of pure skill) lightweight fighter. These physical differences make a lot of difference. The point is that in contrast to rigidified institutional patterns and structures that are abstract and disembodied, this form of fighting is physically honest. The better fighter usually wins, even though anything can happen in a particular fight. The only advantages are meant to be in skill, strength, and preparation. Some of this ideology we already saw present in the book and film *Fight Club* (Palahniuk 1996).

The third form of honesty involves speech. There has been some debate about whether stand-up comedy is about the truth. For example, Jerry Seinfeld claims it is not, not about "real life" (Amira 2018). Rogan, by contrast, thinks it is. But even the observational style that Seinfeld made so famous relies on noticing incredibly mundane things; his comedy transforms these mundane experiences into something surprising and thus funny. Part of the idea behind the comedy in Roganworld is its libertarian stance toward free speech; it does not tolerate any form of censorship. The more than a thousand interviews done on *The Joe Rogan Experience* are part of an effort to get to the truth. One gets to the truth through conversation with smart people. Though Rogan leaves much of this truth up to the people listening, there are some metaphysical postulates that emerge from the long discussion.

Apart from the comedy, there is an implicit monist metaphysics in Roganworld that is sometimes made explicit. For Rogan, everything is natural; there is a mind-body connection, but thoughts are also real. In this sense, the metaphysics looks close to Nagel or even Davidson. One of the narratives he returns to over and over is the idea that human beings are a kind of technological butterfly who will usher in something like Ray

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Kurzweil's singularity. For Rogan, technology should be understood as a perfectly natural outcome of the universe. Despite the close interrelation between mind and body, Rogan's discourse rarely if ever reduces mental to material. He is not a reductionist in that sense, possibly something he learned as a result of his many psychedelic experiences.

Rogan notoriously played a conspiracy theorist on the fictional sitcom *News Radio* (NBC USA, 1995–1999). Similarly, *The Joe Rogan Experience* is an outlet for all sorts of wild speculation and conspiracy thinking. But this is also balanced by skeptical thinking and a wide variety of popular science discussions. Rogan's tendency is to entertain almost any idea that guests on his show express, but his own opinion is usually evidence based. He has a great deal of respect for the scientific method and defers to scientific experts when conversation gets beyond his capacities.

As far as religion is concerned, Rogan is an atheist, or more accurately an agnostic. He seems quite skeptical of all institutional forms of religion, though he is adamant that there are things we do not know and is clearly open to the idea that psychedelic experiences represent a kind of window to reality that most people cannot see while sober. Generally, however, religious ideas on the show are not taken seriously, and religion is regarded as a ruse for some people to gain advantage over others.

I began this chapter emphasizing the necessity of triangular learning between teachers and students for Davidson's notion of semantics to carry content. I described how education in mathematics changes the way we conceive of the relations between number concepts. Human cognition is a deep historical adventure involving the interaction of a living biological code with the routinized and rhythmic patterns of human culture through space and over time, along with our interaction with immaterial ideas and concepts, some of which we invent and some of which we discover about the universe. The communally instituted myths that formed the bedrock of meaning-making get radically resituated once humans begin to systematically educate and thus alter our own cognition. We start to discover and manipulate the building blocks that shape mind and cosmos, and we vie over the power that comes with it in the form of a mental arms race. This was the reason that rather than letting Aristotle's treatise on comedy get into William of Baskerville's hands, the monk Jorge in Eco's *The Name of the Rose* commits suicide by eating a poison-laced copy of the book. He does so because he believes comedy poses a challenge to his religion. In such a

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way comedy seems always to represent an antidote to rigidified structures in mind and cosmos.

To summarize the takeaways of this wide-ranging chapter, I have argued that if Davidson is right, language and thought (in his sense) break us free from determinism. Meaning in language does not derive simply from teleological goals but rather from improvised triangular interaction. Anomalous monism upholds the paradox that physical descriptions of nature are law-bound (nomalous), while mental descriptions of nature are anomalous. The physical sciences tell teleological stories about causes and functions, whereas minds are not predictable or determinate, even though they show regularities that make them predictably irrational (Ariely 2008). Narratives, too, are teleological: the story of your life has a beginning, a middle and an end; it has an arrow of time.

Phenomena, like humor, that have surprise at their root (Kant 1951, I, I, §54)—and if Davidson is right, thoughts in general—hold apart from the physical in their global supervenience, despite every mental event being identical to some physical event. In the context of the deeply shared evolutionary background of our species, the content of thought emerges only through education into a human community. Such education builds different shapes—curves and lines—of thought. The narratives provide the base that we break out of in moments of surprise, creating our own personal identity. A very ancient theological question taken up in texts such as *Sefer Yetzirah* has been how one can have freedom in a law-bound universe. Davidson's answer, like Carroll's, is that we just do; we have to if we want to see the thoughts of others independent from our own.

Ironically, Roganworld has many aspects similar to religion. Though women are part of the fanbase, I think it is fair to say that this is a religion for people who identify as men, or perhaps more accurately a religion of a certain type of masculinity. There are repeated myths and encouraged practices—all given with the wink of a comic, a kind of Zen move that says in the end the core of things is ultimately absurd and comical. Rogan is an example of a teacher who mediates communally instituted myths in a creative, comic mode. If Joe Rogan is a warlock in a comedy temple in Hollywood, the broader religious media landscape is the subject of the next chapter.

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